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Maital, S., 1973; 'Public Goods and Income Distribution', *Econometrica*, Vol. XLI, May, 1973.

Chakravarty, S. 1987; *Development Planning: The Indian Experience*, Clarendon Press, Oxford, 1987.

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4. For a critique of recent industrial policy proposals, see Marshall [Marshall, 1983, pp. 281-98].

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DEVELOPMENT PLANNING: THE INDIAN EXPERIENCE

Sukhamoy Chakravarty

The paper reviews Indian planning experience in the first six plans. The Second Plan constitutes a major watershed. It was primarily a strategy of industrialization and, compared to the First Plan, there was a relative de-emphasis on agriculture. Among the priorities of the Third Plan, agriculture had the first place; but the planners were grossly over-optimistic as to what traditional Indian agriculture could do. This was corrected in the Fourth Plan which emphasised technological modernization of agriculture. In the Fifth and Sixth Plans, there was another shift in emphasis, now, from the earlier so-called heavy industry bias, to a strategy centering around 'food' and 'fuels'. At the beginning of the Seventh Plan, India found itself in a deep 'fiscal crisis' which had been growing over the years and which today is deeper than ever before. Neither free market nor central planning would carry much conviction today. The need now is for a degree of political consensus on what is attempted from which India benefited in the first decade. No facile conclusion is warranted.

THE NEHRU ERA

When the planning process was initiated in India, there was a legacy of pre-independence debate on India's development problems. This debate centred around the Gandhian approach at one pole and the 'modernizing' approach of Nehru at the other. The Gandhian approach has never been seriously discussed by either mainstream economists or by its left-wing critics. There are good reasons for this neglect as both sides share fundamental propositions regarding the way one should view the central problematic of development: more goods are preferred to less and a higher level of capital stock per worker has been considered unambiguously helpful in improving the standard of living. In contrast, the Gandhian approach envisioned voluntary limitation of wants, self-reproducing village communities, and a better balance between man and nature. The modernizing school under Nehru won the day as their 'scientism' seemed more compatible with the ideological priorities involved in building up a post-colonial nation-state. The first three five-year plans, which bore the personal imprint of Nehru, and especially the Second Plan, which reflected a major watershed in India's economic thinking, are especially important as attempts at giving concrete shape to the vision of transformation, social and economic, to which the modernizing elite subscribed.

There is little doubt that, as a modernizer, Nehru was rather heavily influenced by the ideals of Fabian socialism. In the famous pamphlet 'Whither India' written in the thirties, he had talked in favourable terms about Soviet socialism much as the Webbs did. Undoubtedly, there was a certain homology between the Soviet economic situation in the twenties and the Indian situation in the mid-fifties. But, the homology did not extend to the political situation. Unlike the Russian revolution, the Indian independence movement and the subsequent transfer of power did nothing significant to curb the pre-existing power groups; large capitalist combines, rich landowners, and a very powerful middle class. What they did do, and this is not unimportant, was to curb their potential rate of expansion in a newly independent country. Nehru sought to forge a more complex relationship with these groups involving elements of strategic support as well as restraint. There was a tolerance towards income inequality provided it was not excessive and could be seen to result in a higher rate of growth than would be possible otherwise. Nevertheless, Nehru was not a growth-maximizer in any sense of the term. A satisfactory rather than a maximum rate of growth would correspond more closely to what he had in mind.

The basic constraint on development was seen as being an acute deficiency of material capital and the speed of capital accumulation was seen

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Chakravarty was a Professor of Economics at the University of Delhi and the Chairman of the Economic Advisory Council of the Prime Minister. He died prematurely, at the age of 56, on August 22, 1990. With the Indian School of Political Economy, he had a special relationship: he was a founder Fellow of the School.

Development Planning: The Indian Experience (Oxford University Press, 1987) is probably his last major writing and presents his distilled experience of Indian planning with which he was personally involved as a member of the Planning Commission during the 1970s. I had requested him to prepare a paper based on his book for this Journal. He had agreed but suggested that I prepare the draft and send it to him to finalise. Unfortunately, he could not see the draft. In the circumstance, the responsibility for selecting and editing the material for this paper is solely mine. I am grateful to Professor (Mrs.) Lalita Chakravarty for permission to publish it in this Journal - V.M.Dandekar.

to be limited by the low capacity to save. Further, it was assumed that even if the domestic capacity to save could be raised by means of suitable fiscal and monetary policies, there were structural limitations preventing conversion of savings into productive investment. Under the circumstance, if the market mechanism were accorded primacy, it was feared that it would result in excessive consumption by the upper-income groups, along with relative under investment in sectors essential to accelerated development of the economy. Hence, it was felt that the basic questions of how much to save, and where and in what forms to invest could be best handled with the help of a Plan. The Indian planners subscribed to a basically supply-side view of the planning problem and never considered domestic demand as a possible constraint. Presumably, they believed that, with an active state policy on investment, all possible slack in the economic system would be utilized and that, therefore, what mattered most was growth in the aggregate investment.

The first three five-year plans were successive in time, together spanning a period of fifteen years, and were all formulated under the active chairmanship of Jawaharlal Nehru. From a purely analytical point of view the First Five Year Plan (1950-55) was not a plan in the sense of constituting an internally coordinated set of investment decisions. It focussed investment on the obvious, namely, infrastructure and agriculture. In contrast, the Second Five Year Plan (1955-60) was founded on a well articulated theoretical rationale of what may be called the Nehru-Mahalanobis strategy of development. It was primarily a strategy of industrialization and in this respect it seems to have worked, at least for a time. A great deal of diversification within the industrial structure and a significant upgrading of the skill base of India's population was achieved. The rate of growth of industrial production was impressive. The general index of industrial production rose from 139 in 1955-56 (1950-51 = 100) to 194 in 1960-61 and the machinery index, which was 192 in 1955-56, increased to 503 in the corresponding period. Considerable, though less spectacular, growth was observed in iron and steel and chemicals. However, a very discordant note was struck by cotton textiles which rose from 128 in 1955-56 to only 133 in 1960-61. Even after allowing for differences in the base lines of different industries as well as differences in coverage, these figures seem to indicate disproportionate growth of the heavy industries sector which was more striking than the planners may have initially bargained for.

The strategy of the Second Five Year Plan aimed at building ahead of demand in the area of capital goods production and deviated from the 'textiles first' strategy of industrial development followed by a successful late-comer in industrialization like Japan. Mainstream economists found this an unjustified departure from the principle of 'comparative advantage'. The issue was posed at the time the Second Five-Year Plan was formulated. A projection of the balance of trade was attempted in the plan document and the planners concluded that no significant increase in export earnings in the short run could be expected. What could have been the basis for this short-run export pessimism? Even if demand for primary products were assumed to be strongly inelastic, there was obviously a major manufacturing sector which India could have developed for export purposes - cotton textiles. Planners expected the export of cotton piece goods to increase from 747 million yards in 1955 to 1,000 million yards in 1960, not a spectacular increase considering that the country had exported 867 million yards in 1954. Looking back, it would appear that India could certainly have placed greater emphasis on the cotton textile sector. There may be different explanations for this neglect. One was the Gandhian legacy which viewed the textile sector as pre-eminently suited to small-scale initiative. In the context of employment generation, Mahalanobis too assigned an important role to the highly labour-intensive part of the textile sector. This precluded a fast rate of growth in a modern textile industry.

The argument, briefly, was as follows: The development of a heavy capital goods base over a period would lead to the diversification of the export basket in the direction of manufactured goods, including machinery and equipment; while the increase in employment leading to an expanded demand for consumer goods would be

met by pursuing 'capital-light' methods of production. That this would not enable India to be competitive in the world market for textiles was considered to be a short-term adjustment problem.

Those who were impressed by the Soviet model of industrial development thought that the avowed priority for the capital goods sector corresponded to the logic of accumulation enunciated by Marx in his models of expanded reproduction. It now seems that the Mahalanobis model went too far in emphasising the primacy of the capital goods sector irrespective of initial conditions and social valuation of consumption at different points in time. Most importantly, if the inability to employ more people productively depended as much on the absence of suitable 'machines' as on the shortage of 'food', the workability of the model depended on an adequate and effective policy frame for agriculture which was absent from the Second Five-Year Plan.

A modern capital-intensive industrial sector was to be created, side by side with private agriculture, with the continued functioning of a private industrial sector confined to relatively labour-intensive, light consumer goods. There was, therefore, an assumption of a mixture of industrial motive forces which were supposed to act in a synergistic manner. As it happened, the needed increase in the production of consumer goods did not materialize. This posed a serious problem especially in regard to food grains and cotton. Furthermore, while it was expected that the cost of production of capital goods would gradually diminish, this did not happen either. Of more immediate concern for the planners was their underestimation of the imports needed to achieve the process of transition to self-reliant growth. The process of industrialization had ignored certain important issues relating to the phasing of investment outlay. They thought that the problem could be surmounted if suitable foreign assistance was available for a period of ten to fifteen years.

There is no doubt that, compared with the First Five Year Plan, there was a relative de-emphasis on agriculture in the Second Five Year Plan; this was so in terms of investment allocation ratios, both planned and realized. The planners were aware that major institutional changes were required in order to realize the production potential of agriculture, but they did not realize the nature and dimension of political mobilization that would be necessary to bring about the necessary institutional changes. The Second Five-Year Plan document included a very well written chapter on 'Land Reform and Agrarian Reorganization' which went beyond the mere enunciation of a redistributive strategy for land to the articulation of what could form the basis for a progressive agrarian structure. It is on this latter dimension that hopes were placed for bringing about the envisaged increase in agricultural output particularly by those who, like Nehru, saw co-operative farming as the ultimate solution. These people believed that the proposed programme of community development and national extension would constitute an essential catalyst in this process along with irrigation financed from public budgets.

Among the priorities listed in the Third Five Year Plan, agriculture had the first place but without much change in the agricultural strategy of the Second Plan. The planners were grossly over-optimistic as to what traditional Indian agriculture, with its conventional input-output basis and deep-seated social stratification, could do within the constraints set by the political changes which the Congress Party was able to engineer. In fact, the planners' strategy boiled down to the traditional thesis, upheld by several contemporary scholars of economic development, that during the early stages of industrialization it was necessary for agriculture to contribute to the building up of a modern industrial sector by providing cheap labour and also cheap food. Along with increasing productivity, this in turn would help in maintaining a low 'product wage' in the industrial sector. The relationship between maintaining a low product wage and a high level of accumulation was assumed to be strictly positive. While this whole sequence of reasoning was not explicitly stated in any plan document, it can be deduced as a corollary from many contemporary discussions. In an attempt to explain why it was wise on India's part to go into an agreement with the United States

on the large-scale import of food grains under PL480 (which enabled food grains to be imported, largely against payment in rupees and partly as a gift), Dr S.R. Sen, stressed the great importance of maintaining a 'cheap food regime' for promoting growth in India. Properly elaborated, Sen's thesis would not be different from the logic given here [Sen, 1962].

The disincentive effects of specific commodity imports on such a large scale were raised at that time only to be dismissed by the official response that, with sufficient increases in the level and the rate of public investment, there was an assured prospect of rapidly expanding home markets for principal commodities such as wheat, cotton, and edible oils. Things did not work out quite that way. Indian planners had underestimated the time lags involved on the production side in industry as well as the need to bring about a large-scale shift in the input-output ratios in traditional agriculture. However, through PL 480 imports as well as through irrigation-induced increase in food production, they succeeded in maintaining a low rate of price increase (around 2.5 per cent per annum), which helped to maintain a sort of social equilibrium in the urban areas. Social peace was further promoted by rapid increase in urban employment. Meanwhile, there was not much evident sign of unrest among the peasant classes as the expansion of the area cultivated even under traditional technology had led to a non-negligible increase in rural incomes, at least in major agricultural states such as Punjab, Andhra Pradesh, and Tamil Nadu. Uttar Pradesh, the largest state, which did not show any significant increase in agricultural production nevertheless benefited from certain land reform measures, such as the abolition of intermediary tenures.

Distributional Aspects in the First Three Plans: It is sometimes maintained, and with some reason, that Indian plans have ignored issues relating to the distribution of incomes; 'with some reason', because the central analytical models pertained largely to issues relating to capital accumulation under conditions of structural backwardness. In the Third Five Year Plan, whose first chapter, 'Objectives of Planned Development', distributional considerations were emphasized: "The essential problem here is to reduce the spread between the higher and the lower incomes and to raise the level of the minimum." However, there was no clearly laid out strategy which could be expected to raise the 'minimum level', at least not one that could match the industrialization targets articulated with great eloquence in the first two plans.

How can this be explained? If we recall the state of development theory which prevailed around the mid-fifties, it will become quite apparent why distributional statements tended to be qualitative and vaguely centred on issues of institutional change. This is because all the models used operated under the postulate that 'accumulation + consumption = production', ignoring the fact that there are certain types of consumption which are quite close in character to accumulation. They ignored the possibility that, with substantial labour surplus, the redistribution of consumption with an unchanged total could lead to an increase of capital stock and also to an improved labour productivity. Thus, the distribution of consumption was seen as a subsidiary issue. Pride of place in plan formulation was given to the question of present-future choice. The crucial variable in the whole exercise was the time needed to equip the economy with a large enough capital stock higher than would be possible by direct attempts at redistribution.

Can this be described as what later came to be called a 'trickle-down' strategy? The answer is 'yes and no'. 'Yes' because it promised an improvement in the consumption level only as the end product of a process of accumulation. 'No' because it did not require that any particular income group had to be specially treated. There was no necessary presumption that a high income stratum was necessary because it served an important role in the accumulation process. It was believed that a sharp increase in the size of the public sector financed by initial savings out of taxation would tend over a period to socialize a greater proportion of the flow of current incomes through increased production and productivity of the public sector. Along with a steady growth in the productivity of agriculture and in small and village industries, fuller employment at an adequate wage level could be reached, sooner or later.

Difficulties with the implementation of such a

strategy were quite considerable in the context of India's mixed economy, a point perceived neither early enough nor adequately enough in the planning process. The model failed as a redistributive device because the initial distribution of income-yielding assets such as land was very unequal, and the state had very few instruments of control to siphon off rising private incomes into additional public savings. It is true that marginal tax rates on non-agricultural incomes were very high, but they did not produce the desired result. Suggested reforms, such as the 'expenditure tax' as modified by N. Kaldor to suit the Indian condition, were never given a serious chance.

The situation became worse because the expectation that a rapid build-up of publicly owned capital stock would channel an increasing proportion of surplus flow into public coffers did not materialise; partly because of the inefficiency in setting up and running these enterprises and partly because the government was not clear about the objectives of the public sector. In fact, much of the early discussion on public sector pricing policy was based on the idea that the public sector ought not to make profits.

It was evident by the early sixties that something was seriously wrong on this question. A committee was again set up under the chairmanship of Mahalanobis to look into the question of whether the 'level of living' had improved or deteriorated as a result of planning. The report came out with the Scottish verdict of 'not proven', and Pitambar Pant was instrumental in setting up a working group which was supposed to look into the question of raising the minimum level of living. Helped by Pant, this working group, which comprised such eminent personalities as the economists D.R. Gadgil, B.N. Ganguli, P.S. Lokanathan, and V.K.R.V. Rao, the politicians M.R. Masani and Ashoka Mehta, and others, came out with a set of recommendations on the 'minimum level of living'. The committee made a recommendation to distinguish between public consumption such as housing and education, which was to be financed by the state directly, and private consumption which was to be met by an individual's income. Calculated at 1960-61 prices, the basic minimum was to be no less than Rs 20 per month on a per capita basis for rural areas and Rs 25 per month for urban areas.

Pitamber Pant went ahead with working out the possibilities of achieving this target in quantitative terms in an internal document which was prepared by the Perspective Planning Division of the Planning Commission. This document was doubtless a remarkable one for its time. As early as 1962, it worked out, in a rough and ready way, the options available. It came to the conclusion that 'some degree of inequality in incomes is thus an essential part of the structure of incentives in any growing economy' and that the distribution of income amongst the upper 80 percent of the population in 1975 'may not be very different from the present pattern'. The lowest 20 percent were excluded because they were not likely to be affected by the growth process and had to be taken care of by means of 'transfer payments, etc.' It was estimated that an average annual rate of growth of 7 per cent per annum sustained over the decade 1965-75 was needed in order to give the poorest three deciles a nutritionally adequate diet. In arriving at this estimate, it allowed for a base year national income figure for 1965-66 of some Rs 90,000 million (at 1960-61 prices), as well as for a slight increase in inequality. However, because of the disastrous harvest failures in 1965 and 1966, the base level assumption turned out to be way off the mark and details of this particular exercise were almost completely forgotten even within the Planning Commission. The document was never officially published but an edited version was printed in the mid-seventies in a non-official publication after an Approach document prepared for the Fifth Five Year Plan had for the first time put the problem of poverty eradication in the foreground of political discussion [Bardhan and Srinivasan, 1974].

NEW AGRICULTURAL POLICY CHARACTERISTICS AND CONSEQUENCES

There were two major exogenous shocks which upset the general optimism about Indian growth. These were the sharp increases in defence spending after 1962, and the two successive monsoon failures in 1965 and 1967 with catastrophic declines in food production. The first shock led to severe cut-backs in public investment, putting the 'acceleration principle'

into reverse, and leading to the emergence of significant excess capacity in the heavy and capital goods sectors. The sharp cut-backs in public investment inevitably dampened the economy and led to reduced demand for a whole range of products produced by the private sector. While the immediate impact of the disaster on the food front was mitigated by additional large-scale imports of US wheat, it was quite clear that a basic imbalance had arisen between the demand for food and the supply of food, which was the combined result of acceleration in the rate of population growth, exhaustion of the possibilities for increasing the cultivated area, and the diminished effectiveness of regional crop specialization.

The government's response was to abandon the method of five year planning in favour of annual plans. A draft Fourth Five Year Plan was abandoned in 1965-66. In its place, annual plans were introduced to retain a very limited amount of development orientation in the annual budgets. There was no attempt at any methodological innovation in these plans, but the 'annual plan' period was significant for two reasons. First, annual plans brought out into the open one of the major weaknesses underlying Mahalanobis's strategy, namely, the idea that what was physically possible and desirable could also be rendered financially feasible. While there was always a powerful group within the government which did not agree with this view, especially within the Finance Ministry and to a much smaller extent within the Planning Commission, they had a rather simple quantity-theoretic view of price level dynamics. But the experience of inflation in the mid-sixties, coupled with the government's reluctance to step up investment lest it triggered inflationary price expectations (in spite of the existence of significant excess capacity in the equipment goods sector), brought home the lesson that the problem of how best to finance a plan required very careful attention.

Second, to overcome the 'agricultural stagnation', a new strategy of agricultural development was formulated during the 'annual plan' period and carried over into the Fourth Five Year Plan which was finally adopted in 1969 under the intellectual leadership of D. R. Gadgil. The new policy marked a notable shift in the perception of what constituted the crucial constraint in the agrarian sector. Earlier theorizing had maintained that it was basically the absence of knowledge of appropriate agricultural practice, along with an obsolete social structure, which prevented increases in agricultural production. Land reform was considered very important, at least in principle; in practice the issue was largely evaded. The new strategy seemed to deny the critical importance of land reform even in principle. Instead, emphasis was shifted towards technological modernization. It was also openly admitted that it was essential to 'bet on the strong' if the rate of growth of agricultural production was to be revived.

The new strategy seems to have had a very impressive effect in the case of wheat, but it is not possible to discern a similar effect on other crops, at least in the earlier years; and, even with wheat, the impact was most pronounced in states already well endowed with such infrastructure as adequate roads, market towns, co-operative credit societies, and above all, good irrigation coverage. It also led to certain irreversible changes in the economy which pose problems for the future of Indian planning.

First of all, there was an increase in the use of purchased inputs in the agricultural sector which meant that agriculture-industry linkages were now two-way to a much greater extent than ever before. This meant that while the input flow from agriculture to industry could be expected to continue, the need to ensure flows from industry to agriculture could no longer be ignored. Secondly, the monetization of Indian agriculture increased drastically as a far greater proportion of output began to be exchanged against money. Thirdly, introduction of a price-support policy on a fairly remunerative basis, initially for wheat and later for other crops, introduced a downward rigidity in agricultural prices: it was no longer possible to assert that agricultural prices were merely a matter of supply and demand as they became part of the wider political process. Finally, significantly greater use of energy and of oil-based fertilizers not only changed the cumulative capital-output ratio of agricultural production, but also made it far more sensitive to

fluctuations in the world market, and particularly in oil prices. It is sometimes said that the Green Revolution led to undue mechanization of agriculture, especially in the northwest. There is little doubt that certain type of capital goods, such as diesel and electric pump sets, increased very substantially, and so to a lesser extent did the use of tractors. But, much of the capital was land-saving rather than labour-saving and did not lead to the type of labour displacement from agriculture which was predicted by some, mostly radical, economists. In fact, the increase in capital intensity in Indian agriculture, especially during the 1970s, has helped to achieve an increase in output per unit of land as well as per agricultural worker, in the face of a severe land constraint and rising agricultural population (Table 1).

However, consequent upon the Green Revolution, the change in methods of production in areas where crops such as wheat and rice, particularly wheat, were rapidly expanding, led to the emergence of a changed distribution pattern in incomes, savings and consumption. Agronomists who took part in the development of hybrid varieties of seeds thought that the seed-fertilizer-based technology was basically size-neutral. It was claimed that unlike the traditional forms of mechanization, which were spearheaded more by engineers than by geneticists, the new technology could be profitably used by both small and large farmers. However, the working capital requirement per unit of output was higher for the new technology and, given the gross inequalities in the credit delivery system, this meant that only the well-to-do farmers could make the most profitable use of the new package of measures. The machinery of government was not structured to overcome the basic deficiencies from which the small farmers suffered.

Thus, while the Green Revolution increased output, it conferred more than proportionate benefits to the better-off farmers in the infrastructurally better endowed regions. It certainly broke the stagnation, which had assumed worrying dimensions, but it did so at the price of increased polarization within the countryside. Furthermore, there was the fear that 'mechanization' was bound to develop over time leading to labour expulsion from agriculture and greater rural-urban migration. Unless industrial demand for labour increased substantially, there was apprehension of greater urban unemployment. These fears have not proved altogether baseless. They were to form the basis for a reformulation of development strategy in the early seventies.

GROWTH, POVERTY ERADICATION, AND SELF-RELIANCE

The cut-back in public investment and increase in the rupee cost of investment consequent on the devaluation in 1966 led to a depression in the aggregate rate of investment. But investment in agriculture was kept up because of the incentives given to the relatively better off farmers who initially spearheaded the Green Revolution. The grain output recovered and, by 1970-71, production of cereals increased to 96.6 million tonnes in comparison with 62.4 million in 1965-66. There was a particular increase in wheat; the high-yielding varieties made a spectacular breakthrough in the north-west, especially in Punjab, and production went up from 10.4 million tonnes to 23.8 million tonnes, a very remarkable rate of growth indeed.

This increase gave rise to fear in certain quarters that India could soon be faced with a demand bottleneck for food which would either require large-scale exports or an expanded home market. Since Indian grains were faced with stiff competition in the international market, even the more conservative policy-markers came to favour a strategy for growth with an accent on redistribution. This was supposed to ensure the removal of a 'demand bottleneck' and to generate employment opportunities. A new definition of 'relevant radicalism' was mooted by those who did not favour a state build up of production assets in the industrial sector, but were realistic enough to understand that industrial development by the private sector, even at its maximum, could not absorb the additional labour force generated by natural population growth and the displacement created by agricultural transformation. They emphasized the special role that an expanded public works programme could play in this context. More radical opinion was not opposed to a public works programme, but felt that it was not enough by itself to alleviate the problem of 'mass poverty' which now moved into the centre of

political attention. This led to the formulation of an Approach to the Fifth Five Year Plan which was based on a strategy of 'growth with redistribution'.

The Approach to the Fifth Five Year Plan followed the recommendation of the working group in its definition of poverty in terms of nutritional inadequacy and, further encouraged by the political mood, ventured to put explicit redistribution in the lowest three deciles as an objective in its own right. It will be apparent from the bare outlines of Pant's document that he did not, in the final analysis, envisage anything significant by way of direct redistribution. He was extremely cautious in this regard and possibly with very good reason. But he was much bolder in assuming a sustained rate of growth of 7 per cent per annum over a ten-year period. While he did not work out the full range of balance of payments implications, it was quite clear that his approach could succeed only with a large net inflow of concessional external capital. At the time the Fifth Five Year Plan Approach document was being formulated, planners postulated a much more modest growth rate, but they wanted to be self-reliant.

The idea of self-reliance was not new. The Third and Fourth Five Year Plans had discussed the ultimate objective of elimination of concessional external assistance. The Third Five Year Plan had talked about the 'economy being independent' of external assistance outside of the normal inflow of foreign capital by 1975-76. The Fourth Five Year Plan postulated in the same vein the need to minimize dependence on aid from outside sources. Thus, two ideas found their joint expression in the formulation of the Approach to the Fifth Five Year Plan which postulated a specific objective of poverty eradication along with the elimination of net aid. The task was no doubt an ambitious one but the political mood was encouraging, at least initially, as the ruling party had been returned to power in 1971 with a popular mandate to remove poverty. The work of the planners was initially a technical one of demonstrating whether the objectives were at all achievable and if so by what time.

The statement of the problem in the Approach to the Fifth Five Year Plan can be summarized briefly as follows: Given the length of the planning period, find the inter-sectorally consistent growth rates of output that would be necessary to raise the average per capita consumption level of the lowest three deciles to a stipulated figure. In order that the average of this group can be raised progressively over time, especially after taking into account population growth rate of 2 per cent per annum, it was obviously essential to allow for positive investment levels in the terminal year. Furthermore, since net aid had to be reduced to zero by the terminal year, domestic savings had to equal domestic investment in the terminal year.

To work out the size and composition of a plan budget which would achieve reduction in inequality coefficient implicit in the stated objective while also reducing net aid to zero in the terminal year, the exercise proceeded in two steps. As a first approximation, a macro model was constructed to determine the magnitude of total investment that would be required to achieve a pre-specified rate of growth. After deducting net inflow of external capital, total savings for the plan period were computed. From this, a yearly savings profile was computed on the assumption of a linear increase in the investment level.

Inter-industry analysis was used to compute gross production levels for the terminal year using the following steps: (1) A breakdown of total investment by delivering sectors was drawn up on the basis of observed trend adjusted in the light of overall data on major investment projects. (2) Domestic input coefficient matrix was separated out from total coefficient matrix inclusive of imported raw materials. A similar netting out was made for domestic and imported parts of different components of final demand. (3) A detailed consumption sub model was developed which enabled commodity composition of total consumption to be calculated on the basis of a detailed expenditure breakdown by twenty seven size classes, on the assumption that average consumption level of the three lowest deciles would rise by the stipulated amount.

Several alternative scenarios were worked out to test sensitivity of the results to changes in the length of planning horizon and to variations in annual average rate of growth of gross domestic

product (GDP) over the planning period [Planning Commission, 1973]. It was found that a rate of growth of 6.5 per cent in GDP eliminated altogether the decline in the average level of consumption of the first three deciles, whereas with a growth rate of 5.5 per cent as adopted in the 'preferred variant' of the model, the three top deciles could not maintain their consumption levels. Lengthening the time horizon had the predictable effect of reducing the rigours of the redistribution process.

Interesting results were obtained on the production side. Provided agriculture could grow at around 4 per cent per annum in terms of value added, it was possible to meet the consumption target for the poorest deciles. While this was substantially higher than so far, it was not an altogether impossible target. There were clear indications that the 'luxury goods' sector, defined as items which figured more or less exclusively in the consumption baskets of the first two deciles, must grow at a slower rate. But the rate of growth in the so-called heavy and intermediate sectors was fairly high, and practically invariant to changes in the redistribution coefficient. There were two main reasons for this result. First, the model had a considerable amount of import substitution built into it, because of the assumption relating to net aid; and second, new agricultural inputs were purchased from industrial sectors as energy, oil, and fertilizers. Given that imports were limited by the exogenously stipulated growth rate of exports and a diminishing inflow of net aid, these intermediate and capital goods sectors showed a rate of increase of around 7-8 per cent per annum.

It was clear from these exercises that in so far as there were major supply constraints on meeting minimum needs, India's economic strategy needed to pay greater attention to agriculture and energy. 'Food' and 'fuel' emerged as the leading sectors, as there was at that time significant excess capacity in sectors such as steel. The weak point of the model adopted in the Approach was its formal neglect of the relationship between production and income distribution. The model did not solve for incremental income flow by size classes. While the link between demand and production was allowed for in terms of varying propensities to consume different commodities, the reverse link from production to demand was not included in the formal description of the model [Tendulkar, 1974, p. 39].

Despite all its limitations, the main message of the model was quite clear. It showed that if the growth rate of around 5-6 per cent per annum was about the maximum one could have, it was impossible to bring about a significant reduction in poverty, howsoever defined, without attacking the problem directly. A higher growth rate was likely to be self-defeating unless it was rendered possible by large-scale transfer of external resources. Further, the market-determined commodity vector was far from what was necessary if basic needs were to be met. Despite aggregation biases and rigidities inherent in the assumptions relating to foreign trade, the pattern of growth of different commodity-producing sectors was shown to be a function of two sets of choices: (a) present-future choice, and (b) tolerance for inequality in consumption. While the 'oil crisis' and the inflationary pressures generated as a result of serious harvest failures in 1972-73, mitigated only partially by a recovery in 1973-74, made it imperative to redraft the Approach to the Fifth Five-Year Plan and to considerably dilute its ambitious redistribution objectives, the idea that planning of appropriate investment levels by commodity-producing sectors was necessary, but by no means sufficient, persisted in the context of public discussion relating to poverty eradication programmes. These additional conditions implied the use of additional instruments of policy, which in a fully planned economy could be reduced to achieving appropriate relationships between prices and wages (in the vectorial sense) but in a mixed economy with extensive underemployment required more direct intervention in the economic growth process.

As a result, when the Sixth Five-Year Plan was formulated in 1980, a number of poverty eradication measures were introduced. The impact of these measures, which basically consisted of rural employment programmes of different types along with programmes for self-employment aimed at improving the productivity of small and marginal farmers and rural artisans, has been much discussed, and there has been considerable criticism

from different parts of the political spectrum. Even leaving out considerations of ideology, there is considerable difference of opinion on what these programmes have achieved. The discussion is complicated by the fact that experiences in different parts of the country differ a great deal.

While the empirical evidence is somewhat mixed, we need to discuss what kind of redistributive policy frame can be devised within the parameters of the mixed economy which prevails in India. In this respect, one's perception of the possibilities of the system, in terms of the ability to take redistribution decisions in the face of deeply entrenched interest groups, is as important as the understanding of structural constraints. Further, a distinction must also be drawn between impact effects and long-term responses.

Briefly, it seems that, within the kind of political system that India runs, from the point of sustainability, the most significant redistributive measures will centre around improving the productivity of small and medium farmers, especially those engaged in the production of food grains, along with an employment guarantee scheme in the rural areas. This can be significantly supplemented by a programme of education, health, and nutrition, each of which has major effect on improving productivity besides conferring substantial consumption benefits. A programme of population limitation can also serve as a redistributive measure, but it is unlikely to get off the ground in a decisive way, especially in the rural areas, unless the above programmes are implemented with a vigour they have lacked so far. Though redistribution of land, which traditional radical thinking would hold to be the key element in a redistributive programme, is not on the cards, it is certainly possible to do a great deal more in relation to security of tenancy, conditions relating to crop-sharing contracts, and improving the working conditions of agricultural labour.

Thus in the approaches adopted by the Fifth and Sixth Five Year Plans, there was a shift in emphasis away from the earlier so-called heavy industry bias, to a strategy centring around 'food' and 'fuels'. It became quite clear that with a growing population and limited natural resources, emphasis had to be placed on improving the productivity of land through greater diffusion of technological improvements which would not add to the existing pressures of unemployment and inadequate employment.

SOME CURRENT ISSUES OF ECONOMIC POLICY

Interdependence between Agriculture and Industry: The argument that a higher rate of growth of agriculture, other things remaining the same, will exert a favorable influence on the rate of growth of industrial production is, of course, a long-standing one. A prominent exponent, Kaldor, attaches importance not so much to agricultural production but to agricultural surplus. He wrote, "Indeed, the ratio of agricultural production to the self-consumption in the agricultural sector, which is invariably low in countries where agriculture is backward, is perhaps the best available indicator of the development potential of an economy" [Kaldor, 1967, Pp 55-56]. If the argument put forward by Mahalanobis rested upon viewing capital as 'machines', Kaldor's argument here views 'capital' in the early stages as primarily food advanced to workers, a very classical concept indeed. How do the two arguments link up? One would appear to suggest additional generation of agricultural surplus as the first pre-requisite for accelerated growth and industrialization, whereas the other places emphasis on the building up of machine-making capacity.

As usual, the argument can be better understood by distinguishing carefully between the implicit premises. One of them is that agricultural production is more or less autonomously determined. As Kaldor put it, 'Agricultural production has an autonomous momentum which is mainly dependent on the progress of land saving, as distinct from labour saving innovations [Kaldar, 1967, p. 56]. Here Kaldor seems to understate the importance of purchased inputs in agriculture. As Table 2 clearly shows, in the post-Green Revolution period, this ratio has gone up by a high growth factor. Mahalanobis would have placed emphasis on this point, and looked upon the increase of machine-building capacity as facilitating this process. As a matter of fact, during the fifties, both industry and agriculture increased substantially. Agricultural growth was in a sense autonomous.

It was largely brought about by area expansion and better regional specialization and it did not compete in any significant way for scarce investable funds. However, in the mid-sixties, industrial investment stagnated and agricultural investment had to be stepped up to compensate for the exhaustion of these two major sources of growth. The question of striking a better balance between the two somewhat different concepts of 'capital formation' arose in a rather painful way during the seventies, and there had to be a change in both the nature and pace of industrialization consequent on the changing input requirements of agriculture.

We have so far assumed the case of a closed economy. But most economies are 'open' to varying degrees, and the Indian economy is also an open economy, although the ratio of both imports and exports to GDP is rather low. In an open economy, industrialization can receive a further push from import substitution, at least up to a point. It has been argued that Indian industrialization in the first part of its planning experience was based largely on easy import substitution and that, during the mid-eighties, when India has reached a high level of agricultural production, emphasis should now shift towards industrialization, with an export market in view. In other words, since India has achieved a fair measure of food self-sufficiency and is in fact likely to meet a demand constraint for agricultural products, the Kaldor argument, it is now held, justifies our shifting attention to international trade in a much greater measure if we are looking for acceleration of growth in industrial production.

The argument is not without some basis, for the strength of the industry-agriculture linkage seems to have weakened somewhat over three decades of planning. There are several ways of substantiating this proposition. One way is to estimate the elasticity of GDP in manufacturing with respect to GDP in agriculture. During the 1950s this magnitude was of the order of 2.19, but declined to 1.77 in 1960s and rose slightly to 1.88 in the 1970s (Table 3). The coefficient for the entire period from 1970-71 to 1983-84 was 1.76. The magnitudes are not significantly affected if lagged ratios are computed.

Thus a qualitative change is clearly there, even though not as substantial as some would argue. This change is explained possibly by four major forces which have pulled down the growth-stimulating effect of agriculture. First, the increase in agricultural production has been very substantially confined to food grains (Table 4). Commercial crops which enter into industrial processing have shown much lower rates of increase, posing constraints for industrial expansion. This is corroborated by the decline in the elasticity coefficient of GDP in manufacturing with respect to non-food grains production in the 1970s as compared with the 1950s (Table 5). Secondly, the effect of a rise in the amount of purchased inputs used by the agricultural sector has spilled over into the balance of payments, creating a proportionately larger increase in the import demand for petroleum-based products. Thirdly, industrial production has been propelled to a greater extent than before by a fast rate of increase in the demand for consumer durables, which are often highly capital and import-intensive. Fourthly, the Indian capital goods sector has increasingly faced competition from imports, as a direct function of the changed policies adopted. Thus, a substantial increase in demand for oil exploration and drilling equipment has stimulated demand outside the Indian economy, as these could be better met from foreign sources. All these would imply that the nature of the stimulus presented by agricultural growth may have weakened in intensity during recent years.

However, despite a downward drift in the elasticity coefficient, the influence is still substantial, as the coefficient is still about 1.8. If certain policy changes which are desirable in themselves (or for balance of payments reasons) are introduced, the picture can alter substantially. First of all, the unbalanced nature of the product mix originating in agriculture still plays a very major role in limiting the impact on industrial expansion. The production of edible oils, other fats, and medium-staple cotton is expanding at slower rates than grain production, - an imbalance which needs to be corrected. Possibly more is needed for rapid industrialization than maintaining a satisfactory performance in agriculture,

particularly because agriculture itself has become more import-dependent than before. If imports are to be secured through greater exports, we have to secure greater levels of competitiveness in manufactured exports. Or, if we would rather produce them at home, such as fertilizers and chemicals, our productivity must rise significantly. Either way, the efficiency of the industrial sector has to improve. In other words, with an increase in the marketed surplus of food grains and an overall increase in industrial diversification, priority may have to be given to improving efficiency in the industrial sector. The question is how best this increased efficiency can be achieved. An influential body of opinion would suggest that the key lies in technological improvement, and that this can be brought about most easily by increasing the 'openness' of the Indian economy.

Technology, Capital Goods, and Growth: One widely diagnosed cause of India's growing lack of competitiveness in the international markets is the so-called 'technological lag'. Indian economy is often described as a 'high-cost economy', and among the factors responsible for the high level of costs, a prominent role is given to the 'obsolete' technology utilized in Indian industry. Quick elimination of this lag takes the form of liberal imports of know-how and capital goods. Statistics on growing foreign collaboration agreements and on the import of capital goods suggest that the current government policy is much influenced by the above diagnosis. The number of foreign collaboration agreements in force was 262 in 1978; it increased to 384 in 1981, 590 in 1982, 673 in 1983, and more than 700 in 1984.

It is, of course, too early to assess the impact of these policy changes. But it may be useful to consider a number of analytical issues which have a bearing on the problem of technological backwardness. First, the importance that was attached in the Second Five Year Plan to the development of a 'machine tools sector' was based on the understanding that an efficient and diversified sector producing machine tools was likely to help substantially the production of capital goods over a wide spectrum of uses. Nevertheless, India today finds its capital goods sector relatively backward and capital costs relatively high, so that rates of return on prospective capital investment are low. Why? Dr. Bhagvan observes: "By the early 1970s, India had achieved near total self-sufficiency in its capacity to produce most of the standard modern capital goods required by Indian industry. However, this remarkable manufacturing capacity has not been accompanied by any significant acquisition of design-capacity. Thus, the manufacture of technology continues along 'outdated' lines, based on the knowledge imported in the 1960s and early 1970s ... With the exception of machine tools, R&D developments in public sector capital goods firms are stagnating with no significant technological innovations to their credit. Equally, there is very little R&D work of significance going on in the private sector. Incentives towards domestic R&D activities and technological innovations are being severely undercut by the continuing policy of liberalization of technology imports and of promotion of technology agreements with foreign firms (agreements already add up to a huge number)" [Bhagvan, 1985].

If this is true, the present shift in the policy mix may create more problems for the future than is generally recognised. The present policy of liberal imports of know-how and capital goods together may in fact be based on mutually offsetting forces. While access to new knowledge is a positive factor for future growth, domestic costs of production are unlikely to come down if simultaneous liberal imports of capital goods act largely as substitutes for domestic production. Inducement to invest may suffer correspondingly unless the prospective demand for final products is large and growing.

If the induction of new technology is largely influenced by considerations of short-term profitability, and if short-term demand is significantly determined by India's prevailing pattern of income distribution, it is very likely that the impact of today's liberalized import policy regarding capital goods will be largely confined to the sector serving consumer durables. Whether this will serve as 'incentive foods' for the Indian middle and upper classes and make them more productive (an Indian version of supply-side economics), or whether it will prevent large-scale smuggling of attractive luxury goods from

abroad, and thus help in saving foreign exchange, it is difficult to say.

An important sector of technology policy has been the energy sector. If one considers that the so-called 'non-commercial energy' still accounts for nearly 40 per cent of our total consumption of energy, the entire perspective alters. India has so far been able to meet its energy requirements for a fast-growing population on an extremely modest basis precisely because far-reaching ecological degradation has provided the short-term cushion. However, this is not the way to go about meeting the energy requirement for years to come. The currently prevailing elasticity of energy consumption with respect to gross domestic product is estimated to be around 1.3. This has serious implications for India's technology policy. In so far as commercial energy consumption is still dependent significantly on coal, directly as coal, and indirectly on coal through electricity generation based on thermal plants, technological changes having significant implications for coal handling and beneficiation, long-distance transmission of power, and so on would appear to have priority over many others.

Perhaps the most important breakthroughs called for are in areas such as utilization of solar energy for pumping purposes, biotechnological changes involving direct fixation of nitrogen in the soil, and other such advances which make the large-scale imports and investment of oil or oil-based products less necessary. It may be said that these are highly futuristic technologies, but there is little doubt that these technologies are going to come, sooner or later. This means that adequate preparation, including building up human skills and institutional infrastructure for these purposes, must proceed without delay. The difficulty is that there are short-term options that the market, left to itself, would much prefer, especially if the pricing policy favours a 'convenience' fuel such as diesel oil or kerosene. The rate at which India's hydrocarbon consumption has been allowed to increase since 1980 seems to indicate that pending further discoveries of larger oil-bearing basins, India is likely to face a major energy crunch in the early nineties.

India's technology policy for the foreseeable future must emphasize the development of design capabilities for sectors such as chemicals and fertilizers where a substantial growth of demand can be expected and where existing capabilities are quite inadequate. The present policy talks about avoiding repetitive import of technology, but the practice does not confirm it. This is again an area where effective action is called for, which will prevent monopoly gains from accruing to certain privileged parties on the one hand and avoid undue bureaucratization on the other.

Capital-Output Ratio in the Indian Economy: There is *prima facie* evidence that the incremental capital-output ratio (ICOR) in the Indian economy rose sharply from the mid-fifties to the early eighties. Thus, the rate of gross saving increased from 9.5 per cent in 1951-52 to 22.3 per cent in 1983-84, after reaching a peak of 23.4 per cent in 1979-80 (Table 6); and the marginal rate of saving reached a high of 26.3 per cent during the 1970s (Table 7). On the other hand, the rate of growth of GDP has not displayed a corresponding acceleration (Table 8). However, a closer examination of the data suggests that the rise in incremental capital-output ratio may not have been as high as it appears at first sight. First, the high rate of saving in the period 1977-80 seems to have been in part due to exceptional factors as it has since declined, reaching 22.1 per cent in 1984-85. Thus, if the incremental capital-output ratio rose during the late sixties and early seventies, it appears to have come down somewhat in the course of the last two five-year plans (Table 9), since the annual average rate of growth of GDP has been around 5 per cent over the period 1975-85. Secondly, the high figure of 23 per cent may involve a measure of overstatement in terms of capacity to add to the stock of domestic capital. Thus, the Report of the Working Group on Savings appointed by the Department of Statistics of the Ministry of Planning under the chairmanship of K.N. Raj came to the conclusion: "When year-to-year fluctuations are smoothened out, and both the capital formation and domestic product series are estimated at 1970-71 prices, the rate of gross fixed capital formation in the closing years of the 1970s (about 18 per cent of G.D.P.) turns out to be no higher than in the middle of the 1960s

and only about two thirds higher than in the middle of the 1950s (when it was about 11 per cent of G.D.P.)" [Raj, 1982, p. 44].

Moreover, the mere fact of an increase in the incremental capital-output ratio would not justify the conclusion that "the policy we have followed for capital formation... has been erroneous" [Rao, 1983, p. 161]. To deduce any operational conclusion, one would need at least a decomposition of the increase in the ICOR according to sectors contributing to GDP, on the one hand, and changes in capital productivity at the sectoral level (after making suitable adjustment for variations in the lag structure of investments) on the other. Tables 10, 11, and 12 throw some light on these issues.

For instance, there has been a general increase in the amount of current inputs going into agriculture (Table 13). As a proportion of total value of output, the total value of current input has gone up from about 0.197 to 0.275 over the period from 1970-71 to 1981-82, whereas as a proportion of total inputs, inputs purchased from commercial sources have gone up from 0.164 to 0.403 (Table 14). Thus there has been both an increase in capital (fixed and working) directly needed by agriculture, as well as a change in the elements constituting the inter-industry matrix. The combined impact of both types of change has implied that the economy now has to devote a larger percentage of total investment to maintain the same rate of growth in the final consumption of agricultural produce than in the fifties and the early sixties, when agricultural expansion largely took the form of an increase in the area cultivated.

While agricultural and infrastructural requirements taken together explain a considerable part of the rise in the incremental capital-output ratio, faulty design and tardy implementations are also partly responsible for excessive capital-output ratios in sectors such as irrigation and power. Delays in the completion of projects have contributed considerably to the increase in the capital-output ratio. The reasons are many. Budgetary procedures are grossly inadequate and initial allocations of funds are insufficient. Monitoring of the progress of major construction projects in sectors such as irrigation, power, open-cast mining is unsatisfactory. The bargaining with the aid donors, bilateral or multilateral, is often protracted and the multiplicity of sources from which technology and equipment are obtained create problems like lack of standardization, and the absence of spare parts. On top of all this, there is an element of politicization of public investment decisions on matters relating to location. Procedural matters including lack of adequate monitoring, have possibly contributed most to avoidable delays and consequent over-capitalization of projects in sectors such as power and steel. Increase in prices of imported equipment has been a significant factor from the mid-seventies onwards; lack of suitable upgrading of technology has made the Indian capital goods sector a less attractive source of equipment purchase, while imports have only recently been liberalized.

It is also necessary to point out that Indian industry has not shown any tendency for unit costs to come down with an increase in the volume of output. This is partly because, first, the market for final industrial products, other than for agro-based goods such as textiles, is still relatively small and is not growing fast enough, except for a few items such as transistors, synthetic fabrics, television sets, and the like and that is highly protected. Second, public investment has shown an erratic pattern of growth from the mid-sixties onwards causing excess capacity in some sectors and supply bottlenecks in others. Third, the rate of growth of real public investment, excluding inventory investment, has slackened off from the mid-sixties onwards; it fell from around 14 per cent in the 1950s to around 3.4 per cent in the 1960s (Table 15). The causes and implications of this are far-ranging and we shall turn to them.

Resources Mobilization and Public Sector Investment: The key question is: Can India secure resources for stepping up the rate of public investment? Mere stimulation of monetary demand is obviously not a wise course to follow. There are many slacks in the system, but they are not in the areas which can be significantly activized by mere stimulation of monetary demand through what is called deficit financing, which amounts to little more than printing money. Can one think of doing it through taxation? If one

looks at India's tax policy as it has evolved over the last thirty years, one notices a significant increase in the tax to GDP ratio over the period as a whole (Table 16). This increase is largely due to an increase in indirect taxation. Even more important, a very large part of the revenue through indirect taxation is raised from a handful of commodities (which include several major industrial intermediates), which leads to significant cascading effects. In addition, heavy import duties, including on capital goods, were levied primarily to raise revenue but were also justified on the ground of 'self-reliance'. Direct taxes on incomes in organized sectors were kept nominally very high for a long period, but their collection seems to have left much to be desired. Evasion was always widely spread, and increased over the years. A programme of tax reduction was started in 1976 but was most notably accelerated in the fiscal budget for 1985-86. There seems to be a kind of consensus amongst fiscal experts that a nominally higher marginal tax rate does not correspondingly imply a higher level of tax revenue. In fact, it may lead to the enlargement of the so-called 'black economy', whose size it is difficult to estimate but impossible to ignore.

There is a proliferation of the unorganized industrial sector which is an almost complete tax haven. Furthermore, while agriculture has prospered in many states and has created a class of prosperous farmers, there is hardly any attempt at raising resources through direct taxation. What is more, both the unorganized industrial sector and prosperous agriculture receive significant subsidies, such as fertilizer, power, and irrigation (Tables 17 and 18).

We are therefore faced with a situation where, for the first time in India's planned development, the balance from current revenues at 1984-85 rates of taxes for the Seventh Plan period (1985-90) is placed at a negative amount of (-) Rs 52,490 million. So far as India's budget is concerned, the balance from current revenues works out at (-) Rs 120,110 million for the same period. This is explained by large increases under three headings: subsidies, interest payments, and defence. While expenditure on defence is explained by factors largely exogenous to the planning process, the other two items do directly reflect the method of plan financing adopted, as well as the changing balance of class forces, as in particular they reflect the transformation of rich peasantry from being a 'a class in itself' to a 'class for itself'. We should note that the government budget has come under pressure even with a favourable succession of good monsoons; in the pre-Green Revolution years, government resources dipped only when harvests failed on a large enough scale.

Can we reasonably hope for a large step-up in the rate of real public investment, given the present constellation of social and economic forces? In fact, there is a growing body of public opinion that would appear to favour a policy of encouraging upper-class consumption on the ground that this would stimulate private investment through the usual acceleration-type mechanism as well as through incentive effects. Their logic would appear to be the following. Indian consumer goods are currently overpriced because of scale diseconomies as well as technological obsolescence. On top of these two structural factors, they bear heavy indirect taxes. The argument runs that if indirect taxes were to be very significantly reduced, these reductions would be passed on to the consumer and demand would widen substantially. Combined with liberal imports of latest-vintage technology and the choice of optimum scale, India will progressively be able to move towards a 'low-cost economy', which will also make it internationally more competitive.

There are, however, two major snags in this argument, apart from issues of equity. First, infrastructural constraints, especially in the form of power, are highly capital intensive. Even if the share of public investment in total investment is reduced, this will only mean 'financial savings', as a lot of potential output may be lost because of non-availability of power, transport, and so forth. Some substitute for public investment must be found in these areas. Secondly, there is going to be an adverse impact on the balance of payments situation resulting from liberal imports of capital goods which will act at least initially as a substitute for domestic production. Furthermore, this direct effect will be strengthened by the import of oil, which always goes up whenever there is

power shortage arising from fluctuating generation accompanied by generally insufficient investment in transmission and distribution. The policy, therefore, is likely to generate in the first instance short-term rents to certain sectors, inflationary problems in the economy as a whole, and additional problems for the balance of payments. Only through the sustained inflow of external capital, along with the social and economic costs of increased dualism, can this policy be made to work.

Under the present constellation of forces, the ability to maintain a satisfactory rate of growth of real public investment seems to be essential as a growth-promoting force. However, this does require major decisions aimed at mobilizing resources from sectors which have significantly benefited from the development process. Major areas for resource mobilization today are all directed by pressure groups, which in the atmosphere of competitive politics tend to be opposed to any form of taxation, or for that matter even to concede the need for payment for services provided by the government. There is considerable scope for large-scale stepping up of surplus from public enterprises in sectors such as coal, transport, steel, and fertilizers, the type of managerial culture that is needed to realize a higher level of productivity of capital and labour cannot be reached with the present style of running public enterprises.

Meanwhile, the fact that the present financing system continues to operate without generating large-scale inflationary pressures is due to a combination of two factors. First of all, public investment has been heavily biased in favour of infrastructure, and very legitimate demands from sectors such as health, education, and housing have been treated sparingly. Secondly, with the system of nationalized banking that India has adopted, the government has been able to secure command over financial savings of the community at largely negative real rates of interest. This has been aided to a certain extent by the financial deepening that India has experienced, a matter of some positive significance. Both these devices have serious limitations. The first has hurt India more than official thinking admits, as large human resources remain untapped. The second has technical limitations which render the monetary authorities incompetent to regulate the money demand for goods and services, should the need arise following harvest failures and/or a 'foreign exchange crunch'.

Hence, if India is to achieve a rate of growth of around 5 per cent per annum, along with single-digit inflation and some alleviation of poverty, methods must be found to broaden the tax base, to use existing capital and labour resources more efficiently, and to provide adequate outlays on certain forms of public consumption such as health, education, and nutrition, while also ensuring more equal access on the part of deprived sections of the community. The policy mix that India is going to evolve during the nineties must pay due attention to each of these points.

Foreign Trade: Performance and Prospects: The inward-looking character of the industrialization process has been one of the more persistent traits of the strategy of planning that India originally adopted during the mid-fifties. The Second and Third Five Year Plans registered high rates of industrial growth even when the export performance of the economy was pretty unsatisfactory, demonstrating the scope for growth based on domestic demand accompanied by import substitution. But in the mid-sixties it became evident that the process of industrialization could not continue on the same basis as in the past. A group of scholars and administrators boldly argued for a 'devaluation' of the Indian rupee to make Indian exports more competitive, along with a policy for the liberalization of imports. In the event, liberalization of imports could not go very far because of the foreign exchange constraint; there was no significant increase in the flow of aid consequent on the devaluation of the rupee by a substantial margin. Exports also did not increase as anticipated, and reasons for this have been much debated. Some have blamed the timing of the devaluation, while others have argued that the effective quantum of devaluation was much lower than the nominal one. Yet others have argued that the supply elasticities of exportables were, in general, rather low. Sectors such as engineering did show some increase, but mostly because significant excess capacity had emerged in the capital goods sector as a result of

slackening in the tempo of public investment. It may be seen from Table 19 that during the seventies, Indian exports put up a much better performance. Between 1970-71 and 1981-82, exports increased nearly five-fold at current prices, implying an annual average rate of growth of 15.9 per cent. The quantum index rose at a lower rate (around 7 per cent), and the net terms of trade moved against India from 1973-74 onwards, although the initial sharp deterioration in the wake of the first oil-price rise was partly restored by 1977-78 until the second round of oil-price increase in 1979 pushed it down again. During the years 1982-83 and 1983-84, exports at current prices grew at less than 15.9 per cent which was the average rate of growth over the period 1970-71 to 1981-82. The quantum index for these years is unofficially estimated to have increased only by around 3 per cent per annum.

The remarkable performance of exports from 1972-73 to 1976-77 was due to the conjunction of several favorable factors, such as the commodity boom of the early seventies which continued till 1974, the opening up of a large market for Indian exports in the oil-rich Gulf countries consequent on the first oil price hike, the increase in project and turnkey exports, and finally to an effective devaluation of the rupee because of its link with sterling until 1975. Since then, the exports have not performed as well. In explanation, the following major factors can be mentioned: (a) the decline in import demand arising from developed countries as they slipped into the Great Recession, since 1980; (b) the protectionist measures adopted in developed countries, which negatively influenced Indian exports in the areas of textiles, garments, shoes, iron and steel, iron ore and leather; (c) the fall in unit values of some key Indian exports; and (d) infrastructural constraints within India in areas such as power and transport. Right now, export prospects look rather bleak, even though the Seventh Plan, currently adopted, has projected a real export growth of 7 per cent. The present fiscal year, 1985-86, is unlikely to show any export growth even at current prices over the previous year.

Even if India were to follow a policy leaning heavily on export promotion, its export performance in the medium run will have to reckon with certain important constraints. These are: (1) On present indication it appears unlikely that the world will experience in the near future a rate and pattern of recovery which will exert a significantly favourable effect on exports from less developed countries (LDCs), both in volume terms as well as on their terms of trade. (2) As some of the major semi-industrialized countries also happen to be heavily indebted, they will need to run export surpluses to pay back their debts. This may imply severe competition in sectors where India may wish to step up its exports. (3) Sectors where India can step up exports with little additional effort but with a change of policy, such as textiles, will continue to receive heavy protection in the rich country markets. (4) India is unlikely to be able to overcome the foreign exchange constraint during the process of transition which any significant shift from a relatively closed economy to an open one will entail.

These assumptions relate to the international environment, but certain domestic factors must be mentioned as well. India's infrastructural support base is not adequate enough for a major export thrust, as everybody admits. However, improving it is not easy. India does not run a very centralized system of management so far as infrastructure is concerned. Power supply, a major input into export production, is mostly in the hands of state governments. The railway management system leaves a lot to be desired, and the state highways are not of the best quality, to put it mildly. Improvements in these areas are in principle possible, but they cannot be taken for granted. Secondly, there is the problem of inflation. Unless suitable domestic policies are followed, the rate of inflation in India, in comparison with the rate currently prevailing in the industrialized countries, will erode India's competitiveness. Thirdly, there is the intriguing fact that countries which have done particularly well on the export front also happen to be countries with strong authoritarian political regimes. Some economists have maintained that labour market conditions have played a major role in the export success of the newly industrializing countries (NICs). The evidence on this point is sufficiently important to make it pertinent to raise doubts whether the open democracy that India maintains

can be equally efficient on the export front. These realities cannot be wished away while making projections for export growth. India should probably rely more on specific sectors with some demonstrable export potential; devise a mix of policies that aim at penetrating specific markets which are geographically or otherwise well situated from its point of view; maintain an exchange rate regime along with other competing countries; and minimize budgetary burdens while ensuring that exporting remains a profitable activity.

The idea that liberalized imports are likely to stimulate export growth is not altogether without foundation in a few sectors such as engineering, but it is possibly too facile to extend it to the whole industrial spectrum. India's balance of payments is likely to come under pressure unless we carry out a policy of import substitution in certain crucial sectors. These sectors include energy (especially the replacement of imported hydrocarbons by greater domestic production of oil, gas, and coal), edible oils (which rank today next to mineral oil in our list of imports), and nitrogenous fertilizers. These are sectors where demand is large and fast growing. There is little doubt that India has been able to manage a rate of growth of GDP of around 4.5 per cent with a very low debt profile for the last ten years because it did not have to import food in large quantities, and succeeded in raising domestic oil production substantially from a fairly low base in 1974. In the years to come, one can expect the tempo of increase in oil production to slacken and the gap on the edible oils front to widen unless major steps are executed with suitable expedition. While the former is partly a matter of luck, the latter would relate to more effective planning within the agricultural sector itself, where significant inter-crop imbalances have emerged.

PROBLEMS OF PLAN IMPLEMENTATION

Indian plans are often said to be good on paper but rarely good in implementation; that they project their objectives well and also indicate necessary directional changes but they do not pay enough attention to issues of feasibility. If so, Indian plans cannot be said to be good even on paper because a good plan must minimally attempt a proper appraisal of the feasibility of what it normatively postulates. Another opinion is that the plans may be both feasible and consistent on a very high level of aggregation but are unlikely to work in practice, not merely because feasibility and consistency at a high level of aggregation can prove very misleading, but because of the many actors involved whose decisions cannot be influenced in the desired directions. For instance, plans have often projected that if certain inter-sectoral balances are maintained, the plan should be able to generate a certain rate of growth of employment, or a certain reduction in the current account deficit on the balance of payments, which did not in fact materialize. One possible explanation is that plan models were improperly specified; that they failed to capture the true state of underlying structural relationships. Thus, it is possible that employment elasticity of output was put at a very high level, or that projections on the side of exports were too optimistic. But it is also possible that plans did not work because the desired co-ordination of activities among different actors was faulty, either because 'messages' were faulty, or because they were transmitted with delay, or went contrary to the specific interests of the actors involved and were therefore evaded.

In general, implementation failure arises from (i) inefficiency in gathering relevant information with needed precision; (ii) delayed response to changes in the underlying situation; (iii) lack of competence or even motivation in agencies responsible for implementation. There are two important sub-cases (a) publicly owned agencies, which operate largely according to 'non-price' signals (such as government 'orders'); and (b) private agencies, whose behavior can be approximated with the help of profit-maximization models; in the latter case, the plan may have projected a product mix on grounds of social desirability which may not be optimal for the agency concerned, and there is then a tendency to 'avoidance' which can lead to distortions.

A useful elaboration of condition (iii) is to distinguish between the 'strategic' and the 'parametric' behaviour of the agencies concerned. When the agencies can be expected to behave in a strategic fashion, it is necessary to be much more

cautious in indicating a plan target, especially in sectors involving significant inter-industrial linkages.

The main change in regard to plan implementation that has come about in the Indian economy over the years is that the scope for strategic action by private actors has widened, partly because the size of relevant industrial or production units has increased, and partly because the distinction between political behaviour and administrative direction has been considerably eroded. On top of this, changes taking place in the world economy have also helped to make the problem of production planning a more difficult task, especially because the degree of 'openness' of the economy has increased in recent years.

Does this mean that the role of 'planning' relative to that of the market has significantly altered? Not quite. There is no denying that some forms of government intervention tend to distort incentive patterns. But, the basic question remains: can a market system, especially an open trading system, provide the needed set of signals? For instance, government intervention to promote 'learning by doing' has been an important feature of Indian industrial and agricultural development, although not without cost. Government policies have helped to promote technological change in agriculture and it is doubtful whether the observed agricultural growth rate would have materialized in the absence of this support.

Thus, when major structural adjustments are called for, they may very well include scope for price as well as non-price adjustments. Whether the latter would include typical 'quantity' restrictions or direct public ownership is an issue which can be decided only in the light of the specific characteristics of a given situation. A crucial component of any decision-making process would appear to lie in the ability to obtain or generate the necessary *information*. It is extremely doubtful whether the problem can be resolved only in price-theoretic terms. Indian planning may be rightly criticized for not making sufficient use of the price-theoretic dimensions in the implementation process. But this does not lead to any far-reaching conclusion regarding the replacement of 'planning' by 'the market'. There is insufficient appreciation of the developmental dimension of the administrative process. It is not true that administrative processes are *per se* inadequate to deal with issues relating to innovativeness; the exercise of control in large-scale corporations has not necessarily inhibited their creativity. Hence, if the Indian plans are good on paper but bad in implementation, it can only mean that planners have used a set of devices which are informationally inadequate and a set of operating rules which are relatively insensitive to conjunctural variations and also insufficiently permissive of autonomous decision-making by agents even in areas where they can be expected to be knowledgeable. This implies that while no good plan can afford to ignore major issues of implementation through incentive-adequate devices, it cannot in a structurally backward economy rely solely on the market as the instrument of plan implementation.

Spatial Implications of the Development Strategy: There are several major conceptual problems that the space dimension introduces into any planning discussion. First, the question of transportation costs and the issue of restructuring production plans so as to minimize the resources involved in transportation cannot be disregarded. Secondly, the presence of strong external effects in space implies the emergence of polarizing influences. Thirdly, the fact that capital in the sense of money capital is more mobile than labour, especially unskilled labour, can lead to significant differences in the levels of living in different parts of the country. Fourthly, the standard assumption that production functions involving commodities and services are uniform can no longer be assumed to be valid within large countries. Finally, social and cultural practices tend to vary so considerably in the different parts of the country that it is not possible to assume that the same economic stimulus will produce a largely similar response throughout.

Thus, the large size of a country like India tends to increase both the possibilities and the problems of planning. On the one hand, it presents the possibility of deriving the advantages of scale that a large market entails; on the other hand, the fact that regions are unevenly endowed tends to bias the formulation and implementation of plans in

directions which are more conducive to differential growth than to regional equity. That this has happened to a certain extent cannot be denied. It may be said that the problem is better taken care of by leaving decision-making to the market. Once a political structure is assumed as given, it may be argued that the market can be expected to cope more successfully with the problem of size as it will be less expensive in terms of incentives, a more rewarding game than any that a central planning authority can play *vis-a-vis* the subordinate planning authorities.

This is a complex question and can only be answered with reference to the type of planning that is being practised. The presence of external effects and problems of scale suggest that decentralized planning through the market cannot yield optimal results. A market system will spatially give rise to growth poles whose ability to transmit impulses evenly can be seriously questioned. Furthermore, the benefits of scale will give rise to the emergence of production units with the power to manipulate prices of inputs and outputs to their advantage. Very likely, these powerful market units will gravitate towards growth poles and reinforce the agglomerative forces with further adverse effects on equity. In India, the deficiencies of the market mechanism in promoting what plan documents called 'balanced regional growth' were implicitly or explicitly recognized from the mid-fifties onwards. However, the type of planning that India adopted has not succeeded in avoiding the dangers of polarized growth and the problem of poverty is beginning to emerge as more of an inter-regional problem than before.

This is not an issue of plan implementation in the narrow sense of the term. In part it is related to the broader political processes which are reflected in the functioning of the federal polity that is India. The planning process in India has generally recognized several levels of decision-making. There are plans formulated at the central level and also plans of the state governments and union territories. The Planning Commission in Delhi produces a plan on a yearly and five-yearly basis for the country as a whole, which has to be sanctioned by the National Development Council, which consists of the Prime Minister in his capacity as Chairman of the Planning Commission, along with Chief Ministers of the states and union territories.

The relationship between the centre and the states is a critical dimension in the planning process. While many of the states have by now got state planning boards as well as the *Zilla Parishads* and *Panchayati Raj* institutions which reach further down into districts and development blocks, the intrastate planning exercise is seldom made public or presented as an articulated network of decision-making. In contrast, the centre-state planning exercise is often made public, especially in matters relating to the size of the plan for each state and/or the location of major centrally funded projects.

The basic idea behind the vertical division of responsibilities is that states are likely to do best in activities whose 'spread effects' are generally felt most conspicuously within the state itself (or even within a part of the state), and where information availability is likely to pose less of a problem. Thus, areas such as agriculture, small industries, health, and education tend to figure very prominently in state plans. On the other hand, large industrial projects, long-distance transportation, communications, major investments in mineral development (as in the case of coal, oil, etc.) generally come under the central plan. Power is a sector where large outlays are incurred by both states and the centre.

The states generally complain that they are badly underfunded in relation to their 'felt needs'. This has some validity, especially given that the overwhelming part of the Indian population lives in villages. But observers who have worked at the 'grass-roots' level have also often noted that the state governments, in their turn, have a lot to explain when it comes to the distribution of their spending across different regions within the states: they tend to favour areas around the capital city and areas which have emerged as growth poles, and in some cases the reason an area is favoured is purely electoral. Some have argued in favour of inserting a new tier between the states and the basic administration units, namely, districts; others favour more adequate planning on the state level accompanied by a strengthened form of district planning.

The chronic resource difficulty of the states lies in their unwillingness to tap the agricultural sector to raise resources. The states have been unwilling even to charge irrigation rates to cover maintenance costs, or to impose appropriate electricity tariffs when the consumption of energy is growing at a fast rate. State electricity boards, far from earning the recommended rate of return on investment, often have large deficits on revenue accounts. This cannot be ascribed entirely to the inability to raise resources from the agricultural sector, to be sure. Nonetheless, the fact remains that agriculture today is a sector enjoying large subsidies that can only up to a point be justified by the overall need for attaining a reasonable rate of growth of agricultural production. Distributionally, benefits tend to accrue largely to the richer farmers. Those who argue for a restricted role for the central government in matters of investment allocation are rarely willing to accept the need to tax even the richer sections of the agricultural sector.

There is little reason to question the necessity for states to spend more on health, education, and many other public goods. But it is not possible to maintain that this problem will automatically solve itself if the power to levy taxes, especially excise duties on commodities, were left in the hands of state governments. It may indeed help the prosperous states, especially those where industrial development has progressed far and Green Revolution-style agriculture prevails; but it is likely, if anything, to worsen the situation of industrially and agriculturally backward states, other things remaining the same.

Some have come to the view that financial institutions, including commercial banks, have a major role to play in facilitating an equitable transfer of resources. The argument is valid only up to a point. There is little doubt that the portfolios of these institutions are biased in favour of the better-off states, but this merely reflects the logic of the growth processes in an uneven spatial environment, and in part the nature of the business of these institutions. Goals such as equity are possibly better met through the open budgetary exercises than hidden in subsidized banking and other facilities. Obvious bias in favour of the well-placed regions ought to be highlighted, but a very rigid application of any mechanical rule in respect of loanable funds may in the medium-run raise more problems than it will solve.

In sum, one cannot maintain the proposition that a larger devolution of funds from the centre to the states will in itself provide the necessary stimulus for speedier development of the lagging regions, even though more adequate funding may very well be needed. What is, however, perfectly maintainable (and in fact essential) is to augment the planning and execution capability of decision-makers at lower levels of the hierarchy in the light of appropriate perspective plans for the development of different agro-climatic regions. Location of industrial projects has very often been guided by considerations of short-term political expediency, whereas the development of agriculture has often been neglected by inadequate investment in research and extension activities, to mention one major item where direction has come principally from central institutions. Conspicuous examples of such neglect have become evident in regard to the lagging productivity levels of crops grown in rain-fed regions, or in the lack of conjunctive use of surface water and ground water in the eastern region.

There is a growing feeling that economic forces are helping the regional 'haves' as against the 'have nots' and that the design and implementation of Indian planning has been much too weak to neutralize these forces. Leaving things to market forces alone will not help because a spatial 'trickle down' strategy is unlikely to work fast enough in a large and heterogeneous country like India. There is need therefore to strengthen the synergy of the institutional motive forces represented by the 'state' and the 'market' and devise practical instruments and policies which can maintain a proper balance between 'advancing' and 'lagging' regions.

Regionally equitable development strategies are not necessarily more expensive in terms of capital requirements, as sometimes held, if they make better use of locally available resources, and also pay greater attention to the prevention of premature urbanization or excessive growth of 'primate cities'. In fact, India has a great deal to gain from following an appropriate pattern of

regional specialization coupled with more adequate provision of public goods on a regional basis. These gains will be reflected directly in the form of higher productivity of relatively immobile resources, as well as through long-term effects on the quality of human life.

We need to begin with the basic perception that there is a basic 'fiscal crisis' in Indian public economy. It is deep and pervasive and will require a major attempt at resource mobilization on the national scale, without which an adequate solution to the centre-state resource problem will evade planners and policy-makers. A certain rationalization of the pattern of expenditure and sources of revenue can obviously be carried out, but no fundamental alteration is possible without further raising public savings as a proportion of gross domestic product. For quite some time to come, resources will have to be transferred from prosperous states to backward states, and leakages in the transfer process will have to be plugged. The major contributions that central government can make in this regard are to raise the efficiency of large public corporations, reduce the rate of expansion of its own bureaucracy, and reduce delays in the completion of large centre-initiated projects. It can also contribute by maintaining a non-inflationary macro-economic environment.

If Indian society values growth with equity, as plan documents repeatedly emphasize, India has still a long way to go in adapting institutions and aspirations in that direction. Neither the recently discussed virtues of the free market mechanism nor the earlier panacea of central planning would appear to carry much conviction today. Hence the task for perspective planning remains to minimize avoidable social costs. However, the need for flexible adaptable operating mechanisms is very much there. Above all, there has to be a much greater degree of political consensus on what is attempted. India benefited from this in the first decade of planning. It is still greatly needed in the remaining years of this century. No facile conclusion is warranted.

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TABLE 1. LABOUR, LAND, CAPITAL AND OUTPUT IN INDIAN AGRICULTURE, 1950/51 TO 1979/80

Element	1950/51	1960/61	1970/71	1979/80
Agricultural workers,(million)	101.92	137.80	167.33	192.69
		(3.06)	(1.96)	(1.58)
Net area sown, (m.ha)	118.75	133.20	140.78	141.00
		(1.15)	(0.56)	-
Capital stock— net, (Rs million)	128,990	150,180	209,990	311,770
		(1.53)	(3.41)	(4.49)
Gross domestic product in agriculture, (Rs million)	103,880	136,200	169,530	197,560
		(2.75)	(2.21)	(1.71)
Land per worker, (ha)	1.17	0.97	0.84	0.73
GDP per hectare, (Rs)	875	1,023	1,204	1,401
		(1.57)	(1.64)	(1.70)
Capital stock per hectare, (Rs)	1,086	1,127	1,492	2,211
		(0.31)	(2.85)	(4.47)
GDP per worker, (Rs)	1,019	988	1,013	1,025
Capital stock per worker, (Rs)	1,266	1,090	1,255	1,618

Source: S. N. Raghavan, *Report on Impact of Agricultural Investment*, Food and Agriculture Organisation, Rome, 1984.
Note: Figures in parentheses represent average annual rate of growth over the previous period. Figure for rupees calculated at 1970/71 prices.

TABLE 2. SHARE OF MODERN INPUTS IN TOTAL INPUTS IN INDIAN AGRICULTURE, 1950/51 TO 1982/83

(Per cent)

Period	Modern Inputs					Traditional Inputs	Total Inputs
	Fertilizers	Pesticides	Electricity	Diesel oil	Total		
1950/51-1959/60	1.16	0.07	0.13	0.35	1.71	98.29	100.0
1960/61-1964/65	3.05	0.27	0.35	0.65	4.32	95.68	100.0
1965/66-1969/70	7.19	0.82	0.90	2.28	11.19	88.81	100.0
1970/71-1974/75	10.69	1.45	1.77	6.81	20.72	79.28	100.0
1975/76-1979/80	15.06	1.78	2.81	9.34	28.99	71.01	100.0
1980/81-1982/83	18.56	1.39	3.55	6.90	30.41	69.59	100.0

Source: The basic data are available in various issues of *National Accounts Statistics*, CSO, New Delhi.
Note: Percentage shares of inputs have been computed at 1970/71 prices.

TABLE 3. ELASTICITY OF GDP-MANUFACTURING WITH RESPECT TO GDP-AGRICULTURE IN THE INDIAN ECONOMY, 1950/51 TO 1983/84

Period	$\log YMF_t = a_1 - a_2 \log YAG_t$			$\log YMF_{t+1} = a_1 + a_2 \log YAG_t$		
	a_1	a_2	$\bar{R}^2$	a_1	a_2	$\bar{R}^2$
1950/51-1959/60	-12.7568	2.1888 (10.586)*	0.925	-13.70	2.2959 (11.493)*	0.942
1960/61-1969/70	-8.4931	1.7652** (2.568)	0.383	-10.4744	1.9792** (2.254)	0.338
1970/71-1979/80	-9.6352	1.8808 (9.942)*	0.916	-9.4175	1.8625 (10.251)*	0.929
1970/71-1983/84	-8.4503	1.7597 (14.682)*	0.943	-9.4280	1.8638 (18.680)*	0.967

Source: The basic data are from various issues of *National Accounts Statistics* CSO, New Delhi.
Notes: 1. YMF = GDP-manufacturing; YAG = GDP-agriculture. 2. Figures in brackets represent *t* values. * Significant at 0.5%. ** Significant at 2.5%.

TABLE 4. TREND GROWTH RATES IN AGRICULTURAL PRODUCTION IN INDIA, 1950/51 TO 1983/84

(Per cent per Annum)

	1950/51 to 1959/60	1960/61 to 1969/70	1970/71 to 1983/84
All commodities	3.64	1.68	2.62
Food grains	3.68	1.71	2.68
Non-foodgrains	3.57	1.59	2.50
Principal non-foodgrain crops			
Oilseeds	3.75	0.93	1.31
Fibres	3.93	-0.24	2.09
Sugarcane	4.02	1.69	3.12
Weighted index	3.86	0.98	2.04

Source: Based on the index of agricultural production (base: triennium ending 1968/69 = 100) available in *Estimates of Area and Production of Principal Crops in India*, Directorate of Economics and Statistics, Ministry of Agriculture, New Delhi.
Notes: Estimates are trend growth rates based on semi-log functions. The weighted trend growth rate for the three main non-foodgrain crops has been obtained on the basis of their weights in the index of agricultural production.

TABLE 5. RELATIONSHIP BETWEEN GDP IN THE MANUFACTURING SECTOR AND NON-FOODGRAINS PRODUCTION IN INDIA, 1950/51 TO 1983/84

Estimated equation and periods	a_1	a_2	$\bar{R}^2$	DW
1. Log YMF = $a_1 + a_2$ log NFG				
1950/51-1959/60	1.3849	1.4864 (8.239)	0.881	2.54
1960/61-1969/70	0.5562	1.7136 (3.255)*	0.516	1.49
1970/71-1979/80	1.8155	1.4532 (4.310)	0.661	1.50
1970/71-1983/84	1.9889	1.4176 (7.621)	0.815	1.85
2. Log $YMF_{t+1} = a_1$ log NFG_t				
1950/51-1959/60	1.8358	1.3911 (6.156)	0.822	2.05
1960/61-1969/70	2.2376	1.3534 (2.367)**	0.365	1.47
1970/71-1979/80	2.2723	1.3628 (4.653)	0.721	1.74
1970/71-1983/84	2.2429	1.3728 (6.257)	0.761	2.02

Notes: 1. YMF = GDP - manufacturing, and NFG = Index of non-foodgrains production. 2. Figures in brackets represent *t* values. * Significant at 1.0%. ** Significant at 2.5%. All other coefficients are significant at 0.5%.

TABLE 6. RATE OF GROSS SAVING IN THE INDIAN ECONOMY, 1951-84

Year	Rate of gross domestic saving	Year	Rate of gross domestic saving	Year	Rate of gross domestic saving
1951/52	9.5	1962/63	14.0	1973/74	18.0
1952/53	9.0	1963/64	14.2	1974/75	19.3
1953/54	9.3	1964/65	14.6	1975/76	20.3
1954/55	11.2	1965/66	15.2	1976/77	21.6
1955/56	12.8	1966/67	15.3	1977/78	23.1
1956/57	12.9	1967/68	14.8	1978/79	23.2
1957/58	11.8	1968/69	14.8	1979/80	23.4
1958/59	11.5	1969/70	15.8	1980/81	22.6
1959/60	12.3	1970/71	16.8	1981/82	22.5
1960/61	13.1	1971/72	16.8	1982/83	22.3
1961/62	13.8	1972/73	17.7	1983/84	22.3

Source: Estimates are based on the data available in *National Accounts Statistics*, (Jan 1985), CSO, New Delhi; and *'Quick Estimates of National Income, Consumption Expenditure, Saving and Capital Formation*, 1984/85 (Jan. 1986), CSO, New Delhi.
Note: The rate of saving is calculated as a percentage of gross domestic product at market prices and has been calculated on a three-year moving-average basis.

TABLE 7. ESTIMATES OF THE MARGINAL RATE OF SAVING IN THE INDIAN ECONOMY, 1950-85

Period	Marginal Rate of Gross Saving (%)
1950/51-1960/61	20.0
1961/62-1969/70	18.2
1970/70-1979/80	26.3
1980/81-1984/85	21.4

Source: Estimates are based on data available in the various issues of *National Accounts Statistics*, Central Statistical Organization, Department of Statistics, Ministry of Planning, New Delhi.

TABLE 8. SECTORAL RATES OF GROWTH OF GROSS DOMESTIC PRODUCT IN THE INDIAN ECONOMY, 1950/51 TO 1983/84

(Per cent per Annum)

Sector	1951/52 to 1959/60	1960/61 to 1969/70	1970/71 to 1979/80	1980/81 to 1983/84	1970/71 to 1983/84
Agriculture (crops and livestock)	2.61	1.37	2.31	3.96	2.27
Mining	4.81	5.24	4.33	10.53	5.14
Manufacturing	6.11	4.77	4.75	3.25	4.21
All sectors	3.63	3.24	3.76	4.98	3.81

Source: Estimates are based on the data available in the various issues of *National Accounts Statistics*, CSO, New Delhi.
Note: Estimates are trend growth rates based on semi-log functions; three-year moving average estimates of GDP have been used for estimating the growth rates. The data for 1983/84 are point estimates, taken from *Quick Estimates of National Income* (Jan. 1986) CSO, New Delhi.

TABLE 9. ESTIMATES OF INCREMENTAL CAPITAL-OUTPUT RATIOS IN THE INDIAN ECONOMY, 1951-84

Period	Gross ratio	Net ratio
1951/52-1955/56	2.87	1.97
1956/57-1960/61	4.05	3.16
1961/62-1965/66	4.58	3.61
1966/67-1968/69	5.05	3.96
1969/70-1973/74	5.86	4.30
1974/75-1978/79	4.28	3.24
1980/81-1983/84	4.45	3.38
1951/52-1959/60	3.49	2.59
1960/61-1969/70	4.40	3.39
1970/71-1979/80	5.40	4.11
1980/81-1983/84	4.45	3.38

Source: Estimates are based on the data available in the various issues of *National Accounts Statistics*, CSO, New Delhi.
Note: Estimates are at 1970/71 prices and were made using three-year moving-average estimates of GDP and NDP at market prices for the gross and net ratios respectively, except for the years 1950/51 and 1983/84 for which point estimates have been used. A one-year time lag has been assumed between investment and output.

TABLE 10. ESTIMATES OF SECTORAL INCREMENTAL CAPITAL-OUTPUT RATIOS IN THE INDIAN ECONOMY, 1951-84

Sector	1951/52 to 1959/60	1960/61 to 1969/70	1970/71 to 1979/80	1980/81 to 1983/84
Agriculture (crops and livestock)	2.18	3.23	4.22	3.17
Mining	2.59	5.62	14.56	9.98
Manufacturing	4.47	6.49	8.20	14.36
Other Sectors	5.85	5.31	5.79	4.43
All Sectors	3.93	5.93	5.97	5.16

Source: Estimates are based on the data available in the various issues of *National Accounts Statistics*, CSO, New Delhi.
Note: Estimates are at 1970/71 prices and were made using three-year moving-average estimates of sectoral GDP at factor cost. A one-year time lag has been assumed between investment and output for all sectors. The sectoral and aggregate GDP estimates for 1983/84 are point estimates.

TABLE 11. SECTORAL CONTRIBUTION TO AGGREGATE GROWTH IN THE INDIAN ECONOMY, 1950/51 TO 1983/84

(Per cent)

Sector	1951/52 to 1959/60	1960/61 to 1969/70	1970/71 to 1979/80	1980/81 to 1983/84	1970/71 to 1983/84
Agriculture (crops and livestock)	54.5	48.1	41.0	39.2	39.6
Mining	0.8	1.0	1.1	1.3	1.2
Manufacturing	11.4	13.8	15.4	15.0	14.8
Other sectors	33.3	37.1	42.5	44.5	44.4
All sectors	100.0	100.0	100.0	100.0	100.0

Note: Sectoral contribution to aggregate growth for each period has been computed by using the average share of sectoral GDP to total between the base year and terminal year as weights and applying trend growth rates of sectoral GDP at each period.

TABLE 12. SECTORAL SHARES IN TOTAL INVESTMENT IN THE INDIAN ECONOMY, 1951-84

(Per cent)

Sector	1951/52 to 1959/60	1960/61 to 1969/70	1970/71 to 1979/80	1980/81 to 1983/84
Agriculture (crops and livestock)	22.1	16.4	17.9	16.6
Mining	0.8	1.8	3.0	5.2
Manufacturing	20.4	26.2	26.7	26.0
Other sectors	56.7	55.6	52.4	52.2
Total	100.0	100.0	100.0	100.0

Source: Estimates are based on the data available in the various issues of *National Accounts Statistics*, CSO, New Delhi.
Note: Estimates represent the average share of sectoral investment to total investment for each period, measured at 1970/71 prices.

TABLE 13. GROWTH OF MODERN INPUTS IN INDIAN AGRICULTURE, 1970/71 AND 1981/82

		1970/71	1981/82
1.	Current inputs (Rs. million)		
	Traditional inputs	34,194	99,778
	Modern inputs	6,692	67,414
	Total inputs	40,886	167,192
2.	Agricultural output (Rs. million)	207,295	607,447
3.	Ratio of total inputs to output	0.197	0.275
4.	Ratio of modern inputs in total inputs	0.164	0.403

Source: *National Accounts Statistics* (Jan. 1985), CSO, New Delhi.
Notes: 1. The data relating to current inputs and agricultural output are at current prices. 2. Agricultural output covers crop and livestock sectors. 3. Modern inputs consistof chemical fertilizers, pesticides and insecticides, electricity, and diesel oil. 4. Traditional inputs include items such as seed, organic manure, feed of livestock, irrigation charges, etc., as well as expenditure on current repairs and maintenance of fixed assets such as farm implements and machinery, cattle sheds, etc.

TABLE 14. CHEMICAL FERTILIZERS: DOMESTIC PRODUCTION AND IMPORTS, 1950/51 TO 1983/84

(in 1,000 tonnes of nutrients)

	1960/61 to 1969/70	1970/71 to 1979/80	1980/81 to 1983/84
Domestic Production			
Nitrogenous fertilizers	3,050	14,942	12,217
Phosphatic fertilizers	1,318	4,466	3,819
Total	4,368	19,408	16,036
Imports			
Nitrogenous fertilizers	4,747	8,147	3,645
Phosphatic fertilizers	777	1,984	1,001
Potassic fertilizers	986	3,654	2,641
Total	6,510	13,785	7,287
Total availability	10,878	33,193	23,323
Ratio of imports to total availability, %	59.8	41.5	31.2

Source: Based on data available in various issues of *'Economic Survey'*, Ministry of Finance, New Delhi.

TABLE 15. TREND GROWTH RATES OF INVESTMENT IN THE INDIAN ECONOMY, 1950/51 TO 1983/84

(Per cent per Annum)

Sector	1950/51 to 1959/60	1960/61 to 1969/70	1970/71 to 1982/83
Total investment	7.42	4.94	4.94[a]
Public sector investment	14.20	3.42	6.87[a]
Private sector investment	-	5.99	3.39[a]
SECTORAL INVESTMENT			
Agriculture			
Total	2.89	5.81	4.68
Public sector	-	4.44	6.48
Private Sector	-	6.38	3.95
Mining	-1.09	4.56	17.20
Manufacturing			
Total	11.41	5.14	4.83
Public sector	-	5.33	9.22
Private sector	-	4.93	2.70
Electricity	16.96	7.71	8.65
Railways	15.93	-5.06	3.88
Communications	3.18	9.57	8.55
Other transport			
Total	10.10	3.76	3.01
Public sector	-	8.64	1.24
Private sector	-	1.31	4.12

Note: Computations are based on the data on gross domestic capital formation at 1970/71 prices available in *National Accounts Statistics* CSO, New Delhi.
a 1970/71 to 1983/84.

TABLE 16. TAX RATIOS IN THE INDIAN ECONOMY: 1950-80

(Rs Crore at Current Prices)

Year	Tax revenue				GDP
	Direct taxes	Indirect taxes	Miscellaneous receipts	Total	
1950/51	231	428	111	770	9,177
	(2.5)	(4.7)	(1.2)	(8.4)	
1960/61	420	1,040	61	1,521	14,071
	(3.0)	(7.4)	(0.4)	(10.8)	
1970/71	1,091	3,864	162	5,177	36,736
	(3.0)	(10.5)	(0.4)	(13.9)	
1980/81	3,574	16,744	303	20,621	113,609
	(3.1)	(14.8)	(0.3)	(18.2)	

Source: *National Accounts Statistics* (various issues), CSO, New Delhi.
Note: The figures in brackets represent percentages of tax revenue to GDP.

TABLE 17. BUDGETARY SUBSIDY ON FERTILIZERS

Year	Fertilizer consumption (Million tonnes)	Budgetary subsidy (Rs million)	Subsidy per tonne (Rs)
1976/77	3.41	599	176
1977/78	4.29	2,665	621
1978/79	5.12	3,427	669
1979/80	5.26	6,034	1,147
1980/81	5.52	5,050	914
1981/82	6.06	3,750	618
1982/83	6.39	6,050	947
1983/84	7.71	10,480	1,359
1984/85	8.21	10,800	1,315

SOURCES: *Economic Survey* and *'Economic and Functional Classification of the Central Government Budget'* (various issues), Ministry of Finance, New Delhi.
Note: The budgetary subsidy for 1983/84 relates to revised budget estimates while the same for 1984/85 relates to budget estimates.

TABLE 18. BUDGETARY LOSS ON ACCOUNT OF OPERATION OF GOVERNMENT IRRIGATION SYSTEM

Year	Operating loss (Rs. million at 1970/71 prices)	Area irrigated by canals (million ha.)	Net sown area (million ha.)	Implicit subsidy (Rs) per ha. of canal irrigated area	Implicit subsidy (Rs) per ha. of net sown area
1950/51	365.6	8.30	118.75	44.0	3.08
1960/61	355.9	10.37	133.20	34.3	2.67
1970/71	1,370.2	12.84	140.78	106.7	9.73
1980/81	4,348.5	15.53	140.30	280.0	31.00
1982/83	5,228.4	15.37	141.77	340.2	36.88

Source: Based on data available in *National Accounts Statistics* (various issues), CSO, New Delhi and *Indian Agriculture in Brief* (various issues), Directorate of Economics and Statistics, Ministry of Agriculture, New Delhi.

TABLE 19. TRENDS IN INDIAN EXPORTS, 1970-85

Year	Value of exports (Rs crore at current prices)	Quantum index of exports[a]	Net terms of trade[a]
1970/71	1,535.16	106	106
1971/72	1,608.20	107	116
1972/73	1,970.80	120	124
1973/74	2,523.40	125	106
1974/75	3,328.80	133	77
1975/76	4,036.26	147	70
1976/77	5,142.30	174	77
1977/78	5,404.26	168	95
1978/79	5,726.07	180	90
1979/80	6,418.43	199	66
1980/81	6,710.70	238	58
1981/82	7,805.90	198	76
1982/83	8,803.31	210	79
1983/84	9,872.10	n.a.	n.a.
1984/85	11,554.78	n.a.	n.a.

Source: *Economic Survey* (various issues), Ministry of Finance, New Delhi.
Note: One crore equals ten millions. [a] Base 1968/69 = 100. n.a. = not available

PANCHAYATI RAJ FINANCES IN INDIA

Anand S. Nadkarni

Panchayati Raj institutions (PRIs) are bodies which are intended to play an important role in promoting rural development in the widest sense. For financial resources for the purpose, the PRIs have to depend on the state governments: either there is direct financial assistance from these governments or a devolution of powers in State Acts to raise resources. The nature of this relationship between the state governments and the PRIs is gone into some depth in this paper on the basis of the provisions of Acts in the different states and also statistical data pieced together from a variety of sources. The analysis spans broadly the period since the Balvantray Mehta Team Report in 1957.

Panchayati Raj institutions (PRIs) are intended to be autonomous bodies within the rural areas of a district in a state in India. Under the Indian Constitution, setting up these bodies and assigning them defined governmental functions is a power given to state governments. In most states, the Panchayati Raj System (PRS) is formally made up of three tiers commonly labelled as the *Zilla Parishad* at the district level, the *Panchayat Samiti* at the intermediate (i.e. taluka/block) level, and the *Village Panchayat* at the village level[1]. However, from the point of view of devolution of effective powers, the system is, more or less, a two-tier system. For example, in Maharashtra, the middle-level body, *viz.*, the Panchayat Samiti, conceived merely as the agent of the Zilla Parishad, is devoid of much authority of its own, which means that powers have been devolved on the Zilla Parishad and the Village Panchayat, making the system in effect a two-tier system. On the other hand, in Tamil Nadu, the district-level body is advisory and without any executive functions, powers having been delegated to bodies making up the lowest and the intermediate tiers. This is not only the situation as it exists at present, but it has been so since the rejuvenation of PRS throughout the country in the 1960s.

The financial resources which the PRIs need would depend proximately upon two things, *viz*, (a) the type and the variety of functions which the PRIs are expected to perform and (b) the extent to which any given function is to be performed within the period of time relevant to the concerned financial flow. The former (a) is clearly conditioned by the degree of decentralisation of governmental functions which a state is willing to opt for. If a state chooses to delegate to the PRIs only a few functions, it may be that the financial resources they get, though small, are adequate for discharging these functions. The problem in that case is not of inadequacy of financial resources but of the limited vision underlying the scheme of 'democratic decentralisation' of the concerned state. On the other hand, the latter (b), follows from the prioritisation of activities within the 'local sector' (as distinct from the 'state sector') set out in the state's annual plan, and, in the case of non-plan activities, from the degree of maintenance required to keep assets/services in a reasonably good shape to ensure the continuous performance in a satisfactory manner of the relevant activities of the local sector. Both these, to be sure, will be constrained by the total financial resources of the government.

Early Years of PRS

The need to develop fairly autonomous PRIs in the rural areas was strongly emphasised in the November 1957 Report of the Team for the Study of Community Projects and National Extension Service appointed by the Committee on Plan Projects[2] - Mehta Team Report, for short, as the Team was headed by Balvantray Mehta. The Mehta Team laid down the guidelines for the distribution of functions in the following words: "The governing consideration in distributing the functions between the village panchayats, the panchayat samitis and the zilla parishad will generally be that all the functions concerning a village within the jurisdiction of a village panchayat should be the responsibility of the village panchayat except for the functions involving similar interests of more than one village panchayat; these should be the responsibility of the panchayat samiti. Similarly, such functions of the panchayat samiti as may involve more than one panchayat samiti should be the responsibility of the zilla parishad" [Mehta Team 1957, Volume III, Part I, p. 167].

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However, in its elaboration of the functions of the three bodies, the Mehta Team appears to have deviated from the guideline pertaining to the zilla parishad. This needs to be explained. Both the village panchayat and the panchayat samiti have been assigned both municipal as well as developmental functions. For example, the village panchayat is expected to perform municipal functions such as public health and sanitation, provision of clean water, maintenance of panchayat roads and so on. Additionally, it is also to undertake a variety of developmental activities, such as, for example, ensuring maximum utilisation of all land or promoting the welfare of backward classes. The municipal or civic functions earmarked for the panchayat samiti include the supply of drinking water or public health and sanitation or construction, repair and maintenance of roads within the confines of its jurisdiction, in so far as the activities in question concern a number of villages. Correspondingly, the panchayat samiti is also charged with the responsibility with respect to a host of developmental activities such as developing agriculture, improving cattle, promoting local industries and so on, again because several villages within a block would stand to gain from these activities when pursued at the supra-village level by the samiti. As a logical extension we should expect that the zilla parishad would be required to undertake developmental activities covering a number of taluks/blocks within the district, such as, for example, developing district roads passing through areas of a number of panchayat samitis within the district. In fact, however, the functions included in the zilla parishad list in the Mehta Team Report envisages this body as a supervisory and coordinating agency concerned with activities such as coordinating and consolidating panchayat samiti plans, supervising activities of the panchayat samitis in the district and so on. Evidently, these functions of the zilla parishad cannot be subsumed under the phrase "functions of the panchayat samiti as may involve more than one panchayat samiti", which, under the Mehta Team's scheme, were to be the "responsibility of zila parishad". In short, the Mehta Team recommended, in effect, a two-tier Panchayati Raj System.

In fact, however, in the earlier years of the inception of the PRS the "actual pattern of panchayati raj in different states (marked) a compromise between the design of the Mehta Report and the varying desires of the state governments" [Maddick, 1970, p. 102]. It appears that the functions entrusted to village panchayats in the states were somewhat uniform, but there were wide differences in respect of authority delegated to the bodies at the higher level. All the same, "quantitatively viewed, the range of functions formally made available to panchayati raj bodies (looked) formidable indeed" [Maddick, 1970, p. 107].

There have been some observations on the mismatch between functions assigned to PRIs and their financial resources in the initial period. This was more pronounced in the case of village panchayats. Several state Acts made a distinction between the obligatory and discretionary functions of a village panchayat[3]. Thus, for example, according to the Andhra Pradesh Act, then in force, some of the obligatory functions of a village panchayat were: "(i) construction, repair and maintenance of village roads; (ii) lighting of public roads and public places; (iii) construction of drains and disposal of drainage water and sullage; and (iv) preventive and remedial measures connected with any epidemic, or with malaria ... Amongst its discretionary functions a mention may be made of (i) planting and preservation of trees on the sides of public roads in the village, (ii) opening and maintenance of public markets other than markets which are classified as district markets; (iii) control of fairs and festivals other than those classified as district fairs and festivals; and (iv) opening and maintenance of elementary schools" [Santhanam Study Team, 1963, Part II, Pp. 4-5]. On the mismatch between obligatory functions and financial resources, the Santhanam Study Team concludes: "We cannot help wishing that when the Acts were passed by the legislatures, an attempt had been made to estimate the minimum cost of fulfilling the obligatory functions and to provide resources for the purpose. The actual resources often vary inversely to the number and extent of obligatory functions" [Santhanam Study Team, 1963, Part I, p 10]. In the case of panchayat samitis the Santhanam Study Team highlights their inability "to exercise any initiative in instituting special

programmes or development projects of their choice, because they do not have independent sources of revenue". It points out that "most of the grants they receive are tied to specific projects and they act merely as agents for implementation". As for the zilla parishads, "their advice is not ...given sufficient consideration by State Government", in states in which the Parishad was just an advisory body, and in states in which they had executive functions, "the scarcity of resources has the same limiting effect on their activities as in the case of Samitis" [Santhanam Study Team 1963, Part I, p. 9]. However, one may note a somewhat different picture presented by Maharashtra where zilla parishad was the pivotal body in PRS. The Santhanam Study Team notes that "on the whole, the Zila Parishads (in Maharashtra) spend about one-third of the total revenue of the State" [Santhanam Study Team, 1963 Part I, p. 32]. Thus we find that in the earlier years a host of important functions were delegated to the PRIs in the initial flush of enthusiasm generated by the Mehta Team Report, but that the experiment in democratic decentralisation was hamstrung in most states by the paucity of resources at all levels.

Later years

In fact, in the wake of the Mehta Team Report, Rajasthan and Andhra Pradesh were the first to inaugurate panchayati raj, and that was in 1959. Later, "based on the broad suggestions of the Balvantray Mehta Study Team most of the country was covered with Panchayati Raj Institutions in the succeeding decade." By the late 1960s, the PRIs were in place in almost all the major states. By the end of the decade, 90 per cent of the rural population was covered by the Gram Panchayats, '4,974 blocks had 4,033 Samitis' and 'out of 399 districts, 262 Zilla Parishads were also conceived with varying degrees of actual power.' [Mehta Committee, 1978, p. 3].

It may be useful at this stage to have a glimpse of the overall situation in respect of financial resources of PRIs in the period from the late 1960s onwards. One must note, however, that adequate data on finances of PRIs are not forthcoming. The Mehta Committee points this out: "It is sometimes difficult to get the latest detailed financial picture of Panchayati Raj Institutions, particularly at the lower tiers. Many State Governments do not have data, readily available, on different aspects of the composition of the finances of these institutions. Even what is available is not uniform, apart from not being up to date. Even in the data the Committee have been able to obtain, the classification of items under 'resources' varies considerably: under heads like 'own receipts' and 'other sources', sometimes assigned revenues are included in 'own resources' and sometimes not. The receipts of the 'local bodies' are not always comprehensive and do not touch on the relative position of the different tiers" [Mehta Committee, 1978, Pp. 102-103]. One should, therefore, try to get a rough idea on the basis of information that is available.

The *Reserve Bank of India Bulletin* (monthly) gives a write-up on "Finances of State Governments" in one of its issues every year. In this write-up we get state-wise figures of resources transferred to local bodies on revenue account by state governments, under the title "Compensation and Assignments to Local Bodies". However, these figures include beside transfers to PRIs those to municipal bodies as well. But the transfers to municipal bodies are likely to be a relatively small proportion of the total transfers.[4] Hence, the proportion which the transfers to local bodies bear to the total receipts of all states on revenue account would give some idea of the order of magnitude of transfers to PRIs by governments on revenue account year by year. It is true that this does not reveal the total income position of the PRIs since they have their own sources of receipts which evidently are left out in the R.B.I. data. However, our hunch is that the own receipts of PRIs at all levels taken together are not likely to exceed the transfers by a state government to municipal bodies. In that case, the percentage of RBI-reported transfers to state receipts on revenue account would indicate the outer limit of the size of revenue budget of PRIs relative to that of the state government. They show that whereas the state governments transferred 13.55 per cent of their revenue receipts in the form of grants and share in taxes[5] to the local bodies in 1968-69, the percentage fell to the insignificant level of 1.34 in 1980-81 and still less of 1.19 in 1987-88 (Table 1).

TABLE 1. TRANSFER OF FINANCIAL RESOURCES ON REVENUE ACCOUNT TO LOCAL BODIES BY 15 MAJOR STATES TAKEN TOGETHER

(Rs Lakh)

Years (1)	Amount Transferred by 15 State Governments (2)	Total Revenue Receipts of the 15 State Governments (3)	(2) as per cent of (3) (4)
1968-69 (Accounts)	35309	260517	13.55
1980-81 (Accounts)	20478	1523782	1.34
1987-88 (Accounts)	48472	4077034	1.19

Note: The 15 states are: Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal

Sources: Data are based upon the following publications: (i) R.B.I. (1) 1970, Statements 5 and 6, p. 1296 onwards. (For 1968-69 figures). (ii) R.B.I. (2) 1982, Appendix II, P. 732 onwards. (For 1980-81 figures) (iii) R.B.I. (3) 1988-89, Volume II, Statistical Statements, Statement 96, P. 134 onwards (for 1987-88 figures).

There are considerable inter-state differences (Table 2). But the trend is the same. In 1968-69, in four states (Gujarat, Andhra Pradesh, Tamil Nadu and Maharashtra) transfer to local bodies constituted 20 to 30 per cent of the revenue receipts of the state governments. In six other states (Bihar, Rajasthan, Orissa, Uttar Pradesh, Karnataka and West Bengal) the transfer ranged between 7 to 15 per cent; in the remaining five states (Assam, Kerala, Madhya Pradesh, Punjab and Haryana), it ranged between 0.20 to 3.24 per cent. In 1980-81 and 1987-88, the inter-state variations persist, but the range of differences is much narrower and all percentages are quite low. In 1980-81, the lowest proportion was 0.10 per cent in Haryana and the highest, 3.59 per cent, was in Karnataka. In 1987-88, Haryana again was at the bottom with 0.03 per cent and West Bengal was at the top with 3.32 per cent. Thus the proportion of transfers by state governments to local bodies on revenue account declined steeply during the 1970s and the 1980s. This seems to be true of transfers to PRIs as well.

TABLE 2. TRANSFER OF FINANCIAL RESOURCES ON REVENUE ACCOUNT TO LOCAL BODIES

(Rs Lakh)

	State	1968-69 (Accounts) Amount Transferred	Total Receipts of the State Government	(2) as per cent of (3)	1980-81 (Accounts) Amount Transferred	Total receipts of the State Government	(5) as per cent of (6)	1987-88 (Accounts) Amount Transferred	Total Receipts of the State Government	(8) as per cent of (9)
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1.	Andhra Pradesh	5615	21025	26.71	2350	126454	1.86	3992	347813	1.15
2.	Assam+	266	8218	3.24	367	52220	0.70	643	124108	0.52
3.	Bihar	2424	16026	15.13	426	98808	0.43	1006	296869	0.34
4.	Gujarat	4953	15039	32.93	573	102499	0.56	1470	280647	0.52
5.	Haryana	13	6657	0.20	45	45994	0.10	41	130384	0.03
6.	Karnataka@	1284	17506	7.33	3424	95346	3.59	6159	255689	2.41
7.	Kerala	250	13840	1.80	267	64038	0.42	98	158609	0.06
8.	Madhya Pradesh	291	17222	1.69	2913	113394	2.57	5701	299424	1.90
9.	Maharashtra	6791	34549	19.66	821	203806	0.40	4480	557821	0.80
10.	Orissa	1067	9719	10.98	365	62133	0.59	550	133308	0.41
11.	Punjab	118*	10348	1.40	109	56766	0.19	1070	140453	0.76
12.	Rajasthan	1438	12070	11.91	511	75285	0.68	728	218308	0.33
13.	Tamil Nadu	6146	24910	24.67	2907	127996	2.27	7057	309189	2.28
14.	Uttar Pradesh	3282	31947	10.27	1868	189873	0.98	5807	533193	1.09
15.	West Bengal	1371	21441	6.39	3532	109170	3.24	9670	291219	3.32
	Total (15 states)	35309	260517	13.55	20478	1523782	1.34	48472	4077034	1.19

+ Assam's territory became less and less from 1968-69 to 1987-88, as new states (Manipur, Meghalaya, Arunachal Pradesh, Mizoram) were carved out of Assam of 1968-69. The figures for Assam in the table relate to a state with a changed territorial size in the three years. However, even if figures were computed by holding Assam's territory in 1968-69 constant, that would not make much of a difference to Assam figures, let alone to those for all the 15 states together. @ In the RBI publication giving the 1968-69 figures the state is mentioned as 'Mysore'. The name was changed to 'Karnataka' later. * The Punjab figure is for 1969-70 (Revised Estimates), as the 1968-69 (Accounts) figure was not available.

Sources: The same as for Table 1.

TABLE 3. NET CAPITAL TRANSFERS BY STATE GOVERNMENTS TO LOCAL BODIES, 1968-69 (ACCOUNTS)

(Rs Lakh)

State	Loans (Net)	Total Capital Receipts of the State Government	(2) as per cent of (3)	Total Transfers (Revenue + Capital)	(2) as per cent of (5)
(1)	(2)	(3)	(4)	(5)	(6)
1. Andhra Pradesh	-23	11485	-0.20	5592	-0.41
2. Assam	52	7005	0.74	318	16.35
3. Bihar	22	9633	0.23	2446	0.90
4. Kerala	15	5328	0.28	265	5.66
5. Madhya Pradesh	20	8350	0.24	311	6.43
6. Karnataka	143	12641	1.13	1427	10.02
7. Orissa	-2	7205	-0.03	1065	-0.19
8. Rajasthan	-128	14360	-0.89	1310	-9.77
9. Uttar Pradesh	161	22050	0.73	3443	4.68
10. West Bengal	364	8615	4.23	1735	20.98
Total	624	106672	0.58	17912	3.48

Source: R.B.I. (1), 1970, Statement 7, p. 1332 onwards.

We have been considering above the transfers to local bodies only on revenue account. What about loans which are transfers on capital account? Of the three R.B.I. publications referred to, only the one giving 1968-69 figures, provides separate figures of loans by state governments to local bodies. Table 3 gives data on net capital transfers in 1968-69 for 10 of the 15 major states for which data both on (i) loans given to local bodies and (ii) repayment of earlier loans by these bodies are available, from which net loan figures could be derived.

The Table reveals that the loans by the state governments to local bodies in the 10 states accounted for a paltry 0.58 per cent of the capital receipts of these governments. The proportion of loans received by local bodies to total transfer of resources to them (inclusive of loans) was a little higher but still quite low at around 3.5 per cent. There were inter-state differences, no doubt, particularly in respect of the latter proportion (viz., loans to total transfers). The former proportion (loans to capital receipts of the state) was uniformly low throughout at 1 per cent or less, except for West Bengal where it was 4.23 per cent, still a low percentage. As for the latter percentage, West Bengal (21 per cent)[6], Assam (16 per cent) and Karnataka (10 per cent) had a loan component in the resources they received from the state governments, which was not insignificant. The percentage was low or negative in the case of the remaining 7 states. What is more, probably "all the loans given by State Governments to local bodies are to municipalities and city corporations" [Raj, 1971, p. 1610]. It may also be mentioned that in the list of sources of income of the village panchayats given by the Mehta Committee, the item 'loan received from the State Government' does not figure in the case of any state, major or otherwise [Mehta Committee, 1978, Pp. 250-259]. As for the higher level bodies, there is no provision for 'loan from State Government' as a source of income in the case of 8 of the 15 major states, the 8 states being Andhra Pradesh, Assam, Haryana, Karnataka, Kerala, Madhya Pradesh, Orissa and Punjab [Mehta Committee, 1978, Pp. 266-278]. It appears, therefore, that leaving out of account loan from state governments as a source of income to PRIs in our analysis is not likely to affect the conclusion reached earlier that in the 1970s and 1980s a very small part of a state's total receipts were transferred to the PRIs.

What are the reasons? One possibility is that the functions of the PRIs remained as they were on paper, but, for whatever reasons, the state governments lost confidence in the PRIs and therefore cut down drastically on resources transferred to them. Such a course of action would clearly result in the functions not being performed by the PRIs in an adequate degree, and if applied across the board to all manner of functions, important

and not so important, would cripple the developmental activity in rural areas. Though this seems to have taken place to some extent it appears that state governments resorted also to other devices to bypass the PRIs in the matter of performance of important functions.

Consider, for instance, the case of Maharashtra which was lauded by the Mehta Committee as "one of the best examples of the working of the Panchayati Raj System" [Mehta Committee, 1978, p. 116]. In June 1984, the Government of Maharashtra appointed Panchayati Raj Evaluation Committee (PREC) to study the PRS in the state in depth, particularly with reference to the objectives set before it under *The Maharashtra Zilla Parishads and Panchayat Samitis* Act, 1961 (Maharashtra Act, 1961) and to recommend the lines, if any, on which the system may be reformed. Maharashtra Act, 1961, as its title indicates deals only with the zilla parishads and the panchayat samitis. The village panchayats are governed by a separate and an earlier Act, *viz., The Bombay Village Panchayats Act, 1958* (Bombay Act, 1958). On a representation by the PREC that the evaluation of the village panchayats may also be entrusted to it, evidently to enable it to consider the problems of PRIs in an integrated manner, the Government of Maharashtra issued instructions to that effect, with the result that the PREC Report is concerned with PRIs at all the three levels [PREC 1986, p. 2]. The PREC has thrown some light on the manner in which the PRS was deflated in importance by the state government.

First, the State Government has a parallel administrative apparatus in the districts to undertake activities in the fields of agriculture, education, public health, etc., which are ordinarily within the jurisdiction of the zilla parishad[7]. This duplication of administrative machinery has meant not merely an excessive drain on resources but also a devaluation of the PRIs in the rural areas [PREC, 1986, p. 76]. Second, the Government has taken away, from time to time, powers given to the PRIs both by amending the relevant Act and by issuing Government Resolutions (GRs) to that effect. Thus, for example, under the Rural Development Department G.R. No, ZPA/1072/52193 (i) N dated October 1, 1973, the Government divested zilla parishads of the power to sanction loans upto Rs 10,000 to small scale and cottage industries. [PREC, 1986, p. 538][8].

The most important change in functions relates to the role of PRIs in district planning. It is interesting to note that Maharashtra Act, 1961, lays down responsibility of the zilla parishad in the matter as follows: "The zilla parishad shall endeavor to promote *planned development* of the District by utilising to the maximum extent, local resources and for that purpose *prepare annual and long-term plans*, regard being had to the plans already prepared by the Panchayat Samitis" (emphasis added) [Maharashtra Act, 1961, Section 100(4)]. However, when district planning as a nationally-approved exercise came to be put into practice in the state, consequent upon the issue of guidelines for District Planning by the Planning Commission of India in 1969, the PRIs were accorded an insignificant role in planning for development in the district. A separate organisation known as the District Planning and Development Council (DPDC) was set up in every district presided over by the designated Minister of the district ('the guardian Minister') and under the dominant influence of members of state legislatures (MLAs) and of the Parliament (MPs) from the district. The PRIs have a minimal representation on the DPDC in the form of two dignitaries of the zilla parishad, its President and Chief Executive Officer, being made members of this body with a total membership of 30 to 40. Chairmen of the panchayat samitis are invited to DPDC's meetings. The Collector of the district, who is the 'state sector's' representative in the district, is the secretary of the DPDC. The phenomenon of limited representation to the PRIs on the district planning body is not limited to Maharashtra. In most states the PRIs have no representation at all on this body. The Working Group on District Planning (WGDP) of the Planning Commission, Government of India, states: "The only five states in which PRIs are represented are: Gujarat, Maharashtra, J&K [i.e. Jammu & Kashmir], Madhya Pradesh and Andhra Pradesh ... In a number of other states, the representation of PRIs in the District Planning bodies is not clear, either because they are not

functioning or such representations are not provided for" (WGDP, 1984, Vol. I, p. 30].

All this means that the resources for planning made available to PRIs have been meagre, if not non-existent. The Mehta Committee notes: "An indication that all the Plan funds relating to rural development were not being routed through the Panchayati Raj system is the fact that a separate departmental and developmental head got opened up for C.D. (Community Development) and Panchayati Raj system in the five year and annual plans, apart from the other development work pertaining to rural development.... The actual expenditure of all the 22 States on Agriculture and allied services rose from Rs 217.19 crore in 1973-74 to Rs 383.78 crore in 1975-76 and the agreed outlay for 1978-79 is Rs 770.41 crore. The expenditure on the head 'Community Development and Panchayats' also has risen from Rs 18.58 crore in 1973-74 to Rs 29.14 crore in 1975-76... The outlay for 1978-79 is Rs 47.48 crore.... Ideally speaking, the bulk, if not all of these funds, should have flown through the Panchayati Raj Institutions" [Mehta Committee, 1978, p. 116].

Returning to the case of Maharashtra, district planning is supposed to deal with what are known as district level plan schemes, defined as schemes which benefit mostly the residents of a district and which are best planned only at the district level from the point of view of the optimal utilisation of natural and other local resources of the district [PREC, 1986, p. 147]. In 1985-86 the annual plan of the state of Maharashtra amounted to Rs 1,275.50 crore of which district plan schemes accounted for Rs 672.09 crore, i.e., 52.69 per cent of the state annual plan. All the same the plan schemes within the jurisdiction of the zilla parishads, the pivotal bodies in the PRS in the state, were for only Rs 68.85 crore, i.e., only 5.40 per cent of the state annual plan and 10.24 per cent of the district plan for the year [PREC, 1986, p. 147]. Thus the denial to the PRIs of a major role in the widening sphere of district planning has been an important factor in reducing the flow of resources to the PRIs by devaluing their role as rural-based autonomous institutions.

It must, however, be emphasised that the foregoing should not be interpreted to mean that the PRIs in Maharashtra have a marginal role to play in the total developmental activities in the district. A distinction is generally made between plan and non-plan expenditure. The former refers to expenditure on schemes included in the plan for the given period, whereas the latter ordinarily covers the expenditure on maintenance of assets and services created during the preceding plan periods and continued during the current plan. It has been pointed out that though the zilla parishads account for a small proportion of expenditure of plan activities oriented towards new development in the districts, their share in the non-plan expenditure is sizeable (Table 4) [Paranjpe, 1987, p. 137].

TABLE 4. PRIs IN MAHARASHTRA: DISTRICT PLAN AND NON-PLAN ACTIVITIES (1981-82)

(Rs Crore)

			Total Plan Expenditure		Total Non-Plan Developmental Expenditure			
Total State Plan Expenditure (1)	Total Non-Plan Developmental Expenditure (2)	(2) as per cent of (1) (3)	District Level Schemes (4)	Zilla Parishads (5)	District Level Schemes (6)	Zilla Parishads (7)	(5) as per cent of (4) (8)	(7) as per cent of (6) (9)
1110.47	1095.83	98.64	463.15	23.27	456.85	234.37	4.96	51.30

Source: Paranjpe, 1987, Table 6.1,p.138 [K.G. Paranjpe worked as Secretary to the Government of Maharashtra, Planning Department and eventually retired as Chief Secretary to the Government.]

Thus, whereas the zilla parishads in Maharashtra were concerned with only about 5 per cent of the plan expenditure on district level schemes, they accounted for around 51 per cent of the non-plan developmental expenditure on district-level schemes. Nevertheless, it should be noted that non-plan expenditure which is primarily in the nature of maintenance expenditure is governed by rules relating to the rates at which maintenance is to be permitted, leaving hardly any initiative to the zilla parishad, unlike in the case of plan expenditure which is on new schemes. The relative importance of the PRIs in Maharashtra in respect of the two categories of expenditure signifies the devaluation of these bodies from 1970s onwards, resulting in a diminution of the flow of financial resources to these bodies. The situation in other states is not likely to be better; if at all it may be worse.

It has been customary for the members of the panchayati raj bodies to complain that they have inadequate resources with which to perform functions delegated to them. But, as has been pointed at the beginning, to the extent that the PRIs have been divested of important functions that should legitimately be entrusted to them, the situation has to be described not so much as inadequacy of resources in relation to a wide array of functions but as one of limited vision underlying the scheme of 'democratic decentralisation'. An important recommendation of the Mehta Committee was that all functions relating to implementation of plan projects at the district level should be transferred to the zilla parishads, involving also the transfer of finances along with the projects. According to the Committee's estimate, "about 45 per cent of the total State plan outlay in West Bengal, 37 per cent in Maharashtra and as high as 60 per cent in one year in Karnataka, could be the expenditure at district and lower levels", evidently in the late 1970s. The Committee further expressed the desire that the non-plan expenditure incurred at the district or lower levels be also placed under the administration of the respective tiers of the PRS. This, in its view, would additionally place considerable funds at the district level [Mehta Committee, 1978, Pp. 116-117]. The rationale for opting for such a dispensation, according to the Mehta Committee, was "a phenomenal increase in the spatial scatter of rural development" enlarging "the number of action-points well beyond the capacity of the existing machinery for development" and therefore underscoring the need to equip PRIs "to undertake "development management" under conditions of rapid changes, continuous growth and sustained innovations in all spheres of rural life" [Mehta Committee, 1978, Pp. 26 and 28]. The capacity of PRIs to live upto expectations in this regard is highlighted by the experience that whenever these bodies have been associated with programmes of rural development the implementation of these programmes have been markedly better, and the selection of beneficiaries of projects as also designing of schemes has been done more satisfactorily [Rao Committee, 1985, p. 41]. It needs to be mentioned here that under the Karnataka Zilla Parishads, Taluka Panchayat Samithis, Mandal Panchayats and Nyaya Panchayats Act, 1983 (Karnataka Act, 1983) the zilla parishads are required to "formulate and execute the District Plans" [Section 183(1)]. Thus the PRIs are accorded an important role in "decentralised planning under the Karnataka model" [Karnataka Finance Commission 1989, Pp. 164-165].

TYPES OF FINANCIAL RESOURCES

The financial resources in the revenue budgets of the PRIs may be broadly classified into: (i) own resources, both tax and non-tax, (ii) assigned revenue and (iii) grants. Loans are receipts on capital account but, as mentioned earlier, these are not significant. Moreover, there is hardly any reliable data available on loan receipts of the PRIs in the different states. Hence, these are left out of account.

Village Panchayats: Own Receipts

Own taxes are those which are levied and collected by a panchayat body for its purpose. These are further classified into compulsory and optional taxes. Thus the Santhanam Study Team reporting in 1963 notes: "In Assam, Gujarat, Jammu & Kashmir, Rajasthan and Uttar Pradesh all taxes are optional. House tax is compulsory in

the States of Andhra Pradesh, Kerala, Maharashtra, Madhya Pradesh, Madras[9], Mysore[10] and Punjab. In these States, except Maharashtra and Punjab profession tax[11] is also compulsory. Vehicle tax is compulsory in the States of Kerala and Madras" and further: "We hold that levy of at least a few compulsory taxes is essential not only to assure every Panchayat a small income from its own resources but also to emphasise the fact that it is a self-governing body." In fact the Study Team suggested that the levy of house tax, profession tax and vehicle tax should be made obligatory for village panchayats [Santhanam Study Team, 1963, p. 11]. As for the optional taxes in the early 1960s, the essential position (as based upon the Santhanam Study Team Report) has been adequately summarised by Maddick (Table 5).

TABLE 5. OPTIONAL PANCHAYAT TAXES IN DIFFERENT STATES [EARLY 1960S]

States	Optional Taxes
Andhra Pradesh	Kolagaram or Kataruum tax on village produce sold in village by weight, measurement or number.
Mysore, Gujarat, Maharashtra, and Rajasthan*	Octroi on entry of goods, animals and sometimes people into a local area for consumption use or sale therein.
Maharashtra, Gujarat, Jammu & Kashmir, Rajasthan and Bihar	Pilgrim Tax.
Jammu & Kashmir	Tax on animals.

* Maddick wrongly includes Uttar Pradesh also among the states having the optional power of levying octroi. However, the Santhanam Study Team Report on which the table is based, includes only the four states mentioned [Santhanam Study Team, 1963, Part I, p. 14].
Source: Maddick, 1970, table 17, p. 123.

Regarding the taxation powers of the village panchayats, one milestone report is that of the Mehta Committee, which came in 1978. The information in that report pertains to 1960s and 1970s. In early 1980s, a number of separate studies on Panchayati Raj Finances in Andhra Pradesh, Bihar, Gujarat, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu and West Bengal, 10 of the 15 major states, were published by researchers in the National Institute of Rural Development, Hydrabad (NIRD), which provide information, *inter alia*, on the taxation powers of village panchayats[12]. But these mostly reproduce the lists of panchayat compulsory taxes given by the Mehta Committee for these states.[13]

Maharashtra is additionally well covered by three official reports, viz., Bongirwar Committee Report, 1971; Kale Sub-Committee Report, 1981 and PREC Report 1986. Besides, there is a Government of India publication, viz., Panchayati Raj at a Glance, Status of Panchayati Raj Institutions in India, (Ministry of Agriculture, Department of Rural Development, Administrative Intelligence Division, New Delhi), which gives, *inter alia*, information on the powers of taxation of PRIs at different levels. But the information given in the latter is not satisfactory. For instance, Panchayati Raj at a Glance (1988-89) has a table purporting to give state by state a list of powers of compulsory taxation of the village panchayats in 18 states reporting information, including 14 of the 15 major states, Bihar being the solitary non-reporting major state. Though the heading of the only column in the table giving taxation powers of village panchayats is "Name of Compulsory Taxation Items", the statement introducing the table informs us that "the details of specified items on which the PRIs at lower level have been empowered to levy taxes" are given in the table. Presumably, this would cover not merely compulsory but optional taxes as well. In fact, in respect of three of the four states - Assam, Orissa and Rajasthan (fourth being Uttar Pradesh) - in which the village panchayats, according to the Mehta Committee Report, *did not* possess any powers to levy *compulsory* taxes, a large many powers of taxation shown in the Mehta Committee Report as "Other (i.e. non-compulsory) sources of Income", appear under the column, "Name of Compulsory Taxation Powers" in this table. This would mean that there was a considerable accretion in the 1980s to the powers of panchayats in these states to levy compulsory taxes, which seems unlikely. We may, therefore, presume that the powers of village panchayats to levy compulsory taxes given statewise by the Mehta Committee obtained not merely in the 1960s and 1970s but also continued in the 1980s.

TABLE 6. TAXATION POWERS OF VILLAGE PANCHAYATS

Taxes leviable by village panchayats in 15 major states	Major states in which tax is *compulsory*	Major states in which tax is *optional*	Total number of states in which the tax, compulsory/ optional, is leviable (2+3)
(1)	(2)	(3)	(4)
Betterment charge on the land[a]	Maharashtra	----	1
Conservancy tax (rate)	----	Assam; Orissa; West Bengal	3
Drainage fee	----	Bihar; Gujarat; Kerala[1]; Madhya Pradesh; Orissa[2]	5
Duty on transfer of property	Haryana; Kerala; Punjab; West Bengal	Andhra Pradesh	5
Fees from market and hats	Madhya Pradesh	Assam; Bihar; Gujarat; Haryana; Karnataka; Madhya Pradesh; Orissa[2]; Punjab; Uttar Pradesh	10
Fees on registration of animals	Madhya Pradesh	Bihar; Haryana; Maharashtra; Punjab; Uttar Pradesh	6
Kalagaram/Katarusum i.e. a tax on village produce sold in the village by weight measurement or number.	Andhra Pradesh	----	1
Lighting tax or rates	Madhya Pradesh	Assam; Bihar; Gujarat; Kerala[1]; Maharashtra; Orissa[2]; Punjab; West Bengal	9
Local rate	----	Assam	1
Octroi	----	Gujarat; Karnataka; Maharashtra[3]; Rajasthan	4
Pilgrim tax	----	Andhra Pradesh; Bihar; Gujarat; Maharashtra; Rajasthan	5
Profession tax	Andhra Pradesh; Haryana; Karnataka; Kerala; Madhya Pradesh; Punjab[w]; Tamil Nadu; West Bengal	Bihar; Gujarat; Madhya Pradesh; Maharashtra; Orissa	13
Sanitary cess/tax[b]	----	Bihar; Gujarat; Kerala[1]; Madhya Pradesh; Maharashtra; Punjab; Uttar Pradesh; West Bengal	8
Special tax on adult male members for the construction of any public work	----	Haryana; Rajasthan	2
Surcharge on show tax	Kerala	----	1
Surcharge on stamp duty	----	Tamil Nadu	1
Tax for cleaning private latrines	Madhya Pradesh	----	1
Tax on buildings/houses	Andhra Pradesh; Gujarat; Haryana; Karnataka; Kerala; Madhya Pradesh[x]; Maharashtra; Punjab; Tamil Nadu; West Bengal;	Madhya Pradesh[4]; Rajasthan; Uttar Pradesh	13
Tax on commercial crops: chillies; cotton; sugarcane; zeera; and groundnut	----	Rajasthan	1

(Contd.)

TABLE 6 (Concld.)

Taxes leviable by village panchayats in 15 major states	Major states in which tax is *compulsory*	Major states in which tax is *optional*	Total number of states in which the tax, compulsory/ optional, is leviable (2+3)
(1)	(2)	(3)	(4)
Tax on dogs	----	Gujarat	1
Tax on entertainment	Kerala; West Bengal	Gujarat; Karnataka; Kerala[1]; Maharashtra; Tamil Nadu	7
Tax on fairs and festivals	----	Gujarat; Karnataka; Maharashtra	3
Tax on lands	Gujarat; Karnataka[y]; Maharashtra[y]; West Bengal	Assam[3]	5
Tax on property	Bihar[z]; Karnataka	----	2
Tax on sale of firewood or thatch or bamboo	----	Assam	1
Tax on shops; pharmacies; hair-cutting saloon; carpentry works and automobile workshops	----	Assam	1
Tax on slaughter houses	----	Assam; Madhya Pradesh; Orissa[2]; Uttar Pradesh	4
Tolls	----	Madhya Pradesh; Orissa	2
Trade tax	Karnataka	----	1
Vehicle tax[c]	Kerala; Tamil Nadu	Andhra Pradesh; Bihar; Gujarat; Karnataka; Madhya Pradesh ; Maharashtra; Orissa; Rajasthan; Uttar Pradesh; West Bengal	12
Water rate[d]	----	Assam; Bihar; Gujarat ; Haryana; Karnataka; Kerala[1]; Madhya Pradesh; Maharashtra; Orissa[2]; Punjab; Rajasthan; Uttar Pradesh; West Bengal	13

Col 1.: (a) On the lands benefitting from schemes or projects undertaken by a panchayat from the village fund. (b) Refers to the following levies: 'General sanitary cess' (Gujarat and Maharashtra), 'Latrine tax' (Bihar), 'Sanitary cess' (Madhya Pradesh), 'Special sanitary cess' (Maharashtra), 'Sanitary tax' (West Bengal), 'Fees on cleaning streets and sanitation' (Punjab), 'Tax on cleaning private latrines' (Uttar Pradesh). (c) Refers to the following levies: 'Vehicle tax' (Andhra Pradesh, Bihar, Karnataka, Orissa, Rajasthan and West Bengal), 'Vehicle, boats or animals tax' (Gujarat), 'Tax on carts plying for hire, bicycles, rickshaws' (Madhya Pradesh), 'Tax on bicycles and vehicles drawn by animals' (Maharashtra), 'Tax on vehicles run on hire' (Uttar Pradesh). (d) Refers to the following levies: 'Water rate' (Bihar, Haryana, Madhya Pradesh, Maharashtra, Punjab and Uttar Pradesh), 'Tax on house supply of water' (Assam), 'General Water rate' and 'Special water rate for piped water' (Gujarat), 'Fees on supply of water from panchayat water works' (Karnataka), 'Tax for arranging the supply of drinking water '(Rajasthan), 'Water rates for supply of water for drinking, irrigation or other purposes' (West Bengal).
Col. 2: w With the previous approval of the Government. x On buildings based on capital value, exceeding Rs 1,000. y Lands not subject to agricultural assessment. z Immovable property
Col. 3: 1 The Mehta Committee mentions 'service taxes' in the case of Kerala. Separate 'service taxes' were identified from an NIRD study [Narayana Rao, 1982 (ii), p. 753]. 2 Source: Narayana Rao, 1982 (iii), p. 958. 3 With the previous sanction of the Government. 4 On buildings of capital value of total Rs 1,000. 5 On cultivable land lying fallow.
Note: The Gujarat Act lists a number of taxes, rates, fees which a village panchayat can levy. Of these a tax on lands and buildings along with any two of the rest of the taxes and fees mentioned in the list have been made obligatory. 'As a consequence, octroi is one of the taxes generally levied these days by the Gram Panchayats' [Narayana Rao, 1982(i), p. 397].
Sources: (1) Mehta Committee, 1978, Annexure 9. (2) NIRD studies mentioned. (3) Bombay Act, 1958, Section 124.

In Table 6, we give information on compulsory and optional taxes leviable by village panchayats in 15 major states, drawn principally from the Mehta Committee Report. As stated above the powers of village panchayats to levy taxes in 10 major states have also been verified from the NIRD studies mentioned.[13]

Information in column (4) of the Table suggests that the 30 taxes listed in the table can be classified into three types: (i) wide coverage taxes, in the sense that they are assigned to village panchayats in a large number of states, say, in 10 states or more; (ii) medium coverage taxes, say in 5 to 9 states; and (iii) low coverage taxes, i.e., in less than 5 states. The 5 wide coverage levies are: Fees from markets and hats (10 states); Profession tax (13 states); Tax on buildings/houses (13); Vehicle tax (12) and Water rate (13). Of these all except the water rate are compulsory in some states and optional in others. Water rate is a purely optional tax. What is more, as compulsory taxes, profession tax and tax on building/houses are far more important, the profession tax being a compulsory tax in 8 states and tax on buildings/houses, in 10 states.

The 8 medium coverage taxes (leviable in 5 to 9 states) are: Drainage fee (5); Duty on transfer of property (5); Fees on registration of animals (6); Lighting tax/rate (9); Pilgrim tax (5); Sanitary cess/tax (8); Tax on entertainment (7); Tax on lands (5). Of these 'Duty on transfer of property' and 'Tax on lands' are compulsory in most of the states; the remaining taxes are optional in most/all of the states. The wide and the medium coverage categories together account for 13 taxes. The remaining 17 taxes are low coverage taxes. 'Octroi' comes under this category, except in Gujarat (see Note below the Table).

In addition to the taxation powers listed in Table 6, there is in some states a blanket provision to the effect that a panchayat could levy all taxes which the state legislature can levy under the Indian Constitution. Such a provision exists in Gujarat, Madhya Pradesh, Maharashtra and Rajasthan [Mehta Committee, 1978, Pp. 252-257]. Evidently, the use of this power is subject to sanction by the State Government, as is seen by the provision of the relevant Act pertaining to Maharashtra [Bombay Act, 1958, Section 124 (1) (ix)]. One wonders if sanction by state government has been given to any panchayat to this effect.

The situation in Karnataka as reflected in Table 6 is on the basis of information in the Mehta Committee Report. However, under Karnataka Act, 1983 the panchayat raj pattern in Karnataka has undergone a change. Now the lowest tier[14] in Karnataka is effectively the Mandal Panchayats, a mandal being ordinarily 'any area comprising a village or group of villages having a population of not less than ten thousand and not more than fifteen thousand' so declared by the competent authority [Karnataka Act, 1983, section 4 (1)]. On comparing the powers of taxation of village panchayats in Karnataka as per the Mehta Committee Report and those of the mandal panchayats under the Karnataka Act, 1983, one finds that whereas the mandal panchayats now are *required* to levy a tax on buildings and a tax on lands not subject to agricultural assessment, the village panchayats earlier were *obliged* to levy additionally the profession tax, tax on property and trade tax. As for the optional levies, four such levies of the village panchayats reappear in the list of these levies for the mandal panchayats under the recent Act, *viz.*, fees on markets; tax on entertainments; vehicle tax and water rate. In addition the mandal panchayats may levy the following taxes/fees: fee on bus stands; tax on mineral rights; fee for grazing cattle on the grazing land belonging to or vested in the mandal panchayat and duty on transfer of immovable property. Some optional taxes or fees which figured in list of taxation powers of the former village panchayats have been left out of the corresponding list of the mandal panchayat under the new Act. These are octroi and tax on fairs and festivals.

At this stage we may enquire into the relative importance of compulsory taxes as a revenue-raising source for the village panchayats in states. There is some information in separate NIRD studies in respect of Andhra Pradesh, Kerala, Gujarat and Tamil Nadu. The PREC Report mentioned earlier provides data for Maharashtra. There is a difficulty in using the information on Andhra Pradesh given in one of the NIRD studies [Narayana Rao, Sastry, Vittal, 1984]. Two Tables

in the publication, Table 5 and Table 7, furnish information on the receipts of the gram panchayats in Andhra Pradesh over a period of years, Table 5 covering the period, 1957-58 to 1974-75 and Table 7, 1974-75 to 1979-80. Thus 1974-75 is covered in both the Tables. However, there are serious discrepancies between the two Tables. Thus Table 7 shows the tax revenue of village panchayats in 1974-75 as Rs 295.32 lakh while in Table 5 for just one tax, viz. the house tax, it is Rs 424.07 lakh. The figures of total income from all sources (including presumably government grants) for 1974-75 also differ in the two Tables: Rs 1,420.24 lakh in Table 5 and Rs 1,009.69 lakh in Table 7. The discrepancy is not explained. Hence, we shall not take this source into account. The available data for the four states - Gujarat, Kerala, Maharashtra and Tamil Nadu - for a few selected years are presented in the Table 7.

TABLE 7. OWN RECEIPTS OF VILLAGE PANCHAYATS (COMPULSORY TAXES + OTHER SOURCES)

(Rs Lakh)

Years	States	Receipts from Compulsory Taxes	Other Own Receipts	Total Own Receipts (3 + 4)
(1)	(2)	(3)	(4)	(5)
1960-61	Maharashtra	56.90	144.70	201.60
		(28.22)	(71.78)	(100.00)
Third Plan Period	Tamil Nadu	460.06	1181.44	1641.50
		(28.03)	(71.97)	(100.00)
1970-71	Maharashtra	152.40	260.80	413.20
		(36.88)	(63.12)	(100.00)
	Tamil Nadu	146.89	404.79	551.68
		(26.63)	(73.37)	(100.00)
1974-75	Gujarat	182.62	460.37	642.99
		(28.40)	(71.60)	(100.00)
	Tamil Nadu	174.79	596.47	771.26
		(22.66)	(77.34)	(100.00)
1975-76	Gujarat	207.89	494.97	702.86
		(29.58)	(70.42)	(100.00)
	Tamil Nadu	263.05	550.54	813.59
		(32.33)	(67.67)	(100.00)
1979-80	Kerala	823.32	122.09	945.41
		(87.09)	(12.91)	(100.00)
	Maharashtra	487.34	597.62	1084.96
		(44.92)	(55.08)	(100.00)
1981-82	Maharashtra	556.44	847.49	1403.93
		(39.63)	(60.37)	(100.00)

Figures in brackets show percentage to total
Sources: Narayana Rao, 1982 (i), Table 4, Pp. 402 - 403 for Gujarat; Narayana Rao, 1982 (ii), Table 3, p. 757 for Kerala; PREC, 1986, Appendix 4.4, p. 521 for Maharashtra; Narayana Rao, 1983, Table 2, Pp. 73-74 for Tamil Nadu.

It is seen that barring the solitary exception of Kerala in one year (1979-80), when the compulsory taxes yielded 87 per cent of the total own receipts, the proportion of receipts from compulsory taxes to total own receipts varied between 25 to 40 per cent. One does not know whether this is a representative picture for the country as a whole. Gujarat, Maharashtra and even Tamil Nadu have had, relatively speaking, a somewhat better functioning panchayati raj system. Moreover, it would also be difficult to deduce from these figures whether even in these states the village panchayats tapped these sources as much as they should. It is worth noting that several village panchayats had expressed to the Santhanam Study Team their reservations about the system of requiring them to levy compulsorily certain specified taxes. They wanted their financial resources to flow from higher level bodies or from optional taxes, fees and voluntary contributions [Santhanam Study Team, 1963, Part I, p. 11]. All that we can infer from the above data is that in the states of Gujarat, Kerala, Maharashtra and Tamil Nadu, the compulsory taxes have turned out to be quite a significant source of own receipts at whatever level the tax

effort by panchayats in these states was organized.

It has also been customary for State Governments to lay down minimum and maximum rates for several panchayat taxes. For example, in Maharashtra the village panchayat can levy taxes, compulsory as well as optional, only within the minimum and maximum rates fixed by the State Government [Bombay Act, 1958, Section 124]. Similarly, in Andhra Pradesh, the house tax, a compulsory tax, and vehicle tax, an optional tax, are to be levied within the limits of maximum and minimum rates laid down by the state government [Narayana Rao, Sastry and Vittal, Pp. 18 and 27]. The Karnataka Act, 1983, stipulates only maximum rates for a number of taxes, compulsory as well as optional [Karnataka Act, 1983, Section 116]. The Taxation Enquiry Commission, Government of India (1953-54) had expressed the view: "It is desirable that the minima in a few appropriate cases (e.g. property tax and land cess) and the maxima in almost all cases, should be prescribed by State Governments and the local bodies then left to modify the rates as and when suitable" [TEC, 1953-54, Vol. III, p. 363].

The minimum rate in the case of a tax is evidently intended to guarantee a minimum income from taxation to the panchayat. If it is felt that a particular tax, especially an obligatory tax, ought to be paid by all including the poor, the state government will have to keep the minimum rate sufficiently low. The rationale of policy of not allowing any exemptions in respect of house tax was explained in the Santhanam Study Team Report thus: "Although it may be argued that poor people in rural areas, especially those living in thatched huts, should be exempted, we feel that no hut or house should be exempted. We do so as much on sociological grounds as for financial reasons.... Payment of this tax will give them (i.e. the poor) a feeling that they are directly contributing to the funds of the Panchayat and are, therefore, entitled to the services and amenities which it provides to all residents" [Santhanam Study Team, 1963, Part I, p. 11]. The proposition seems to us of doubtful validity. The upper limit on tax rate seems to be designed to prevent the tax rate from being burdensome. In any case, the minimum and maximum rates help keep within limits the inter-panchayat diversity of rates within a state.

The own non-tax sources of revenue for village panchayats have always consisted, *inter alia*, of fees of various types as also fines. To be sure, all fees are not to be regarded as non-tax items. As the Santhanam Study Team points out there are fees for services and license fees. The former includes "fees for water supply, drainage, street lighting and conservancy", whereas license fees "are levied for registration of cattle sold, collection of hides and skins, tea stalls and restaurants, or goods exposed for sale in markets, for direction of new buildings, for use of common land and community property and for carrying on offensive or dangerous trade." [Santhanam Study Team, 1963, Part I, Pp. 14-15]. The former category of fees are for services which are in the nature of social goods; these fees are rather like taxes and cannot be subsumed under the category of non-tax items. But license fees are certainly among the non-tax sources of income to village panchayats. So also are fines panchayats may impose for encroachments or, say, for failure to take licenses. Besides, village panchayats may get income from properties vested in them by the state government such as, "*porambokes*, roads, bridges and culverts, tanks, water-ways, minor irrigation sources, grazing lands, unreserved forests, ...buildings and rest houses, slaughter houses" and so on [Mehta Committee, 1978, p. 111].

Sources of Own Receipts of Samitis and Parishads

We now turn to own financial sources of panchayat samitis and zilla parishads. States differ widely in respect of relative importance of panchayat samiti/zilla parishad in their respective schemes of democratic decentralisation. Accordingly, their powers of raising own receipts differ among the states. We shall first consider the panchayat samitis and then turn to the zilla parishads.

There are some states in which the panchayat samitis have hardly any powers to raise financial resources. In Andhra Pradesh, these bodies "do not have any specific powers of taxation". In fact, "the Act does not mention the taxes, surcharges or fees which (they) can levy" [Narayana Rao,

Sastry and Vittal, 1984, p. 39]. The same seems to be true of Orissa where also samitis do not seem to possess powers of raising resources on their own [Mehta Committee, 1978, p. 270; Narayana Rao, 1982 (iii), p. 970]. There are no panchayat samitis in Assam [Mehta Committee, 1978, p. 266], nor in Kerala [Mehta Committee, 1978, p. 269; Narayana Rao, 1982 (ii), p. 769]. In Maharashtra, the panchayat samiti, which is just an agent of the zilla parishad, has the power only to *recommend* an increase in the rate of cess on land revenue upto a stipulated limit [Mehta Committee, 1978, p. 270; PREC 1986, p. 139]. According to the Mehta Committee Report, the samiti in Karnataka had the power to levy duty on transfer of immovable property in the shape of an additional stamp duty and to impose tax on animals brought for sale in the markets within their jurisdiction [Mehta Committee, 1978, p. 269]. However, under the Karnataka Act, 1983, the samiti was given a marginal role in the newly constituted PRS with the result that the new Act does not assign to the samiti any own powers of raising revenue [Karnataka Act, 1983, Chapter VII, Sections 135-137].

Bihar, Gujarat, Punjab and Uttar Pradesh present a somewhat different scenario in respect of powers of panchayat samitis to raise revenue. The relevant Bihar Act "does not refer to any taxes, surcharges, etc., which the panchayat samiti can levy" [Narayana Rao and Naidu, 1981 (iv), p. 368]. It appears, however, from the proforma of the budget estimates that there are duties and taxes which include "(a) Irrigation Tax, (b) Water tax, (c) Registration Fees on cycles, etc, (d) Tolls, (e) Any other tax, (f) Fees" [Narayana Rao and Naidu, 1981 (iv), p. 368]. The Mehta Committee lists these powers giving some details. Thus the entry "proceeds from surcharge and fees" in the Mehta Committee Report presumably covers "any other tax" and "fees". "Tolls" are on "fairs, hats and ferries" [Mehta Committee, 1978, p. 266]. All the same, available data for the years 1971-72 to 1977-78 reveal that the panchayat samitis in Bihar did not raise any receipts from its own sources [Narayana Rao and Naidu, 1981 (iv), table 8, p. 370]. As for Gujarat, there are "no taxes or fees which a Taluka Panchayat (nomenclature for panchayat samiti in Gujarat) can exclusively levy by itself". However, "subject to any general or special orders which the government may pass" and after observing preliminary procedure laid down in the relevant section of the Act, the panchayat samiti in Gujarat is permitted "to impose an education cess or any of the taxes which are leviable by a Gram or Nagar panchayat" [Narayana Rao, 1982 (i), p. 408]. In Punjab, a panchayat samiti "may impose any tax for which the State Legislature has the power under the Constitution of India" [Mehta Committee, 1978, p. 271]. This appears to be a blanket power, the use of which is presumably subject to sanction by the state government. We saw earlier that in Maharashtra, the Bombay Act, 1958 gives such a power to village panchayats, only if it "has been sanctioned by the State Government" [Bombay Act, 1958, Section 124 (1) (ix)]. Furthermore, panchayat samitis in Punjab can obtain non-tax income from properties and other assets [Mehta Committee, 1978, p. 271]. The Uttar Pradesh Kshettra Samitis (i.e. panchayat samitis) have no power of taxation, though under the relevant Act, sources of non-tax income open to them are as follows: "License fee (a) on brokers, (b) for the service bulls and stallions; toll tax[15] on vehicles, pack animals; fees on the registration of animals sold in the market; fees on fairs, markets, agricultural shows and exhibitions; fee for industrial use of their property" [Mehta Committee, 1978, p. 272].

Finally, the third category of states with panchayat samitis possessing some powers to raise revenues, includes Haryana, Madhya Pradesh, Rajasthan, Tamil Nadu and West Bengal. In Haryana, as in Punjab, a panchayat samiti is empowered to levy any tax under the state list in the Indian Constitution. Presumably, the use of this power in Haryana as well is subject to sanction by the state government. Besides, a samiti may "levy fees for the use of or benefits from: (a) public hospitals, dispensaries, schools, *sarais*, markets, rest-houses, and other public institutions, (b) the supply, storage and preservation of water for drinking, bathing and agricultural purposes, and (c) preservation and reclamation of soil and drainage and reclamation of swamps". It is also empowered to charge fees "on fairs, agricultural shows and industrial exhibitions held

under its authority." The Mehta Committee further adds that "the taxes being levied [by the panchayat samitis] are : cycle token tax, oil engines license fees, vehicle tax, tonga tax, license fee (electric motor), bones and hides tax". Then again, a panchayat samiti, according to this Committee, can obtain non-tax revenue from ferries and fairs as also in the form of share in receipts from cattle fairs [Mehta Committee, 1978, Pp. 267-268]. In Madhya Pradesh, Janpada Panchayats (i.e. panchayat samitis) "may levy tax on new bridges constructed by the Janpada panchayats and a tax on the theatrical performance, other shows or public amusement, additional stamp duty ... on transfer of immovable property" [Mehta Committee, 1978, p. 270]. "A Janpada Panchayat may charge fees for any license or permission issued under the Act or for the occupation or use of lands or other properties vested in it or maintained out of the Janpada Panchayat Fund. It can lease the collection of toll or fees" [Narayana Rao and Srivastava, 1982, p. 315].

The panchayat samitis in Rajasthan have wider powers of taxation [Narayana Rao and Naidu, 1981 (ii), p. 84]. The Mehta Committee lists these powers as follows: "(1) Tax on trades/calling, professions or industries; (2) Tax on fairs held in the area of the samitis; (3) Cess on rent for the use or occupation of agricultural land. .. and (4) Primary education cess". Besides, the samitis could derive income by "building up remunerative assets (and from) bone contracts" [Mehta, Committee, 1978, p. 271]. It appears that the own income of panchayat samitis in Rajasthan which was about Rs 1.96 crore in 1970-71 rose to Rs 2.95 crore in 1976-77. Income from taxes imposed by the samitis including education cess was nearly 25 per cent of this total in 1970-71 and 38 per cent of the total in 1976-77 [Narayana Rao and Naidu, 1981 (ii), table 8, page 90].

The Tamil Nadu panchayat unions [i.e. panchayat samitis] are empowered to levy surcharge on entertainment tax, tax on cinematograph exhibition (show tax) as also local cess surcharge [Mehta Committee, 1978, p. 272]. There are minor sources of non-tax revenue[16] to panchayat unions such as fees on licenses issued, fees levied in public markets classified as panchayat union markets, fees for the temporary occupation of roads or roadsides, receipts from dispensaries maintained, sale proceeds of tools and plants, stores and materials and of trees and avenue produce pertaining to panchayats union roads, income from ferries and fisheries etc., [Narayana Rao, 1983, Pp. 97-98]. Available data show that the own resources of panchayat unions in Tamil Nadu in 1977-78 were three times those in 1966-67. Local cess and local cess surcharge accounted for over 80 per cent of these receipts in both the years [Narayana Rao, 1983, table 8 p. 93].

Finally let us consider the sources of revenue of the panchayat samitis in West Bengal. These include "(a) tolls on persons, vehicles or animals on any road or bridges vested in them or under their management, and (b) fees for (i) registration of vehicles, (ii) making sanitary arrangements at places of worship, fairs and festivals, (iii) licenses for organising *hats* or markets". "Besides, (the samitis) can impose a water rate and lighting rate if and when such services are provided". However, "the samitis have hardly exercised these powers of taxation except in rare cases", so that "the income accruing to them from these sources is of marginal importance" while "the other own resources of panchayat samitis include receipts in respect of schools, building or works under their control and contributions and gifts made in their favour by public and other institutions" [Narayana Rao and Naidu, 1981 (iii), p. 163].

As for zilla parishads, there are no such bodies in Kerala and Madhya Pradesh. Zilla Parishads in Orissa were abolished in 1968 and in Haryana in 1973. The district level bodies in Tamil Nadu are only coordinating bodies without any executive functions and have no sources of revenue. In Punjab, the zilla parishads have no power of taxation nor any power to levy any fees or cess. The only own source of income to them appears to be endowments or trusts administered by them [Mehta Committee, 1978, Pp. 276-277]. The Rajasthan Act provided for the setting up of zilla panchayats, (i.e. zilla parishads) as supervisory and coordinating bodies with some financial resources for the purpose, but these bodies were not brought into existence [Narayana Rao and Srivastava, 1982, p. 307]. In Andhra Pradesh, the Act mentions "proceeds from taxes or fees which

the zilla parishad may under any law levy" as an own source of revenue. However, actually no taxes or fees have been specified [Mehta Committee, 1978, p. 274; Narayana Rao, Sastry and Vittal, 1984, p. 42] and, in 1976-77, they had no revenue from taxes and fees [Narayana Rao, Sastry, and Vittal, 1984, p. 43].

This leaves seven major states. Of these Karnataka, according to the Mehta Committee, had only a coordinating and supervisory district-level body and had no sources of income. However, under Karnataka Act, 1983, the zilla parishad was made a more active body having functions relating to various sectors of activity such as agriculture, animal husbandry, irrigation and ground water resources, industries and cottage industries, buildings and communications and so on. It is also required to formulate and execute the district plan. As such it is given some powers of raising revenue such as rents, fees and fines as also proceeds of land, securities and other properties sold by the zilla parishad [Karnataka Act, 1983, Section 191]. In Assam, Mohkuma Parishad [i.e. zilla parishad] has the following sources of revenue: "Panchayat tax on every household, profession tax, license fee for cinema halls, bricks or tile kilns, saw mills, timber depots, petrol and diesel sales depots, oil mills, rice mills, and extra charge on local rate" [Mehta Committee, 1978, Pp. 274-275].

In Bihar, although "it was intended to be merely a supervisory and coordinating body, in actual practice, it does perform certain minor executive functions as well" [Narayana Rao and Naidu, 1981 (iv), p. 375]. As such it has some sources of revenue, such as taxes, rates and fees on lands, irrigation water rates, advances and deposits, and so on. These accounted for nearly 42 per cent of the total revenue (including, besides own revenue, also assigned revenues, grants and loans) in 1971-72 but slumped to about 20 per cent in 1977-78 [Narayana Rao and Naidu, 1981 (iv), Pp. 376-377, table 11]. In Uttar Pradesh the own receipts of a zilla parishad include tolls and fees. It may also secure receipts through taxes which the state government may authorise the parishad to levy [Mehta Committee, 1978, p. 277]. In West Bengal, parishads have certain powers of raising revenue such as the following: "levy of tolls in respect of persons, vehicles, animals and imposition of water and lighting rates whenever such facilities are provided. Besides, they also receive some amount from ponds, ferries, sale proceeds of trees and grass and remunerative enterprises, etc. Some of the Zilla Parishads are getting handsome amounts from printing presses, ferry ghats and canals they manage." The own receipts of the zilla parishads in West Bengal which formed nearly 23 per cent of their total receipts in 1965-66 rose to nearly 43 per cent of these receipts in 1976-77 [Narayana Rao and Naidu, 1981 (iii), Pp. 171 and 173, table 9].

In Gujarat and Maharashtra, the zilla parishad has been entrusted with executive authority. "The most striking aspect of the District Panchayat [i.e. zilla parishad] in Gujarat is that it has been bestowed with full executive authority in respect of development functions which were earlier discharged by the state government at the district level. ... A comparable situation can be found in Maharashtra where the Zilla Parishad has been entrusted with executive authority" [Narayana Rao, 1982 (i), p. 412]. So far as the zilla parishads in Gujarat are concerned, the relevant Act does not specify any taxes or fees "which a District Panchayat can exclusively levy". However, the relevant section in the Act "permits every District Panchayat to impose, after observing the prescribed procedure, any of the dues and fees which are leviable by a Gram (i.e. village) or Nagar (i.e. town) Panchayat subject to a maximum of 10 per cent of the prescribed maximum rate of tax or fee in respect of the same matter" [Narayana Rao, 1982 (i), Pp. 412-413]. In other words, the District Panchayat is empowered to levy a surcharge of not more than 10 per cent on taxes and fees of village panchayats and nagar panchayats [Kale Sub-Committee, 1981, p. 94].

In Maharashtra, the zilla parishad can have its own income both from taxes and non-tax items. Under the Maharashtra Act, 1961, the own taxes and fees of zilla parishads are as follows: "a general water tax if public water taps or stand posts have been installed for the use of the public; pilgrim tax; special tax on land and buildings; water rates in respect of water supplied to lands or buildings from any irrigation work vesting in a Parishad; any one or more of the following fees,

in any public markets, namely (i) a license fee on brokers, commission agents, weighmen or measures practising their calling therein; (ii) a market fee for the right to expose goods for sale in the market or for the use of any building or structure therein; (iii) fees on the registration of animals sold in the market" [Section 157 (1)].

Assigned Revenue

Besides the revenue flowing to PRIs from their own sources, there is also revenue assigned to them by the state government from specified sources, which the state government itself taps and makes available to the PRIs, in part or in full. These sources include levies such as land revenue and cesses on land revenue in several states, surcharge on stamp duty in Andhra Pradesh and Maharashtra, entertainment tax in Andhra Pradesh, cess on water rate in Maharashtra, irrigation cess in Gujarat and so on. The assigned revenues arise out of taxes levied by the state government and devolved fully to the local body or shared with the local body. The revenues thus represent in some sense a tax-sharing arrangement devised by state governments to assist PRIs.

The relatively more important type of assigned revenue prevalent in all major states is the land revenue with cesses thereon. At the time of Santhanam Study Team Report, land revenue and local cess - that is, cess on land revenue - "(constituted) principal items of State assistance to Panchayats". The report further brings out that the panchayat samitis also had a share in this revenue [Santhanam Study Team, 1963, Part I, Pp. 17 and 30]. This was true even of the zilla parishads in two states, viz., Gujarat and Maharashtra [Santhanam Study Team, 1963, Part II, Pp. 30 and 75].

According to the Mehta Committee Report, proceeds from land revenue are passed on to the PRIs, in part in some of the major states and in full in others. In Kerala and Maharashtra the entire land revenue is passed on to the village panchayats [Mehta Committee, 1978, p. 263; Narayana Rao, 1982 (ii), p. 759; Bombay Act, 1958, section 131]. Besides, in Maharashtra, an equalisation grant is given to a village panchayat so that it gets receipts from land revenue proceeds and grant together at the rate at least of Re 1 per capita [PREC, 1986, p. 68]. According to the Kale Sub-Committee Report for Maharashtra, the average land revenue grant per village panchayat for three years, 1978-79 to 1980-81, was Rs 4.39 crore, with the corresponding equalisation grant being Rs 0.53 crore, i.e. 12 per cent of the former [Kale Sub-Committee, 1981, p. 112]]. No portion of the land revenue is handed over to any of the PRIs in Andhra Pradesh[17] and Orissa [Mehta Committee, 1978, Pp. 260 and 264].

Among the other major states, Gujarat transfers the bulk of the land revenue to PRIs at the three levels after deducting 35 per cent of the proceeds "for meeting the expenditure on the salaries of the secretaries of the gram panchayats and of the village accountants in the state and on their training" [Narayana Rao, 1982 (i), p. 391]. In Punjab, 50 per cent of the proceeds from this levy is given over to the PRIs, the bulk of it going to the village panchayats [Mehta Committee, 1978, p. 264]. In all the other major states the share of land revenue going to the PRIs has been much smaller. Furthermore, according to the Mehta Committee in none of the major states, except Bihar, Gujarat and Madhya Pradesh (only partially), are the village panchayats permitted to collect land revenue; collection is done by the revenue officials of the state concerned.

Besides land revenue, there are cesses on land revenue - also known as 'local cesses' - levied by state governments which yield revenue to PRIs. There are three aspects of the system relating to cesses on land revenue, which are (i) authority competent to levy cesses; (ii) rates of cesses and (iii) distribution of yield among the PRIs. These vary among the major states.

In a few major states the power to levy cesses is given to a PRI, for instance, the panchayat in Kerala and the panchayat samiti in Madhya Pradesh, Rajasthan and Tamil Nadu. Interestingly, in Uttar Pradesh, it is the Gram Sabha (the village assembly) which is empowered to levy cess [Mehta Committee, 1978, Pp. 263-265]. In other states, it is the state government which levies cesses on land revenue; in some, primarily at the request of a PRI. Maharashtra and Gujarat are the major states coming under the latter category.

Rates of cesses on land revenue also vary as

between states. Moreover, in Gujarat and Maharashtra, there is some type of a dual system under which the state government levies, as it were, a basic cess, and may further levy an additional cess at the instance of a PRI [Mehta Committee, 1978, Pp. 261 and 263]. We may briefly outline the system as it exists in Maharashtra at present as is evident from the 1986 Report of PREC.

There is a system relating to local cess revenue payable to village panchayats under the Bombay Act, 1958 and another pertaining to local cess revenue to be paid to zilla parishads and panchayat samitis under the Maharashtra Act, 1961. In both cases, the state government is *required* to levy a 'basic' cess of paise 20 per rupee of land revenue payable to the government in the specified area (that of a village panchayat or a zilla parishad, as the case may be), and make the resulting revenue, net of collection cost, available to the village panchayat/zilla parishad. It is permissible for a village panchayat to request the state government to levy an additional cess upto a maximum of paise 80 per rupee of land revenue (i.e. a total of paise 100 per rupee in all), stating "the reasons for which such increase has been proposed, and the special purpose for which the proceeds of the increase in the rate are to be utilized" [Bombay Act, 1958, Section 127(3)]. If the state government agrees, additional net revenue would become available to the village panchayat concerned. In fact, very few panchayats in the state, made any such request [PREC 1986, p. 68].

A zilla parishad or a panchayat samiti may also make a similar request stating reasons for the increase and the special purpose for which the proceeds would be spent. The ceiling in this case, for a zilla parishad and a panchayat samiti taken together, is 180 paise per rupee of land revenue (i.e., together with the basic, a total of 200 paise per rupee). The net revenue from the additional levy recommended by a panchayat samiti is paid to it whereas that from the one recommended by a zilla parishad is shared between the parishad and the samitis within the district on a 50:50 basis, every panchayat samiti getting a share in proportion to the collection of cess within its area [Maharashtra Act, 1961, Section 155 (6)]. This means that the zilla parishad is free to decide how it will spend the net revenue from the "basic" cess; however, in respect of that from cess above the "basic" one, the parishad is required to spend it in conformity with its prior commitment. As for the panchayat samiti, both the types of additional net revenue it gets, viz., (i) that following from its own recommendation for an additional cess and (ii) the share in the one accruing from the additional cess recommended by the zilla parishad, have to be spent on the lines of the commitments made [PREC, 1986, Pp. 116 and 139].

Finally, to encourage the zilla parishad to raise resources through cess above the 'basic', the state government gives a matching grant along with the net revenue from additional cess recommended by the zilla parishad. This is according to the formula shown in Table (8).

TABLE 8. MATCHING GRANT TO ZILLA PARISHADS IN MAHARASHTRA ON CESS ON LAND REVENUE ABOVE THE BASIC RATE

	Cess	Matching Grant
(1)	Basic Cess (20 paise)	Nil
(2)	Additional 30 paise (i.e. 50 paise in all)	Nil
(3)	Additional 50 paise (i.e. 100 paise in all)	50 per cent of revenue collected
(4)	Additional 100 paise (i.e. 200 paise in all)	100 per cent of revenue collected

Source: PREC 1986, para 8.8 (E), p. 117

When local cess is levied and collected at the instance of a panchayat samiti, 25 per cent of the matching grant due according to the above formula is to be paid to the concerned panchayat samiti [Kale Sub-Committee, 1981, p. 14; PREC, 1986, p. 140]. On an average cess of Rs 8.74 crore for three years (1978-79 to 1980-81) paid to the panchayati raj bodies in Maharashtra, they received a matching grant of Rs 4.55 crore, i.e. 52 per cent of the former [Kale Sub-Committee, 1981, p. 115]. It will be seen that for revenue from cess on land revenue above the "basic" rate to accrue to a PRI, it has to take initiative and request the government to levy it at a rate within stipulated limits, stating the purpose for which proceeds are likely to be spent. Even the matching grant on cess above the basic rate can be attributed to the initiative taken by a zilla parishad or a panchayat samiti, since it becomes payable only when the zilla parishad or the panchayat samiti, as the case may be, resolves in favour of cess on land revenue of more than 50 paise per rupee.

In Gujarat also one type of assigned revenue originates in an initiative taken by a zilla parishad, viz. an increase in the rate of stamp duty on instruments of transfer of immovable property situated within the limits of the district, for which the zilla parishad has to pass a resolution to be conveyed to the state government [Narayana Rao, 1982 (i), p. 416; Kale Sub-Committee, 1981, p. 90]. This is true of all incentive grants paid by a state government to a PRI for raising resources on its own. Thus in Tamil Nadu, a village panchayat is entitled to the village housing tax matching grant, under which "on every rupee of house tax collected by a village panchayat an equal amount is to be paid by the government as the village house tax matching grant" [Narayana Rao, 1983, p. 79]. The Government of Tamil Nadu also "gives a matching grant to the Panchayat Unions on the basis of the rate of local cess surcharge levied by them... These matching grants did provide an incentive to the Tamil Nadu Panchayat Unions to increase the rates of levy of local cess surcharge" [Mehta Committee, 1978, p. 119]. In Bihar there is an "incentive grant for the taxes collected by the panchayats over and above the ceiling limit. This is with reference to the obligatory tax" [Narayana Rao and Naidu, 1981 (iv), p. 361]. It is then possible to lump together receipts of a PRI from (i) own sources (taxes and fees) and (ii) assigned revenue (including matching grants) which depend on the initiative of the PRI and refer to them as 'local revenue', being the revenue a PRI would be able to get on its own initiative.

Grants

Finally, grants from state governments constitute an important source of revenue to PRIs. Some of the grants are only vehicles through which assigned revenues from specified levies are passed on to the PRIs. Thus a share in land revenue earmarked for a PRI is ordinarily described as grant in several states: land revenue going cent per cent to village panchayats in Maharashtra [Bombay Act, 1958, Section 131]; share in land revenue to village panchayats in Kerala, being described as 'basic tax grant' [Narayana Rao, 1982(ii), p. 759]; share of 5 per cent of land revenue given to panchayat samitis in West Bengal [Narayana Rao and Naidu, 1981 (iii), p. 163]; land revenue assignment at the rate of one rupee per capita earmarked for panchayat samitis in Tamil Nadu [Narayana Rao, 1983, p. 98]; land revenue grant to district panchayats (i.e. zilla parishads) in Gujarat [Narayana Rao, 1982 (i), p. 413]; 25 per cent of land revenue collected in a district, being earmarked for the PRIs at three levels in Madhya Pradesh [Narayana Rao and Srivastava, 1982, p. 308].

There are also shares accruing to PRIs in income raised by state government from specified sources, not described as assigned revenues, which are handed over to PRIs in the form of grants. For instance, in Maharashtra, 5 per cent of forest revenue in a district is passed on to the zilla parishad in the form of a grant, which is to be used by the parishad only for construction and development work in the forest sector [PREC, 1986, p. 117]. Similarly, in Gujarat, a forest revenue grant equal to 5 per cent of the forest revenue is payable to the zilla parishads [Narayana Rao 1982(i), p. 416]. In Orissa, on the other hand, grant from kendu leaf revenue is made to village panchayats and panchayat samitis, in whose areas kendu leaf is grown [Narayana Rao, 1982(iii), p. 954]. It appears that the practice of giving this grant to PRIs in Orissa has been in vogue right since the

establishment of PRIs in Orissa in the wake of the Mehta Team Report in 1957 [Santhanam Study Team, 1963, Part I, p. 19].

Grants mentioned in the preceding paragraphs are given out of financial resources raised by a state government from sources specified. There are other grants from general revenues of the state made with a view to giving incentives to a PRI. We have already mentioned such incentive grants as matching grant to a zilla parishad in Maharashtra against cess on land revenue over a rate of 50 paise per rupee of land revenue, or village housing tax matching grant in Tamil Nadu, or incentive grant paid in Bihar to village panchayats collecting obligatory taxes above a specified ceiling limit.

There is another type of grant from the general revenues of the state government which is given to PRIs. This is designed to help backward areas. A reference has already been made to equalisation grant in Maharashtra for village panchayats whose share in land revenue turns out to be less than Re one per capita. Gujarat operates a similar system. Portions of land revenue are credited respectively to the State Equalisation Fund and District Equalisation Fund. The former "is to be utilised for making special grants to backward districts to minimise the social and economic inequalities between the districts", the latter being "utilised by the District Panchayats for making special grants to backward panchayats subordinate to it to minimise the social and economic inequalities between the panchayats in the district" [Narayana Rao, 1982(i), Pp. 391-392].

Grants of the type mentioned in the preceding paragraphs are of importance to village panchayats. For example, in Maharashtra, according to data presented in the PREC Report, 1986, the land revenue grant accounted for around 80 to 90 per cent of total income from grants to village panchayats during 1981-82 to 1984-85[18] [PREC, 1986, p. 67]. In Madhya Pradesh, the land revenue grant was about the only grant to village panchayats and it amounted to around Rs one crore a year during 1971-72 to 1979-80 [Narayana Rao and Srivastava, 1982, p. 309]. In Tamil Nadu, the village house tax matching grant is similarly pre-eminent [Narayana Rao, 1983, p. 79].

In the case of higher-tier panchayati raj bodies, such grants are relatively less important. Thus, in Tamil Nadu, during the Third Five Year Plan period as a whole, the amount of grant to panchayat samitis in the state on account of local cess surcharge matching grant and land revenue assignment taken together was Rs 19.83 crore whereas the total grant paid to these bodies was Rs 87.29 crore. The former was 22.72 per cent of the total. In 1978-79, the same proportion was 16.36 percent[19] [Narayana Rao, 1983, table 13, Pp. 114-117]. In Gujarat, the zilla parishads received a total of Rs 3.98 crore in 1964-65 and Rs 3.70 crore in 1975-76 from land revenue grant, cess on land and forest revenue grant put together. On the other hand, grants for panchayat schemes were Rs 9.76 crore in 1964-65 and Rs 38.88 crore in 1975-76, apart from those for state schemes and functions executed through the panchayati raj bodies, which amounted to Rs 12.92 crore in 1964-65 and Rs 63.50 crore in 1975-76 [Narayana Rao, 1982(i), Pp. 413-420, tables 9 to 13].

The bulk of the grants for the higher-tier panchayati raj bodies are out of general revenues given for meeting expenditure on specified items. There are grants for Plan schemes which the PRIs, particularly the zilla parishads/ panchayat samitis, are expected to carry out. Moreover, when the panchayati raj system came into being, the state government staff connected with subjects transferred to PRIs was transferred to them and an establishment grant was given to meet salaries and related expenses. Any further increase in staff has been with the consent of state government and the establishment grant is correspondingly increased. Other and more important grants are those given to cover expenditure by the higher-tier PRIs on schemes transferred to them under the state Acts. In Maharashtra, these grants are described as "purposive" grants [Bongirwar Committee, 1971, p. 71]. Thus the establishment and purposive grants are essentially for the purpose of maintenance of services and assets created in previous plans and cover non-plan expenditure of the PRIs. In Maharashtra, of the three types of grants to zilla parishads, viz. establishment, purposive and plan grants, the purposive are overwhelmingly more important (Table 9).

TABLE 9. MAJOR TYPES OF STATE GRANTS TO ZILLA PARISHADS IN MAHARASHTRA

(Rs Crore)

Year (1)	Establishment Grant (2)	Purposive Grant (3)	Plan Grant (4)	Total Grant (5)	(2) as % of (5) (6)	(3) as % of (5) (7)	(4) as % of (5) (8)
1979-80	23.47	167.84	22.44	213.75	10.98	78.52	10.50
1984-85	63.88	339.92	65.13	468.94	13.62	72.49	13.89
1986-87	79.98	394.21	68.23	542.42	14.75	72.68	12.58

Source: PREC, 1986, Pp. 564-565, Appendix Table 8.6

In some states, the state governments give per capita grants to PRIs for meeting specific expenditure. In Karnataka, under the revised pattern of panchayati raj system, the state government is required to give per capita grant both to zilla parishads and to mandal panchayats [Karnataka Act, 1983, Section 114 (3)]. In Rajasthan also, the state government gives per capita grants to panchayats "for development works to make them powerful instruments of rural development" [Narayana Rao and Naidu, 1981 (ii), p. 75]. The Government of Andhra Pradesh pays to each village panchayat a grant of Re 1 per capita, "to be utilised for its administration and for various developmental activities". Per capita grants are also given in Andhra Pradesh to panchayat samitis for general purposes and for communications and to zilla parishads for communications [Narayana Rao, Sastry, Vittal, 1984, Pp. 44-45].

FLOW OF FINANCIAL RESOURCES TO PRIs

We may consider the relative importance of the different sources in the revenue receipts of PRIs. Broadly speaking, the PRIs get revenue from (i) own taxes and non-tax items, (ii) assigned sources and (iii) grants from state government. We also saw that in respect of some of the items under assigned sources the PRIs have to take initiative. Revenue from these items plus own sources (tax and non-tax) may be described as 'local revenue'. A useful breakup is between (i) local revenue and (ii) government assistance (i.e. some portion of assigned revenue and grant-in-aid). However, information in this form is not available for most states.

Position Around Early 1960s

Data for the early 1960s can be reconstructed to some extent from the state-wise information provided in the Santhanam Study Team Report, Part II though it is quite scanty. There are no data for the higher-tier PRIs (parishads and samitis) in a number of states. For the few states for which the data are available, some portion of receipts are shown by items such as education, communications, minor irrigation, social welfare and so on, as in the case, for example, of Andhra Pradesh [Santhanam Study Team, 1963, Part II, p. 11]. In such cases we do not get a break-up of revenue even into (i) tax revenue (ii) non-tax revenue and (iii) grant-in-aid. Moreover, the data given in the Study Team Report are not for a category of PRIs (panchayats/samitis/parishads) in a state as a whole but only for selected panchayats/samitis/parishads visited by the Study Team. All the same we present below the data that are available.

Revenue receipts as given for two zilla parishads in Maharashtra[20] in 1962-63 and for three zilla parishads in Rajasthan[21] in 1960-61 and 1961-62, show the heavy dependence of the zilla parishads concerned on government grants-in-aid. These grants constituted 91.55 per cent of total receipts (Budget Estimates) of one of the parishads in Maharashtra and 96.17 per cent of receipts (Revised Estimates) of the other. In Rajasthan, the government grants accounted for 94.31 per cent of the revenue receipts in 1960-61 and 85.92 per cent in 1961-62 for three parishads taken together.

As for village panchayats, we have information on revenue receipts of 42 panchayats spread over 8 states, that were visited by the Study Team. The data are presented in Table 10. The 42 panchayats show a wide divergence in respect of their per capita revenue. The lowest per capita revenue ranges between Rs 0.03 in Uttar Pradesh to Rs 1.64 in Maharashtra; at the other extreme, the figures vary between Rs 0.97 in Uttar Pradesh to Rs 8.54 in Mysore.

TABLE 10. INCOME OF VILLAGE PANCHAYATS DURING 1960-61 (REVENUE ACCOUNT)

(Rupees)

State	No. Of V.P.s visited	Taxes	Govt. Grants	Non-tax	Total Income from All Sources	(3) as % of (6)	(4) as % of (6)	(5) as % of (6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Andhra Pradesh	8	65,199	59,722	34,289	159,210	40.95	37.51	21.54
Bihar	4	20	2,654	1,672	4,346	0.46	61.07	38.47
Maharashtra	2	7,775	20,255	8,127	36,157	21.50	56.02	22.48
Mysore	9	14,082	51,185	19,828	85,095	16.55	60.15	23.30
Orissa	3	0	15,361	6,524	21,885	0.00	70.19	29.81
Punjab	4	606	5,951	9,055	15,612	3.88	38.12	58.00
Rajasthan	7	12,667	37,868	39,772	90,307	14.03	41.93	44.04
Uttar Pradesh	5	1,258	1,960	1,830	5,048	24.92	38.83	36.25
Total	42	101,607	194,956	121,097	417,660	24.33	46.68	28.99

Figures under 'Non-tax' show a total of three separate figures in the publication, viz. 'Non-tax', Income from properties' and 'Miscellaneous'

Source: Santhanam Study Team, 1963, Part II.

The revenue of panchayats from taxes was miniscule in Bihar and Punjab, and it was zero in the three village panchayats in Orissa, visited by the Study Team. In Bihar, Maharashtra, Mysore and Orissa the income from grants was more than half of the total; in the remaining four states it was more than one third. For all the 42 panchayats taken together, about 47 per cent of income came from government grants, 24 per cent from taxes and the remaining 29 per cent from non-tax items. The village panchayats seem to depend on grants much less than do the higher-tier PRIs.

Financial Resources in 1970s and 1980s

Data on the financial resources of PRIs in the 1970s can be obtained from the Mehta Committee Report and the various NIRD studies. As for 1980s the Ministry of Agriculture publication cited earlier gives information on source-wise revenues of village panchayats and the panchayat samitis in the reporting states, but not of the zilla parishads. However, PREC Report (1986) gives some useful information for seven zilla parishads in Maharashtra which we shall present in the proper context.

Available data on revenue receipts of panchayats give a break-up into 'taxes and fees', 'government grants' and 'other revenues'. The 'taxes and fees' do not exhaust the 'own receipts' of the panchayats. Clearly 'own receipts' from the non-tax sources are lumped under the residuary item of 'other revenues'. In fact, in the data presented by the Mehta Committee, the figures of grant-in-aid for only one or two states are said to include assigned revenues as well; this means that in most of the cases assigned revenues have been included in 'other revenues' in that report. In that case, the head 'other revenues' is a hotchpotch of 'own receipts' from non-tax items and receipts from assigned revenues which are passed on to the panchayats in the form of grants. It is not thus possible from these data to gauge the relative magnitude of the revenue-raising effort of the village panchayats. However, the NIRD studies and the Ministry of Agriculture publication (for 1988-89 only) give some idea of the degree of revenue efforts of the village panchayats in some states.

Table 11 gives the financial resources of village panchayats broken up into 'taxes and fees', 'government grants' and 'other revenues'. The data are for 1971-72 to 1977-78 and for 1988-89. The data for six states are for 1971-72 and 1975-76, for five states for 1974-75 and 1976-77, for four states for 1972-73 and 1973-74, for two states for 1977-78 and for seven states for 1988-89. Of the 15 major states 12 states appear in the Table for one or more years, omissions being Assam, Karnataka and Tamil Nadu.

TABLE 11. FINANCIAL RESOURCES OF VILLAGE PANCHAYATS

(Rs Lakh)

Year	State	Taxes and Fees	Government Grants	Other Revenues	Total (3+4+5)	(3) as % of (6)	((4) as % of (6)	(5) as % of (6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1971-72	Bihar*	7.50	15.64	--	23.14	32.41	67.59	--
	Gujarat*	474.70	--	1,845.57	2,320.27	20.46	--	79.54
	Kerala	495.00	131.00	--	626.00	79.07	20.93	--
	Maharashtra	442.45	952.11	320.00	1,714.56	25.81	55.53	18.66
	Orissa	105.98	170.27@	--	276.25	38.36	61.64	--
	West Bengal*	82.54	220.42	0.45@	303.41	27.20	72.65	0.15@
	Total	**1,608.17**	**1,489.44**	**2,166.02**	**5,263.63**	**30.55**	**28.30**	**41.15**
1972-73	Bihar*	7.75	12.55	--	20.30	38.18	61.82	--
	Gujarat*	469.04	--	1,015.28	1,484.32	31.60	--	68.40
	Kerala	592.00	134.00	--	726.00	81.54	18.46	--
	Orissa*	96.98	185.68	--	282.66	34.31	65.69	--
	Total	**1,165.77**	**332.23**	**1,015.28**	**2,513.28**	**46.38**	**13.22**	**40.40**
1973-74	Bihar*	13.25	19.34	--	32.59	40.66	59.34	--
	Gujarat*	556.79	--	992.01	1,548.80	35.95	--	64.05
	Kerala	629.00	134.00	--	763.00	82.44	17.56	--
	Punjab	2.28	--	372.70	374.98	0.61	--	99.39
	Total	**1,201.32**	**153.34**	**1,364.71**	**2,719.37**	**44.18**	**5.64**	**50.18**
1974-75	Andhra Pradesh	468.84	609.82@	341.58	1,420.24	33.01	42.94	24.05
	Bihar*	13.81	276.39@	--	290.20	4.76	95.24	--
	Haryana	24.42	--	11.12	35.54	68.71	--	31.29
	Kerala	739.00	146.00	--	885.00	83.50	16.50	--
	Punjab	110.94	--	427.42	538.36	20.61	--	79.39
	Total	**1,357.01**	**1,032.21**	**780.12**	**3,169.34**	**42.82**	**32.57**	**24.61**
1975-76	Andhra Pradesh	573.69	612.61@	502.31	1,688.61	33.97	36.28	29.75
	Bihar*	1.29	62.01@	--	63.30	2.04	97.96	--
	Haryana	24.93	--	11.10	36.03	69.19	--	30.81
	Kerala	1,062.00	174.00	--	1,236.00	85.92	14.08	--
	Orissa	144.45	159.22@	2.04	305.71	47.25	52.08	0.67
	Punjab	147.26	--	429.08	576.34	25.55	--	74.45
	Total	**1,953.62**	**1,007.84**	**944.53**	**3,905.99**	**50.02**	**25.80**	**24.18**
1976-77	Bihar*	9.50	224.62@	--	234.12	4.06	95.94	--
	Haryana	24.45	--	10.75	35.20	69.46	--	30.54
	Orissa*	166.74	253.00	--	419.74	39.72	60.28	--
	Punjab	56.85	--	507.22	564.07	10.08	--	89.92
	Uttar Pradesh	278.01	78.42	105.82@	462.25	60.14	16.96	22.89
	Total	**535.55**	**556.04**	**623.79**	**1,715.38**	**31.22**	**32.41**	**36.36**
1977-78	Bihar*	24.75	138.50	--	163.25	15.16	84.84	--
	Orissa	76.87	240.29@	4.00	321.16	23.94	74.82	1.25
	Total	**101.62**	**378.79**	**4.00**	**484.41**	**20.98**	**78.20**	**0.83**
1988-89	Andhra Pradesh	2,693.28	3,927.27	254.18	6,874.73	39.18	57.13	3.70
	Gujarat	2,312.01	3,340.98	1,808.27	7,461.26	30.99	44.78	24.24
	Haryana	178.00	152.00	1,023.00	1,353.00	13.16	11.23	75.61
	Madhya Pradesh	--	19.20	225.00	244.20	--	7.86	92.14
	Punjab	75.00	1,237.75	1,499.00	2,811.75	2.67	44.02	53.31
	Rajasthan	--	13,026.05	676.77	13,702.82	--	95.06	4.94
	Uttar Pradesh	513.00	505.00	178.04	1,196.04	42.89	42.22	14.89
	Total	**5,771.29**	**22,208.25**	**5,664.26**	**33,643.80**	**17.15**	**66.01**	**16.84**

@ Consist of Grants-in-aid and assigned revenue. b Includes grants from Anchal Parishads/samitis.

Note: Figures for Gujarat in the years of the 1970s are taken from [Narayana Rao, 1982(i), table 2, p. 400]. The table gives a break-up of figures into 'Receipts from taxes and fees' and 'Income from sources other than taxes and fees'. In the data for Gujarat in the Mehta Committee Report grants from Government are shown as 'nil' [Statement 2, p. 284]. In view this, the 'Income from sources other than taxes and fees' is shown as 'Other Revenues' in the table.

Sources of data: 1. NIRD Studies for the states shown with an asterisk *. 2. Mehta Committee, 1978,Statement 2, Pp. 284-285, for remaining states for the 1970s. 3. Ministry of Agriculture, 1989, table 7A, p. 17, for 1988-89.

Though there are inter-state differences, grants constitute a modest proportion of the total revenue in most years. Leaving out 1977-78 in which the data given are only for two states, Bihar and Orissa, we find that only in 1988-89 grants accounted for nearly two-third of the total revenue receipts. It seems, therefore, that the village panchayats had to depend on their 'own receipts'- which include besides 'taxes and fees' a portion of 'other revenues' as well- to a significant extent, at least in the 1970s. The picture has probably undergone some change in recent years.

The data on Bihar and West Bengal for the 1970s are drawn entirely from the NIRD studies. In these studies we get a division of panchayat revenues into (i) own sources and (ii) government grants. The data for West Bengal in Table 11 are only for 1971-72 in which year the own sources of village panchayats yielded a little over one-fourth of their revenue. The data coverage for Bihar is much better. In the years 1971-72 to 1977-78, the own receipts were a small proportion of the total revenue, in fact very much so during 1974-75 to 1977-78.

In contrast, the 'own receipts' from 'taxes and fees' contributed a major portion of total revenue of village panchayats in Haryana, Kerala and Uttar Pradesh in the 1970s. The proportion for Kerala was in the range of 80 to 85 per cent; it was in the neighborhood of 70 per cent for Haryana. As for Uttar Pradesh, data reported was only for 1976-77 and the proportion of 'taxes and fees' to total revenue was 60 percent.

Maharashtra is not much covered in Table 11 but data are available in the reports of the two state-appointed Committees, *viz.* the Bongirwar Committee and the PREC. According to the former Committee, out of a total income of Rs 7,085.34 lakh of the village panchayats in Maharashtra during the years 1965-66 to 1969-70, government grants contributed Rs 3,713.18 lakh, *i.e.* 52.41 per cent, the rest of the income (47.59 per cent) coming from 'own sources', tax and non-tax [Bongirwar Committee, 1971, Pp. 378-379]. The PREC Report gives data on (i) government grants to village panchayats in Maharashtra and (ii) their own receipts, in two separate tables, according to which in 1981-82 - the only year common to the two tables - a total income of village panchayats of Rs 1,926.07 lakh was divided into Rs 522.14 lakh of grants[22] and Rs 1,403.93 lakh of 'own receipts' [PREC, 1986, Pp. 67 and 521]. The 'own receipts' thus constituted 72.89 per cent of the total revenue receipts. It appears that the village panchayats in Maharashtra had to depend more on their own resources to finance their expenditure.

What does a relatively high percentage of 'own receipts' to total revenue mean? Does it necessarily signify an effort on the part of the village panchayats to be self-reliant? This is not true in every case. Consider Haryana and Uttar Pradesh. The per capita income of village panchayats from all sources was Rs 0.84 in Haryana in 1977-78 and Rs 0.61 in Uttar Pradesh in 1976-77 [Mehta Committee, 1978, Pp. 279-280]. Raising 60 to 70 per cent of these measly amounts can hardly be described as a praiseworthy effort to be self-reliant. Kerala seems to present a somewhat different case. The per capita revenue of village panchayats in Kerala in 1975-76 was Rs 5.61 [Mehta Committee, 1978, p. 279], and 80 per cent of it came from taxes and fees (i.e. 'own sources') during 1971-72 to 1975-76; and 87 per cent of the own receipts came from compulsory taxes in 1979-80 (Table 7).

The per capita resources of the village panchayats in Haryana and Uttar Pradesh on the one hand and in Kerala on the other mentioned above illustrate the differences that are there between states in this respect. In fact, the differences are wider (Table 12).

Thus, in the 1970s, village panchayats in Maharashtra had the highest per capita revenue of Rs 8.41, in Gujarat Rs 7.60 and in Kerala and Punjab about Rs 5.50. At the other end was Bihar with per capita revenue of Rs 0.32 preceded by Assam (Rs 0.47), Uttar Pradesh (Rs 0.61), Orissa (Rs 0.71), West Bengal (Rs 0.74) and Haryana (Rs 0.84) - all below Re 1 per capita. Madhya Pradesh (Rs 1.15), Karnataka (Rs 1.87), and even Rajasthan (Rs 2.08) were not much better. Andhra Pradesh (Rs 4.59) and Tamil Nadu (Rs 3.78) were in between. The picture changed somewhat in the 1980s. Now Rajasthan is at the top with a per capita revenue of village panchayats of nearly Rs 51, followed by Gujarat (Rs 32) and Punjab (Rs 23). At the bottom in an ascending order are

Madhya Pradesh (Rs 0.59), Uttar Pradesh (Rs 1.32), Tamil Nadu (Rs 3.03), Orissa (Rs 4.30) and even Maharashtra (Rs 4.73 in 1981-82). In between the two extremes are Kerala (Rs 18.25), Andhra Pradesh (Rs 16.71), Haryana (Rs 13.40) and West Bengal (Rs 12.92). Data for three states are not available. In both the years, Gujarat and even Kerala had a relatively high per capita revenue for village panchayats, whereas Uttar Pradesh, Madhya Pradesh and even Orissa were at the bottom.

TABLE 12. PER CAPITA REVENUE OF VILLAGE PANCHAYATS IN MAJOR STATES

State	Per Capita Revenue in a year of 1970s		Per Capita Revenue in 1988-89 (Rupees)
	Amount (Rupees)	Year for which data are given	
(1)	(2)	(3)	(4)
Andhra Pradesh	4.59	1975-76	16.71
Assam	0.47	1974-75	N.A.
Bihar*	0.32	1977-78	N.A.
Gujarat	7.60	1972-73	31.77
Haryana	0.84	1977-78	13.40
Karnataka	1.87	1975-76	N.A.
Kerala	5.61	1975-76	18.25
Madhya Pradesh	1.15	1972-73	0.59
Maharashtra	8.41	1973-74	4.73[@]
Orissa	0.71	1975-76	4.30
Punjab	5.46	1976-77	23.16
Rajasthan	2.08	1975-76	50.66
Tamil Nadu	3.78	1973-74	3.03
Uttar Pradesh	0.61	1976-77	1.32
West Bengal	0.74	1975-76	12.92[b]

N.A.= Not Available

* The figure for 1977-78 for Bihar is derived on the basis of total revenue shown in table 10 and population covered by village panchayats given in [Mehta Committee, Annexure 1, p. 203]. [@] Figure for Maharashtra is for the year 1981-82, derived on the basis of data on total revenue of village panchayats in two tables in the PREC Report cited above in the text and rural population of 4.07 crore in Maharashtra as per the Census of India, 1981. (b) The per capita income of village panchayats in West Bengal was derived in the following way: The rural population of West Bengal as per the Census of India, 1981 was 401 lakh [Tata Services Ltd., 1989, table 42, p. 46]. There have been 3305 village panchayats in the state. This means the population per panchayat comes to 0.12 lakh. We are told that "The average income of a panchayat at present from all ... sources is more than Rs 1.55 lakh This does not include the value of the foodgrains received by these bodies for utilisation under different programmes" [Narayana Rao and Naidu 1981(iii), p. 150]. Taking Rs 1.55 lakh as income per panchayat and 0.12 lakh as population per panchayat, we get Rs 12.92 as per capita revenue of village panchayats in West Bengal. The West Bengal figure is for, say, 1980-81.

Sources: (1) Mehta Committee, 1978, Statement 1, Pp. 279-280, for information in columns 2 and 3 of the table. (2) Ministry of Agriculture, 1989, table 7A, p. 17, for figures under column 4.

As for the financial resources of the panchayat samitis, the sources of data are Mehta Committee Report and the relevant NIRD Studies for 1971-72 to 1977-78, and the Ministry of Agriculture publication cited, for 1988-89. The available data are presented in Table 13. For the 1970s and later, data are available for a small number of states, *viz.* for two states in 1972-73, 1973-74 and 1976-77, for three states in 1971-72, 1974-75 and 1975-76, for four states in 1977-78 and for six states in the recent year of 1988-89. Altogether, for nine major states, data are available for one or more years; these are Andhra Pradesh, Bihar, Gujarat, Haryana, Madhya Pradesh, Orissa, Punjab, Tamil Nadu and Uttar Pradesh. There are no samitis in Assam or in Kerala and those in Maharashtra are just agents of the zilla parishads and have hardly any resources.

Column 8 of the Table shows that in all the states taken together the government grants was the major, in most years the overwhelmingly important, source of revenue. In five of the eight years, the grants constituted over 90 per cent of the revenue. The proportion was 82 per cent in one year, and relatively low in the remaining two years, these being 56 and 66 per cent. This is also true of the more recent year of 1988-89. Evidently, the panchayat samitis depend heavily on the state government for their revenues.

TABLE 13. FINANCIAL RESOURCES OF PANCHAYAT SAMITIS

(Rs Lakh)

Year	States	Own Receipts	Government Grants	Other Revenues	Total (3+4+5)	(3) as per cent of (6)	(4) as per cent of (6)	(5) as per cent of (6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1971-72	Andhra Pradesh	162.22@	3,244.21	63.94	3,470.37	4.67	93.48	1.84
	Bihar	--	108.66	--	108.66	--	100.00	--
	Haryana	113.47	46.37	--	159.84	70.99	29.01	--
	Total	**275.69**	**3,399.24**	**63.94**	**3,738.87**	**7.37**	**90.92**	**1.71**
1972-73	Bihar	--	24.70	--	124.70	--	100.00	--
	Haryana	126.88	37.35	--	164.23	77.26	22.74	--
	Total	**126.88**	**162.05**	**--**	**288.93**	**43.91**	**56.09**	**--**
1973-74	Bihar	--	176.24	--	176.24	--	100.00	--
	Haryana	119.67	55.38	--	175.05	68.36	31.64	--
	Total	**119.67**	**231.62**	**--**	**351.29**	**34.07**	**65.93**	**--**
1974-75	Andhra Pradesh	216.14@	3,746.02	27.17	3,989.33	5.42	93.90	0.68
	Bihar	--	500.07	--	500.07	--	100.00	--
	Haryana	146.70	63.16	--	209.86	69.90	30.10	--
	Total	**362.84**	**4,309.25**	**27.17**	**4,699.26**	**7.72**	**91.70**	**0.58**
1975-76	Bihar	--	451.09	--	451.09	--	100.00	--
	Haryana	122.46	62.15	--	184.61	66.33	33.67	--
	Orissa	4.30@	2,354.39	--	2,358.69	0.18	99.82	--
	Total	**126.76**	**2,867.63**	**--**	**2,994.39**	**4.23**	**95.77**	**--**
1976-77	Bihar	--	105.99	--	105.99	--	100.00	--
	Orissa	20.71@	2,786.15	--	2,806.86	0.74	99.26	--
	Total	**20.71**	**2,892.14**	**--**	**2,912.85**	**0.71**	**99.29**	**--**
1977-78	Andhra Pradesh	398.24@	8,901.96	85.72	9,385.92	4.24	94.84	0.91
	Bihar	--	178.62	--	178.62	--	100.00	--
	Orissa	12.37	2,713.38	--	2,725.75	0.45	99.55	--
	Tamil Nadu	4,000.00	8,109.49	--	12,109.49	33.03	66.97	--
	Total	**4,410.61**	**19,903.45**	**85.72**	**24,399.78**	**18.08**	**81.57**	**0.35**
1988-89	Andhra Pradesh	--	39,759.40	250.00	40,009.40	--	99.38	0.62
	Gujarat	1,545.69	16,864.81	670.08	19,080.58	8.10	88.39	3.51
	Haryana	27.00	63.48	--	90.48	29.84	70.16	--
	Madhya Pradesh	339.41	--	--	339.41	100.00	--	--
	Punjab	56.00	269.00	290.00	615.00	9.11	43.74	47.15
	Uttar Pradesh	1,108.00	1,146.00	142.00	2,396.00	46.24	47.83	5.93
	Total	**3,076.10**	**58,102.69**	**1,352.08**	**62,530.87**	**4.92**	**92.92**	**2.16**

@ Includes assignment of taxes, cesses transferred by state government.
Sources: i. NIRD study for Bihar. ii Mehta Committee, 1978, Statement 4, Pp. 289-90 for the other states in the 1970s. iii Ministry of Agriculture, 1989, table 78, p. 78, for 1988-89.

As earlier mentioned, in most of the major states, the panchayat samitis have hardly any powers or have limited powers to raise financial resources. That explains the low percentage of own receipts in states such as Andhra Pradesh, Bihar, Gujarat, Orissa and Punjab. In Uttar Pradesh, the panchayat samitis are empowered to levy certain types of fees, which bring them some receipts constituting, relatively speaking, a significant proportion of their total revenue; this is true also of Haryana, Madhya Pradesh and Tamil Nadu.

Let us now turn to source-wise break-up of financial resources of zilla parishads (Table 14). Data relate only to some of the years of 1970s (1971-72 to 1977-78). Data for 1971-72 and 1976-77 are for five states, those for 1972-73 to 1975-76, for four states and those for 1977-78, for two states. There are data for one or more years for 8 of the 15 major states *viz.* Andhra Pradesh,

Bihar, Gujarat, Haryana, Maharashtra, Punjab, Uttar Pradesh and West Bengal. Zilla parishads were abolished in Haryana in 1973; the data for Haryana in the Table are therefore for 1971-72 and 1972-73 only. As already noted, three states, i.e. Kerala, Orissa and Madhya Pradesh had no zilla parishads; in Rajasthan, they were not brought into existence (in any case in the 1970s) though the Act provided for their setting up; and, in Tamil Nadu and Karnataka (before the revised pattern of the 1983 Act) these bodies were of no significance and hence had no sources of income.

TABLE 14. FINANCIAL RESOURCES OF ZILLA PARISHADS

(Rs Lakh)

Year (1)	State (2)	Own Receipts (3)	Government Grants (4)	Other Revenues (5)	Total (3+4+5) (6)	(3) as % of (6) (7)	(4) as % of (6) (8)	(5) as % of (6) (9)
1971-72	Andhra Pradesh	171.37	3,558.78	53.32	3,783.47	4.53	94.06	1.41
	Bihar	10.40	11.16	51.68	73.24	14.20	15.24	70.56
	Haryana	66.97	5.79	66.70	139.46	48.02	4.15	47.83
	Maharashtra	596.05	8,955.10	1,488.52●	11,039.67	5.40	81.12	13.48
	Uttar Pradesh	552.62	5,539.50	--	6,092.12	9.07	90.93	--
	Total	**1,397.41**	**18,070.33**	**1,660.22**	**21,127.96**	**6.61**	**85.53**	**7.86**
1972-73	Bihar	7.86	39.81	41.46	89.13	8.82	44.67	46.52
	Haryana	38.90	9.17	55.96	104.03	37.39	8.81	53.79
	Punjab	55.17	11.12	45.32	111.61	49.43	9.96	40.61
	Uttar Pradesh	500.38	2,801.53	--	3,301.91	15.15	84.85	--
	Total	**602.31**	**2,861.63**	**142.74**	**3,606.68**	**16.70**	**79.34**	**3.96**
1973-74	Bihar	20.49	23.11	56.98	100.58	20.37	22.98	56.65
	Gujarat	325.38	9,878.67	--	10,204.05	3.19	96.81	--
	Punjab	55.84	8.88	33.39	98.11	56.92	9.05	34.03
	Uttar Pradesh	411.64	600.67	--	1,012.31	40.66	59.34	--
	Total	**813.35**	**10,511.33**	**90.37**	**11,415.05**	**7.13**	**92.08**	**0.79**
1974-75	Andhra Pradesh	162.61	3,723.44	72.46	3,958.51	4.11	94.06	1.83
	Bihar	8.29	30.04	57.26	95.59	8.67	31.43	59.90
	Punjab	57.65	11.05	43.67	112.38	51.30	9.83	38.86
	Uttar Pradesh	457.27	293.51	--	750.78	60.91	39.09	--
	Total	**685.82**	**4,058.04**	**173.39**	**4,917.26**	**13.95**	**82.53**	**3.53**
1975-76	Bihar	16.85	51.05	72.06	139.96	12.04	36.47	51.49
	Punjab	61.59	15.86	132.42	209.87	29.35	7.56	63.10
	Uttar Pradesh	489.78	551.46	--	1,041.24	47.04	52.96	--
	West Bengal	84.62	217.74	--	302.36	27.99	72.01	--
	Total	**652.84**	**836.11**	**204.48**	**1,693.43**	**38.55**	**49.37**	**12.07**
1976-77	Andhra Pradesh	--	3,952.88	1,100.66	5,053.54	--	78.22	21.78
	Bihar	10.60	95.47	51.46	157.53	6.73	60.60	32.67
	Punjab	59.29	15.93	145.86	221.08	26.82	7.21	65.98
	Uttar Pradesh	544.32	342.74	--	887.06	61.36	38.64	--
	West Bengal	97.59	130.14	--	227.73	42.85	57.15	--
	Total	**711.80**	**4,537.16**	**1,297.98**	**6,546.94**	**10.87**	**69.30**	**19.83**
1977-78	Andhra Pradesh	247.82	5,314.60	119.64	5,682.06	4.36	93.53	2.11
	Bihar	34.02	53.87	109.17	197.06	17.26	27.34	55.40
	Total	**281.84**	**5,368.47**	**228.81**	**5,879.12**	**4.79**	**91.31**	**3.89**

● Inclusive of amounts paid by state government for performing agency functions.

Sources: (1) NIRD Studies for Bihar and West Bengal. (2) Mehta Committee, 1978, Statement 5, Pp. 291-292, for the other states.

Column 8 of Table 14 shows that, in all the states taken together, grants from government have constituted an overwhelming proportion of the financial resources of the zilla parishads ranging in most cases between 80 and 90 per cent; in 1976-77, the proportion was only about 70 per cent and in 1975-76, only about 50 per cent.

Four states in which the zilla parishads have sizeable total revenues are: Maharashtra, Gujarat, Andhra Pradesh and Uttar Pradesh. But their own receipts are small constituting only 5 per cent or less of the total revenue in Maharashtra, Gujarat and Andhra Pradesh (Column 7); only in Uttar Pradesh, they are sizable. We shall presently comment on it.

The PREC Report gives data for seven zilla parishads in Maharashtra for 1982-83; in particular, of what we have called 'local revenue', which includes besides receipts from own sources, tax and non-tax, also shares in a cess which a zilla parishad is entitled to get only when it recommends the levy of the cess. In 1982-83, the 'local revenue' of the seven parishads together was Rs 491 lakh out of total revenue receipts of Rs 9,624 lakh, which is a mere 5.10 per cent of the total [PREC, 1986, Pp. 550-551].

As noted above, the proportion of own receipts to total is quite high in Uttar Pradesh. However, whereas the own receipts ranged between Rs 400 and Rs 550 lakh, the government grants fluctuated widely from a low of Rs 294 lakh in 1974-75 to a high of Rs 5,539 lakh in 1971-72. Thus the high proportion of own receipts in some years has been due less to special efforts on the part of zilla parishads than to a steep fall in government grants to them.

To sum up, the PRIs, particularly in the higher tiers, depend substantially on grants from state governments. Their own receipts from sources earmarked for them in the state Acts are rather insubstantial. As the Rao Committee puts it: "According to an estimate based on available figures for 1982-83, the total tax revenue realised by the Panchayati Raj institutions constituted a mere 0.1 per cent of all state tax revenue. The tax and non-tax income (including grants) realised by the Panchayati Raj institutions constituted 4 per cent of the tax and non-tax revenue of all states and 3 per cent of their tax and non-tax revenue and capital receipts. Obviously, the resources of the Panchayati Raj institutions are too meagre to enable them to discharge effectively the functions which are devolved on or expected of them" [Rao Committee, 1985, p. 40].

SOME ISSUES

There appears to be little doubt that after the first euphoria about democratic decentralisation in the post-independence period, particularly in the wake of the Mehta Team's recommendations in 1957, the governments in several states gradually devalued the panchayati raj institutions that were set up. In consequence, the proportion of total receipts of the state governments flowing to these bodies became progressively meagre. All the same, the transfer of resources from the state governments have always formed a sizeable, and in the case of higher-tier PRIs an overwhelmingly large proportion of their total receipts, because their own receipts have been quite insignificant.

Excessive Dependence

If a PRI has to plan its activities on the basis primarily of resources transferred to it by the state government, it can be, *ipso facto*, said to be greatly dependent on the state government. Whether this dependence is excessive is determined not so much by the quantum of state grants in the total resources of the PRIs as by the conditions attaching to them, the manner in which they are released, and the overall stability of the scheme of transfer. For example, if the transfer of funds to the PRIs is subject to avoidable restrictions placing the PRIs continuously at the mercy of administrative departments of the government for sanction and release of the grants, or if the state governments delay unduly on payment to the PRIs their rightful dues, causing uncertainty about the size and periodicity of accrual of funds, the dependence in effect becomes excessive. There is ample reason to believe that this is indeed the case. Thus in Bihar, the share in land revenue statutorily assigned to village panchayats was denied to them by the state government from 1959 to 1974, and it was only after a High Court decision, on a writ petition filed on behalf of the panchayats, that the government was compelled

to pay [Narayan Rao and Naidu, 1981 (iv), p. 359]. In Maharashtra, zilla parishads act as agents of the state government in respect of certain state government schemes in the districts for which agency charges are payable to the parishads. However, the common experience is that the administrative departments of the state government default consistently on a large scale on payment of these dues [Kale Sub-Committee, 1981, Pp. 118-125; PREC, 1986, p. 123]. The Karnataka Finance Commission, 1989, states: "While the system of release of funds under the grant-in-aid scheme was mostly acceptable to a large number of grantees, there was considerable dissatisfaction in regard to the modus-operandi adopted" [Karnataka Finance Commission, 1989, p. 168].

Evidently, if a system of guaranteed and adequate amounts of regular subventions from the state governments to the PRIs is to be evolved, the PRIs in turn should respond by making a reasonable effort to raise resources from levies assigned to them. A failure on their part in this respect makes them still more dependent on the state government [PREC, 1986, p. 120] What has been the performance of PRIs in respect of their own efforts to augment revenues? Several Committees/Commissions have commented on the resistance of PRIs to levying taxes and to collecting vigorously those levied [Santhanam Study Team, 1963, p. 11; Mehta Committee, 1978, p. 107; Karnataka Finance Commission, 1989, Pp. 119-120]. Several instances may be cited in support. For instance, in Madhya Pradesh, "A survey of the Gram Panchayats of one Block from each revenue division of the state in 1969, showed that about 50 per cent Gram Panchayats did not impose even a single tax - compulsory or optional" [Narayana Rao and Srivastava, 1982, p. 308]. We have earlier referred to the provision, in Maharashtra, for a zilla parishad or a panchayat samiti to raise resources by increasing the cess on land revenue and incentive of a matching grant for the purpose (Table 8). But, as of 1st August 1985, of the 29 zilla parishads, only 13 parishads had recommended additional cess at the maximum rate of 180 paise per rupee of land revenue. In four more districts, the combined additional cess recommended by the parishads and the panchayat samities was at the maximum rate. In the remaining 12 districts, the enhanced cess was less than maximum allowed [PREC, 1986, Pp. 552-554)].

The situation in respect of the collection of taxes levied is also not encouraging. An expert committee of the Government of Andhra Pradesh reporting in 1981, observed: "some panchayats do not actually collect the compulsory tax but merely make it appear through book entries that taxes have been collected and spent on works" [Narayana Rao, Sastry and Vittal, 1984, p. 18]. Similarly among the irregularities cited by the audit Report of the janapada panchayats, i.e. panchayat samitis, in Madhya Pradesh presented by the Director of Local Funds for 1976-77, 1977-78 and 1978-79, is the one relating to recovery of dues. "Many cases were reported wherein the janapada panchayats incurred losses because of poor recovery of dues. Whereas some were not active in realising entertainment tax and toll on ferries, others failed to realise the amount due from the auction of tanks, animals, etc." [Narayana Rao and Srivastava, 1982, Pp. 329-330].

In Bihar, the "total demand of taxes during 1977-78 was Rs 150.66 lakh, but amount actually realised was only Rs 24.75 lakh accounting for 16.43 per cent" in the case of village panchayats [Narayana Rao and Naidu, 1981, (iv), Pp. 358-359]. The data for one panchayat samiti in Rajasthan for 1975-76, 1976-77 and 1977-78, reveal that in the case of education cess, collection as a proportion of demand was 83 per cent in 1975-76, 66 per cent in 1976-77 and 57 per cent in 1977-78 [Narayana Rao and Naidu, 1981(ii), p. 100]. The proportions of collection to demand for three important taxes (house tax, vehicle tax and profession tax) in the village panchayats of a district in Tamil Nadu in January 1981 were as follows: house tax (16.96 per cent); vehicle tax (10.33 per cent) and profession tax (14.87 per cent); all three together (16.40 per cent) [Narayana Rao, 1983, p. 81]. In Kerala, however, the situation in respect of collection of taxes by village panchayats in 1978-79 was 94 per cent of demand [Narayana Rao, 1982, p. 758].

A major reason for reluctance to levy and collect

taxes on the part of PRIs is evidently the consequent electoral embarrassment. This fiscal behaviour of PRIs is of a piece with that of state governments in general which have consistently shied away, for example, from collecting irrigation rates from farmers or raising power tariffs for them, even when they have consequently to incur heavy loss in providing these services.

One suggestion to make PRIs to levy taxes within their domain, is to make some taxes compulsory [Maddick, 1970, p. 251; Mehta Committee, 1978, p. 108]. "Certain taxes like house tax, profession tax, entertainment tax, special taxes on land and buildings and certain fees like various market fees should be levied compulsorily by the PRIs at the appropriate level" [Mehta Committee, 1978, p. 109]. As it is, several taxes are compulsory in several states (Table 6) and, in some states, compulsory taxes are a significant source of own receipts of the PRIs (Table 7). However, experience of compulsory taxation is not everywhere encouraging; e.g., findings of a survey of panchayats in Madhya Pradesh cited above. Then again, a PRI may avoid unpopularity by being slack in collection of even a compulsory tax. It is worth considering whether some penalty in the form of curtailment in the government grant to deter a PRI from avoiding collection of a compulsory tax could be devised. Another suggestion made to step up collection of taxes is to authorise the local government tier farthest from the people - say, the zilla parishad - to collect taxes imposed by PRIs at a lower level [Maddick, 1970, p. 251]. Finally, the system of giving incentive through matching grants may also produce good results. Thus in Tamil Nadu the "incentive provided by way of matching grants for collection of house tax [by village panchayats] is working well" [Narayana Rao, 1983, p. 131], though, as indicated above, the experience in Maharashtra is not equally reassuring. It must, however, be stressed that all these measures are likely to have a greater impact on the willingness of a PRI to levy and collect taxes/fees/rates if the state government also musters political will to use taxation powers within its domain to rope in several beneficiary groups which are at present subsidised out of general revenues.

In brief, the PRIs can increase their own resources to some extent by a more determined bid to levy and collect taxes and fees. Their efforts in this direction will elicit popular support if people are convinced through experience that the amounts they pay as taxes are well spent on worthwhile development projects benefitting the community. It may be useful to widen the tax base appropriately in response to changing conditions. The best example is that of a tax on buildings (which also includes a house tax). However, revenue from this source does not seem to rise enough in spite of rising values of buildings phenomenally because there is no periodic revaluation of these structures. Provision of a mechanism for such revaluation would go a long way in making this tax much more productive. Nevertheless, it must be recognised that all such revenues would still form a moderate proportion of the total financial flows to the PRIs and that the PRIs will have to depend principally on the state government for financial resources.

Transfer of Resources to PRIs

The state governments transfer financial resources to the PRIs in the form of grants. One portion of such grants covers what has been described above as 'assigned revenues'. Under this system revenue from certain taxes is passed on, partly or wholly, to PRIs as grants. In fact there has been a plea by people's representatives on PRIs that a number of state taxes should be shared by the government with the PRIs, on the same lines that the Centre shares specified taxes with the states on the recommendation of the Finance Commission. It is well-known that of the two types of devolution of resources (on revenue account) by the Centre to the states as recommended by a Finance Commission, *viz.*, tax sharing and grants-in-aid, the former are much preferred to the latter by the states as it is a buoyant source of revenue. Furthermore, the system of grants, particularly plan grants, places states at a disadvantage in relation to the Centre, limiting their freedom of expenditure. In view of the foregoing, the zilla parishads in Karnataka represented to the Karnataka Finance Commission that the fiscal relationship between them and the

State Government should be on the lines of that between the states and the Centre as mediated by the Finance Commission. In other words, there is a plea in favour of substantial amounts being transferred to them by the state government in the form of shares in specific taxes. This would give them 'a degree of fiscal autonomy' and enable them 'to achieve much better the objective of grassroots development' [Karnataka Finance Commission, 1989, Pp. 150-152].

The issue involved here is the degree of fiscal autonomy to be permitted to PRIs in a scheme of transfer of financial resources by the state government. Clearly any scheme of resources transfer must be based upon some judgement by the transferring authority, or a commission provided for the purpose, as to the magnitude of the relevant expenditures to be covered in the succeeding year or years. All the same, the system of giving a share in tax revenue, or general purpose grants, gives to the recipient authority some leeway in planning its expenditure which the system of special-purpose, tied grants (e.g. 'establishment' and 'purposive' grants made over to zilla parishads by the state government in Maharashtra) does not. According to the Taxation Enquiry Commission, 1953-54, "revenues should be made available to local bodies by way of grant-in-aid rather than by way of assignment of a share in the receipts of the taxes levied by the Government, firstly, because revenue without responsibility would be demoralising and, secondly, because grants-in-aid can be determined on the basis of needs and be coupled with the maintenance of desirable standards" [TEC, 1953-54, p. 362].

If the case for democratic decentralisation is conceded, a number of important functions relating to rural development will have to be devolved on the PRIs. If this is done, their reasonable claim on total financial resources available to the governmental sector in the state ought to be respected. The flow of resources to them must not depend entirely on the discretion (read 'whims') of the state government. An arrangement has to be evolved under which the PRIs do not have a sense of being unduly dictated by the state sector authority. The point at issue then is whether a system of tax shares and untied, general-purpose grants is better than that of specific-purpose grants as conducive to the arrangement referred to above. There are certain expenditures of PRIs, such as those on account of establishment already in place and on maintenance of assets created in the preceding years, which cannot be left to be taken care of by tax shares or untied grants; in their case specific purpose grants would be the better alternative. All the same, there is a case for making available to the PRIs an amount of "free resources" to enable them to enjoy some degree of fiscal autonomy. This means that payment to the PRIs of certain amounts by way of tax shares/untied grants would be desirable. However, it may be a good idea to relate the devolution of such "free resources" to the efforts by PRIs to raise their own revenues. This may obviate the possibility that 'revenue without responsibility would be demoralising'. The PREC Report expressed the view that a zilla parishad should have a 'free resource' of at least Rs 25 per capita. It recommended that for every rupee per capita raised by the parishad the state government should give it Rs 4 per capita, so that a zilla parishad raising Rs 5 per capita on its own would get Rs 20 per capita from the government, making a total of Rs 25 per capita [PREC, 1986, p. 133].

State Finance Commission

Whether the transfer of resources is in the form of tax shares, untied grants or specific purpose grants, some authority on the state level has to arrive periodically at a judgement on the relative fiscal needs of the PRIs and state governments as also the broad conformity of the expenditure patterns to those declared in advance by the two levels of authority. At present it is the administrative departments of the state government which carry out this exercise from time to time on the basis of which decisions regarding the type and quantum of resources to be transferred to PRIs are arrived at. Since the authority transferring resources to PRIs is also competing for these resources for its own use, a judgement based upon the exercise done by this authority is viewed by the recipient authority with reservation. A suggestion has, therefore, been mooted in some quarters that on the lines of the Finance

Commission at the national level which makes recommendations on some aspects of Centre-State financial relations, there should also be a State Finance Commission to ensure a fair distribution of financial resources between the state government and the PRIs. The PREC Report supported this view and recommended transfer of resources to PRIs for non-plan expenditure and for placing at the disposal of these bodies some "free resources" [PREC, 1986, p. 134]. The Rao Committee visualises a limited role to such a Finance Commission: "In order that the objective of planning from below is achieved and felt needs of the people and the area are catered to, it would ... be desirable to provide a certain sectorally unallocated lumpsum to each Zilla Parishad. The determination of such amounts to be provided by the State Government could be entrusted to a Finance Commission to be appointed by each Government, say, once in 5 years" [Rao Committee, 1985, p. 47]. The Karnataka Act, 1983 requires the Government to constitute a Finance Commission "every fifth year or at such earlier times as the Government may consider necessary". This body "shall go into the problems of income and expenditure in respect of the Zilla Parishad and it shall be the duty of the Commission to make recommendation to the Government as to: (a) the pattern of assistance from the Government to the Zilla Parishad; (b) the principles which should govern the grant-in-aid from Government to the Zilla Parishad; (c) the date from which the grant-in-aid or assistance is to be given effect to; and (d) any other matter referred to the Commission by the Government in the interests of sound finances and efficient functioning of the Zilla Parishad" [Karnataka Act, 1983, Section 210]. Though the Karnataka Act 1983 defines the work of the State Finance Commission in relation to "the problems of income and expenditure in respect of the Zilla Parishad", the Commission which was actually constituted was required to look into problems of finance of mandal panchayats as well [Karnataka Finance Commission, 1989, Pp. 2-3]. Of course, there is some direct linkage between finances of the zilla parishad and of the mandal panchayats within its jurisdiction through the amounts 'which may be allotted to the Mandal Panchayat Fund ... by the Zilla Parishad under the provisions of (the) ... Act' [Karnataka Act, 1983, Section 114 (2) (a)].

The Mehta Committee examined the plea in favour of the State Finance Commission and expressed itself against the proposal. The Committee seems to have been dissuaded from supporting the proposal by, inter alia, what it views as the daunting task for the State Finance Commission of having to go deeply into "the financial situations of, say, 72,800 Panchayats, 878 Samitis and 55 Zilla Parishads [Mehta Committee, 1978, p. 121]. Considering the paucity of data relating to PRIs which the Committee itself has commented upon and which impeded work also of the Karnataka Finance Commission, [Karnataka Finance Commission, 1989, p. 5], a Finance Commission appointed 'every fifth year' would indeed find the task unenviable. It has been argued by Maheshwari that a State Finance Commission on the lines of the one for the central Finance Commission, may not be suitable for the Panchayati Raj System as the financial problems of the PRIs "are continuous and direct responsibility of the State Government." In the alternative, Maheshwari suggests that a state appoints an ongoing Commission similar to the Commonwealth Grants Commission in Australia [Maheshwari, 1962, p. 568]. In that case the financial problems of the PRIs would be subject to continuous scrutiny by an independent, expert body. The relevant data will come to be continuously collected as a part of the work of the Commission. Alternatively, there may be a permanent mechanism in a state to collect and collate dependable year-to-year information on various aspects of the panchayati raj system. The continuous flow of this information may help the State Finance Commission to arrive at reasoned judgements on the finances of PRIs.

The Mehta Committee also turned down the proposal for a State Finance Commission since it was hopeful that equity to the 'local sector' could be ensured "as part of the system of assignment of functions," eliminating "the need for a separate statutory organisation." [Mehta Committee, 1978, p. 121]. The disheartening developments relating to the experiment in democratic decentralisation in most states even since the submission of the Mehta Committee Report belies any

such hope. It is nobody's case that a Finance Commission's Report is bound to be an effective antidote to the depressing conditions at present regarding governmental subventions to PRIs. But an objective analysis by an independent body every five years will at least place the problems of Panchayati Raj finance in the proper perspective and assist in the process an informed public debate on these problems. An enlightened public opinion may then hopefully work towards effecting a proper sharing of functions and financial resources between the state government and the PRIs.

FOOTNOTES

1. In Karnataka, under the [Karnataka Act, 1983], the lowest tier consists of *Mandal Panchayat* for a "village or a group of villages having a population of not less than ten thousand, and not more than fifteen thousand" [Section 4(1)]. Then again, in a few states even formally speaking there are only two tiers. Thus for example, there are no *Panchayat Samitis* in Goa and Assam [Ministry of Agriculture, 1989, p. 5, item 18 (a)].

2. This was a body set up by the National Development Council in January 1957 (Maddick, 1970, p. 52).

3. It has been pointed out that "such statutory distinction is not of much practical significance because nowhere is it insisted that the panchayats will first discharge their obligatory functions before taking up the discretionary ones. The list of functions has become a permissive list in actual practice, from which the panchayats can take up whatever activity they like" [*A Study of Panchayats*, Programme Evaluation Organisation, Planning Commission, Government of India, 1958, p. 31., as cited in Maddick, 1970, Pp. 102-103].

4. In a paper published in Economic and Political Weekly, Special Number, July 1971, K.N. Raj assumes that out of a total transfer of Rs 431 crore to local bodies by state governments as per their budget estimates for 1970-71, an amount of Rs 30 crore, i.e. about 7 per cent of the total, was routed to municipal bodies [Raj, 1971, p. 1610]

5. The RBI data for 1968-69 show figures of transfer of portions of the following taxes to local bodies: Land Revenue, Stamps and Registration, Urban Immovable Property Tax, Motor Vehicles Tax and Entertainment Tax. No such breakdown of transfers in 1980-81 and 1987-88 are given in the relevant RBI publications cited in the text, though transfer of tax revenue by state governments to local bodies has been continuously occurring.

6. It is seen that the proportion of loans received by zilla parishads in West Bengal from the state government or other sources was rather high at 16.74 per cent of the total income of these bodies in 1970-71, but it was low at 0.59 per cent in 1975-76. In 1976-77 the parishads did not receive any loans [Narayana Rao and Naidu, 1981(iii), Table 9, p. 173].

7. A list of such subjects is given in Appendix 5.2 of the PREC Report (PREC, 1986, p. 541).

8. In fact, Appendix 5.1 of the PREC Report gives a list of powers of the zilla parishad relating to agriculture, social welfare, public health, buildings and communications industries and cottage industries, and co-operation, which the state government took over from the parishad [PREC, 1986, Pp. 538-540].

9. Later came to be known as *Tamil Nadu*.

10. As mentioned earlier in the text, the name of the state was later changed to *Karnataka*.

11. The Santhanam Study Team explains the tax base of the house tax and profession tax as follows: "House tax is levied on the basis of capital value of a house, its annual rental value or such other basis as may be prescribed by the State Government". As for profession tax, "it is leviable by Panchayats ... on every company or firm which transacts business in a village for not less than 60 days in aggregate in a year and on a person who exercises a profession, art or calling or transacts any business or holds any appointment, public or private and resides in that village for not less than 60 days". (Part I, p. 11).

12. Narayana Rao, Sastri and Vittal, 1984, Pp. 18-39; Narayana Rao and Naidu, 1981 (iv), Pp. 356-357; Narayana Rao, 1982 (i), Pp. 396-397; Narayana Rao, 1982 (ii), p. 753; Narayana Rao and Srivastava, 1982, p. 308; Narayana Rao and Naidu, 1981 (i); Narayana Rao, 1982 (iii), p. 958; Narayana Rao and Naidu, 1981 (ii), p. 73; Narayana Rao, 1983, p. 72; Narayana Rao and Naidu, 1981(iii), Pp. 149-150.

13. The lists of panchayat compulsory taxes in the study on Madhya Pradesh [Narayana Rao and Srivastava, March 1982] and that on Kerala [Narayana Rao, 1982 (ii)] leave out some of the taxes listed by the Mehta Committee Report in the case of village panchayats in these two states. Thus the Madhya Pradesh study mentions four of the six compulsory powers listed in the Mehta Committee Report, suppressing in the residuary term 'etc', coming at the end the remaining two, *viz.* profession tax and market fees for the stalls and for goods brought for sale in the market. Similarly the study on Kerala does not mention two compulsory taxes listed by the Mehta Committee Report: these are (a) additional entertainment tax and (b) surcharge on show tax.

14. There are no village panchayats in Karnataka now. There is a provision in the Act for constituting an assembly of all persons in a village "whose names are included in the electoral roll of the Zilla Parishad for the time being in force pertaining to the village", to be known as Gram Sabha of such village. It is a body, supportive of the Mandal Panchayat, with hardly any financial resources assigned. It is permitted to "mobilise voluntary labour and contributions in kind and cash for the community welfare programmes" [Karnataka Act, 1983, Section 3].

15. It is intriguing that the Mehta Committee Report shows this tax under the column 'Non-tax Revenue'.

16. The Mehta Committee Report makes no mention of these additional sources of revenue in the case of Tamil Nadu in its Annexure 11, pertaining to sources of revenue of panchayat samitis.

17. An Expert Committee of the Andhra Pradesh government - Narsimham Committee - recommended in 1981 "that the entire land revenue ... may be transferred to the local bodies". But no action was taken on this recommendation [Narayana Rao, Sastry and Vittal, 1984, p. 50].

18. The proportion for 1985-86 had slumped to 42.3 per cent, though the absolute amount of land revenue grant did not diverge much from that in any of the preceding years. The decline in the proportion was due to a sharp increase in the

total income accruing from grants as a result of a substantial grant given by the state government to village panchayats to clear bills on account of water supply and lighting. There was no such grant in the preceding years [PREC, 1986, table 1, p. 67].

19. The relevant table gives information on different types of grants to panchayat samitis and on the village house tax matching grant, which, in fact, goes to the village panchayats. Percentages have been calculated by leaving out figures of the village house tax matching grant.

20. Data for one of the zilla parishads in Maharashtra are 'revised estimates' and for the other only 'budget estimates'.

21. Data relating to Rajasthan are 'actuals' for the two years mentioned.

22. The PREC Report explains that the figure of grants given in table 1, p. 67 of the report does not include grants on account of centrally-sponsored schemes, e.g. Biogas, National Rural Employment Programme, operated in rural areas [PREC, 1986, para 4.37, p. 67].

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NATIONAL AGRICULTURAL RESEARCH SYSTEM IN INDIA

K.V. Raman and T. Balaguru

The National Agricultural Research System employs about 30,000 Scientists working in its two arms: Indian Council of Agricultural Research (ICAR) and the State Agricultural Universities (SAUs). ICAR undertakes research through 44 institutes, 9 project directorates, 20 national research centres and 66 All India Coordinated REsearch Projects operating in 1291 centres. It aids, promotes and coordinates location specific research in 126 agro-climatic zones through National Agricultural Research Projects (NARP) located in the 26 SAUs. Bilateral and multilateral International cooperation have helped in developing and strengthening the system. Impact of this complex yet organised research system is evident from the three-fold rise in foodgrains production since Independence. The system is geared to achieve the required 230 million tonnes foodgrains to feed one billion people by the year 2000 through improvement in productivity and sustainability of major farming systems.

In spite of the economic development of the last four decades, agriculture continues to remain a major sector of the Indian economy. It contributes 32 per cent of GNP, provides 60 per cent of employment and continues to be the primary source of living for 70 per cent of the population. Technological progress in agriculture is therefore crucial for the overall economic development of the country.

The total geographical area is estimated at 328.8 m.ha. The gross cropped area is about 180 m.ha of which 35 m.ha are under double cropping. Rice is the most important crop followed by wheat, pulses, oilseeds, sorghum, and maize. Cotton and sugarcane are the principal commercial crops.

India has one-half of the buffalo and one-sixth of the cattle population of the world. It ranks first in goat and sixth in sheep population. It has a vast potential of fishing resources comprising 2.02 m.sq. km Exclusive Economic Zone (EEZ), 7,517 km of coastline, 29,000 km of rivers, 1.7 m. ha of reservoirs, 0.902 m.ha of brackish water areas and 0.753 m.ha of tanks and ponds.

The climatic setting is highly diverse, ranging from tropics in the south to warm, temperate subtropics in the north. The extreme east receives very high rainfall while, in the extreme west, the rainfall is very low and erratic. Nearly one-third of the country receives an annual rainfall of less than 75 cm. Two-thirds of the agriculture is rainfed and is prone to vagaries of monsoonal aberrations like drought. The arid zones occupy nearly 320,000 sq. km mainly in the States of Rajasthan, Gujarat and Haryana. In addition, a cold desert of 84,000 sq. km exists in cold regions like in Ladakh.

Nearly one-sixth of the land area has serious limitations for crop production such as erosion, aridity, water logging, acidity, salinity, and alkalinity. It is estimated that nearly 80 m.ha of cultivated area require soil conservation measures. The problem of salinity and waterlogging have appeared within a few years of the introduction of irrigation. An estimated 7 m. ha of land are affected by salinity and alkalinity, majority of which occur in the potentially fertile irrigated areas of the Indo-Gangetic alluvial plains.

India has an estimated 176 m. ha. of surface water and 57 m. ha. of ground water potential. As against an ecologically safe level of 30 per cent, only 19.52 per cent of the land area is under forest cover. About 2 million people, mostly in the North-Eastern Hill Region, follow shifting cultivation involving 11 m. ha of land causing serious environmental degradation and ecological imbalance. Indiscriminate destruction of forests coupled with irrational use of soil and water resources have resulted in land degradation at an alarming rate of 1.5 m.ha every year.

The foodgrain production has increased by nearly three and a half times from 51 m. tonnes in 1950-51 to over 172 m. tonnes in recent years. Milk production has increased from 17 m. tonnes in 1950-51 to 48 m. tonnes in 1988-89, while egg production has increased phenomenally from 1,032 m. to 18,037 m. during the same period. The total catch of inland and marine fish has increased from 0.75 m. tonnes in 1950-51 to 2.94 m. tonnes in 1986-87. Nevertheless, livestock and fisheries potential remains largely underexploited as compared to that of food crops.

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India has built up a fairly advanced agricultural research system. The effective functioning of this system in close association with education and extension systems has greatly contributed to the rapid growth of agriculture after Independence. India has one of the largest agricultural research systems in the world with the largest number of scientific personnel of any developing country except China. The research system includes approximately 30,000 scientists and more than 100,000 supporting staff actively engaged in research related to agriculture. Although the total number of scientists engaged in agricultural research in India looks very impressive, it compares less favourably with many developed countries. There are 130 scientists per million hectare of cropped area, and 33 scientists to serve one million agricultural population in the country. As compared with many other developed countries, these figures are very low. Nevertheless, effective management of such a vast manpower resource poses a formidable challenge to the research system.

HISTORICAL PERSPECTIVES

The Famine Commission report of 1880 led to the creation of the Department of Agriculture at the Centre as well as in the Provinces with the primary duties of undertaking scientific enquiry and improvement in agriculture apart from famine relief. The foundation for agricultural research in India was laid in 1890s by Dr. J.A. Voelcker, Consulting Chemist to the Royal Agricultural Society of England. His recommendations led to the appointment of the Imperial Agricultural Chemist in 1892, Imperial Mycologist in 1901, and Imperial Entomologist in 1903. This was the beginning of inducting scientists into agriculture. Most importantly, his work was instrumental for the establishment of the Imperial (now Indian) Agricultural Research Institute in 1905 at Pusa, Bihar. Agricultural colleges were established at Pune, Kanpur, Sabour, Nagpur, Coimbatore, and Lyallpur (now in Pakistan). Organised scientific research on the problems of livestock started with the establishment of the Imperial Bacteriological Laboratory (now known as Indian Veterinary Research Institute) at Mukteswar in 1889. This was preceded by the establishment of Veterinary Colleges at Bombay, Calcutta, Madras, and Lahore (now in Pakistan).

With the constitutional changes of 1919, responsibility for agriculture was transferred to the Provincial Governments. On the recommendation of the Royal Commission on Agriculture (1928), the Imperial Council of Agricultural Research was established as a Registered Society in 1929 funded mainly through a lump sum grant from the Government and the proceeds from the cess levied on certain commodities exported from India. After Independence, the Council was renamed as Indian Council of Agricultural Research (ICAR) on June 10, 1948.

In addition to the ICAR, a number of Central Commodity Committees were established to deal with research in respect of particular crops or commodities. The Committees were semi-autonomous bodies financed by grants from the Government of India, or by income from cesses levied on particular commodities. The Indian Central Cotton Committee was established in 1921 and set the tone for an organised research on the basis of a network. Its success subsequently led to the establishment of a number of other Commodity Committees, viz., Indian Lac Cess Committee in 1931; Indian Central Jute Committee in 1936; Indian Central Sugarcane Committee in 1944; Indian Central Coconut Committee in 1945; Indian Central Tobacco Committee in 1945; Indian Central Oilseeds Committee in 1947; Indian Central Arecanut Committee in 1949 and Indian Central Spices and Cashewnut Committee in 1958.

After Independence, the research system has undergone some major changes. First, following the recommendations of the first Joint Indo-American Team in 1955, a number of State Agricultural Universities were established. The first one was established in 1960 at Pantnagar in Uttar Pradesh and other States followed suit. There are now 26 Agricultural Universities spread over different States. In addition, there are four national institutes of the ICAR which are involved in higher agricultural education at the postgraduate level. These are: (i) Indian Agricultural Research Institute; (ii) Indian Veterinary Research Institute; (iii) National Dairy Research Institute; and (iv) Central Institute of Fisheries Education. These institutes have Deemed University status and offer their own degrees and diplomas in agriculture and allied areas.

Second, on the basis of critical reviews and specific recommendations emanating from them, the ICAR was reorganised first in 1965 to bring centrally sponsored research activities relating to crops, commodities, animal sciences and fisheries under one umbrella. The Commodity Committees were abolished and their research institutes as well as those under the Ministry of Food and Agriculture were merged with the ICAR so that problems of agricultural research could be viewed in their totality. The rules and bye-laws of the Council were revised to make it functionally more effective, technically competent, and autonomous. The Governing Body was reconstituted, making it pre-eminently a body of scientists and those with interest in or knowledge of agriculture. An eminent agricultural scientist was appointed as the Executive Head of the ICAR and was designated as Director General.

Though this greatly increased its responsibilities, the Secretariat of ICAR continued to be an attached office of the Department of Agriculture, thus limiting its effectiveness. In particular, the personnel policies and recruitment system were not found appropriate. Later reorganisation, following the appointment of another Review Committee in 1973, conferred on it greater autonomy and flexibility in operation, management, and recruitment. A new, but small, Department of Agricultural Research and Education (DARE) was set up in the Agriculture Ministry to provide the ICAR necessary linkage to deal directly with the Central and State Governments on the one hand and the International Organisations on the other, without going through the Department of Agriculture. The Director General of the Council concurrently became the ex-officio secretary (DARE) to the Government.

The composition of the Council was modified so as to restrict the membership and make it a more business-like body with the Minister for Agriculture as its President. The Governing Body was also restructured and made much more effective with the Director General as its Chairman. The country was divided into eight agro-ecological zones and Regional Committees were set up for each of these zones. To broad base the decision making process at the Institute level, Management Committees were set up under the Chairmanship of their respective Directors. A new personnel policy was evolved and an All India Service called Agricultural Research Service (ARS) was created in 1975 to facilitate optimum utilisation of the available manpower. Consequently a new Agricultural Scientists Recruitment Board (ASRB), with an eminent scientist as a full-time Chairman and assisted by two scientists as Members, was established to recruit scientists to various positions in the ICAR.

To ensure complementarity in the research programmes of different institutions and provide a mechanism for joint evaluation of new technologies by the scientists through multi-locational testing, the concept of All India Coordinated Research Projects was evolved. The first one was All India Coordinated Maize Improvement Project launched in 1957. The concept was later extended to other crops, commodities, animal species, and several other areas of research.

Finally, an innovative programme known as National Agricultural Research Project was launched in 1979, with World Bank support, to strengthen the regional research capabilities of the Agricultural Universities to undertake location specific and need based research on the basis of identified agro-climatic zones.

The present agricultural research system comprises essentially two main streams, the ICAR at the national level and the Agricultural Universities at the State level. Besides, several other agencies such as general universities, scientific organisations, and various Ministries/Departments at the Centre, as also private or voluntary organisations participate directly or indirectly in research activities related to agriculture (Figure 1).

I THE ICAR SYSTEM

The ICAR has the following major objectives: (i) to undertake, aid, promote, and coordinate agricultural, animal husbandry, and fisheries education, research, and its application; (ii) to act as a clearing house of research and general information relating to agricultural and veterinary matters; (iii) to maintain a research and reference library; (iv) to do other things considered necessary to attain the above objectives; and (v) to provide consultancy services in the fields of education, research, and training in agriculture and allied sciences.

Among the major scientific organisations in the

country, ICAR is unique in having concurrent responsibility for both research and education. As an apex body at the national level, ICAR is mainly responsible for the promotion and coordination of agricultural research in the various branches of agricultural and allied sciences in the country. In addition to its promoting and coordinating roles, ICAR is also directly involved in undertaking research at the national level, basic as well as applied, on diverse problems facing production of crops, animals, fisheries, etc., with the objective of evolving new production technologies suited to different agro-climatic conditions.

Just as the University Grants Commission (UGC) plays a major role for the general education in the country, ICAR plays a similar role in the area of agricultural education. The Charter of the ICAR also includes extension education, which is carried out through a network of projects and other mechanisms.

Organisational Structure of the ICAR

As a Registered Scientific Society, ICAR enjoys an autonomous status, but follows Government of India rules and regulations *mutatis mutandis*. It observes all procedures of the Government in getting its plans sanctioned and approved by the Planning Commission and Finance Ministry. Its organisational structure is shown in Figure 2. The ICAR Society transacts the business of the ICAR. Presided over by the Union Minister for Agriculture, it reviews the progress and performance of the ICAR and gives policy directions to other constituent units of the Society. The Governing Body is the chief executive and decision making authority of the ICAR. It is pre-eminently a body of scientists and is presided over by the Director General. The Director General, who is an eminent senior agricultural scientist, concurrently acts as the ex-officio Secretary (DARE) and advises the Government on all matters related to agricultural research and education in the country that are referred to him.

The Standing Finance Committee is a subsidiary of the Governing Body with members drawn from it, and is presided over by the Director General. It examines the annual budget of the ICAR and the financial implications of all the research proposals before submitting to the Governing Body for approval. The Norms and Accreditation Committee sets norms and procedures for the ICAR's budgetary support to the Agricultural Universities and ensures maintenance of standards of agricultural education in the country. It essentially consists of five Vice Chancellors of Agricultural Universities and is presided over by the Director General. The Scientific Panels consider the technical merits of research proposals placed before them. These panels in different disciplines comprise 18 to 20 experts chosen from different scientific institutions. There are now 24 such scientific panels which advise the Director General and the Governing Body on technical matters and draw attention to gaps in the current agricultural research and education programmes. Besides, there are five Interdisciplinary or Joint Panels to consider schemes for collaboration in research with other research organisations such as Council for Scientific and Industrial Research (CSIR), Indian Council for Medical Research (ICMR) and Indian Council for Social Science Research (ICSSR).

Regional Committees have been constituted, one in each of the eight agro-ecological regions in the country. These Committees headed by the Director General have representatives of the State Departments of Agriculture, Agricultural Universities and Central Institutes. They review the status of agricultural research and education in the respective regions and make recommendations to the Governing Body relating to location-specific problem of that region.

At the headquarters, the Director General is assisted on the technical side by eight Subject Matter Divisions, one each in the fields of Crops, Animal Sciences, Soils and Agronomy, Education, Horticulture, Extension, Fisheries, and Agricultural Engineering. Each Division is headed by a Deputy Director General who is responsible for the research schemes in his discipline. The Deputy Directors General are assisted by Assistant Directors General, currently 39 in number, and other senior scientists dealing with sub-disciplines within these eight major areas. These technical divisions guide and service

all ICAR Institutes.

On the administrative side, the Director General is assisted by the Secretary (ICAR) and a number of administrative units like the International Cooperation Division of DARE, Personnel Division, Finance Division, Publications and Information Division. Each of these divisions is headed by a Director. The Joint Secretary in the Ministry of Finance is the Financial Adviser to the ICAR who assists the Director General in the preparation and control of the budget.

The Agricultural Scientists Recruitment Board (ASRB) is responsible for recruiting scientists as well as looking after their career advancement in the ICAR system. Though ASRB is a part of the ICAR, it works independently and is accountable directly to the President of the Society.

Research Infrastructure of ICAR

Although agriculture is a State subject, ICAR has established many Central Research Institutions over the years to meet the agricultural research needs of the country. These are essentially meant for: (i) Implementing research mandates extending beyond the administrative boundaries of the States; (ii) Pursuing basic research not undertaken by most Agricultural Universities; (iii) Evaluating research results through multi-locational testing; and (iv) Developing manpower for Agricultural Universities and other agricultural institutions.

ICAR directly administers 44 research institutes in the areas of crops, animals, and fishery sciences. They are:

National Academy of Agricultural Research Management (NAARM), originally started as Central Staff College for Agriculture in Hyderabad, the Academy provides research management training to the agricultural scientists in the country. In addition, it organises seminars, conferences, and workshops, both national and international, based upon the scientific studies and reviews undertaken on the management problems encountered in the research system. It publishes training material and functions as a repository of information in the field of agricultural research and education management. Besides meeting national needs as a premier management institution, the Academy has now developed an institutional capability as a Regional Training Centre in this part of the World.

In order to collect, conserve, and initiate such measures as would lead to long-term productivity of basic resources like plants, animals, fish, and soil and water, ICAR has established four national bureaux. They are:

National Bureau of Plant Genetics Resources (NBPGR), New Delhi, undertakes research and coordinates activities in germplasm collection, introduction and exchange of seeds and plant materials; and characterisation, documentation, maintenance and conservation of genetic resources for utilisation in crop management.

National Bureau of Soil Survey & Land Use Planning (NBSS&LUP), New Delhi, is engaged in the preparation of soil map of India; preparation of district level soil resource inventories; soil correlation and classification at national level; research in soil genesis and classification; imparting training in soil survey and mapping; soil taxanomy, land use planning etc; and establishment of a soil data bank for use in agricultural research and extension.

National Bureau of Fish Genetics Resources (NBFGR), Allahabad, is engaged in the collection, conservation and efficient utilisation of fish genetics resources.

National Bureau of Animal Genetics Resources (NBAGR), Kamal, is engaged in the identification, evaluation, conservation, and utilisation of animal genetics resources.

There are nine crop science institutes carrying out basic and applied research on specific crops and transferring the results thereof. They are:

Indian Agricultural Research Institute (IARI), New Delhi, is the premier agricultural institution engaged in basic and applied research in crops, postgraduate education and training, extension education, and transfer of technology.

Central Rice Research Institute (CRRI), Cuttack, is engaged in basic and applied research in all disciplines of rice culture; to generate information for planning adaptive research; and to serve as a centre of information on all matters concerning rice production, protection, and conservation.

Jute Agricultural Research Institute (JARI),

Barrackpore, is engaged in developing varieties of jute suitable for different jute growing areas; developing appropriate crop management and crop protection technology including broad types of farm tools and implements; and production of breeder and foundation seeds of jute.

Central Tobacco Research Institute (CTRI), Rajahmundry, is engaged in varietal improvement of FCV tobacco; pest and disease management; improvement of curing technology; utilisation of tobacco wastes; and extension education.

Indian Grassland and Fodder Research Institute (IGFRI), Jhansi, carries out basic and applied research on grasses, grass lands and fodder crops including all aspects of forage seed production and its protection for producing high quality forage. It also attempts to develop and evaluate various crop/tree species combinations for silvipasture and agroforestry systems.

Sugarcane Breeding Institute (SBI), Coimbatore, is engaged in evaluating important sugarcane varieties for different agro-climatic regions in the country. It conducts research on breeding methodologies by taking advantage of its situational factor favourable for the flowering of sugarcane crop. It also imparts postgraduate training.

Indian Institute of Sugarcane Research (IISR), Lucknow, has the mandate to standardise the sugarcane production and protection technologies; to devise and develop prototype of machines and implements required to promote the interest of sugarcane cultivation for maximum economic benefits to the farmers; to provide advisory services; and to impart training in sugar crops and agro-techniques.

Central Institute of Cotton Research (CICR), Nagpur, is engaged in basic and applied research to improve cotton production; collection and conservation of germplasm for cotton improvement programmes; and to impart training in advance cotton protection technology.

Vivekananda Parvatiya Krishi Anusandhan Shala (VPKAS), Almora, is engaged in the development of improved high yielding and disease resistant varieties of different cereals, millets, pulses, vegetables, and fodder crops grown in hills; collection, evaluation and maintenance of germplasm resources of hill crops and identification of suitable improved cropping systems for these areas; conduct research on soil and water management problems and transfer research results for the benefit of farmers of hill areas.

There are five horticulture and plantation crops institutes conducting and coordinating research on the crops they deal with. They are:

Indian Institute of Horticultural Research (IIHR), Bangalore, has the mandate to conduct cytogenetical studies to improve horticultural crops; standardise propagation techniques; nutritional and water management studies; use of plant growth regulators in horticulture; physiology and biochemistry of flower and fruit development; control of weeds, viral, fungal and bacterial diseases, mites and pests; post-harvest technology; design of tools and implements; and conservation of germplasm.

Central Institute of Horticulture for Northern Plains (CIHNP), Lucknow, is engaged in the investigation of major production problems of fruit and vegetable cultivation for the northern plains with special reference to mango.

Central Potato Research Institute (CPRI), Shimla, has the mandate to conduct and coordinate potato research in India; to serve as a centre of information on all aspects of potato research and development; and to produce breeder seed required by the country.

Central Tuber Crops Research Institute (CTCRI), Trivandrum, conducts and coordinates research on all tropical tuber crops other than potato, viz., Cassava, sweet potato, amorphophallus, aroids, yams, arrowroot, etc.

Central Plantation Crops Research Institute (CPCRI), Kasaragod, has the mandate to improve the genetic potential of plantation crops; conduct basic and applied research; serve as an information centre on all matters relating to these crops; produce genetically superior planting materials and serve the All India Coordinated Research Project on Coconut and Arecanut.

There are seven resource management institutes which are primarily responsible for undertaking research on soil and water conservation for optimising production of crops under different conditions. They are:

Central Soil and Water Conservation Research

and Training Institute (CSWCR&TI), Dehradun, has the mandate to study erosion problems, and conservation of land and water resources; evaluation of hydrological barriers and management of watersheds; identification of suitable plant materials for different land use; development of suitable technology for increasing production from arid lands; development of techniques for rainfed farming and on efficient water management; imparting training to state and central officers in soil and water conservation; and monitoring of changes in environment affected by integrated water management.

Central Soil Salinity Research Institute (CSSRI), Karnal, has the mandate to collect information on the extent, characteristics, genesis, and classification of salt affected soils; study soil and water dynamics in irrigated agriculture; conduct detailed hydrological survey; evolve methods to check deterioration of water due to pollution, and utilisation of different qualities for agricultural purposes; study salt-tolerance for reclamation of salt affected lands; and impart postgraduate education and training.

Central Arid Zone Research Institute (CAZRI), Jodhpur, has the mandate to evolve location-specific technologies for optimising production of arid lands based on ecological principles by judicious utilisation of natural resources; and to train and to conduct workshops for adopting the new technologies.

Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad, has the mandate to carry out basic research in conservation, management and utilisation of natural resources in dryland ecosystem to study the phenomenon governing crop growth and development under dryland conditions; to develop technology for exploitation of natural resources at farm level for increasing and stabilizing crop production in dryland; and also to act as a repository of knowledge on dryland farming in the country.

ICAR Research Complex for North-Eastern Hill Region (ICAR-NEH), Shillong, caters to the needs of agriculture, animal husbandry, fisheries, soil and water conservation, etc., for the hill areas of the north-eastern region with a major research focus on shifting cultivation, horticultural crops, pest management, livestock improvement, arid soil management and post-harvest technology.

Central Agricultural Research Institute (CARI) for Andaman and Nicober Islands, Port Blair, conducts research on high value cash and plantation crops; develops silvipastoral system and appropriate land use pattern through cropping systems; develops effective health coverage and livestock production systems; and conducts studies on capture and culture fisheries including coastal acquaculture.

Indian Institute of Soil Science (IISS), Bhopal, has the mandate to study the fundamental aspects of soils, particularly those that are basic to develop agricultural expertise and generate information on various basic aspects of soil research; to collaborate with other organisations to identify gaps and provide direction for further research; and to have collaboration with similar international research institutions.

The technological and engineering problems in crop production and quality of commercial crops are handled by four institutes. They are:

Central Institute of Agricultural Engineering (CIAE), Bhopal, has the mandate for research and development of improved farm equipments related to crop production; post-harvest technology; development of energy resources and power units for agriculture; to liaise with industry for the manufacture of improved implements; and to train farmers on modern agricultural technology.

Cotton Technological Research Laboratory (CTRL), Bombay, has the mandate to improve the production of quality cotton and to find ways and means for better utilisation of cotton and its by-products.

Jute Technological Research Laboratory (JTRL), Calcutta, has the objectives of improvement of fibre quality; preparation of textiles by blending jute and other fibres; basic research on fibres and products; and transfer of technology for application in agriculture and industry.

Indian Lac Research Institute (ILRI), Ranchi, carries out research towards effecting improvements in cultivation, modification and standardisation of lac and study its constitution and modifications so as to intensify its production and utilisation, and to impart training in improved methods of lac cultivation and its industrial use.

Five animal science institutes have the mandate of breeding animals for higher productivity and suggest better management practices. They are:
Indian Veterinary Research Institute (IVRI), Izatnagar, has its objectives to conduct basic and applied research on all aspects of livestock health, production, and nutrition, and impart post-graduate education in veterinary sciences and animal husbandry.
National Dairy Research Institute (NDRI), Karnal, has the mandate to meet the manpower needs of research, teaching, and dairy development through undergraduate and post-graduate instructional programmes, study of dairy production, milk and milk processing, dairy economics and management, and conduct of transfer of technology programmes.
Central Sheep and Wool Research Institute (CSWRI), Avikanagar, has the mandate to improve productivity of indigenous breeds of sheep through selection or cross breeding, superior exotic breeds well adapted to the tropical conditions to improve the carpet, wool, and meat production.
Central Institute for Research on Goats (CIRG), Makhdoom, undertakes research for developing superior strains of goats for high productivity of meat, milk and fibre, to develop package of practices for feeding, management, and disease cover; and to study various aspects of processing of goat meat, milk and pashmina.
Central Avian Research Institute (CARI), Izatnagar, has the objectives to develop avian species of economic importance with their optimum productivity; to conserve, evolve and improve indigenous and exotic germplasm; to impart training at various levels; to transfer the technology developed; and to undertake studies on various aspects of management to evolve environmental and ecological factors of post-harvest technology.
Central Institute for Research on Buffaloes (CIRB), Hissar, carries out research on all aspects of buffalo production; co-ordinates research on buffalo in the country; functions as a clearing house of information on all aspects of buffalo development; establishes a nucleus breeding herd of important buffalo breeds for genetic studies on improvement of milk, meat, and draught potential; builds up adequate germplasm of improved breeds; and organises training programmes in buffalo management.
National Institute of Animal Genetics (NIAG), Karnal, provides scientific support to the NBAGR and takes up research work of very fundamental nature not ordinarily taken up at the existing ICAR Institutes and Agricultural Universities.

Six fisheries institutes conduct studies for assessing the production of fish, conduct training programmes and undertake research. They are:
Central Inland Capture Fisheries Research Institute (CICFRI), Barrackpore, has the mandate to develop systems for monitoring of fish population in rivers, fresh water reservoirs, estuaries, and to study factors influencing these population and systems for optimum exploitation; and to conduct postgraduate and specialised training and extension programmes.
Central Marine Fisheries Research Institute (CMFRI), Cochin, conducts research for assessing and monitoring exploitable marine fishery resources for rational exploitation and conservation; to assess the exploited and under-exploited fishery resources; to understand the fluctuation in abundance of marine fishery resources; to develop suitable mariculture technology for fun fish and shell fish in open seas; and to conduct transfer of technology and postgraduate and specialised short-term training programmes.
Central Institute of Fisheries Education (CIFE), Bombay, has the Deemed University status. It conducts undergraduate and post-graduate degree programmes in fishery sciences; undertakes research in basic disciplines related to fish and conducts short-term and long-term training programmes for different disciplines of fishery sciences.
Central Institute of Fisheries Technology, (CIFT), Cochin, conducts research for the improvement of indigenous crafts and gears and develops suitable designs for them; develops technologies for handling, processing, preservation, product development, quality control, packaging and transportation of fish and fishery products; and conducts transfer of technology and training programmes in fishery technology.

Central Institute of Brackish Water Aquaculture (CIBWA), Madras, conducts multi-disciplinary, mission-oriented applied research to develop appropriate technologies for the aquaculture organisms in the estuaries, brackishwater and salt intrusion areas; and to provide an information base for sustained growth and accelerated development of these fisheries through training, education and research linkages.

Central Institute of Freshwater Aquaculture (CIFA), Dhauli, conducts research for developing low input aqua-farming to benefit small and marginal farmers and also system of industrialised aquaculture for entrepreneurs; to improve existing technologies for carps and air-breathing fish culture, and develop culture technology for cat fish, freshwater prawns and mussels; to increase freshwater fish production through genetic upgrading, increased pond productivity, and evolution of cheap and balanced diet; to conduct nutritional and disease aspects of fish culture; and to conduct postgraduate education and training programmes.

Finally,

Indian Agricultural Statistics Research Institute (IASRI), New Delhi, conducts research in experimental design, surveys, statistical genetics, computer processing and data processing; and imparts post-graduate courses for training professional statisticians; and provides advisory and consultancy services to agricultural scientists in the country.

Besides, there are some more institutes which have been approved, but are yet to start. These include: Indian Institute of Agricultural Economics Research; Central Institute of Post-harvest Engineering and Technology; and Central Institute for Temperate Horticulture.

The ICAR Institutes vary greatly in age, size, and scope. Some are old (IVRI) while some are new (CIBWA); some are big (IARI) while some others are small (CIRG); some have a narrow problem area (ILRI) while others have an extremely wide mandate (NBSS&LUP). They have a network of regional stations covering diverse agro-ecological areas to serve as a testing ground for the developed technologies. They are guided and serviced, both technically and administratively, by the ICAR headquarters. For ensuring greater effectiveness, from time to time, ICAR has taken steps to decentralise the decision-making process through delegation of powers to the institutes.

The individual institutes, under the supervision of a Director, are organised into well defined divisions. On technical matters, they are assisted by scientific bodies like the Staff Research Council (SRC), represented by the institute scientists and headed by the Director. It meets once in a year and is charged with the responsibility to plan, monitor, and evaluate research projects. All institutes have Management Committees except those with Deemed University status which have Management Boards. These Committees represented by the research and developmental personnel under the chairmanship of the Director, assist the institutes on broad policy formulation and financial matters. Once in five years, the performance of each institute is evaluated through a system of Achievement Audit Committees known as Quinquennial Review Teams. These teams, through a peer group review, play an important role in projecting the institutes' programmes in accordance with national policies and priorities. Besides, the Directors' Conferences, held regularly in the headquarters under the chairmanship of the Director General, consider problems common to the institutes.

These institutes undertake studies for building up a data base needed for agricultural research.

Project Directorates: Because of the importance and magnitude of the work involved in a single commodity like rice, wheat or poultry, or a group of commodities like oilseeds, pulses or vegetables, ICAR has upgraded some of its research infrastructure/projects with added responsibilities, and designated them as Project Directorates. Except for the size and magnitude of work involved, these are basically the same as the Coordinated Research Projects. Additionally, they do undertake some research besides playing such national service roles like maintenance and supply of germ plasm, organising off-season nursery to promote and speed up research interests, monitoring pests and diseases, forecasting and issuing early warning about the pests and diseases outbreak, and performing such duties as a lead centre in relation to their respective subject

matter and so on. There are now nine of them under operation. They are: (i) Directorate of Rice Research, Hyderabad; (ii) Directorate of Wheat Research, New Delhi; (iii) Directorate of Pulses Research, Kanpur; (iv) Directorate of Oilseeds Research, Hyderabad; (v) Project Directorate on Vegetables, New Delhi, (vi) Cropping Systems Research Directorate, Bangalore; (vii) Project Directorate on Water Management, Karnal; (viii) Project Directorate (Cattle), Meerut; and (ix) Directorate of Poultry Improvement, Hyderabad.

National Research Centres (NRCs): The National Commission on Agriculture recommended setting up of 'Centres of Fundamental Research' headed by eminent scientists in particular areas. Consequently, the ICAR conceived the idea of setting up a number of National Research Centres (NRCs). The concept of NRCs revolves around the need for concentrated attention with a mission approach by a team of scientists from different disciplines. They work under a senior leader on selected topics which have direct or indirect relevance to resolving national problems in a particular crop or commodity or a problem area of research. These centres are designed to concentrate on those crops and commodities not well served by the research institutes. Unlike the institutes, these centres do not have divisional set up for individual disciplines nor have regional stations. They feed the national network of research with new materials, technology, and information for subsequent adoption in the different production-oriented research programmes. The NRC for Groundnut was the first to be organised in 1979, and the NRC for Cashew is one of the more recent ones established. There are now 20 such Centres, covering a wide range of areas like crops, horticulture, animal species, fisheries, resource management, etc. Six more approved Centres are yet to be established. Some of the NRCs may grow into full-fledged institutes once their standard of work is established and if the subjects assume greater national importance.

In addition to its institute-based research, ICAR promotes research schemes/projects in agriculture and allied areas to resolve location-specific problems. It is involved in a cooperative endeavour with other research organisations in carrying out multi-disciplinary research programmes. Such promotional schemes fall under the following categories.

All India Coordinated Research Projects (AICRPs): These projects have been essentially conceived as an instrument to mobilize available scientific resources to find effective solutions for the national problems of agricultural production through inter-institutional interactions. The projects are developed as multi-disciplinary and problem-oriented projects with major emphasis on multi-locational testing of new materials/production systems. They provide opportunities for scientists working on similar problems in different institutions to come together, discuss and exchange ideas, information, and materials for mutual benefit. They also provide them with facilities for multi-location testing of improved technologies developed by various sub-systems in different agro-climatic regions. The projects constitute an effective national grid of coordinated experiments by integrating different institutions and disciplines.

The All India Maize Improvement Project, launched by the ICAR in 1957 to improve maize production using hybrids, was the forerunner of this approach. Its remarkable success led to the extension of this approach to all major crops and other areas like animal science, fisheries, soils, agricultural engineering, horticulture, etc. Subsequently, many such coordinated projects were initiated. Each project is generally sanctioned for a period of 5 years and is headed by a full-time Project Coordinator with a Coordinating Unit to assist him. These Units are located either in the ICAR Institutes or the Agricultural Universities depending upon the location of the project. They are responsible for all the technical, financial, and administrative matters as well as for organising regular workshops. The technical programmes of the individual projects are carried out by many cooperating centres located in the participating institutions. Regular workshops, either annual or biennial, are organised by the individual projects in which the technical programmes are finalised. The Project Coordinator is guided and serviced by the concerned Assistant Director General in the ICAR headquarters on all matters.

There are 66 such projects currently operating

at 1,291 operating centres. Of these, 904 Centres are located in Agricultural Universities; 190 in ICAR Institutes and the rest at other institutions. Crop sciences have 34 projects operating at 627 centres; soil science and agricultural engineering have 20 projects at 364 centres. The expenditure on these projects have increased steadily and nearly one-fourth of the ICAR's budget is now spent on these projects. The complement of staff determined on the basis of the technical work assigned and the nature of operation are provided by the participating institutions, but paid for by the ICAR. During the Sixth Plan, the total sanctioned staff strength for these projects was 13,663 which includes 5,056 scientists. The expenditure is shared by the ICAR and the collaborating institutions on 75:25 basis.

A high degree of accountability, based on continuous monitoring, is a noteworthy feature of these projects. Outstanding achievements have been made through these projects, and the development of such an approach has been a source of inspiration to many developing countries.

National Agricultural Research Project (NARP): Agricultural Universities which have a state-wide mandate for agriculture did not have a strong base for research at the regional level. Most of the funds provided were utilized for developing the University campuses neglecting the regional research needs. To overcome this, the ICAR launched in 1979, with World Bank assistance, a novel scheme known as National Agricultural Research Project (NARP) to strengthen the research capabilities of these Universities for conducting need-based, location-specific, and production-oriented research in identified agro-climatic zones. Under this Project, each State is divided into a contiguous set of agro-climatic zones on the basis of climate, soils, crops, and ecology. There are 126 such zones in the country with 120 zones in 17 States and 6 zones in North Eastern Region. In each zone, a major regional research station with a multi-disciplinary team of scientists is established or strengthened.

The strengthening is accomplished by providing funds for incremental scientific and supporting staff, laboratory, equipment, transport, operating costs, and other physical facilities. The Agricultural University, on its part, has to provide funds for land, cultivation, and station maintenance. The project also provides for strengthening the office of the Director of Research in these Universities for coordinating the research activities undertaken by these stations more effectively. An inventory of resources and systems of cultivation are prepared for each zone to serve as a basic document known as 'Status Report' for identifying regional needs. Farming Systems Research with emphasis on multi-disciplinary approach to problem solving, and establishment of a closer linkage between research and extension at the grassroot level with active participation of farmers, are the essential components of this project. In the zonal workshops, organised at the beginning of the cropping seasons, research station scientists, developmental staff, and farmers' representatives review the progress and plan for the future based on actual needs. The project is guided and serviced by the NARP Directorate located in the ICAR headquarters. The progress of the project is regularly monitored by the Agricultural University and the ICAR, and is also reviewed periodically by the Special Mission of the World Bank. The ICAR's assistance is available for a period of five years after which the responsibility for continuing the project rests with the University.

The Project had the IDA support of $ 27 million in the first phase which was about 50 per cent of the Project cost. The first phase laid major emphasis on food grains, cereals, pulses, and oilseeds under rainfed conditions. In this phase, nearly 109 sub-projects were approved and it was closed in September 1985 after having used $ 19.5 million of the $ 27 million credit. The second phase of NARP, under implementation since February 1986, is intended to intensify and continue the process of decentralising agricultural research. In addition to financing the sub-projects not completed under the first phase, this phase provides support for special research projects in irrigated farming, animal drawn equipments, horticulture including post-harvest technology,

commercial crops, agro-forestry and animal nutrition. The second phase is estimated to cost $ 110.9 million of which the IDA credit is $ 72.1 million. The mid-term review conducted in April 1989 has recommended an extension of the second phase for two more years until September, 1994.

Strengthening of regional research on a scientific agro-climatic zonal basis has been the most significant positive development that has taken place through the implementation of NARP in the organisation of agricultural research in the country. Inspite of some minor problems, the project has achieved its main objective of helping to strengthen the regional research capabilities of the Agricultural Universities and decentralise agricultural research. The Project has created an awareness of developing mission-oriented, problem-specific, relevant research with multi-disciplinary thrust, and thus has made considerable impact in many areas where enough attention was not paid earlier.

Technology Mission in Agriculture: In the Seventh Five Year Plan, a mission-oriented approach to technology development was emphasized to faster relevance and provide motivation for establishing organic working linkages between different sectors, which, otherwise, remained compartmentalized. The Steering Group on Science and Technology, constituted by the National Planning Commission, has identified several Technology Missions under different sectors. The Technology Mission in Oilseeds Research was set up in April, 1986, to provide research and technology support to make the country self-reliant in edible and non-edible oils. The Mission concentrates its attention on major oilseed crops like groundnut, rapeseed, mustard, soybean, sunflower, safflower, linseed, sesamum, and niger. It also gives priority to non-edible oil seed crops to meet the requirements of industry. The Mission envisages an integrated approach involving different developmental, scientific, input, banking, and marketing agencies. 180 districts are earmarked for the purpose.

The Department of Agriculture and Cooperation in the Ministry of Agriculture and the ICAR are the principal implementing agencies. The Additional Secretary to the Government of India in the Department of Agriculture and Cooperation is the Mission Director. Four Sub-Missions share the operational responsibilities. These are: (a) Production Technology (R&D) Sub-Mission for which the Director General, ICAR, is the Chairman; (b) Input Supply and Production Sub-Mission for which the additional Secretary to the Government of India is the Chairman, and the Agricultural Commissioner is the Co-Chairman; (c) Post-Harvest Technology and Processing Sub-Mission for which the Scientific Advisor to the Planning Commission is the Chairman; and (d) Pricing, Transport, Procurement and Marketing Sub-Mission for which the Additional Secretary to the Government of India is the Chairman.

A quarterly review of all the developmental activities are done to effect mid-term corrections. An expert team was set up recently to review the progress. Because of its significant achievement within a short span of four years, it is decided to continue the Mission during the Eighth Plan period.

Ad hoc Research Schemes: ICAR generates a Cess Fund by levying a custom duty at the rate of 0.5 per cent *ad valorem* on 25 articles of agricultural produce exported from India. It supports a large number of short-term, result-oriented *ad hoc* research schemes utilising the Agricultural Produce Cess Fund which roughly works out to Rs. 60 million a year. The schemes aim at filling critical gaps in the scientific field and are implemented by the ICAR Institutes, Agricultural and General Universities, private institutions and voluntary organisations. There are about 700 such *ad hoc* schemes currently in operation. The topics of the schemes could be identified by the individual scientists or institutions, or selected out of the recommendations made in the ICAR Regional Committee meetings, Vice Chancellor's Conferences, or in similar forums. The schemes are generally sanctioned for three years. Some of them are exploratory in nature and may lead to development of larger countrywide projects.

In addition to these major research programmes, ICAR promotes research through various other schemes such as Centres of Advanced Studies, Special Schemes, and Awards.

Centres of Advanced Studies: In order to improve

faculty competence and develop infrastructure for better research and training, ICAR with the support of UNDP has set up, since 1971, several Centres of Advanced Studies in selected disciplines in the Agricultural Universities and ICAR Institutes. These Centres were established to encourage the pursuit of excellence through collaboration between scientists of outstanding ability with their counterparts in similar institutions abroad and thus accelerate the attainment of international standards in specific fields of agricultural research and education. They also focus on modernising faculty capability and physical facilities for advanced research and educational programmes so as to reduce India's dependence on foreign countries for advanced training in these fields.

These Centres have been able to modernise and consolidate their programmes on an interdisciplinary basis, augment their infrastructure facilities, and provide specialised training to their scientists. Interaction with scientific institutions abroad and advanced level training in India and abroad through fellowship programme have made it possible to build up a cadre of highly competent professional scientists. These Centres also brought about considerable interaction among scientists within the country by organising All India Workshops, Seminars and Conferences.

So far 28 such Advanced Centres have been established with 17 of them located in the ICAR Institutes and the rest in the Agricultural Universities. They have made good use of the combined support of the ICAR, UNDP, UNESCO, and FAO. The Centres have become the nuclei for high quality research and training in the concerned disciplines.

Special Schemes: ICAR launched in 1978 a special scheme known as 'Professors of Eminence and National Research Fellows' to identify individuals of outstanding merit who could provide leadership in the development of 'Schools of Thought' in specific areas by undertaking fundamental research in agriculture and allied areas. Under this scheme, scientists work on specific projects formulated by them in the ICAR Institutes and Agricultural Universities. ICAR with the cooperation of the host institutions, provide physical and infrastructure facilities liberally for operating their projects, and the incumbents operate with considerable financial and administrative autonomy. These two categories have now been combined into one known as 'ICAR Professors for Mission - Oriented Fundamental Research'. Since 1959, ICAR has also been operating the 'Emeritus Scientists' scheme to support eminent retired scientists, enabling them to continue their research in various fields of agriculture and allied sciences. The scheme provides research grants to retiring scientists of established repute in ICAR Institutes and Agricultural Universities. ICAR supports this scheme from the Agricultural Produce Cess Fund.

Research Incentives and Recognition of Scientific Contribution in Agriculture: ICAR has instituted several research awards for recognition of outstanding research in the field of agriculture and allied areas. These include: (i) Rafi Ahmed Kidwai Memorial Prize for Agricultural Research - Eleven prizes biennially; (ii) Fakhruddin Ali Ahmed Award for Agricultural Research in Tribal Areas - Two prizes biennially; (iii) Jawaharlal Nehru Award for Outstanding Postgraduate Research - Ten prizes annually; (iv) Dr. Rajendra Prasad Puraskar - Three prizes annually; (v) Hari Om Ashram Trust Award - Three prizes annually; (vi) Dr. P.B. Sarkar Endowment Prize - One prize triennially; (vii) Dr. R.D. Asana Endowment Prize - One prize triennially; (viii) ICAR Awards for Team Research - Two prizes biennially; (ix) Kheti Puraskar - Two prizes annually.

Besides, Agricultural Universities have instituted many research awards to recognise significant scientific contributions made by the agricultural scientists in their respective States. In order to encourage and reward Indian farmers who are able to translate the research results in their fields effectively, the Government has instituted many developmental awards like Krishi Pandit.

Research Planning, Monitoring and Evaluation: ICAR is responsible for agricultural research planning at the national level. Its headquarters scrutinises and sanctions research schemes received from its own institutes as well as from other institutions. The research schemes are first technically examined by the concerned Subject

Matter Divisions in the headquarters and put up for consideration before the Scientific Panels. Once they are found technically sound, they are later examined for financial implications by the Standing Finance Committee. Finally, they are placed before the Governing Body for approval.

In the ICAR system, the broader mandate and research programmes are decided by the headquarters, and the responsibility for the formulation of all research projects rests with the Institutes. The Institute scientists submit annually their research proposals in a standard proforma known as Research Project File (RPF) which are discussed by the Research Councils at the divisional level in larger Institutes followed by the Staff Research Councils (SRC) at the institute level. The SRCs are attended by the Institute scientists under the chairmanship of the Director. The new proposals as well as the on-going projects are evaluated by the SRC and approved by the Director. Some of the major criteria used to evaluate new proposals in the SRC meetings are farmers' needs, urgency of research problem, compatibility with institutes' mandate, socio-economic benefits, ease and cost of adoption by farmers, and contribution to knowledge. The proportion of multi-disciplinary projects is showing an increasing trend.

The key to the success of agricultural research efforts in the ICAR system has been the in-built mechanism of research, monitoring and evaluation. At the institute level, they are carried out through the SRCs, and through a comprehensive review by specially constituted Quinquennial Review Teams once in five years. In the case of coordinated research projects, they are evaluated at the workshops and through mid-term appraisal committees which review the work from time to time. The progress of *ad hoc* research schemes is monitored through regular reports which are examined by the Scientific Panels. Overall monitoring of different research schemes is undertaken by the subject matter divisions at the ICAR headquarters, and the overall implementation of the plan schemes by the Plan Implementation and Monitoring Unit.

Publications and Information System: ICAR acts as a clearing house of research information relating to agriculture, and has become one of the largest publishers of scientific literature on agriculture and related subjects. The Publication and Information Division at the headquarters brings out books, bulletins, journals, other informative literature, press releases, and instructional films. ICAR lays emphasis on the dissemination of scientific information in Hindi and other Indian languages. Technical bulletins outlining the package of practices, and special supplements in newspapers covering the research results are brought out in English, Hindi, and other regional languages. It assists the press, radio and television in getting authentic information on latest research findings.

The *Indian Journal of Agricultural Sciences* and the *Indian Journal of Animal Sciences* are ICAR's monthly scientific journals. Other semi-technical journals published by the ICAR in simple and popular languages for the benefit of farmers are *Indian Farming* (monthly), *Indian Horticulture* (quarterly), *Kheti* (Hindi, monthly), *Phal-Phool* (Hindi, quarterly) and *Krishi Chayanika* (Hindi, quarterly). The *ICAR Reporter* (quarterly) and ICAR Samachar (Hindi, quarterly) bring out information on the activities and achievements of the ICAR, its institutes and projects. ICAR also publishes annual reports and research highlights, both in English and Hindi. Besides, ICAR provides financial assistance to about 75 Scientific Societies in the country for bringing out scientific journals. The Scientific Panel for Publications guides the ICAR in all these activities.

The *Agricultural Research Information Centre* (ARIC) at the headquarters is engaged in the management of a variety of agricultural research information. The ARIC maintains information on agricultural research projects, *ad hoc* research schemes, coordinated research projects and bio-data of agricultural scientists. It sends inputs to the International Information System for Agricultural Sciences and Technology (AGRIS) of the FAO by abstracting and indexing the periodicals and other non-conventional literature of Indian origin. It provides inputs of approximately 350 entries per month to the AGRIS data base. In turn, ARIC receives, from the FAO every month, updated AGRIS magnetic tapes containing bibliographic information collected from 117

national and international input centres from all over the world. With the help of these tapes, a computerised Selective Dissemination of Information (SDI) service is made available to the scientists from the computer unit of the IASRI, New Delhi. The *Indian National Agricultural Bibliography* brought out by the ARIC in 4 volumes covering the period 1975-84 contains a wealth of bibliographic information covering 38,551 citations from Indian and foreign publications in agriculture. Short-term practical courses in the field of agricultural information system are also organised by the ARIC.

In addition to the above, the ICAR Institutes bring out need-based publications and information bulletins. These include annual reports, technical reports, newsletters, bulletins, journals and audio visual materials for broadcasting and telecasting in all Indian languages. Recently, the ICAR Review Committee (1987) has recommended the development of a computerised satellite-based Information Network (ICARNET) to facilitate access of scientific information to scientists on on-line terminals. The Committee has also made many significant observations as far as the organisation and management of research is concerned. The ICAR has initiated action to implement these recommendations.

II STATE AGRICULTURAL UNIVERSITIES SYSTEM

As agriculture is a State subject, the responsibilities for research, education, and extension rest with the State Governments. Prior to 1960, agricultural research in the States, essentially on local problems, was carried out by the State Departments of Agriculture supported by agricultural colleges. During the past 30 years, research and education have been transferred to the Agricultural Universities, and the State Departments of Agriculture organise extension services. The Universities are supported by their respective State Governments. ICAR aids and assists their research and education programmes.

The University Education Commission (1949) recommended the setting up of 'Rural Universities'. This was endorsed by the two Joint Indo-American Teams in 1955 and in 1959, and the Ford Foundation Study Team in 1959. In 1960, the Agricultural Universities Committee under the Chairmanship of Dr. Ralph W. Cummings prepared certain guidelines for the establishment of Agricultural Universities in different States and the ICAR gave necessary support. The first Agricultural University was established at Pant Nagar in Uttar Pradesh in 1960 patterned on the Land-Grant System of the United States. The Second Education Commission (1964-66) recommended at least one Agricultural University in each State and ICAR prepared a Model Act in 1966. All the States have now at least one Agricultural University each and, though the Model Act specifies that only one University shall be established in each State, which was later endorsed by the National Commission on Agriculture, many States have established multiple Universities to meet regional needs. There are at present 26 Agricultural Universities (Appendix A). Some Agricultural Universities, as in Maharashtra State, have affiliated colleges. This goes against the provisions of the Act. In 1978, a Review Committee appointed by the ICAR reviewed the functioning of each Agricultural University and made a number of recommendations. Recently, in 1988, the USAID evaluated the impact of Agricultural Universities and made several suggestions for improvement.

Agricultural Universities are autonomous institutions established by an Act of State Legislature. Although the administrative structure differs somewhat from State to State, the general outlines are similar (Figure 3). As Chancellor, the State Governor is the nominal head of the University. In some States, the Agriculture Minister acts as the Pro-Chancellor. The Vice Chancellor is the Chief Executive of the University. In some States, more than one University has been established through a Common Act; their activities are coordinated through a State level Agricultural Research and Education Coordination Committee. Of the 26 Agricultural Universities in the country, 10 are mono-campus while the others are multi-campus Universities. The number of campuses in each University varies from 1 to 6.

Basically, the research infrastructure consists of an experiment station at the main campus and a number of research stations and sub-stations located in different parts of the State. There are about 313 such research stations belonging to the

26 Universities, working on location-specific problems. Generally, the research programmes are headed by the Directors of Research who are assisted by the Associate Directors of Research located at the regional research stations within the State. Some Agricultural Universities have established Advanced Centres by combining related subjects in areas such as plant protection, genetics and plant breeding, agricultural engineering, agricultural economics, water technology, etc. In order to undertake need-based and location-specific research, a network of Zonal Research Centres have been established since 1979 with assistance from the World Bank. These Centres numbering about 126 in the country, each located in a distinct agro-climatic zone, is part of the Agricultural Universities System.

Research Planning, Monitoring, and Evaluation

Agricultural Universities have Statewide responsibility for research in agriculture and agro-forestry. In those States where there are more than one University, the research responsibilities are shared on the regional basis. To ensure relevant research planning, their efficient implementation and proper evaluation, Agricultural Universities have a Research Council or a Research Advisory Committee as an apex body for policy formulation and coordination of research activities. This body chaired by the Vice-Chancellor comprises Director of Research, Director of Extension Education, Deans of Constituent colleges, representatives of State Departments and farmers. It reviews periodically the overall status of research activities in the University, and determines their priorities and future direction. Research is organised under: (i) University research; (ii) Post-graduate student research; and (iii) Coordinated research programmes.

The Director of Research who is the overall in-charge of research, prepares an annual plan indicating the main thrusts of research within the broad directions given by the Research Advisory Committee. The Directorate of Research is responsible for research review and evaluation, and timely publication of research results and reports. By and large, the individual scientists formulate research projects which are then scrutinized by the concerned department head, examined at the Faculty/Departmental level and finally approved by the University Research Advisory Committee. Thereafter, the Director of Research and Department Heads provide funds and facilities to the scientists. In respect of research done by teachers and post-graduate students, the Director of Research acts in coordination with the Deans/Principals of the respective colleges.

Special mechanisms exist for the planning, monitoring, and evaluation of ICAR supported programmes in the Agricultural Universities. In Coordinated Projects, the University scientists work in close cooperation with others from the ICAR Institutes and other Universities through the mechanism of All India Workshops conducted periodically. *Ad hoc* research schemes formulated by the University scientists are first scrutinized by the Scientific Panels and approved by the ICAR. These schemes are continuously monitored and evaluated by the ICAR in collaboration with the University. In the case of NARP, the programmes formulated at the zonal level by the scientists from the regional research stations in the Zonal Research Advisory Committee meetings are constantly monitored and reviewed by the University concerned, the ICAR, and the World Bank Missions.

In most Agricultural Universities, the Research Evaluation Committees attended by the scientists and extension subject matter specialists provide the much needed in-house review mechanism within the Universities to examine the findings and data support emerging from various research projects. Only when results are substantiated from trials, both from the experimental farms and farmers' fields, recommendations are made for large scale implementation.

III OTHER AGENCIES

General Universities: Many general Universities with well-developed faculties in agriculture or strong departments engaged in areas such as genetics, plant physiology, mycology, entomology, biochemistry, economics, chemistry, marine biology, home science, etc., have made distinctive contributions to agricultural research in the country. Besides, the Central Universities such as the Banaras Hindu University, Shantiniketan etc., have Institutes/Schools of Agricultural Sciences which are engaged in research in agriculture and allied areas some of which is

supported by ICAR.

Scientific Organisations: Many other scientific research organisations either directly undertake research or sponsor and support programmes related to agriculture. The Council of Scientific and Industrial Research through its network of national laboratories, provides research support in areas like processing of agricultural products, recycling of agricultural wastes, development of various agro-chemicals, etc. Indian Council of Medical Research's research on the nutritional qualities of various agricultural produce including toxicity and occupational health of agricultural workers have greatly helped the ICAR in planning its research programmes. Some of the areas in which Bhabha Atomic Research Centre is actively engaged are the development of newer varieties of crops and preservation of agricultural produce. Indian Space Research Organisation is helping the research system to assess India's soil and water resources.

Technological institutions like IIT, Kharagpur, are active in the field of agricultural engineering, soil and water management, and agronomy. The Department of Science and Technology promotes research on genetic engineering, post-harvest technology, and areas of basic sciences supportive to agriculture. The Department of Non-Conventional Energy Sources works on the utilisation of solar and wind energies and biogas for agricultural purposes. The Department of Meteorology is actively engaged in research on crop-weather forecasting. The Department of Ocean Development is involved in assessing the fishery resources in the country and promotes research in the area of fisheries.

In addition, institutions like the National Dairy Development Board under the Agriculture Ministry; various commodity Boards like Silk, Coffee, Rubber, Tea, and Cardamom Boards under the Commerce Ministry; and the Forest Research Institute and Wasteland Development Board under the Ministry of Forestry and Environment, help to strengthen the agricultural research system in the country.

Private Sector: Involvement of private sector in agricultural research is of recent origin. In mid-1960s, several private companies started programmes mainly to develop hybrid maize, sorghum, and bajra. Research on vegetables started in late 1960s. Private sector research is confined mainly to breeding crop hybrids, certain plantation crops, agro-chemicals, poultry, and agricultural machinery.

Private sector research in seed industry has grown very rapidly. Several private companies are now engaged in the production of hybrid seeds of a variety of crops like cotton, sorghum, bajra, maize, vegetables, redgram, rice, etc., and a small seed export industry has also emerged. There are at least ten private companies undertaking plant breeding research and several are involved in plant protection research. Besides in their own research stations, these companies conduct experiments on farmers' fields. They test the bio-efficiency of insecticides and herbicides that are new to India as well as synthesize new compounds. Private research in poultry sector is of recent origin. Although Government introduced exotic birds in commercial poultry industry, they were popularised by the private sector and many companies are now actively engaged in it. Many other large industrial concerns are engaged in research on shrimps and shrimp feed.

Some private companies undertake major research and development programmes for the improvement of tractors and irrigation pumps. Research on tractors seems to be primarily aimed at improving quality, fuel efficiency, and engine durability. Some companies are now moving into agricultural implements. Research in pump industry is aimed at increasing the efficiency of pumps through improved design and better materials. Some companies are even experimenting with nonconventional sources of power. Historically, private companies in the processing and plantation sector have been a very important source of new agricultural technology. Some of the prominent ones include Indian Sugar Mills Association, Southern Planters Association, Textile Mills Association, Silk Industry, etc. Some large firms are involved in research on animal nutrition, plant growth regulators, biotechnology such as tissue culture in cardamom, sugarcane, coconut, and tea, biofertilizers, etc. Research in the area of tree farming including invitro culture and tree breeding is also receiving attention of private firms.

Some of the well established institutions such as Allahabad Agricultural Institute, Bharatiya Agro-Industries Foundation, Wool Research Association, United Planters Association of South India undertake short-term mission-oriented *ad hoc* research schemes and coordinated research projects supported by the ICAR for multi-location testing of varieties and agro-techniques.

In order to promote scientific research and the participation of industry in it, the Government through the Income Tax Act of 1961 has offered certain tax concessions relating to the expenditure on scientific research. The involvement of private agencies in agricultural research is gaining momentum with greater sophistication in technological development and the prospects of high returns on investment in agriculture.

IV LINKAGES AMONG THE COMPONENTS OF THE NATIONAL AGRICULTURAL RESEARCH SYSTEM

Strong working relationships and complementarity in research efforts amongst the components of NARS is necessary in order to optimise resources and check avoidable duplication. The ICAR, as the coordinating agency at the national level, has established close working relationships with the Agricultural Universities and other agencies involved directly or indirectly in agricultural research through formal arrangements and informal exchanges.

At the policy making level, Vice-Chancellors of Agricultural Universities are represented in the Governing Body and the Norms and Accreditation Committees of the ICAR. The senior level research managers of the ICAR, in turn, are represented in the Management Board of these Universities. The regional committees of the ICAR provide an important forum for the scientists from these two agencies to come together and look at the regional research needs. Through Inter-disciplinary Scientific Panels of the ICAR, the experts from the Agricultural Universities play a critical role in selecting research programmes at the national as well as the regional level. More importantly, various research schemes of the ICAR like the All India Coordinated Research Projects, National Agricultural Research Project, and *ad hoc* research schemes provide opportunities for the two subsystems to work jointly on problems of national as well as regional relevance.

As far as the general Universities are concerned, they participate in research activities under different types of research schemes and projects financed by different agencies. Through the All India Coordinated Research Projects and *ad hoc* research schemes, these Universities have established linkages with the ICAR and Agricultural Universities subsystems. Joint programmes in specific areas such as plant physiology, biological nitrogen fixation, etc., have been taken up by the ICAR with scientists working in these universities. ICAR has also established close linkages with various scientific organisations like CSIR, ICMR, ISRO, BARC, etc., through Joint Panels. Problems of mutual interest have brought the ICAR closer to various Departments and Ministries at the Centre to find solutions through collaborative research efforts.

V INTERNATIONAL COOPERATION

International cooperation has played a significant role in developing and strengthening the NARS in India. Many developed countries like USA, UK, USSR, Canada, Australia, Japan, and several European countries; Charitable Institutions like Rockefeller and Ford Foundations; various International Agencies such as FAO, UNDP, UNESCO, World Bank, etc; and the International Agricultural Research Centres under the Consultative Group on International Agricultural Research (CGIAR) System have contributed extensively to the cause of agricultural research in India. Spectacular achievements in increasing the food production has raised the country's image considerably and bilateral arrangements have changed from the erstwhile donor-donee status to relationship of equal partnership in research. The reciprocity and mutuality of interests with the less developed as well as the technologically advanced countries are the essence of international cooperation.

The Government has authorised ICAR, assisted by the DARE, to enter into bilateral cooperative agreements with several countries and agencies. The mode of collaboration normally follows the pattern of: (a) exchange of germplasm of plant and animal origin; (b) exchange of scientific and

technical information; (c) visits of scientists and experts; (d) training of scientists; and (e) infrastructure development.

Some of the major avenues of international collaboration are: (i) Bilateral cooperation at the Government level; (ii) Bilateral cooperation between ICAR and counterpart foreign institutes; (iii) Interaction with Agricultural Research Centres under the CGIAR System; (iv) Foreign-aided projects funded by USDA (erstwhile PL-480 projects), Ford Foundation, IDRC, UNDP, World Bank and USAID; (v) Science and Technology Initiative signed by the late Prime Minister Indira Gandhi and the US President Ronald Reagan; (vi) Participation in the regional projects under ESCAP and SAARC programmes; and (vii) Consultancy and training in the field of agricultural research in developing countries. International collaboration has provided with a mechanism to draw upon the global stock of knowledge, scientific talent and material, and for institution building to address many of the research needs in the country. The agricultural research system in India has reached a stage in its development where it could take a more active role in joint research with foreign scientists as equal partners as well as in training scientists from other countries.

AGRICULTURAL RESEARCH SYSTEM FOR THE FUTURE

Inspite of its remarkable achievement, Indian agriculture continues to face serious challenges due to ever increasing population and depleting land and water resources. By the turn of the century, India will be required to produce nearly 230 million tonnes of food grains, 60 million tonnes of milk and 6 million tonnes of fish in order to feed an estimated one billion population. This will need improved technologies which are technically feasible, economically viable, socio-culturally acceptable, and ecologically sound. Hence, the agricultural research system will be under great strain as the future research will inevitably be more complex and expensive. It will have to be geared to improve productivity, profitability, stability, and sustainability of major farming systems involving crops, animal husbandry, fisheries, and forestry.

Research Focus: In the past, the emphasis has been mainly on crops. This has resulted in under-exploitation of livestock and fisheries potential in the country. Even among the crops, substantial increase in production has not occurred in pulses and oilseeds as in cereals. These need greater attention. Since horticulture is expanding, more research will be needed on processing, storage, and handling technologies in order to avoid post-harvest losses. Even if all the available water resources are utilised, a major portion of the cultivated land will remain rainfed. Research efforts to develop technologies suitable for rainfed areas will need greater attention because, if all the available water resources are utilised, a major portion of the cultivated land will remain rainfed.

To overcome the growing pressure on the natural resource base for food, fodder, and fuel, agro-forestry research needs to be given greater importance. As the demand for livestock products and hence fodder rises, pasture research will become increasingly important. The attractive export potential for horticultural crops, fishery products like shrimps and prawns, and livestock products like hides, needs to be exploited fully by increasing the research efforts. The opportunities created for developing new plant, animal, and fish genetic materials by the recent advances in bio-technology such as recombinant DNA, tissue culture, and protopasmic fusion, need to be exploited. Research on economising the use of costly inputs like water and other agro-chemicals needs strengthening. Cost reduction without yield reduction should be the major line of research.

Natural Resources Management: For ensuring sustainability, every effort should be made to stop the biological and abiological impoverishment of Indian agriculture. Biological diversity of flora and fauna should be conserved and sustainable management of land and water should be accorded high priority. Towards making use of the available land in a more profitable and sustained manner, a detailed inventory of soil resources should be prepared. The land degradation due to biotic and abiotic stresses should be contained and suitable ways devised to bring them back for productive use. Improper use of water in irrigated areas has created water logging and salinity problems. Optimum water

use and drainage strategies should be worked out to sustain agricultural production without further deterioration of land. Modern day space technology can play a greater role in preparing land and water inventories. To mitigate the effects of natural calamities like droughts and floods and to ensure stability in agricultural production, research on crop-weather interaction needs to be intensified.

Basic Science Research in Agriculture: In future, research system needs to expand its basic science programmes in agriculture which can build on important developments in basic science as applied to agriculture. Some of the areas with considerable promise are biotechnology, genetics, immunology, biochemistry, and microbiology. Use of modern techniques of biotechnology currently undertaken in selected institutions dealing with crops, animals, and fisheries needs to be strengthened to develop long-term research programmes and to appropriately train scientific manpower.

Regionalisation of Research: Since problems in agriculture are location-specific, research planning needs to be decentralised. Research activities at the regional level and the adaptation of agricultural technology on the basis of specially identified agro-ecological regions should be emphasized. Carefully designed constraint analysis in each region should be attempted and the research system should take effective steps to overcome the specific problems. In particular, improvement of the productivity of the ecologically handicapped regions of the country should be given greater attention. The concept of National Agricultural Research Project, which is a forerunner in developing regional research approach, should be strengthened.

Need-Based, Problem-Solving Research Approach: Majority of the operational holdings belong to the small and marginal categories and this will be even more so in future. Hence, the ability of the research system to improve the productivity of small farm agriculture will decide the future of Indian agriculture. To develop and disseminate appropriate agricultural technologies to small farmers, the research system should focus more attention on holistic approaches like Farming Systems giving the farming community an opportunity to raise their voice in support of agricultural technologies more relevant to their circumstances.

Multidisciplinary Research Approach: Since agricultural production problems can be effectively dealt with only through cooperation of scientists from different disciplines, the development of multidisciplinary research teams will have to receive more attention. Scientists need to learn to work together as a team in order to bring in the benefits of their individual disciplines. Resources should be allocated more to projects involving more than one discipline rather than single disciplines.

Farmer Participatory Research: The research activities in future will have to ensure active participation of farmers for properly assessing their needs, priorities, problems and potentials. An awareness that they can learn as much from the farmers, as farmers can from them, should develop among all the scientists in the research system. The indigenous knowledge of the farmers, as a resource base for relevant research planning, should be properly documented and fully exploited.

Realistic Research Policy Planning: A long-term, realistic research policy needs to be formulated both at the national and the regional levels. Like the ICAR at the national level, the Agricultural Universities at the State level should be associated with the development of short and long-term agricultural plans, and this arrangement should be institutionalised. A national strategic research planning and priority setting mechanism must be built into the research system for optimising the resource use in agricultural research. Benefit-cost analysis will have to be considered by the research administrators while making resource allocation. A strong team of social scientists should contribute to economic analysis on the basis of which a sound research policy should be developed. The ecological sustainability of agricultural production should be the primary factor while planning for increased production. All these policy issues need a positive response from the research system and, above all, they have to be necessarily supported by a demonstrated political will.

Research - Extension Linkage: To facilitate effective translation of improved technologies,

the complementarity between agricultural research and extension need to be realised, and concerted efforts made to bring in close working relationships between them. Both the ICAR at the Centre and the Agricultural Universities in the States should strive to strengthen their existing linkage with development departments.

Linkages Among Various Subsystems: In order to meet the growing demands and formidable challenges of the future, the agricultural research system needs the support of many scientific organisations in many areas. As the resources become more and more scarce, inter-institutional collaboration becomes important to avoid duplication of research efforts. Suitable mechanisms need to be evolved to develop collaborative research projects and ensure complementarity of research efforts among the subsystems. As a coordinating agency, ICAR should play a critical role in strengthening these relationships by sponsoring research programmes involving inter-institutional interaction. It should strive to integrate the private sector research with the national mainstream. Research programmes in various subsystems with similar objectives will have to be networked to share experiences and materials. As the need for high quality basic research grows, the ICAR and Agricultural Universities should strengthen their existing relationships with the general Universities.

Human Resources Development: Human resources constitute the most important resource of a research system. Its strength depends upon the maintenance of a cadre of well-trained and highly motivated scientists in appropriate disciplines. Effective manpower planning, particularly in the social sciences and emerging areas of science like biotechnology need to be undertaken. An organisational climate will have to be created so that scientists become highly motivated and committed to their job, develop a strong work ethic and consider their institutions as places of exciting intellectual activities. Productivity of the research system depends not only on the competence and commitment of the scientists employed, but also on the management efficiency of those administering research. Human resource management through adequate rewards and suitable incentive systems is crucial for ensuring productive output from the research system. Mobility of scientists among the subsystems needs to be encouraged to avoid inbreeding.

Information Networking: The key to improving management effectiveness of a research system lies in the provision of adequate and timely information for use in effective decision making. An organised management information system covering research activities, human and physical resources, and funding sources supplying information to research managers at all levels in the system will have to be developed. Free flow of information between the subsystems and research institutions within the subsystems will become increasingly important in future. Computerised satellite-based information network should be developed. The ICAR in cooperation with the Department of Science and Technology and Indian Meteorology Department should prepare computer simulation models for introducing alternative cropping strategies for different rainfall probabilities. Proper disease surveillance and monitoring systems with a possibility of forecasting, need to be developed using modern information technology.

Social Sciences in Agriculture: Social scientists should be actively involved in agricultural research in areas like strategic planning including priority setting, adaptive research focusing on farming systems, resource use-efficiency and assessment, resource allocation, food policy, agrarian reforms, trade issues, etc. ICAR should take immediate steps to establish the Indian Institute of Agricultural Economics Research to take care of these activities. Social scientists should be equal partners with biological scientists in developing and disseminating improved agricultural technologies.

Private Sector Research: With the prospect of high return from agricultural research and certain tax concessions offered by the Government, the private sector involvement is slowly gaining momentum and is likely to play a much greater role in certain specialised areas such as improved seeds, fertilisers and other agro-chemicals. Newly emerging frontier areas of science like genetic engineering will be essentially with the private sector. The research system should take full advantage of their potential in terms of resources

and efficiency, and take necessary steps to integrate their research activities with the national research system.

International Collaboration: The research system in India should come forward to improve their interaction with research systems in the developed countries and with the International Research Centres, and take advantage of the expertise and resources available internationally. The system should develop collaboration with these institutions in areas like basic research, biotechnology, product quality improvement, and sustainability of agriculture. Exchange of scientific manpower need to be encouraged. Manpower training in these research centres will be helpful for the scientists in the research system. Because of similarity of conditions, India can play a greater role to provide consultancy and training to research systems in other developing countries.

APPENDIX A

LIST OF STATE AGRICULTURAL UNIVERSITIES IN INDIA

1. Andhra Pradesh Agricultural University, Hyderabad.
2. Assam Agricultural University, Jorhat.
3. Bidhan Chandra Krishi Vishwa Vidyalaya, Haringhata.
4. Birsa Agricultural University, Ranchi.
5. Chandrashekhar Azad University of Agriculture and Technology, Kanpur.
6. Gujarat Agricultural University, Dantiwada.
7. Haryana Agricultural University, Hisar.
8. Himachal Pradesh Krishi Vishwa Vidyalaya, Palampur.
9. Indira Gandhi Krishi Vishwa Vidyalaya, Raipur.
10. Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur.
11. Kerala Agricultural University, Mannuthy.
12. Konkan Krishi Vidyapeeth, Dapoli.
13. Mahatma Phule Krishi Vidyapeeth, Rahuri.
14. Marathwada Krishi Vidyapeeth, Parbhani.
15. Narendra Dev University of Agriculture and Technology, Faizadabad.
16. Orissa University of Agriculture and Technology, Bhubaneswar.
17. G.B. Pant University of Agriculture and Technology, Pantnagar.
18. Dr. Y.S. Parmar University of Horticulture and Forestry, Solan.
19. Punjab Agricultural University, Ludhiana.
20. Punjabrao Krishi Vidyapeeth, Akola.
21. Rajasthan Agricultural University, Bikaner.
22. Rajendra Agricultural University, Pusa.
23. Sher-e-Kashmir University of Agriculture and Technology, Srinagar.
24. Tamil Nadu Agricultural University, Coimbatore.
25. University of Agricultural Sciences, Bangalore.
26. University of Agricultural Sciences, Dharwad.

ABBREVIATIONS

AGRIS	International Information Systems for Agricultural Sciences and Technology
AICRP	All India Coordinated Research Project
ARIC	Agricultural Research Information Centre
ARS	Agricultural Research Service
ASRB	Agricultural Scientists Recruitment Board
BARC	Bhabha Atomic Research Centre
CARI	Central Avian Research Institute
CARI	Central Agricultural Research Institute for Andaman & Nicobar Islands
CAZRI	Central Arid Zone Research Institute
CGIAR	Consultative Group on International Agricultural Research
CIAE	Central Institute of Agricultural Engineering
CIBWA	Central Institute of Brackish Water Aquaculture
CICFRI	Central Inland Capture Fisheries Research Institute
CICR	Central Institute of Cotton Research
CIFA	Central Institute of Fresh Water Aquaculture
CIFE	Central Institute of Fisheries Education
CIFT	Central Institute of Fisheries Technology
CIHNP	Central Institute of Horticulture for Northern Plains
CIRB	Central Institute for Research on Buffaloes
CIRG	Central Institute for Research on Goats
CMFRI	Central Marine Fisheries Research Institute
CPCRI	Central Plantation Crops Research Institute
CPRI	Central Potato Research Institute
CRIDA	Central Research Institute for Dry Land Agriculture
CRRI	Central Road Research Institute
CSIR	Council for Scientific and Industrial Research
CSSRI	Central Soil Salinity Research Institute
CSWCR & TI	Central Soil and Water Conservation Research and Training Institute
CSWRI	Central Sheep and Wool Research Institute
CTCRI	Central Tuber Crops Research Institute
CTRI	Central Tobacco Research Institute
CTRL	Cotton Technological Research Laboratory
DARE	Department of Agricultural Research and Education
EEZ	Exclusive Economic Zone
FAO	Food and Agricultural Organisation of the United Nations
GNP	Gross National Product
IARI	Indian Agricultural Research Institute
IASRI	Indian Agricultural Statistical Research Institute
ICAR	Indian Council of Agricultural Research
ICAR-NEH	ICAR Research Complex for North Eastern Hill Region
ICARNET	ICAR International Net Work
ICMR	Indian Council of Medical Research
ICSSR	Indian Council of Social Science Research
IDRC	International Development & Research Centre
IGFRI	Indian Grassland and Fodder Research Institute
IIHR	Indian Institute of Horticultural Research
IISR	Indian Institute of Sugarcane Research
IISS	Indian Institute of Soil Sciences
ILRI	Indian Lac Research Institute
ISRO	Indian Satellite Research Organisation
IVRI	Indian Veterinary Research Institute

JARI	Jute Agricultural Research Institute
JTRL	Jute Technological Research Laboratory
NAARM	National Academy of Agricultural Research Management
NARP	National Agricultural Research Projects
NARS	National Agricultural Research System
NBSS & LUP	National Bureau of Soil Survey and Land Use Planning
NBAGR	National Bureau of Animal Genetics Resources
NBFGR	National Bureau of Fish Genetics Resources
NBPGR	National Bureau of Plant Genetics Resources
NDRI	National Dairy Research Institute
NIAG	National Institute of Animal Genetics
NRC	National Research Centres
SAU	State Agricultural University
SBI	Sugarcane Breeding Institute
SDI	Selective Dissemination of Information
SRC	Staff Research Council
UGC	University Grants Commission
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
VPKAS	Vivekananda Parvatiya Krishi Anusandhan Shala

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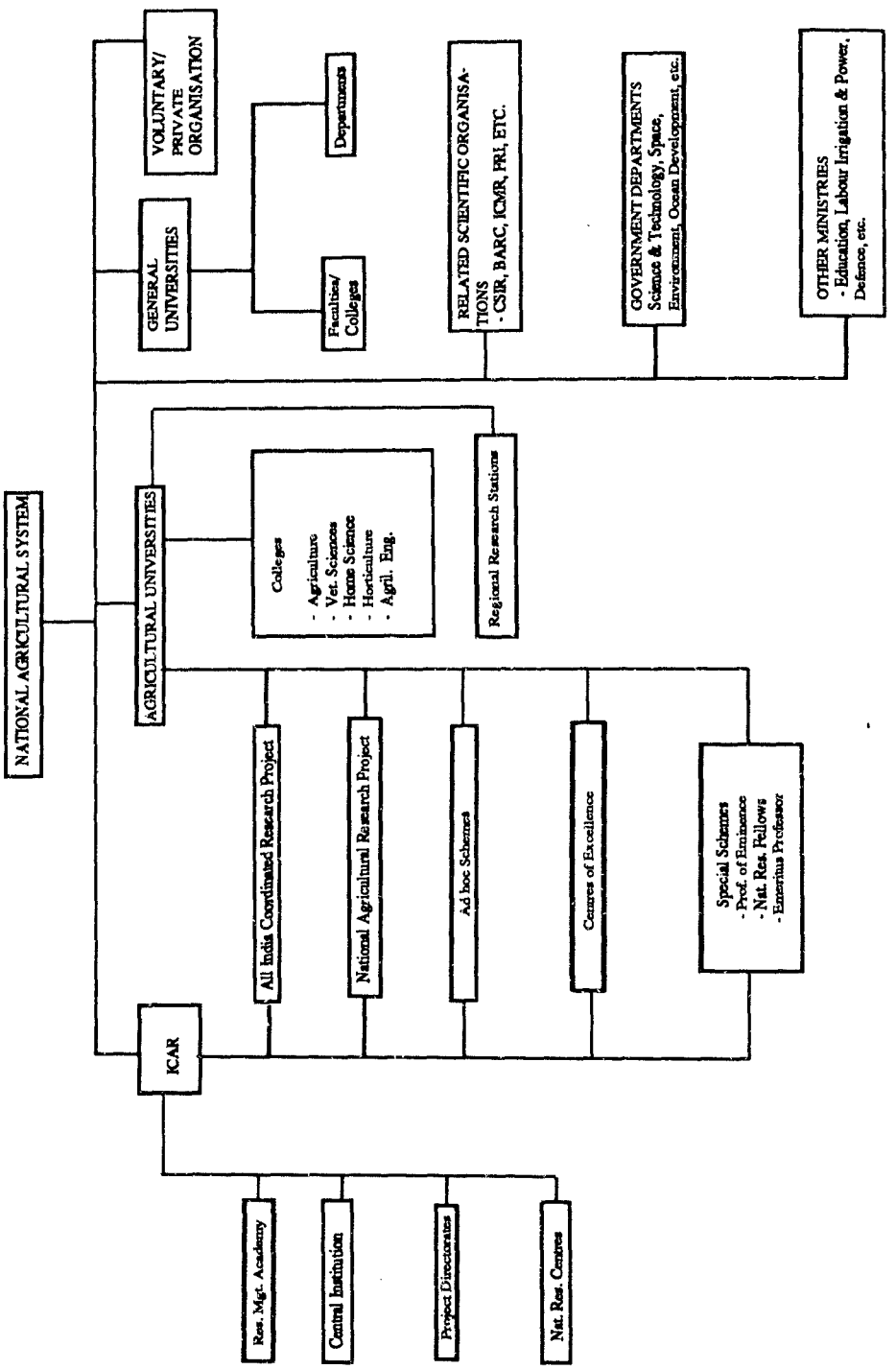
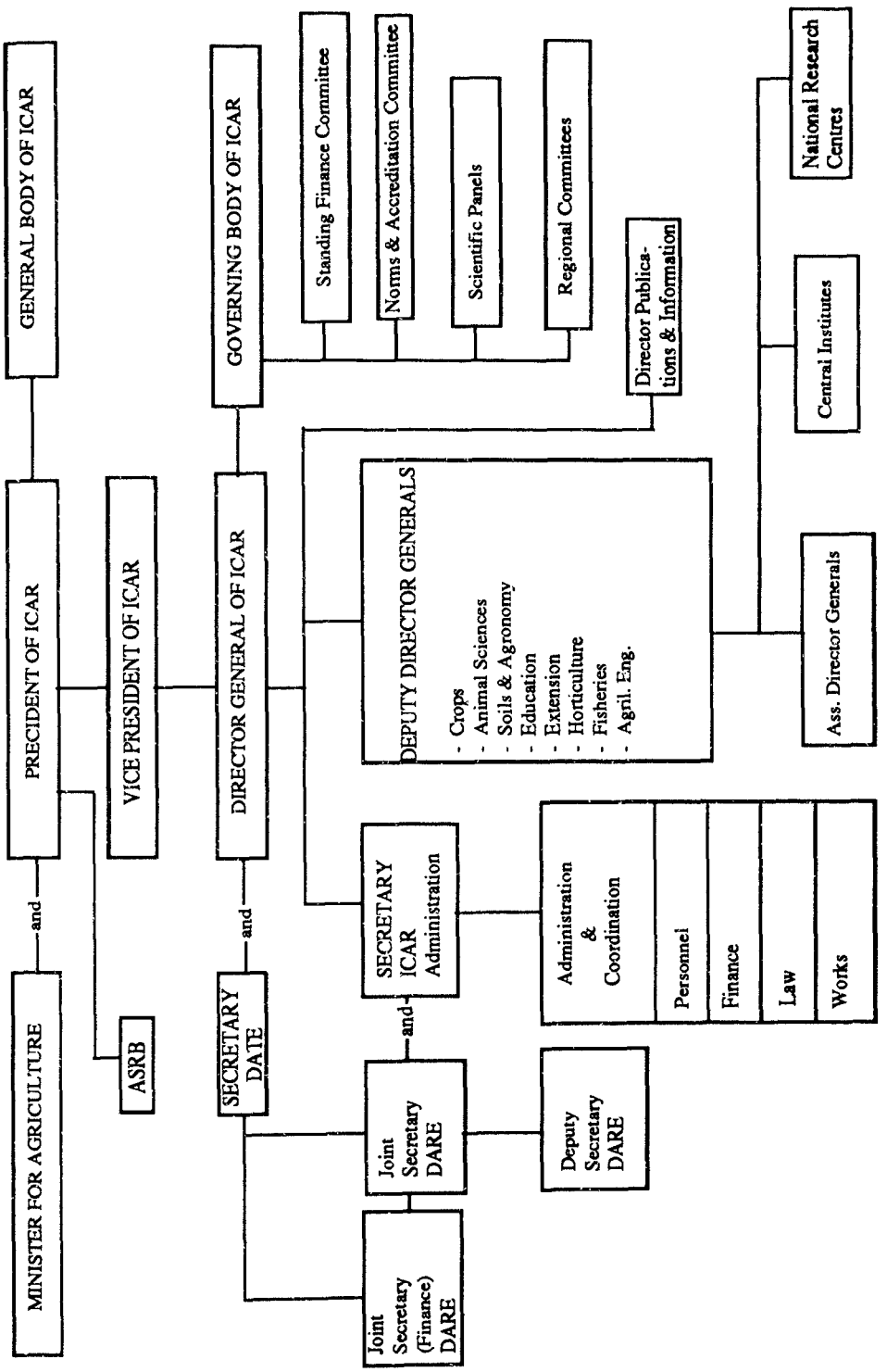


Fig. 1. AGRICULTURAL RESEARCH SYSTEMS IN INDIA

Fig. 2. ORGANISATION OF ICAR



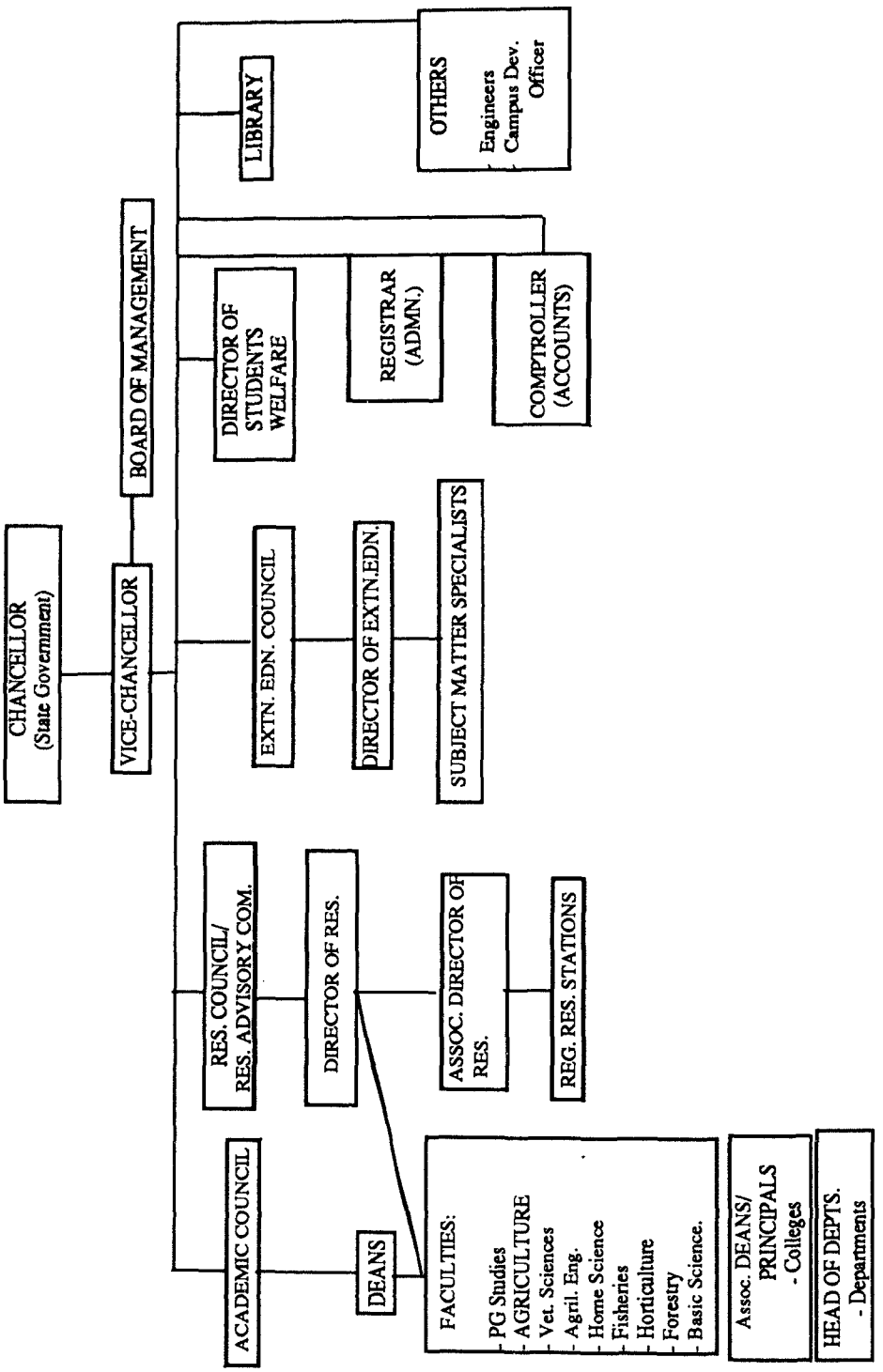


FIG. 3 ORGANISATIONAL STRUCTURE OF THE AGRICULTURAL UNIVERSITIES

DEVELOPMENT OF INDIAN RAILWAYS, 1974-1988

F.K. Wadia

In the earlier section we had traced the development of Railways until the end of the Fourth Five Year Plan. This section surveys the period from 1974 to 1988. The Railways' development programme, commencing the Fifth Five Year Plan, laid emphasis on modernisation and improvement of the existing network rather than on extension and construction of new lines. Paucity of finance also made the Railways resort to public borrowing of funds in the Seventh Plan.

Draft Fifth Five Year Plan, 1974-79

At the end of the Fourth Five Year Plan (1974), certain broad trends were apparent in the traffic on Railways: (i) The traffic was concentrated on the trunk routes interlinking the major cities of Bombay, Calcutta, Delhi and Madras; these busy arterial routes forming only about 24 per cent of the route kilometrage carried about 72 per cent of the traffic. During the Fifth Plan, a large part of the incremental traffic was also expected to arise on these trunk routes. (ii) The demand for through and 'limited stop' fast passenger services between main centres of industry and population had been increasing rapidly. (iii) The share of bulk commodities such as coal, iron and steel, ores, stones, cement, fertilisers, food grains, and petroleum products which formed 58 per cent of the total revenue earning tonnage in 1950-51 accounted for as much as 80 per cent in 1971-72. (iv) Finally, the share of the railways in the total traffic was declining and that of the road transport increasing (Table 20).

In view of (i) above, the emphasis during the Fifth Plan was to be on modernisation and improvement of the existing network rather than on its extension. It was proposed to clear fully, as far as possible, the long distance and medium distance non-suburban passenger traffic. For this purpose adequate passenger terminal and yard capacities particularly in metropolitan centres would be developed; the length of passenger trains on long distance routes would be increased; and coaches of higher carrying capacity introduced. An increase in the capacity of railways for non-suburban passenger traffic was planned to cater to a rate of growth of about 4 per cent (simple) per annum. The short distance passenger traffic would be gradually shifted from rail to road transport so that costly rail capacity could be released for long distance traffic. It was expected that it would be possible to provide for about 6 to 7 per cent growth in rail passenger traffic on long distance trunk routes. The needs of suburban/intra-city traffic were proposed to be met mainly by optimising the existing services.

Regarding freight traffic, the priority was on moving bulk traffic between selected points and setting up more dumps for coal and steel at railway terminals. From these points, further distribution would be by road transport.

The total outlay envisaged on Railways (excluding metropolitan transport) in the Draft Fifth Five Year Plan was Rs 2,350 crore with a foreign exchange component of about Rs 330 crore. About 68 per cent of the outlay was proposed for rolling stock, track renewals, and line capacity works. The Railways were expected to make a contribution of about Rs 779 crore towards their Plan from their own resources (Table 28).

The programme envisaged the acquisition of about 1,300 locomotives, 100,000 wagons (in terms of 4-wheelers) and 6,500 coaches. The provision for rolling stock was made to enable the movement of 280 million tonnes with an average lead of 660 kilometres. With the improvement of operational efficiency, more modernised tractions, increasing block rake movements, more mechanised handling facilities at loading and unloading points, it would be possible for Railways to handle a larger originating tonnage i.e. about 300 million tonnes by 1978-79. It was proposed to electrify about 1,800 route kms. The setting up of some captive power stations for the Railways was also visualised.

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TABLE 28. OUTLAY ON RAILWAY DEVELOPMENT PROGRAMMES IN THE FIFTH FIVE YEAR PLAN

(Rs Crore)

Programme	Fourth Plan			Fifth Plan Outlay
	Original Outlay	Revised Outlay	Likely Expenditure	
1. Rolling Stock	620	568	609	900
2. Workshop and Sheds	30	30	22	120
3. Machinery and Plant	15	25	22	40
4. Track Renewals	200	180	161	200
5. Bridge Works	28	29	30	60
6. Line Capacity	315	234	230	500
7. Signalling and Safety	40	49	59	110
8. Electrification	82	73	68	120
9. Other Electric Works	12	15	18	20
10. New Lines	83	86	32	100
11. Staff Welfare	15	20	16	20
12. Staff Quarters	30	36	65	40
13. Users Amenities	20	20	20	20
14. Other Specified Works	10	10	11	20
15. Investment in State Road Transport Corporations	10	10	14	30
16. Inventories	15	15	61	50
17. Take over of open line works of P&T	..	..	2	..
18. Probable Savings	..	..	(-) 21	..
19. Total	1,525	1,400	1,419	2,350

Source: *Draft Fifth Five Year Plan*, 1974-79, Vol. II.

The capacity available in the country for manufacturing railway rolling stock including wagons and coaches was expected to be adequate to meet the requirements in the Fifth Plan. No new steam locomotive was to be added. The manufacturing capacity of electric locomotives at the Chittaranjan Locomotive Works was to be augmented to about 80 locomotives per annum. Thus about 400 electric locomotives were to be added during the Fifth Plan period. The production capacity of diesel shunters at the Chittaranjan Locomotive Works was to be about 60 per annum during the Fifth Plan period. The capacity of diesel locomotives at the Diesel Locomotive Works, Varanasi, was about 160 per annum which was expected to be substantially utilised in the Fifth Plan. No new steam locomotive was to be added. Table 29 gives the position regarding additions and replacements in the rolling stock programme in the Fifth Plan.

TABLE 29. ROLLING STOCK PROGRAMME FOR FIFTH PLAN

Item		Additions	Replacement	Total
1. Locomotives	(a) Steam) (b) Diesel) (c) Electric)	900	400	1,300
2. Wagons		80,000	20,000	100,000
3. Coaches		3,000	3,500	6,500
4. Rail Cars		50	..	50
5. Electric Multiple Units		1,000	50	1,050

Source: *Draft Fifth Five Year Plan*, 1974-79, Vol. II.

The Fourth Plan had provided Rs 50 crore for metropolitan rail transport in the form of rapid transit facilities in the cities of Bombay, Calcutta, Delhi and Madras. The design and construction of the Dum-Dum - Tollyganj rapid transit line in Calcutta was taken up in 1972-73. Techno-economic feasibility studies were in progress with reference to the provision of rapid transit facilities in Bombay, Delhi and Madras. The likely expenditure in the Fourth Plan period was Rs 12 crore. A provision of Rs 200 crore was made for the Fifth Plan for metropolitan rail projects in

Calcutta, Bombay, Delhi and Madras and for undertaking techno-economic feasibility studies on rapid transit systems in five more cities namely, Ahmedabad, Bangalore, Hyderabad-Secunderabad, Kanpur and Poona.

Interim Report of the Railway Convention Committee 1973, December 1973

The new Railway Convention Committee, 1973, was constituted in May 1973, to review and recommend the rate of dividend payable by the Railways to General Revenues as well as other ancillary matters in connection with Railway Finance. The recommendations of the Committee were to cover the Fifth Plan period, 1974-79. The Convention Committee submitted an interim report in December 1973, making recommendations for the first year of the Fifth Plan, i.e. 1974-75.

The Committee noted that while the Railways were likely to exceed the Fourth Plan provision of Rs 1,400 crore, a large shortfall in the target of originating freight traffic was expected. As a result, the Railways were likely to incur a deficit of about Rs 167 crore as against an anticipated surplus. The Revenue Reserve Fund which was intended to be utilised primarily for dividend equalisation was exhausted and was expected to close with heavy outstanding liability. The Development Fund was also expected to close with higher loan liability. It was, therefore, obvious that the need for improving the performance and the financial position of the Railways was urgent.

The Committee were not in favour of any change in the manner of payment of a fixed dividend to the General Revenues, on the capital invested as computed annually, and recommended that for the year 1974-75 payment should continue as in the previous financial year (1973-74), inclusive of exemptions for certain lines and payments to States in lieu of passenger tax. Appropriation to the Depreciation Reserve Fund in 1974-75 should also be of the same order as in the final year of the Fourth Plan, i.e., Rs 115 crore. Having regard to the unsatisfactory state of Railway Finances, the provision of temporary loans from General Revenues being advanced to the Railway Development Fund, whenever the available balance in the Development Fund was insufficient to meet the cost of works chargeable to that Fund, and payment of interest on such loans at the average borrowing rate, may be continued. The Railways may also be permitted to take temporary loans as prevalent from the General Revenues, to meet the full dividend liability when the Railways' net revenue was not adequate and the Revenue Reserve Fund did not have enough balance to make good the shortfall.

First Report, June 1974

The Committee emphasised the need to plan more realistically so that scarce resources were not locked up in unproductive schemes and full advantage was derived of the additional facilities created and assets built up over the years. The Railways were represented on the Working Groups set up by the Planning Commission and there was no reason why realistic targets of traffic could not be laid down. Moreover, the Railways with their vast network spread over the entire length and breadth of the country and being intimately associated with various Central and State agencies at all levels, should be in a position to assess precisely the requirement in the light of actual conditions.

Second Report, August 1974

The Committee noted the action taken by the Ministry of Railways on the recommendations in the first report of the Convention Committee, 1971. There had been delays in the submission of reports by (a) the Working Group of Experts to examine the Depreciation Reserve Fund and the Renewal Reserve Fund, (b) the Committee on Inventory Control and Procurement of Stores and (c) the Task Force of Budgetary Accounting and Management Practices on Railways, constituted during 1973. Delays had also occurred in the replacement programme of over-aged DC electric locomotives and in the production of EMU coaches during the Fourth Plan.

Third Report, September 1974

The Committee examined the action taken by Government on the recommendations contained in the Second Report of the Railway Convention Committee, 1971 on Suburban Services. The Planning Commission had initiated action for preparation of comprehensive integrated plans for suburban traffic, etc., for cities with a population of 10 lakh and more during the Third Plan but these had not reached any conclusive stage. Further, the Government had not taken any clear decision about the financing and management of Metropolitan Transport System either, with the result that an air of uncertainty continued to vitiate the projects. Concerted measures were also called for to optimise the existing suburban services in the metropolitan cities. There was need for urgent action on all these matters.

Fourth Report, December 1974

The Committee examined the action taken by the Railway Ministry on the recommendations of the Railway Convention Committee, 1971 on Commercial and Allied Matters in its Third Report. The Convention Committee, 1973, were not satisfied with the action taken by the Railways to assess the extent of ticketless travel in the country. More stringent checking of ticketless travel was called for in view of the losses incurred by the Railways. Steps should be taken to streamline and rationalise the existing system for issue of tickets in the interest of better service to IIIrd class (now IInd class) passengers.

The delay in the formation of a unified Police Force by the Railways was pointed out. If it was going to take time to set up a Unitary Police Force (instead of the Government Railway Police and the Railway Protection Force), the Railway Administration should have some say in the matter of selection of Government Railway Police.

Fifth Report, December 1974

Action taken by the Ministry of Railways on the Fourth Report (Part II) of the 1971 Committee on over-crowding on Indian Railways, classes of travel and free pass facilities to Railway staff, and Railway users' amenities was examined. The Committee found an increase of 41.2 per cent and 18.4 per cent in passenger kilometres suburban and non-suburban respectively during the Fourth Plan period, while vehicle kilometres increased by 11.5 per cent only. There was thus little improvement in the travelling conditions of the common third class passengers during the previous five years and that over-crowding on the Railways had become more or less endemic. The 1973 Convention Committee, reiterated the previous Committee's recommendations of provision for passenger traffic for the Fifth Plan on a priority basis.

Sixth Report, December 1974

In its Sixth Report, the Railway Convention Committee, gave its recommendation on the rate of dividend for 1975-76 and other ancillary matters. The various issues that concerned Railway planning included (i) Persistent and heavy shortfalls in traffic materialisation in the successive Five Year Plans in respect of all the eight major commodities constituting about 75 per cent of Railway traffic; (ii) Despite heavy shortfalls in the traffic materialisation during the Fourth Plan, the Railways had exceeded the mid-term Plan provision of Rs 1,400 crore by about Rs 19 crore; (iii) Although the traffic declined from 207.9 million tonnes in 1969-70 to 185.2 million tonnes in 1973-74, the average lead showed a marked increase from 613 kms in 1968-69 to 673 kms in 1973-74; (iv) As against the highest figure of about 208 million tonnes of originating traffic achieved in 1969-70 and the lowest level of 185 million tonnes in 1973-74, the Planning Commission set a target of 300 million tonnes for the Railways in the draft Fifth Plan. The Railways were, however, working to a slightly lower target of 280 million tonnes; and (v) The Planning Commission and the Ministry of Railways differed on the anticipated lead of traffic during the Fifth Plan at 630 kms and 660 kms, respectively. Precise commodity-wise details of the anticipated lead had yet to be worked out.

The financial effect of social burdens on the Railways was high at Rs 225.44 crore in 1973-74. The Railways were losing as much as Rs 115.4

crore on low rated commodities, Rs 95.06 crore on coaching services and Rs 10.98 crore on unremunerative branch lines. The Railway Ministry should expedite the costing studies they had undertaken so as to review the freight structure. The unit cost of hauling the air-conditioned, First and Second Class coaches should be ascertained so that losses being incurred on each of them could be accurately determined.

The policy for rate of dividend, etc., for 1975-76 should be the same as in the previous year. In the case of further relief asked for by the Railways, because of the shortfall in Railway earnings and its difficult financial position, the Committee recommended that 50 per cent of the capital outlay in the years 1974-75 and 1975-76 on works in progress, other than those pertaining to strategic lines, North East Frontier Railway, over-capitalisation, ore lines, Jammu-Kathua and Tirunelveli-Kanyakumari- Trivandrum lines, new lines, and P&T line wires, may be exempted from payment of dividend for a period of three years.

Seventh Report, April 1975

The action taken by Government on the recommendations in the Fifth Report of the Railway Convention Committee, 1971 on requirements and availability of wagons was examined in this Report. The 1971 Committee had referred to the persistent shortfall in the materialisation of originating freight traffic compared to the forecasts during the Third and Fourth Plan periods. Effective remedial measures were to be taken to ensure that the requirements of freight traffic were assessed realistically for the Fifth and subsequent plan periods. The Ministry of Railways stated that if net tonne kilometres were taken as the index, instead of originating freight traffic, the Railways had achieved very nearly the target. Further, the forecasts were guided by the Planning Commission and other Ministries of the Government. According to the Committee, the performance of a Department had to be evaluated in relation to the targets fixed and, as the target was fixed in terms of originating tonnage, the evaluation of the performance had to be done in terms of the originating traffic and any other factor like lead of traffic was incidental. It could not accept the explanation of the Railways.

The Committee did not also accept the Ministry of Railways' explanation that the delays in the supply of wagons were due to (a) inadequacies of facilities at a number of trans-shipment points, (b) capacity of certain sections, and (c) availability of engines necessitating continuance of mixed traction on certain sections. It was pointed out that the total number of wagons had increased from 3,83,891 in 1969-70 to 3,88,026 in 1973-74 while the originating freight traffic had declined from 207.9 million tonnes to 184.9 million tonnes. Either the Railways' investment for catering for additional traffic was not properly made or their field operations were not managed effectively. The benefit of the huge capital investment made in successive Plans for development of the vast capacity for handling originating traffic should get translated into service by making wagons easily available as required by trade, industry and the public at large.

Eighth Report, September 1975

The Railway Convention Committee, 1973, examined (a) the methodology of planning by the Railways of Zonal and Divisional Traffic, (b) Fourth Plan Outlay and Targets, particularly the targets of traffic in major commodities and passengers as also the achievements of physical targets, (c) Fifth Plan Outlay and Targets, and (d) Ancillary Matters pertaining to marketing and sales organisation and the utilisation of wagons.

The Committee noted that the methodology of planning, in the absence of sufficient and reliable basic data had made it difficult for the Railways to fix Zone-wise traffic targets for the Plan periods. Targets were based more on the past performance and known developments in the areas served by each Zonal Railway rather than on detailed information of the requirement of rail transport of the rail users. Further, the machinery available on the Zonal Railways and Divisions was not adequate for the purpose of assessment of the traffic needs of the users. Railway planning was largely derivative planning based on development programmes and assessment of traffic by the various Ministries. These estimates of traffic had often gone wrong. There was need for a

detailed scrutiny of these estimates by the Planning Commission in consultation with the Railway Board. With the setting up of Central Planning Organisations at the zonal level, the Railway Plans could be more realistic.

Actual expenditure during the Fourth Plan period exceeded the mid-term Plan provision of Rs 1,400 crore by Rs 19.5 crore. The originating freight traffic had reached only 184.9 million tonnes in 1973-74, as against the revised target of 240.5 million tonnes. Despite this, the expenditure had exceeded the Plan outlay. Further, there had been heavy shortfalls in attaining some of the key physical targets during the Fourth Plan. The Ministry of Railways and the Planning Commission should lay down, henceforth, specific commodity-wise targets both in terms of originating tonnage and net tonne kms so that investment could be related to carefully assessed needs and the Railways' performance also properly evaluated.

No specific assessment of the capacity of the Railways for carrying freight traffic as at the end of the Third Plan had been made. For the Fourth Plan, the Railways built up a capacity in terms of wagons and locomotives of lifting about 215 million tonnes of freight traffic at an average lead of 678 kms, i.e., 146 billion net tonne kms. No such assessment was possible for line capacity unless specific details of origin and destination of various streams of traffic were available. Since 75 per cent of the total revenue-earning traffic was traditionally accounted for by eight commodities which moved in bulk on a programmed basis, the Committee considered that the Railways should have made a detailed assessment in conjunction with the concerned Ministries and field organisations, on the basis of origin- destination-wise linkage; in any case this should be done now. Detailed studies were also required of the freight carrying capacity including line capacity built up by the Railways section-wise, and the extent to which the same was utilised so that the areas where such capacity fell short of the requirement, could be clearly identified and future investments regulated accordingly.

The Committee took a serious view of the abnormal excesses of expenditure over the Plan provisions in respect of a number of heads, particularly the 'Inventories' . The Ministry of Railways were called upon to take expeditious follow-up action in the light of the Report of the High Powered Committee on Inventory Management on the Railways so as to ensure that the stores procedures were streamlined in consonance with modern concepts of materials management.

The Committee examined the targets of traffic of steel, coal, iron ore, cement, fertilisers and food grains and the shortfalls that had occurred in their movement during the Plan period. It again emphasised the need for realistic planning in the provision of rail facilities as also expected demand from the users. The Committee saw no reason why the Railways could not carry all the essential and high rated traffic that was offered to them. The Ministry of Railways should ensure that indents of wagons for such commodities were cleared expeditiously so as to obviate their diversion to road services.

The movement of the materials for Railways' own use had shown a persistent decline during the Fourth Plan period with the result that in the final year of the Plan, the traffic fell short of the anticipated 18 million tonnes by as much as 10.4 million tonnes. The Ministry of Railways should examine the reasons for the wide variations in the target and materialisation thereof of their own traffic so as to take necessary corrective measures.

The increase in non-suburban passenger traffic in the Fourth Plan had far outstripped the provision of coaching stock and, as a consequence, had accentuated over-crowding in the passenger trains. Over-crowding in second class unreserved accommodation of certain long-distance trains had ranged from 128 per cent to 202 per cent of seating capacity. It was therefore not possible for the Committee to accept the contention of the Ministry of Railways that the requirements of long-distance passenger traffic in the Fourth Plan were largely met. The Ministry of Railways should also analyse the reasons as to why there was a small increase of 9 per cent only in coaching stock, while provision of resources was adequate to cater for an increase of 19.8 per cent.

As regards suburban passengers, their number increased by 29.7 per cent while the EMU passenger kms. and vehicle kms. increased by 44.0 per cent and 43.8 per cent, respectively. The increase in EMU coaching stock was, however,

15 per cent only. The Committee reiterated its earlier recommendation that concerted measures should be taken to optimise the existing suburban services in the metropolitan cities.

For the Fifth Plan, the Working Group on Freight Traffic had projected a total of 335 million tonnes of originating traffic. The Planning Commission tentatively fixed a target of 300 million tonnes, i.e. an increase of about 115 million tonnes over the actual originating traffic at the end of the Fourth Plan. Planning of resources were restricted to a target of 280 million tonnes which the Railways considered to be more realistic. The Committee, considered that the anticipation of 13 to 15 million tonnes of additional traffic per annum could prove to be on the high side in view of the shortfalls during the earlier Plan periods. As the mid-term appraisal of the Fifth Plan was in progress, the Committee recommended that realistic targets be fixed keeping in view the performance of various sectors of the economy, the likely growth and changes in the pattern of traffic and other relevant factors.

As against the growth rate of 4.6 per cent per annum in the case of non-suburban traffic and 8.8 per cent in suburban traffic recorded during the Fourth Five Year Plan, the Railways' estimate of growth of such traffic during the Fifth Five Year Plan was 4 per cent and 5 per cent per annum respectively. The assumption of 4 per cent growth for non-suburban traffic had been made on an empirical basis. Speedier development of passenger terminal and yard capacities at metropolitan centres, setting up of subsidiary terminals, running of longer trains and provision of coaches with higher carrying capacity were some of the important measures proposed to be taken by the Railways to meet the requirements of the growing passenger traffic in the Fifth Plan. Since the proposals would make for better management and use of existing resources, they should be implemented on a priority basis.

The Committee considered that the anticipation of 5 per cent growth per annum for suburban traffic could prove to be on the low side considering the fact that during the past quinquennium such traffic had registered a growth of as much as 8.8 per cent per annum. The Ministry of Railways should review the matter and take suitable action to meet adequately the needs of such traffic.

In order to cater to the projected increase of 40 million tonnes of additional freight traffic (over the revised target of the Fourth Plan), 4 per cent increase per annum in non-suburban traffic and 5 per cent increase per annum in suburban traffic in the Fifth Plan period, the Railways would need 1,300 locomotives (400 electric and 900 diesel), 6,500 coaches, 1,050 EMUs, 50 Rail Cars and 100,000 wagons (both on additional and replacement account). The additional stock would entail heavy capital investment of Rs 900 crore with an annual dividend liability of about Rs 54 crore. The Railway Board should keep under constant review the utilisation of the existing rolling stock and place orders for additional stock after making sure that the rolling stock already available with them, and on order, would be put to effective optimum use. The Ministry of Railways should lay down targets of engine and wagon utilisation for each Zonal Railway and keep a close watch on their performance in relation to such targets and take necessary remedial measures. In view of the constraints on resources, the Committee recommended economy in the use of funds for expanding/constructing new workshops, line capacity works and signalling and safety works during the Fifth Plan.

Ninth Report, October 1975

This Report dealt with the social burdens on Indian Railways. According to the Ministry of Railways, in addition to being a commercial undertaking, the Indian Railways had a number of obligations of a public service character. These included transport of low rated freight traffic and passengers - suburban and non-suburban -, running of unremunerative branch lines, freight concessions on export trade, relief measures, etc., and other miscellaneous social overloads like health, medical and welfare services, the Railway Protection Force, subsidised housing of employees and education assistance to railway employees' children. The losses borne and the costs incurred by the Railways on these services in the public interest constituted social burdens on them and were distinct from their commercial deficit. The losses on this account had risen from Rs 169 crore in 1970-71 to Rs 282 crore in

1974-75.

The Committee considered that before any compensation on uneconomic services was contemplated, a proper costing methodology should be evolved to estimate the losses incurred on account of the various social burdens. The losses on non-suburban passenger traffic had been estimated at about Rs 130 crore for 1975-76 on account of social burdens. The Committee found that the Railways had not yet been able to complete their coaching cost study, with the result that they had no means of assessing the quantum of shortfall in the fares charged as against the cost of operations train-wise/class-wise. The Committee reiterated that any losses on operation of higher classes should not be met by the Railways. However, losses incurred by the Railways as a result of concessional fares for travel to and from hill stations, and those given to students, sportsmen, artists, defence personnel, blind persons, etc., should be reimbursed by the Government. With this end in view, the necessary financial arrangements could be worked out by Government.

The Railways incurred losses in the fares charged to third (now second) class passengers who constituted the bulk of the travelling public. Government should evolve a financial arrangement in the light of findings of the costing study and the economics of operation of various classes of travel, in consultation with the Ministry of Finance and Comptroller and Auditor General, whereby the Railways were compensated in some equitable manner for the unavoidable losses that they incurred on second class passenger traffic only.

The entire question of subsidising the Railways so as to cover the unavoidable losses on passenger traffic, suburban as well as non-suburban, should be remitted to a high powered Committee comprising the representatives of the Ministries of Railways, Transport and Finance, the C & A.G., the State Governments and local authorities concerned. The high-powered Committee might be entrusted with the task of working out a practicable financial arrangement to subsidise the Railways keeping in view the practices obtaining in Britain, France, West Germany, etc., in this behalf.

As regards low freight rated commodities and losses incurred therein, the Committee stressed again that the Railways should take concerted measures to bring down the unit cost of transport of goods so as to earn not only a reasonable return on the investments but also to generate adequate surpluses to finance their investment plans and cover in part the losses on coaching services.

The Committee referred to the observations of the Uneconomic Branch Lines Committee (1969) regarding the formula adopted by certain railways in estimating main line and branch line earnings. Early action needed to be taken to refine the methodology for assessing the overall financial position of working of the branch lines. The whole question of continuing the operation of uneconomic branch lines needed a critical and objective review of how far the existing alternative modes of transport could replace the uneconomic train services. The Railways should identify the branch lines which were marginally unremunerative and could be made economically viable with minimum investments and take concerted measures in close coordination with the State Governments, trade and industry, to improve their financial results. So far as the other branch lines were concerned, if they were to be continued indefinitely, inspite of recurring losses and with no possibility of their becoming viable in the foreseeable future, the only alternative was that the losses should be shared by the Railways and the authority desiring their continuation.

Instead of burdening the Railway finances, with construction of railways in the backward areas, the Committee recommended that the Government should enunciate a clear-cut policy whereunder the Central and State Governments would be willing partners in mobilising the capital needed for such lines and in sharing the losses in their operation. As a corollary, State Governments should be willing for closure of patently uneconomic branch lines, if other transport means adequately met the development requirements of the area.

The question of any reimbursement of the miscellaneous social overheads was turned down by the Committee as such amenities were provided to the staff by other public undertakings

also. On the other hand, the Railways were overstaffed and there was need to effect economies in that direction.

Tenth Report, August 1975

This Report of the Railway Convention Committee, 1973 pertained to the action taken by the Government on the recommendations contained in the Sixth Report of the Committee on rate of dividend for the year 1975-76 and other ancillary matters. In that Report, the Committee had recommended the rationalisation of freight and fare structures. The Ministry of Railways stated that the freight rates on all commodities, other than those which affected the general cost of living, e.g., food grains, were revised substantially upwards in 1974-75 and it was expected that freight charges on industrial raw materials would generally be adequate to cover the cost of their carriage. The Committee drew attention to the recommendation made by the Public Accounts Committee in their 148th Report that 'all other items (excepting Government owned cereals and pulses and Government relief materials) should be carried at 'the cost plus' rates basis. The Convention Committee, 1973, therefore, recommended that the Ministry of Railways should initiate commodity-wise studies to find out the element of subsidy, if any, still involved in the carriage of various commodities, particularly industrial raw materials, even after the latest revision of freight rates and to take appropriate action to rationalise the freight structure in the light of the findings of such studies. The Committee noted that the results of the study in regard to the unit cost of haulage of air-conditioned, first and second class coaches had not yet been completed by the Railways and stressed expedition of the same. The Committee also desired that the Task Force on Budgetary Accounting and Management Practices on the Railways should expedite its work and they should be informed about the action taken by the Government in pursuance of the recommendations made in its Reports.

Eleventh Report, December 1975

The Eleventh Report of the Railway Convention Committee, 1973 dealt with the rate of dividend for 1976-77 and other ancillary matters pertaining for that year. The Committee stated that the rate of dividend, etc., recommended for 1975-76 should apply to 1976-77 also. The 50 per cent exemption for capital outlay from payment of dividend for works in progress was to be extended to the entire Fifth Five Year Plan period. As regards payment to the Depreciation Reserve Fund, the Committee referred to the three alternative systems of estimation suggested by the Working Group appointed for the purpose, as also the obligation of the Railways to the covenant entered with the International Development Association and recommended an amount of Rs 135 crore as contribution to the Depreciation Reserve Fund for 1976-77.

Working Group on Depreciation Reserve Fund and Renewal Reserve Fund, 1975

In pursuance of the recommendation made by the Railway Convention Committee, 1971 in their First Report on 'Accounting Matters', Government appointed a Working Group to examine the basis for making provision for Depreciation Reserve Fund in respect of Railway assets created during the Fourth Plan period and to determine whether it was necessary to create a separate Renewal Reserve Fund to provide for inflationary and improvement elements in the cost of assets. The Working Group concluded that there was no need to change the prevalent system based on current replacement costs and that, in particular, there was no need to create a separate Renewal Reserve Fund; the estimated inflationary and improvement element would form part of the replacement cost. Three alternative systems were outlined to calculate the depreciation requirements: (I) Calculation of depreciation provision based on asset registers for each individual asset. Another refinement of the same system would be the adoption of Group Plan System of working out depreciation for a given recognised group of asset; (II) Calculation of depreciation provision based on the already available data on wasting railway assets contained in the Block Account, i.e., working out separately the provision on account of the three elements, (a) original cost of the assets, (b) inflation, and (c) improvement. The sum total of these provisions would automatically

meet the requirements of current replacement cost approach; or (III) Calculation of depreciation provision based on available data of Railways' wasting assets in terms of physical units under clearly assignable asset groups and estimating their current replacement cost by evaluating them and thus arriving at the provision for Depreciation Reserve Fund. In view of the cumbersome procedure as well as substantial recurring expenditure of about Rs 60 lakh involved in System I, the Working Group recommended adoption of either System II or System III to ensure that there was no serious under-provisioning or over-provisioning.

The Working Group further observed that, in the interest of prudent financial management, if the financial situation permitted, at least 5 per cent of the block value of wasting assets be maintained as the balance in the Depreciation Reserve Fund to meet the unforeseen exigencies which may be caused by the unpredictable inflationary situation as also due to the rapid strides in the field of technological advancement.

The Ministry of Railways decided to adopt System II indicated by the Working Group for computation of depreciation allowance.

Task Force on Budgetary Accounting and Management Practices on Railways, 1974

A Task Force consisting of officers drawn from the Ministries of Finance and Railways and two Chartered Accountants was constituted in July, 1973 to undertake a detailed examination of certain aspects of budgetary accounting and management practices on the Railways in the light of the recommendations of the Convention Committee (1971).

The Task Force submitted its first report sometime in 1974 on 'Budgetary Accounting and Management Practices on Railways' which dealt mainly with restructuring of Demands for Grants and other budget documents. A revised structure of Demands for Grants based on function-oriented analysis of working expenses of the Railways was recommended. The scheme of revised Demands for Grants made each grant distinguishable by the main activity and the related objectives of expenditure under that Grant. This was intended to facilitate concurrent cost and budgetary control. The Revised Demands for Grants, recommended by the Task Force, were 16 in number against 22 existing at that time (Table 30).

TABLE 30. REVISED DEMANDS FOR GRANTS

Group		Demand No.	Demand *Name of Demand*
I	Policy Formation & Services common to Railways	1	Railway Board
		2	Research, Audit and Miscellaneous Establishments
II	General Superintendence & Services on Railways	3	General Superintendence and Services on Railway
III	Repairs and Maintenance	4	Repairs & Maintenance of Way of Works.
		5	Repairs & Maintenance of Motive Power.
		6	Repairs & Maintenance of Carriages and Wagons.
		7	Repairs & Maintenance of Plant and Equipments.
IV	Operation	8	Operating Expenses - Rolling Stock and Equipment.
		9	Operating Expenses - Traffic.
		10	Operating Expenses - Fuel.
V	Staff Welfare, Retirement Benefits and Miscellaneous	11	Staff Welfare & Amenities.
		12	Miscellaneous Working Expenses.
		13	Provident Fund, Pension & Other Retirement Benefits.
VI	Railway Funds, and Payments to General Revenues	14	Appropriation to Funds.
		15	Dividend to General Revenues, Repayment of loans taken from General Revenues and Amortisation of over- capitalisation.
VII	Works Expenditure	16	Assets- Acquisition, Construction and Replacement.

Source: Railway Convention Committee, 1973, *Eleventh Report*, Dec. 1975, Pages 13-14

The recommendations of the Task Force, were accepted by Government with a number of modifications. Since the Task Force recommended major restructuring of Railway Budget (Demands and sub-head of Demands), intensive training to staff and officers dealing with budgeting on the railways was to be arranged before implementation which was to take 2-3 years provided the Second Report of the Task Force dealing with revised classification of accounts was not delayed.

Fifth Five Year Plan, 1974-79, for Railways

The Fifth Five Year Plan for the Railways was approved by the National Development Council in November 1976. The revised outlay for the Fifth Plan on Railways came to Rs 2,151.80 crore as against Rs 2,350 crore in the draft Plan. The outlay for metropolitan transport was reduced from Rs 200 crore to Rs 50.20 crore, bringing the total Fifth Plan outlay to Rs 2,202 crore as against Rs 2,550 crore in the draft Plan. The outlays for the various programmes of Railways in the draft and the final Fifth Plan are given in Table 31.

The estimates of originating freight traffic on Railways was revised downward from 300 million tonnes to 250 to 260 million tonnes. The largest single commodity would be 98 million tonnes of coal. Emphasis was laid on better utilisation of existing track and rolling stock capacity by maximising movement in block rakes and reducing turn-round time. In regard to non-suburban passenger traffic, outlay was provided after taking into consideration past trends and possible growth in the next two years. Provision for suburban traffic took into consideration the optimisation programmes of the Railways. Full provision was made for completion of on-going traffic and project oriented lines. Despite constraints on resources, the electrification projects of Virar-Sabarmati, Panskura-Haldia and Tundla-Delhi sections were completed. By the end of the Fifth Plan, it was expected that the Madras-Trivellore section would be fully electrified while electrification of Waltair-Kirandul and Madras-Vijaywada sections would have reached an advanced stage.

TABLE 31. FIFTH FIVE YEAR PLAN OUTLAYS

(Rs Crore)

	Programme	Draft Fifth Plan	Final Fifth Plan
1.	Rolling Stock	900	1056.8
2	Workshops/Sheds	120	77.9
3	Machinery and Plant	40	41.7
4	Track Renewals	200	209.1
5	Bridge Works	60	47.3
6	Line Capacity Works	500	315.9
7	Signalling and Safety	110	71.2
8	Electrification	120	101.1
9	Other Electrical Works	20	23.0
10	New Lines	100	97.2
11	Staff Welfare, Staff Quarters, etc.	100	67.2
12	Investment in Road Services	30	48.7
13	Inventories	--	(-) 5.3
14	*Total*	2350	2151.8
15	Metropolitan Transport	200	50.2
16	*Grand Total*	2550	2202.0

Source: *Fifth Five Year Plan*, 1974-79, November 1976, Pp 69-70

Railway Convention Committee, 1977, First Report, October 1977

The Railway Convention Committee, 1977 was constituted by Parliament in August 1977. The Committee submitted its First Report in October 1977 giving their recommendations on the dividend payable by the Railways for the years 1977-78 and 1978-79, and other ancillary matters.

The Committee reviewed the financial results of the working of the Railways during 1974-77 together with the budgetary forecasts for 1977-78. The Railways had closed the financial years 1974-75 and 1975-76 with a net deficit of Rs 113.82 crore and Rs 61.11 crore, respectively. However, in 1976-77, there was a marked improvement; as against a nominal surplus of Rs 8.98 crore anticipated in the budget, a net surplus of Rs 87.33 crore was expected. The Railways' indebtedness to General Revenues under Development Fund and Revenue Reserve Fund increased from Rs 208.01 crore at the end of 1973-74 (last year of the Fourth Plan) to Rs 462 crore (approx.) by the end of 1976-77. It would need several years of sustained effort to wipe off the liabilities accumulated. Keeping in view the state of Railway finances, the reliefs recommended by the Railway Convention Committee, 1973, as well as the prevalent mode of payment of dividend to the General Revenues should continue during the financial years 1977-78 and 1978-79.

As regards contribution to the Depreciation Reserve Fund, the Committee noted that the Government had decided to adopt System II of the recommendations of the Working Group according to which the depreciation requirement in the Fifth Plan was about Rs 658 crore. The actual provision of Rs 650 crore made in the Plan more or less corresponded to that figure. Railways would have to make a contribution of Rs 285 crore towards the Depreciation Reserve Fund during 1977-78 and 1978-79 in fulfilment of a covenant entered into with the World Bank so as to arrive at an average of Rs 130 crore per annum during the Fifth Plan period. This was also in line with the requirements assessed by the Working Group on Depreciation. The contribution to the Depreciation Reserve Fund would therefore be Rs 140 crore during 1977-78 and Rs 145 crore during 1978-79.

The Committee further recommended that (i) the prevalent provision for temporary borrowing from Central Revenues when the balance in the Development Fund was inadequate to meet its obligations for meeting the expenditure chargeable to the Fund and to pay the interest on loans may be continued in 1977-78 and 1978-79, and (ii) interest on loans, whether taken to finance the expenditure on development works or to pay the interest on the principal of such loans, should continue to be levied at the average borrowing rate chargeable to commercial departments. The Committee also recommended that the Railways be permitted to take temporary loans, as prevalent, from the General Revenues to meet the full dividend liability when the Railways' net revenue was not adequate to pay the dividend to General Revenues and the Revenue Reserve Fund had no or insufficient balance to make good the shortfall.

Second Report, January 1978

In this Report, the Committee examined the action taken by the Government on the recommendations contained in the Eighth Report of the Railway Convention Committee, 1973 on Railways' Fourth and Fifth Five Year Plans and Other Ancillary Matters. Commenting on the action taken by Government, the Committee re-emphasised that it was the Railways who had to bear the consequences of any inadvertent investments made for an anticipated traffic which did not materialise, as had happened in the Third and Fourth Plans. The difficult financial position of the Railways particularly since 1966-67, when they went into the red, was in no small measure due to inadvertent investments made by them. Since four years of the Fifth Plan were almost over, there was need for concerted action, without delay, to work out in depth the traffic projections for the next Plan. The traffic targets should be worked out, *inter-alia* on the basis of a detailed analysis of traffic projections, destination/direction-wise in respect of major commodities.

These projections should be completed at least one year before the commencement of the next Plan so that it might be of real assistance in determining the targets and rational allocation of resources.

Third Report, March 1978

The Third Report of the Railway Convention Committee, 1977 examined the action taken by Government on the recommendations contained in the Ninth Report of the Railway Convention Committee, 1973 on Social Burdens on Indian Railways. For the Third Plan (1961-66), the Planning Commission indicated, in February 1960, rail transport target of 238.8 million tonnes by 1965-66, but in March 1961 revised it upwards to 248.9 million tonnes based on the upward revision of estimates in respect of raw materials and coal for steel plants, coal for the general public, railway material, etc. However in January 1962, on the basis of certain studies made, the traffic forecast for the last year of the Third Plan underwent a further upward revision to 264 million tonnes based on an expected increase in coal traffic (by 5 million tonnes) and general goods traffic (by 10.1 million tonnes). Yet another change in the target was made in November, 1963 at the time of the mid-term plan appraisal and the target was reduced to 245 million tonnes. The actual traffic carried during the last year of the Third Plan was only 203.1 million tonnes, leaving a shortfall of as much as 42 million tonnes. As far as the lead of traffic was concerned, it was assumed that it would remain the same as it was at the beginning of Plan, i.e., 561 kms. However, at the end of the Third Plan the average lead had gone up to 576 kms, an increase of 15 kms.

For the Fourth Plan, the Committee found that though the user Ministries had projected a freight traffic of 290.8 million tonnes (including railway material), the target for the last year of the Fourth Plan was fixed at 264.7 million tonnes and, at the time of mid-term appraisal of the plan in January, 1971, it was further reduced to 240.5 million tonnes. Actually, the traffic was only 184.9 million tonnes in 1973-74, the last year of the Plan, showing a gap of 55.5 million tonnes between the anticipated and the actual traffic. The average lead of traffic at 623 kms was originally adopted at the time of formulation of the Fourth Plan and at the time of mid-plan appraisal, a lead of 630 kms was adopted. However, the actual lead went up to 678 kms in 1972-73 and came down to 662 kms in 1973-74.

For the Fifth Plan, the Working Group for Freight Traffic projected a traffic level of 335 million tonnes for 1978-79 but the Railways suggested a target of 280 million tonnes. However, the Draft Plan laid down a target of 300 million tonnes for the last year of the Plan. It was lowered to 260 million tonnes at the time of finalising the Plan in the latter part of 1976. The actual traffic in 1976-77 was only 239.1 million tonnes.

At the time of formulation of the Fifth Plan, the then prevailing lead of 670 kms was adopted and subsequently at the time of finalising the Plan in the latter part of 1976, it was raised to 678 kms though the Planning Commission felt that it would be around 660 kms. The actual lead was 683 kms in 1974-75, 664 kms in 1975-76, 656 kms in 1976-77 and 685 kms in 1977-78 (anticipated).

Thus, on the one hand, the targets of originating traffic proved to be very much on the higher side in successive Plans and, on the other, the assumption regarding increases in average leads of traffic proved to be on the conservative side. This meant that despite the constitution of the Working Group for Freight Traffic by the Planning Commission with the Chairman, Railway Board as the convener, there had not been any realistic appraisal of the railway transport demands. The Committee found that the user Ministries tended to exaggerate their production estimates, the Planning Commission adopted a conservative increase in lead and the Railways worked out their investment requirements largely on the basis of these projections which proved to be erroneous. Though the availability of transport should be somewhat ahead of the demand, while the target of originating traffic fixed for the Third Plan, viz., 245 million tonnes was yet to materialise, the Railways went on making investments after the Third Plan based on unrealistic forecasts of freight traffic. The Committee were familiar with the argument that the total quantum of

workload as indicated by the net-tonne kms (NTKMS) was increasing over the years e.g. from 87.7 billion NTKMs in 1960-61 to 116.9 billion NTKMs in 1965-66 (an increase of 33 per cent) to 125 billion NTKMs in 1968-69 (an increase of 43 per cent over 1960-61) to 136.5 billion NTKMs in 1972-73 (an increase of 56 per cent over 1960-61) and to 148 billion NTKMs in 1975-76 (an increase of 68 per cent). But this increase in the workload over the years had not come about in the manner the Plan estimates envisaged in terms of originating traffic and the leads of traffic. What really happened was that the shortfall in originating traffic had been balanced by the higher than assumed average lead. The Committee, therefore, felt that Government should set themselves to the task of realistically assessing the future Railway transport requirements. It was obvious that the production estimates given by the user Ministries must be subjected to a closer and more critical scrutiny. It was also necessary to work out major commodity-wise leads of traffic more critically. This was not a difficult task as most of the bulk commodities moved largely on a programmed basis and clear origin-destination-wise data should be available with user Ministries. In order to ascertain realistically the future requirements of Railway transport, the Ministry of Railways should undertake a critical and in-depth study of the past trends in the growth of lead in major commodities and the likely changes in the patterns of their movement due to new production and consuming centres coming up as a result of growth, particularly in the industrial and agricultural sectors.

The Committee found that the Railways had not undertaken any detailed or scientific analysis of their investments to study the expenditure incurred on creation of additional freight or passenger carrying capacity and their productivity. The Ministry of Railways should undertake an exercise by adopting modern accounting techniques so that it could provide the basic parameters for determining the allocation of resources to the railways for augmenting the traffic capacity for the future. The Railways should place as much emphasis on consolidation as on expansion and ensure that investments were made on a selective basis after a careful assessment of requirements.

The Committee noted that although the Railways had finalised the methodology for evolving coaching unit costs, they were yet to complete the development of unit costs of operation of mail/express and ordinary trains, class-wise, without which the profitability of the various train services and classes of travel could not be properly determined. The Ministry of Railways should address themselves to this important and urgent task without further loss of time and work out in concrete terms the profitability of important train services and classes of travel, particularly those on which the Railways were incurring losses. Such a study would not only help the Railways to resolve the long-standing controversy about the losses on passenger services but also help to identify the factors contributing towards losses so that running of passenger services and composition of trains could be rationalised in the best public interest.

Fourth Report, December 1978

In December 1978, the Railway Convention Committee, 1977 submitted its Report on Delegation of Powers to General Managers, Organization of Zonal Railways and Organisation of Railway Board's Office. The Committee noted that the Railways' operations were so organised that while the authority for policy making was vested in the Railway Board, the execution was left to the Zonal Railways. A schedule of powers delegated to the General Managers of Zonal Railways was laid down and additional/revised powers were included from time to time. The Railway Board confined themselves to policy formulation, planning, coordination and overall supervision of the Zonal Railways and the General Managers were allowed to function freely within their delegated powers. The Committee, however, felt that the growth in staff in the Railway Board indicated that there was a strong tendency for concentrating more and more powers in the Railway Board.

There had been a more than justified increase in the strength of staff and officers in the Railway Board in the name of developmental activities. The argument that the increase in the number of

references from the Members of Parliament and others had necessitated increase in the strength of the Board was not acceptable to the Committee. If the Railways were managed in a business-like and efficient manner, the chances for complaints would be greatly reduced, if not obviated. Further, modern management techniques should have resulted in substantial simplification of procedures, speedier disposal, reduction and better utilisation of man-power and above all saving in expenditure on administrative costs, overheads, etc.

Expert Group on Capital Structure of Indian Railways, October 1978

The Railway Convention Committee, 1971 had recommended the setting up of an Expert Group to examine, in all its aspects, the scheme for amortisation of the capital-at-charge. The Committee said that the question of precisely determining the element of over-capitalisation on the Indian Railways, the amortisation thereof and, in the alternative, the question of reviewing the capital structure of the Indian Railways be remitted to an Expert Group consisting of representatives of the Ministries of Finance, Railways and some independent economic experts, etc., and their recommendations made available to the next Railway Convention Committee for consideration and report. Consequently, an Expert Group was set up which submitted its report in September 1977. The Ministry of Railways considered this report and decided to set up a new Expert Group to make an in-depth study of all the aspects of the problem and make their recommendations. The new Expert Group submitted its report sometime in late 1978.

The Group recommended that the capital-at-charge to the extent of Rs 475 crore representing the element of contribution as distinct from the dividend paid by the Railways to General Revenues since 1924 should be written off to provide some relief to the Railways. However, this was not agreed to by the representative of the Ministry of Finance in the Expert Group.

The Expert Group had estimated that the extent of over-capitalisation in the Railways was of the order of Rs 122.54 crore. The amortisation of this amount by setting apart amounts from revenue surpluses from year to year was a laudable but unattainable proposition in the foreseeable future. Hence, it should be written off the railway books without financial adjustment, as already recommended by the earlier Expert Group. Out of this amount no dividend in any case was being paid on Rs 118.25 crore and it was only a logical step to drop this amount from the books. The balance of Rs 4.29 crore also represented intangible assets and, therefore, that should also be removed from the capital account.

The more important components of capital costs relating to unproductive assets should be identified and made eligible for dividend concessions. These included (i) The capital cost of all new lines taken as developmental lines (not providing the usual return on capital), which were initially allocable to Development Fund but which came to be allocated to capital on the basis of the recommendations of the 1954 Convention Committee, should be exempted from dividend. (ii) The capital cost of uneconomic branch lines not taken into account for dividend exemption, should be reviewed from year to year and account should be taken of the changes in cost for estimation of dividend exemption. (iii) While national investments were exempted from payment of dividend, surpluses, if any, were required to be made over to the General Revenues while losses were to be borne by the Railways. The Expert Group recommended deletion of the provision of making over the surpluses to the General Revenues, or alternatively there should be provision to pass on the losses also to General Revenues on the same lines as losses on strategic lines were allowed to be deducted from the dividend payable. (iv) The capital cost of suburban services (Rs 114.64 crore as on 31-3-74), ferries (Rs 5.05 crore), and welfare buildings like hospitals, dispensaries, health units, clubs, institutions, schools and colleges, hostels and other welfare centres (Rs 3.43 crore as on 31-3-77) should also be exempted from payment of dividend. Attention was drawn by the Expert Group to the imperative need for stepping up the allocations to the Depreciation Reserve Fund for enabling the Railways to overtake the arrears in replacements. Annual contribution to the

Depreciation Reserve Fund would need to be at a much higher level than Rs 145 crore.

According to the Expert Group all accumulated indebtedness of the Railways to date should be written off. The system of borrowing loans by Railway Revenues from General Revenues for purpose of dividend equalisation should be discontinued. Shortfalls in dividend payments should be treated as deferred liability not carrying interest. In regard to financing of expenditure chargeable to Development Fund, the Expert Group recommended that temporary loans could continue to be obtained from the General Revenues. Such loans could be repaid over a period of 10 years and carry interest at a subsidised rate of 3 per cent.

Interim Report of the Rail Tariff Enquiry Committee, November 1978

The Public Accounts Committee as well as the Railway Convention Committee had emphasised the need for rationalising the fare and freight structure having due regard to the cost of service. Accordingly, the Government of India set up in September 1977 the Rail Tariff Enquiry Committee to examine the structure of fares, rates and other charges for public traffic as also for post office, mails and military traffic, carried by passenger trains and/or goods trains, in all its aspects, and ancillary and incidental matters such as packing conditions and booking and delivery of, and payment for, traffic; and to recommend the modifications to be made bearing in mind, the interests of the common man, the requirements of a developing economy and the importance of making the Railways financially viable. The Committee was also to recommend on the rationalisation and simplification of the freight and fare structure on the Indian Railways. The Committee submitted an Interim Report in November 1978.

In its Interim Report, the Committee looked into the financial position and performance of the Railways and concluded that fares and freight rates had not kept pace with general increase in the price levels, which was responsible for the difficulties faced by Railways especially in undertaking larger development programmes. The Committee recommended revision of fares for passenger, freight and other coaching traffic. In the case of passenger fares, the Committee recommended that no concessions in fares, including hill ticket concessions, should be available to passengers travelling by a class other than the Second Class. There should be an increase in season ticket fares especially for those in the suburban sections. Season tickets on the non-suburban sections should be available between stations situated at distances not exceeding 150 kms as against 80 kms then allowed. Also, the distinction in the season ticket fares between suburban and non-suburban sections upto 150 kms should be abolished. The First Class monthly season ticket should be uniformly four times the Second Class monthly season ticket fare. Further, quarterly season ticket fares should in all cases be three times the monthly season ticket fares. In the case of freight rates, the exemptions from levy of supplementary charges imposed in 1974 and 1976, given to grain and pulses, salt NOC, gur, jaggery and sugar, certain items of edible oils and oilseeds and chemical manures should be removed. The increase in parcel/luggage rates had not been consistent with the increase in goods rates since 1971. These should be increased suitably to re-establish that relativity.

High Level Committee on Social Burdens of Indian Railways, January 1979

In its Ninth Report on Social Burdens on Indian Railways, the Railway Convention Committee 1973 had recommended the setting up of a high-powered Committee to work out a practicable financial arrangement to subsidise the Railways for the losses borne on suburban transport. Accordingly, the Government of India appointed a Committee in January 1978 to review the entire question of subsidising the Railways so as to cover the unavoidable losses on passenger traffic, suburban as well as non-suburban, unremunerative branch lines, and goods traffic and to work out a practicable financial arrangement taking into consideration similar practice obtaining on other foreign railways. The Committee was also asked to examine the manner in

which the cost of special responsibility regarding Education, Health and guarding of Railway property incurred by the Railways could be shared with the States or Central Revenues. The Committee submitted its Report in January 1979.

The Committee stated that there was no case at all on economic or other grounds for giving subsidies. If the Government decided to give subsidy for certain items, then such subsidies should be given explicitly and not indirectly. If the Railways were prevented from enhancing their freight rates and fares they should be entitled to a direct subsidy to compensate them for the losses which they would incur.

The Committee recommended that (i) the Railways should be permitted to increase their freight rates for items which they carried below cost; (ii) if the Railways were not permitted to enhance the freight rates as proposed, the losses incurred by them in the carriage of these commodities should be reimbursed in full by the Central Government; (iii) For suburban services, there was no case for charging such a highly concessional tariff. The high cost of providing essential services in the metropolitan cities, called for introducing a tariff which would act as a disincentive to further accentuate the congestion problem in the metropolitan cities. The single journey rail fares for suburban services should not be less than bus fares in metropolitan cities. Further, the monthly season ticket fares in the three cities of Bombay, Calcutta and Madras should be fixed on the basis of charging 24 single journeys in a month. The practice of issuing quarterly season tickets on the basis of 2-1/2 times of monthly season ticket fares should also be discontinued; (iv) Until the Railways were able to enhance the season ticket fares upto the level at which the cost was covered, they should be fully compensated for the losses incurred by them on suburban traffic from the general revenues; (v) the special fare table in force for Second Class upto 50 kms should be abolished; (vi) hill concession should be given only for the off season; (vii) Ministry of Railways should forthwith take necessary steps to discontinue uneconomic branch lines; (viii) the expenditure incurred by the Railways in providing health, medical services, subsidised housing and educational assistance to the employees was part of their duty as model employer and there was no case for making any reimbursement to the Railways on this account; (ix) the cost of the Government Railway Police should be shared by the State Governments concerned and the Ministry of Railways on a fifty-fifty basis.

The Committee recommended full tariff rates to be charged for military traffic, and no losses be incurred in the carriage of postal traffic. Ferry services should be economically charged. Railways should improve their costing technology and ensure that their pricing of goods, passenger and coaching services was never below their cost.

Fifth Report of the Railway Convention Committee, 1977, February 1979

The 1973 Convention covered the first three years of the Fifth Plan, viz. 1974-75, 1975-76 and 1976-77. The First Report of the Railway Convention Committee, 1977 which was presented to both Houses of Parliament in October 1977 contained their recommendations regarding rate of dividend payable by the Railways to the General Revenues and other ancillary matters for the financial years 1977-78 and 1978-79. However, the Fifth Plan was terminated a year earlier and the Sixth Five Year Plan began with 1978-79. As the Ministry of Railways were yet to formulate the details of the Sixth Plan, the Committee submitted an interim report. Their recommendations for the Sixth Plan period were to be made after receipt of a detailed memorandum from the Ministry of Railways, giving the Sixth Plan outlays, projections of traffic, levels of fares and freight, etc. Based on the tentative estimates framed by the Railways, the Committee felt that Railways, inspite of carrying a huge investment amounting to Rs 5,572 crore as on 31-3-1978 and inspite of their operations spreading over a period of 125 years, were still not organised as a sound public enterprise, economically viable and self-generating in resources, and adequate to sustain the growth of the system so as to keep pace with the demands of a developing economy.

It took nearly six years for the Ministry of Railways to take conclusive action on the recommendations made by the Railway Convention Committee, 1971 with regard to the question of

revamping the capital structure of the Railways. The matter was examined by two expert bodies. Action had yet to be taken by the Ministries of Finance and Railways to formulate specific proposals on the recommendations of the Expert Group on Capital Structure.

The Committee recommended that the mode of payment of a fixed dividend on the capital invested in the Railways as computed annually in lieu of the interest charges, plus a small element of contribution to the General Revenues, be continued for 1978-79 and 1979-80 in the interest of financial discipline. The Committee had no objection for the amount assessed by the Expert Group on Capital Structure of Indian Railways (Rs 122.54 crore) being written off the Railways' books without financial adjustment, subject to the condition that the additional amount of Rs 4.29 crore over the earlier assessment of Rs 118.25 crore was vetted by the Comptroller and Auditor General of India.

The extant arrangements of grants paid to the States in lieu of the tax on passenger fares were also to continue for the two years. Exemption of the capital-at-charge of the non-strategic portions of the North East Frontier Railway and unremunerative branch lines from the payment of dividend was also to continue. For unremunerative branch lines, the capital cost to be exempted from dividend should be based on annual reviews, the unremunerativeness of a particular branch line being determined by adopting the marginal cost principle. The capital cost of new lines taken up on or after 1-4-1955, on other than financial considerations, could be exempted from dividend. If any such lines became remunerative, adapting the marginal cost principle during the years 1978-79 and 1979-80, dividend on the capital cost of such lines should be paid to the General Revenues. Payment of dividend on capital cost of ferries, buildings such as hospitals, dispensaries, schools, colleges, hostels, welfare centres, etc., was exempted. As regards Railway staff quarters, the Committee recommended that on the capital cost of residential buildings, dividend may be paid at the rate of 3.5 per cent for the years 1978-79 and 1979-80. The extant manner of fixing the payment of dividend to General Revenues, by adopting differential rates of dividend for before and after March 31, 1964 was to continue for 1978-79 and 1979-80, together with all arrangements for deduction as hitherto.

Main Report of the Rail Tariff Enquiry Committee, April 1980

The Committee submitted their Main Report on 21st April, 1980. The Report is divided into four parts. Part I deals with the basic considerations in approach to tariff making. Part II deals with passenger, luggage, parcel and other coaching traffic, Part III deals with the freight traffic and Part IV gives a summary of the recommendations and conclusions.

The Committee noted the net surplus earned by the Railways from 1950-51 to 1978-79 (Table 32).

TABLE 32. SURPLUS/DEFICIT EARNED BY RAILWAYS

(Rs Crore)

Year	Net Surplus (+)/ Deficit (-)
1950-51 to 1965-66	(+) 324.57
1966-67 to 1975-76	(-) 357.02
1976-77 to 1978-79	(+) 230.13
Total	(+) 197.68

Source: *Summary of the Main report of Rail Tariff Enquiry*, April 1980

In the years when surpluses were inadequate, the railways had to take temporary loans from the Government to meet their liabilities. The provision for depreciation by the Indian Railways had been less than at the desired level, especially after the financial position started deteriorating in the late sixties. With the backlog of depreciation and major assets acquired earlier falling due for replacement, it was necessary to provide for much larger depreciation than prevalent. Government may appoint an Expert Committee to go into this whole question at an early date. For its own calculations, the Committee assumed a provision for depreciation at a rate of 4.7 per cent on the value of assets. The contributions made by the Railways to the pension fund also required fresh valuation.

Although Railways were an essential infrastructural facility, it was so far not adequately developed because of the availability of road transport. With the developments in the field of fuel, national policy would require more emphasis for long distances haulage as well as mass transit to be placed on railways rather than roadways. This would probably imply that the demand for railway traffic facilities would grow at a rate faster than would be indicated by projections from the past trends. It was time the Railways planned for a longer period of 20 years. The Committee estimated (as a minimum projection) that the railways traffic in 2000 AD as compared to that in 1977-78 would increase as indicated in Table 33.

TABLE 33. TRAFFIC PROJECTIONS FOR 2000 A.D.

(10^9 ntkm/pkm)

	Freight Traffic	Passenger Traffic	
		Suburban	Non-Suburban
Traffic in 2000 A.D.	406.00	168.00	320.00
Traffic in 1977-78	162.69	39.43	137.20
Additional Traffic in 2000 A.D.	243.31	128.57	182.80

Source: As in Table 32.

The corresponding investment requirements were estimated at Rs 25,377.59 crore (Table 34).

TABLE 34. INVESTMENT REQUIREMENTS FOR ADDITIONAL TRAFFIC IN 2000 AD

(Rs Crore)

1. *Rolling Stock*	(At 1977-78 prices)
(a) Locomotives	2,249.93
(b) Coaches	1,665.46
(c) Wagons	5,064.76
(d) EMUs	1,836.78
(e) Miscellaneous	1,069.76
Total	1,1886.69
2. Traffic facilities *	7,132.01
3. Workshop and Sheds @	1,664.14
4. Electrification	786.70
5. New Lines	1,601.00
6. Other Investments	2,307.05
Total	25,377.59

* Including Signalling and Safety
@ Based on Railway Corporate Plan, (1976-89)

Source: As in Table 32.

Adding the requirements for replacements, the total outlay for the development of railways upto 2000 AD would have to be about Rs 36,000 crore at 1977-78 prices.

The Railways should normally earn, a return of 10 per cent on the capital-at-charge. The railway tariffs should be such that, with the level of efficiency attained in 1976-77, they should meet all their appropriate costs at 1980-81 prices and earn a return of 10 per cent on the capital-at-charge. For this purpose, the Railways would have to earn about Rs 770 crore more on the traffic carried in 1976-77 at the same level of efficiency.

The tariff proposals were so made by the Committee that out of the proposed additional earnings of about Rs 770 crore during 1980-81, goods would contribute about Rs 500 crore and coaching over Rs 250 crore. The general principle adopted for formulating the proposed tariff rates was that, except for very special reasons, no stream of traffic would be carried at rates which would, for that stream as a whole, not meet the costs directly to be ascribed to that stream of traffic. The contribution to total revenues of each stream of traffic would, however, vary according to what that stream of traffic could bear.

While deciding the tapering of freight rates with distance the Committee recommended that, for shorter distances motor transport would be more suitable, except in case of bulk commodities and that the railways should concentrate more on medium and long distance transport. In case of passenger services, the approach of the Committee was that, while revenue from Second Class (ordinary) passengers should cover the direct costs of those services, revenue from the mail/express services should not only cover their fully distributed costs but also make up the short-fall on the ordinary service so that the passenger services taken as a whole met their share of total costs. The Committee further recommended that uniform rates of tariffs should apply on different gauges, and on sections with varying traffic density, inspite of possible difference in operating costs. According to the Committee, there was no case for freight equalisation which in the long run merely distorted economics of location and led to wrong pattern of development. Subsidies on freight movement were recommended for rail transport to the North Eastern region at enhanced rates and for longer distances.

The Committee recommended reduction in the degree of concession to season ticket holders, especially in the suburban and suburban-like services. It was felt that a uniform concession of not more than 50 per cent was the maximum that could be justified. A steady and persistent policy of increasing season ticket fares should be pursued so as to achieve this in the course of five to ten years. Further, the capital investment in new or additional transport facilities on the suburban or suburbanlike sections of the Railways should be exempted from the payment of dividend. Losses which the Central Exchequer may have to sustain as a result of this exemption could be taken into account by the Finance Commission, when the Centre-State financial relationship was periodically examined.

Final Report of the Rail Tariff Enquiry Committee, June 1980

In its Final Report, the Committee dealt with subjects pertaining to (a) improving railway efficiency, (b) charges for postal traffic, (c) rates for military traffic, (d) terminal charges for Port Trust Railways, (e) sidings, (f) packing conditions and (g) miscellaneous commercial matters. As regards improving operational efficiency on the railways, the Committee mentioned that the Railways could do very little to improve the overall position in the face of the deteriorating law and order situation in the country. Expansion of the Railway Protection Force and improvement in the facilities available to them as well as increase in the subsidy to the State Government for improving the services of the State Government Railway Police would be a small cost to pay if it resulted in improvement in the situation. Appropriate facilities were required at the transshipment points. New methods and systems for trans-shipment should be tried so as to study in a systems analysis the design of wagons, the manner in which the trans-shipment should be organised and the equipment that should be used. The Committee also recommended improvements in the working and layout of marshalling

yards, better telecommunication facilities, better facilities for movement of staff in the marshalling yards and provision of *pucca* jeepable roads all round the yards. A reference was made of the problems of transport in the North-Eastern States, especially the need for supply of essential commodities like food grains, salt, sugar and cement and it was felt that special extra funds should be sanctioned for speedy gauge conversion works in the area. The opening of out-agencies for easier transportation of goods was also recommended.

Progress in the Fifth Plan

The Fifth Plan was terminated a year earlier in 1977-78. Construction of 848 kms of new lines, doubling of 313 kms and electrification of 527 kms were completed during the Plan period. Procurement of 427 diesel and 203 electric locomotives was made in addition to 46,979 wagons and 4,120 coaches inclusive of 466 EMUs. Freight traffic which was 196.7 million tonnes in 1974-75 went up to 237.3 million tonnes in 1977-78. Similarly, originating passengers increased from 2,429 million in 1974-75 to 3,504 million in 1977-78. Upto the end of 1978-79, the last year of the original Fifth Plan, the originating freight tonnage was 223.4 million tonnes (as against the Fifth Plan target of 250-260 million tonnes by 1978-79) and originating passengers, 3,719 million.

A Corporate Plan of Indian Railways covering a 15-year span upto 1988-89 was finalised in 1976. It defined the corporate objectives of the railways and outlined the strategies to be adopted for meeting the demands of the future to be implemented by annual programmes and action Plans. The Corporate Plan was under revision in 1978-79 so as to cover a time-frame upto 1992-93.

Draft Sixth Five Year Plan, 1978-83

The basic objectives of the Railway Plan 1978-83 were to continue to improve the efficiency of the working of Indian Railways, to augment the capacity for handling the expected increase in traffic, to modernise the system in respect of its equipment and practices, to promote better utilisation of the existing assets and to move further in the direction of achieving self reliance in equipment. Also, special emphasis was to be given to research and development in the fields of modernisation and improvement of railway technology including new designs of locos, coaches and wagons, improvement of traction system for diesel locos so as to optimise the utilisation of assets and improve the standards of safety and reduce the operating costs. In view of severe scarcity of resources, higher priority was to be given to the movement of essential goods traffic as against passenger traffic.

Sixth Five Year Plan, 1980-85

The strategy for the Sixth Plan (1980-85) was to make a major effort to increase the output from the existing assets and improve substantially the utilisation indices. Against the 1979-80 level of 972 net tonne kms (NTKM) per wagon day on the Broad Gauge (BG) and 534 on the Meter Gauge (MG), efforts were to be made to achieve a minimum of 1,045 on the BG and 570 on the MG and to aim at a higher target of 1,125 on the BG and 580 on the MG.

The demand on rail transport was estimated at about 309 million tonnes of originating traffic in 1984-85. Taking the average lead of different commodities in 1984-85 as assessed in the Report of the Working Group on Railways for the Sixth Plan (1980-85), and applying it to the commodity-wise break-up of 309 million tonnes of overall demand, the weighted average of the lead came to about 710 kms. The total freight transport in 1984-85 was estimated to be about 220 billion tonne kms. In the past, the growth in passenger traffic was higher than anticipated. Nevertheless, because of scarce resources, priority was given to freight traffic.

In view of the extremely difficult position in regard to energy, a high degree of inter-model coordination, particularly between rail and road, was to required to ensure that the available railway wagons were utilised preferentially for long distance traffic. This was involve coordination between various Ministries and user organisations, effective functioning of commodity dumps for coal, steel, fertilizers, etc., as well as creation of adequate terminal facilities by Railways and

the user organisations.

The pricing of rail services were to be rationalized to generate maximum revenue and avoid subsidies. The level of fares in the passenger segment, particularly in the suburban sectors, were to be such that it became a self-sustaining segment. In order to discourage short distance movement by rail, except in dense corridors where high capacity movement may be required, passenger fares were to be raised. A provision was made for an outlay of Rs 5,100 crore in the 1980-85 Plan for the Railways (Table 35).

TABLE 35. RAILWAY PLAN, 1980-85

(Rs Crore)

1. Rolling Stock	2,100
2. Workshops & Sheds	280
3. Machinery & Plant	230
4. Track Renewals	500
5. Bridge Works	90
6. Traffic Facilities	480
7. Signalling & Telecommunications	90
8. Electrification	450
9. Other Electrical Works	20
10. New Lines	380
11. Staff Welfare	30
12. Staff Quarters	60
13. Users Amenities	25
14. Other Specified Works	20
15. Inventories	40
Sub-Totals (1 to 15)	4,795
16. Investment in Road Services	50
17. Metropolitan Transport Projects	255
Sub-Total (16 and 17)	305
GRAND TOTAL	5,100

Source: *Sixth Five Year Plan*, 1980-85 p 301

It was proposed to acquire about 1,00,000 wagons (in terms of 4 wheelers), 5,680 coaches, 390 EMUs and 780 diesel/electric locomotives during the Plan period. Track renewal was to be undertaken on about 14,000 kms. A new wheel and axle plant was to be set up near Bangalore. A workshop modernisation programme to improve the maintenance facilities on the Railways was proposed. Under the electrification programme 2,800 kms were to be energised.

National Transport Policy Committee, May 1980

The National Transport Policy Committee was appointed in April 1978 to (1) propose a comprehensive national transport policy for the country for the next decade or so and in particular (a) recommend an optional inter-model mix of different systems and also suggest appropriate technical choices within each system, keeping in view the need to generate maximum employment potential; and (b) suggest organisational, administrative, fiscal and legal measures required for planning, implementing, monitoring and evaluating programmes formulated for giving effect to relevant components of the national transport policy by the Central and State Governments and major transport agencies at both the National, State and local levels; (2) identify areas in which data base of the transport system should be strengthened for formulating integrated transport plans, and to suggest procedures and methodologies for preparing and apprising such plans at the Central, State, District and Block levels; (3) recommend areas in which research and development in the transport field should be undertaken and the institutional framework for carrying it out; and (4) suggest measures for improving training facilities in transport planning and management. The Committee submitted its Report in May 1980.

The Committee mentioned that railways, with roads, formed the principal modes of transport in the country. Between 1950 and 1978, passenger traffic on railways increased from 66.5 to 177 b.p. kms and freight traffic from 44 to 163 b.t. kms There was a marked shift in the relative share of rail and road transport in the total traffic carried. The share of road transport in both passenger and goods traffic increased at a much faster rate than

of railways, although in absolute terms, traffic increased substantially in both the modes. Despite continuous efforts made since 1951 to augment the capacity of various modes of transport, the transport sector had generally experienced bottlenecks and capacity shortages. The imbalances between the demand and supply of transport facilities had adversely affected the smooth functioning of the economy. The imbalances underlined the need for creating transport capacity ahead of traffic demand, so that some cushion in the system existed to meet unexpected spurts or shifts in transport requirements.

The Committee expected total passenger traffic to increase to about 1,344 b.p. kms by the year 2000 and road transport's share in it to be about 800 b.p. kms, rail share to be about 520 b.p. kms, and air transport's share about 23.6 b.p. kms. The recent rise in oil prices was expected to affect goods' transport by road and assuming a shift to rail of only 50 per cent of traffic moving by road beyond break-even level, the share of rail and road in freight traffic would change from 67:33 observed in the last ten years to 72:28 by the year 2000. The share of railways would increase further with a further rise in diesel prices. Total freight traffic was estimated to increase to 550 b.t. kms by the turn of the century of which the railways were expected to carry 468 b.t. kms and road transport 182 b.t. kms. The Committee suggested that Government should try to change the inter-model mix in the desired directions, through investment and pricing mechanism rather than through regulation and physical control.

A revision of railway fare and freight structure was recommended by the Committee to bring it into line with costs and to correct anomalies and unwarranted subsidies. The railways had been incurring losses on suburban systems on account of concessional monthly season tickets even after the upward revision of fares made in April 1979. These fares should be raised further to wipe off the losses to enable the railways to provide better services. The railways incurred losses on transport of certain commodities of mass consumption. About 50 per cent of these losses were on account of food grains. Since the influence of transport costs on their prices was marginal, the economics of cost-plus basis of fixing rail freight rates for these commodities could be examined by the Rail Freight Enquiry Committee.

The Committee made a number of recommendations to meet the demands of traffic on the railways. These included (a) restrictions of services for short distance passenger traffic except between pairs of points where the density of traffic was very high; (b) increase loading in train loads and running of point to point trains to ease pressure on marshalling yards and to improve wagon turnabout; (c) increase in capacity on important trunk routes; (d) planning of alternative routes, especially for coal movement to relieve congestion on existing routes; (e) rationalisation of terminals, mechanisation of loading and unloading of bulk goods, running heavier trains from siding to siding, clubbing of 'smalls', creation of dumps for coal, steel, cement and other commodities; (f) reduction of differential in speeds between freight trains and mail/express trains to improve line capacity; (g) development of containerised traffic and introduction of piggy back system; (h) computerised wagon control and passenger reservation; (i) conversion of meter gauge to broad gauge in sections where high density freight traffic moved; (j) acceleration of electrification on the railways; etc.

The Committee recommended that investment criteria for new lines should take into account the financial return and benefits to the economy. A wider social cost-benefit criteria for appraisal needed to be applied. Construction of new lines should be taken up to fulfil the objectives: (a) as project-oriented lines to serve new industries or tap mineral and other resources; (b) to serve as missing links which can form alternative routes to relieve congestion on existing busy rail routes; (c) on strategic considerations; and (d) as developmental lines to establish new growth centres or give access to remote areas.

Reports of the Railway Convention Committee, 1980

First Report, February 1981

The Railway Convention Committee 1980 was constituted in October 1980 to review the rate of

dividend payable by the Railways to General Revenues as well as other ancillary matters in connection with the Railway Finance *vis-a-vis* the General Finance and make recommendations thereon. The Committee submitted its first report in February 1981. It allowed the continuation of the recommendations of the Railway Convention Committee (1977) for 1979-80 made applicable to the years 1980-81 and 1981-82 too. Similarly, for the Depreciation Reserve Fund, it had no objection to the allocation of Rs 220 crore and Rs 350 crore to the Depreciation Reserve Fund for the years 1980-81 and 1981-82 respectively, pending their final recommendations.

Second Report, May 1981

In its Second Report, the Railway Convention Committee, 1980 examined the action taken by the Government on the recommendations contained in the Fourth Report of the Railway Convention Committee, 1977 on delegation of powers to General Managers, organisation of Zonal Railways and reorganisation of the Railway Board's Office. The Government had accepted in principle some of the recommendations of the 1977 Committee, but referred most of the recommendations to internal official committees and also to the Indian Institute of Public Administration. The 1980 Committee, in this Second Report, were constrained to note the casual manner in which the recommendations of the Parliamentary Committee were treated by the Ministry of Railways. The Committee were also not satisfied with most of the replies given by the Ministry of Railways.

Third Report, September 1981

The Committee made a review of the rules of allocation of railway expenditure to capital and revenue account, Depreciation Reserve Fund, Development Fund and Accident Compensation, Safety and Passenger Amenities Fund. It recommended that the financial limit of charging to revenue the cost of minor additions and improvements should be raised from Rs 25,000 to Rs 100,000 in the case of minor works and from Rs 3 lakh to Rs 10 lakh in the case of unremunerative projects for improving operational efficiency. Further, the cost of replacement of an asset, the original cost of which was charged to revenue Open Line Works Revenue (OLWR), should also be charged to revenue (OLWR) if it was Rs 10 lakh or less. If the cost of replacement of such asset was more than Rs 10 lakh, it should be charged to Depreciation Reserve Fund. With regard to the replacement of assets created out of the Accident Compensation, Safety and Passenger Amenities Fund, the Committee recommended that the cost of such replacement should be charged to Depreciation Reserve Fund as was being done in the case of assets created out of Capital and Development Fund. The Committee found some merit in the proposal of an insurance scheme for payment of compensation to accident victims and suggested that the Ministry of Railways should work out an insurance scheme in consultation with the Ministry of Finance.

Fourth Report, February 1982

The Committee, had no objection to dividend being paid by the Railways during 1982-83 at the rates and with the concessions recommended by the Railway Convention Committee, (1977) for the year 1979-80 in their Fifth Report, subject to the following special provision for the year 1982-83, namely: (a) contribution to the Depreciation Reserve Fund and Pension Fund during 1982-83 may be Rs 500 crore and Rs 150 crore, respectively; (b) in the case of temporary borrowing from the General Revenues for meeting the expenditure chargeable to Development Fund, the rate of interest may continue to be the same as applicable to loans given to State Governments (6.25 per cent with a rebate of 0.25 per cent for prompt payment); and (c) the rate of dividend, conditions and concessions and the rates of contribution to Depreciation Reserve Fund and Pension Fund made applicable to the year 1982-83 were of an interim nature and subject to such alterations as may be recommended by the Committee in their final report for the Sixth Five Year Plan period (1980-85) as a whole.

Fifth Report, July 1982

The Fifth Report of the Committee made a review of the working and financial results of the Railways during the period 1974-80 as also the targets and achievements with regard to freight and passenger traffic during the same period. In view of the substantial variation in gross traffic receipts, and working expenses expected by the Financial Commissioner Railways for 1974 and the actuals, (being (+) 27.32 per cent in Gross Receipts and (+) 27.99 per cent in Working Expenses), the Committee recommended that the Railways should have a study made of the financial forecasting system to improve the methodology so that the variation between forecasts and actuals were reduced to the minimum.

The distressing feature of the Fifth Plan investments for Railways had been the inequitous approach of the Planning Commission to the investment proposals of the Ministry of Railways. The Inter-Ministerial Working Group had projected for the Railways a freight traffic of 335 million tonnes by 1978-79. The Planning Commission toned it down to 300 million tonnes. In projecting their Fifth Plan requirements, the Railways had projected an outlay of Rs 2,570 crore based on a target of 290 million tonnes. Despite protestations by the Ministry of Railways, the draft Fifth Five Year Plan provided an outlay on railways of Rs 2,350 crore only. In the revised Fifth Plan, the outlay was slashed to Rs 2,152 crore, and finally to Rs 2,086 crore. The Committee were told that the reduction in the Plan outlay from Rs 2,350 crore to Rs 2,086 crore was mainly due to the adverse impact of the oil crisis. However, the Committee were unable to appreciate the progressive reduction in the Plan outlay without regard to its possible adverse impact on the performance of the Railways. As it turned out, even the reduced Fifth Plan outlay could not be utilised by the Railways in full and there was a sizable shortfall in expenditure of Rs 138 crore. The Ministry of Railways maintained that the targets could not be achieved on account of lack of funds, whereas the records indicated that they had been unable to spend a sizable chunk out of plan funds available to them.

The Railways were unable to achieve even the reduced target of 250-260 million tonnes of freight traffic provided for in the Fifth Five Year Plan. The maximum load of freight traffic that they could carry during the Plan period was 239.10 million tonnes reached in 1976-77. Thereafter the freight traffic declined consistently year after year to reach a level of 217.84 million tonnes in 1979-80. The dismal performance of the Railways in moving freight traffic during the period 1974-80 reflected adversely on the functioning of the planning, monitoring and appraisal wings of the Railways at the Board as well as zonal levels. The Committee recommended that the Railways should make concerted efforts to win back at least a part of the high rated revenue earning freight traffic which might have crossed over to the Road Transport under compelling circumstances such as persistent non-availability of wagons in due time, increased incidence of delay, theft and damage *en route*, rampant corrupt practices by unscrupulous elements in the Railway Organisation as also among the customers and middlemen in the matter of freight booking, weighment, delivery, etc.

As regards passenger traffic, the Committee recommended that the Ministry of Railways should make efforts to work out more realistic projections of passenger traffic, if necessary with the help of experts and specialised institutions.

The Committee noted that the Railways' own contribution to their development expenditure had consistently fallen from 36.7 per cent during 1974-78 to 32.8 per cent in 1978-79 and thereafter to 29.1 per cent in 1979-80. The fall in Railways' contribution was attributed to the less than adequate appropriation for Depreciation Reserve Fund, the main component of the internal resources of the Railways. As a consequence, there was heavy accumulation of arrears in the replacement of overaged assets. The Committee regretted that neither the Ministry of Railways nor the Planning Commission could perceive in right time the need for adequate provisions for Depreciation Reserve Fund. Timely appreciation would have saved the Railway operations from the dire predicament of a massive rehabilitation backlog.

Sixth Report, August 1982

The Committee examined the action taken by

Government on its earlier recommendations in its Third Report of the Railway Convention Committee, 1980 in which it had desired that an accident insurance scheme be worked out in consultation with the Ministry of Finance. The Ministry stated that the procedure for payment of compensation to the Railway accident victims or their heirs was under review by the Railway Reforms Committee set up by Government. Changes in the procedure would be considered on receipt of their recommendations. The Committee were of the view that a decision on the specific question of an insurance scheme for railway passengers need not be linked with the wider question of overall improvement in the functioning of the Railway system or its financial viability. The Committee therefore desired that the matter should be examined and finalised at an early date in consultation with the Ministry of Finance and General Insurance Corporation of India.

Seventh Report, November 1982

The Seventh Report of the Railway Convention Committee, 1980 related to the rate of dividend for the years 1980-81 to 1983-84 and other ancillary matters. The Ministry of Railways referred to the requirement of the Ministry of Finance for an upward revision of the rate of dividend and commented that the sole justification for such increase was the principle of providing for a net contribution on Railway investments over and above the bare interest rates. Right up to 1979-80, the average borrowing rate, though progressively increasing from year to year, remained below the dividend rate of 6 per cent. It was only in 1980-81, that the average borrowing rate crossed the dividend rate of 6 per cent. On the same principle of relating the dividend rate for a segment of Railway capital to the average borrowing rate of Government for the relevant period, (accepted by previous Railway Convention Committees) there was therefore no justification for increasing the rate of dividend on capital invested up to 1979-80 beyond the existing level of 6 per cent. The Committee were unable to agree with this proposition. The dividend rate of 6 per cent was applicable only to the capital invested after 31st March 1964 - it was the average of the rates of dividend paid on the entire capital, which could be compared with the average borrowing rate of the Government of India. The Committee found that the average rate of dividend fell consistently short of the average borrowing rate since 1977-78. The one per cent extra dividend paid over and above 4.5 per cent on capital invested up to 31st March, 1964 represented payments to the States in lieu of the passenger fare tax, etc. This, on no account could be considered to be part of the dividend liability of the Railways. The contribution of the Railways to General Revenues was negative from 1972-73 onwards.

The Ministry's proposal involved payment of dividend at three different rates during the quinquennium 1980-85, viz. 4.5 per cent on pre-1964 capital, 6 per cent on capital invested during 1964-80 and the average borrowing rate for the capital invested thereafter (the mean average borrowing rate for the period 1980-85 was estimated at 6.5 per cent.). The Ministry's suggestion for temporary suspension of the principle of dividend rate including an element of contribution would in effect mean going below the average interest rate on the capital so far invested in the Railways. If the Ministry's proposals were to be accepted, the Railways would pay dividend (excluding payment to States) at an average of 5.09 per cent in 1980-81, 5.33 per cent in 1981-82 and 5.48 per cent in 1982-83 (BE) as against the average borrowing rate of 6.1 per cent, 6.3 per cent, 6.5 per cent and 6.6 per cent in the respective years. On a rough reckoning, the shortfall in paying even the bare interest charges on the entire capital-at-charge (Rs 6,096 crore as on 31-3-1981) would be of the order of Rs 300 crore during the period 1980-85.

The Railways' indebtedness to General Revenues stood at Rs 603.54 crore as on 31st March, 1981 of which over Rs 197 crore represented deferred dividend liability and the balance of loans to the Development Fund. Considering the unhappy state of Railway finances, the Committee suggested that purely as an interim measure the actual payment of dividend for the period 1980-84 be restricted to the amount worked out applying differential rates proposed by the Ministry of Railways and agreed to by the Ministry of Finance. Accordingly, for the period 1980-84,

the dividend to be paid to General Revenues was to be (i) a rate of 6 per cent on capital invested up to 31-3-1980 (inclusive of 1.5 per cent on capital invested up to 31-3-1964 for payment to States in lieu of passenger fare tax, etc.), (ii) a mean percentage of 6.5 on the capital invested in the Railways after 31-3-1980, and (iii) for payment to States in lieu of passenger fare tax, etc., by computing dividend at 1.5 per cent of the capital up to 31-3-1964 less subsidy element, out of which Rs 23.12 crore may be passed on to the States in lieu of passenger fare tax and the balance utilised to assist the States in providing their portion of the resources required for financing safety works as at present. Further increase could be considered on the basis of the recommendations of the Eighth Finance Commission. The reliefs and other equitable concessions given for calculation of dividend payable by the Railways to the General Revenues were to continue. In addition, the entire capital on the ore line (Sambalpur-Titlagarh) instead of 50 per cent thereof be exempt from payment of dividend subject to the usual conditions. The balances in the various Railway Reserve Funds (except the Development Fund) could carry the same rate of interest at which dividend was actually paid.

In considering the dividend payable for the period 1980-85, the Committee were reluctant to depart from the time-honoured principle of expecting the Railways to make at least a token contribution to the General Revenues over and above the average borrowing rate. The Committee pointed out that compared to 1951-52 when the rate of return relative to cost of capital was 7.3 per cent *vis-a-vis* the then average borrowing rate of 3.16 per cent, the projected return in 1984-85 was 7.5 per cent *vis-a-vis* the anticipated borrowing rate of 6.9 per cent. The Railways should augment their earning capacity by subjecting their commercial investment proposals to stricter test of remunerativeness, commensurate with the constantly rising cost of capital, to be in a position to pay dividend even at the bare interest rate in the foreseeable future.

The appropriation to the Depreciation Reserve Fund during the Sixth Plan (1980-85) was proposed at Rs 2,100 crore as compared to only Rs 650 crore during the quinquennium 1974-79. The steep increase in expenditure was required due to the heavy accumulated arrears in renewal and replacement of Railway assets. Appropriations of the order of Rs 220 crore, Rs 350 crore and Rs 500 crore were made in the first three years (1980-83) leaving a balance of Rs 1,030 crore for the remaining two years. The Railway Reforms Committee had assessed the requirement for the year 1982-83 at Rs 809 crore, i.e. Rs 309 crore more than the amount budgeted for. The Ministry of Railways could increase the contribution by Rs 56 crore only. The Committee agreed to an appropriation of Rs 556 crore in 1982-83. For 1983-84 the contribution could be stepped up further keeping in view the assessment of the Railway Reforms Committee and the Railway's capacity to raise additional resources.

Eighth Report, April 1983

In its Eighth Report, the Railway Convention Committee (1980), reviewed the action taken by Government on the recommendations contained in their Fifth Report on the working and financial results of Railways during the Fifth Plan period (1974-78) and during 1978-80. The Committee found that the Railways had overspent the Plan outlay on Road Services, Signalling and Telecommunication Works, New Lines, Staff Quarters, Staff Amenities, Users Amenities, etc. However, there were heavy shortfalls in vital areas such as Rolling Stock, Workshops, Track Renewals, Traffic facilities, etc. The cumulative shortfalls under these heads was as high as Rs 112 crore. As a result of this shortfall, the Railways were faced with heavy accumulation of arrears of renewals, replacements, over-aged assets and shortage of wagons and coaches, etc. The health of the Railways had deteriorated over the years because of lack of concerted efforts to make the best use of available resources. Optimum utilisation of available funds for repairs, maintenance and replacement of worn out track, rolling stock, etc., was necessary for meeting the tasks that lay ahead.

Ninth Report, August 1983

The report related to the cost (staff and fuel) of operation of railways. The operating ratio of the Railways (percentage of total working expenses

to total earnings) had fluctuated considerably since 1950-51. It fell from 81 per cent in 1950-51 to 74.85 per cent in 1963-64, but rose thereafter to reach 93.39 per cent in 1973-74, fell again to 82.99 per cent by 1978-79, rose again to 96.07 per cent in 1980-81 and declined to 89.40 per cent in 1981- 82. The Committee pointed out that the railways were expected to generate surplus to pay dividend on capital-at-charge to General Revenues. In view of the high operating ratio, there was great need for economy in expenses. It may be noted that 45.8 per cent of the total working expenses accounted for staff cost, 24.6 per cent for fuel cost and the rest for other stores.

The Committee examined the cost of operation with reference to staff and fuel cost and, seeing scope for economy, suggested that a well integrated inter-disciplinary team of officers presided over by the Chief Executives at various levels, Divisional, Zonal and Railway Board should continuously explore measures to eliminate waste and effect economy, evolve better control techniques and systems and monitor results. Other measures recommended by the Committee included (a) scientific reappraisal of staff strength, (b) phasing out of steam engines to reduce the cost of operation on account of fuel, (c) electrification of unelectrified short links, (d) installation of electronic weigh-bridges, etc.

Sixth Five Year Plan (1980-85): Mid-term Appraisal, August 1983

The Mid-term Appraisal of the Sixth Plan, found the performance of Railways was wanting in most sectors (Table 36).

TABLE 36. MID-TERM APPRAISAL OF RAILWAYS' SIXTH PLAN

Item	1984-85 Target	Achievement up to 1982-83	Anticipated up to 1983-84	Anticipated up to 1984-85
1. Clearance of Originating Traffic per year (million tonnes)	309	254	264	282 A
2. Clearance of Originating Revenue Traffic per year (million tonnes)	287	228	241	257 A
3. Net Tonne Kms per wagon day (tonne Kms)	1,125	1,125	1,150	1,175 B
4. Procurement of Wagons	100,000	43,500	60,000	77,000 C
5. Procurement of Locomotives	780	607	782	980 D
6. Procurement of Coaches and EMUs	6,070	3,275	4,486	5,900
7. Track Renewals (Kms)	14,000	4,300	7,050	10,400
8. Electrification (Kms)	2,800	874	1,490	2,500

Note: (A) Traffic projections were reduced due to lower demand from commodity sectors as compared to those assessed at the time of Sixth Plan formulation.
(B) Achievements in utilisation expected to be higher than the original Sixth Plan target.
(C) Keeping in view the lower demand for rail transport the requirement of wagons had fallen to about 80,000 wagons against the original projection of 100,000 wagons. Actual procurement was expected to be about 77,000 wagons due to constraint of resources.
(D) In order to achieve better traffic clearance with fewer wagons through greater mobility, a higher level of locomotive acquisition was programmed.
Source: *Sixth Five Year Plan, 1980-85, Mid-term Appraisal*, August 1983, p 84.

Some of the important performance indicators during the first three years of the Plan as compared to the base year 1979-80 are given in Table 37.

After three bad years from 1978-79 to 1980-81, the capacity of the Railways to clear traffic during 1981-82 and 1982-83 remained broadly adequate. The traffic clearance as well as wagon utilisation indices on the Railways broke all previous records and the Plan target for wagon utilisation for 1984-85 was achieved in 1982-83 itself. However, even on the basis of conservative estimates of demand during 1983-84 and 1984-85, sizable gap between the anticipated capacity of the Railways and the total demand for rail transport was likely to emerge despite increase in the utilisation levels by the Railways.

To prevent recurrence of bottlenecks in rail transport, it was necessary to step up the investment in the Railways sector in the coming years. The Railways on their part were expected to devote attention to better monitoring of projects some of which were heavily behind schedule with corresponding cost/time overruns.

TABLE 37. PERFORMANCE INDICATORS IN SIXTH PLAN

(Broad Gauge Goods Traffic)

Indicator	1979-80	1980-81	1981-82	1982-83 (estimated)
1. Wagon Kms/Wagon day	73.3	73.4	83.7	85.0
2. NTKM's/Wagon day	972	986	1,112	1,125
3. Average Gross Train Load (tonnes)	1,694	1,721	1,775	-
4. Average Speed (Kmph)	19.5	19.7	20.8	22.6
5. KM's per Engine Day-Diesel	307	303	370	388
Electric	289	274	366	390

Source: As in Table 36.

The outlay approved for Railways in the Sixth Plan was Rs 5,100 crore (at 1979-80 prices). The actual expenditure until 1983-84 at current prices and at 1979-80 prices is given in Table 38. It will be noticed that the investments in Railways in real terms remained static or had regressed.

TABLE 38. EXPENDITURE ON RAILWAYS, 1980-81 TO 1983-84

(Rs Crore)

	1980-81	1981-82	1982-83	1983-84(BE)	Total
At Current Prices	973	1,210	1,332	1,342	4,857
At 1979-80 Prices	887	875	823	745	3,330

Source: As in Table 36, p 85.

In spite of substantial improvements in physical performance some of the financial results of the Railways were not quite satisfactory. Their operating ratio (i.e. the percentage of working expenses, including Depreciation Reserve Fund, to the gross revenue) in the first three years of the Plan was 96.1 per cent, 89.4 per cent and 88.5 per cent. For 1983-84 the estimated operating ratio was 87.5 per cent. As far back as 1960-61/ 1965-66, the ratios were 78.8 per cent and 78.3 per cent, respectively. Railway tariffs had not increased in harmony with the increase in the cost of the inputs. While to some extent a deliberate policy of tariff restraint was desirable, the primary objective of earning a minimum reasonable return on the capital invested had to be kept in view. The percentage of net revenue to capital-at-charge (before payment of dividend to general revenues) of the Railways, had risen from 2.1 per cent in 1980-81 to 7.3 per cent in 1982-83 (RE). It was budgeted at 9.5 per cent in 1983-84. Sustained effort was required to maintain this improvement to achieve the target of 10 per cent recommended by the Rail Tariff Enquiry Committee 1980.

Tenth Report of the Railway Convention Committee (1980), February 1984

In this Report the Railway Convention Committee, 1980 recommended that the rates of dividend as applicable for the period 1980-84, be adopted for making actual payment of dividend in 1984-85 also. The Committee noted that the contribution to the Depreciation Reserve Fund (DRF) for 1983-84 was Rs 850 crore. The assessment of the Railway Reforms Committee was that a minimum of Rs 1,110 crore per year for DRF was necessary. The Ministry of Finance did not agree with the view that the Railways should make a pre- determined level of contribution to the Fund irrespective of the financial position of the Railways. A contribution of even Rs 850 crore in 1984-85 would leave a large deficit which, if unfilled, would result in the Railways' default in payment of dividend to General Revenues to that extent. The recommendations of the Railway Reforms Committee regarding methods by which the additional resources required were to be raised by the Railways, were awaited. In the meantime, the contribution to the DRF for 1984-85 could be suitably stepped up keeping in view the Railway's capacity to generate additional internal resources. The contribution to the Pension Fund had increased from Rs 85 crore in 1980-81 to Rs 185 crore in 1983-84. Pending finalisation of an actuarial evaluation, the Committee recommended that the contribution to the Pension Fund be stepped up in view of increasing levels of disbursement from the fund.

Eleventh Report, April 1984

In order that the Railways could augment appropriations to various funds and pay reasonable dividend to the General Revenues and yet render better service to the community, the Committee examined the cost of operation of the Railways. Of the working expenses (excluding dividend), 45.8 per cent was staff cost, 25.6 per cent was fuel cost and the rest was other stores (1980-81). The Committee's Ninth Report on 'Cost of Operation of Railways' covered their examination of cost of staff and fuel. The present Report dealt with the cost of other stores besides the system of purchases, disposals, inventory control and costing in general.

The expenditure on purchase of stores (other than fuel) rose from Rs 665 crore in 1978-79 to Rs 1,601 crore in 1982-83. The factors responsible were increase in prices, greater repairs and maintenance, enhanced track renewal activities, etc. The Committee's examination revealed scope for economy by rationalisation of purchase procedures and better inventory management and cost control.

There were three different agencies for making purchases for Indian Railways: (i) the Railway Board, (ii) Zonal Railways and Production Units, and (iii) the Directorate General of Supplies and Disposals (DGS&D). About 27 per cent of the Railway purchases were through the DGS&D, the major items being fuel (other than coal) and paints. The Railways had to pay a commission to DGS&D for this purpose. The Committee recommended that the price of petroleum products being fixed, the Railways could purchase direct from the Public Sector oil companies, without increasing the extra commission cost. As it was, virtually the entire work of procurement was done by the Railways, except for the placement of orders. During 1981-82, DGS&D purchased paints and varnishes largely for the Railways. Even these could be handled by the Railways with economies of overheads. Further, provisioning and placement of orders should in future be regulated under a time bound programme. There should also be effective liaison with the Directorate General of Technical Development to locate or develop indigenous sources both in respect of procurement and import.

The Committee found the inventory carrying cost to be quite considerable and substantially avoidable. Value analysis should be undertaken by inter-disciplinary team of officers to bring down the cost of raw materials and components. Such cells should be constituted in all zonal railways and production units and the results monitored by the Railway Board. Another area of cost reduction was prompt disposal of surplus/obsolete stores and scrap to the best advantage of the Railways. The Committee suggested the setting up of a centralised machinery in the Railway Board to act as a clearing house of information regarding availability of surplus stores in the different zonal railways.

There appeared to be no expertise in costing especially at higher levels in the Railways. The Committee recommended that effective costing cells consisting of cost experts should be created and reliable costing system evolved for monitoring of costs and achieving better cost control.

Twelfth Report, August 1984

In this Report, the Railway Convention Committee, 1980 examined the track expansion programme. On 31 March,1951, the total railway route kilometerage was 53,596. An addition of 7,789 kilometres was made by March, 31, 1983. The track expansion which was fairly fast up to 1968-69 slowed down considerably thereafter. As against the addition of nearly 6,000 kilometres during 1950-51 to 1968-69, the addition in 1969-70 - 1982-83 was less than 2,000 kilometres. The criteria adopted for investment in Railways took into account the need to create adequate capacity, both line capacity and rolling stock, to meet the projected levels of traffic of freight and passenger transport for a given plan period. Account was also taken of the requirements of rehabilitation and replacement of aging assets, as well as investments required for modernisation, up-gradation of technology, cost reducing investments like electrification, investments for achieving self-reliance in the production of major equipment, and for expansion of the network to meet the development needs. However, against a growth of only 13 per cent in route kilometres and 26 per cent in track kilometres, mostly due to double tracking in broad gauge system, in the last thirty years, the passenger traffic increased more than two and a half times, from 66.5 to 177 billion passenger kilometres and freight traffic more than three and

a half times, from 44 to 163 billion tonne-kilometres. The density per kilometre rose sharply with heavy strain on track. The arrears in track renewals which were 13,100 kilometres at the beginning of the Sixth Five Year Plan in April 1980 went up to nearly 20,000 kilometres, i.e. about a third of the entire track kilometerage in the country. The Report of the Comptroller and Auditor General of India for the year 1981-82, Union Government (Railways), revealed that old steel girders in 2,700 bridges erected prior to 1905 had become brittle and needed early replacement. The Committee concluded that the funds allocated by the Planning Commission for the Railways after the Third Plan were grossly inadequate to meet the Railways' needs both for development and renewal. Further weightage should be given to the development of backward regions, and thereby achieving regional balance.

A project was considered financially viable under conventional method if the rate of return on capital investment was 6.75 per cent in the sixth year of its operation. Under the discounted cash flow scheme, a project was justified if it earned an internal rate of return of at least 10 per cent on capital investment. This percentage of 6.75 was expected to cover dividend liability of 6 per cent and a fair contribution to Depreciation Reserve Fund and Development Fund of the Railways. There were exceptions where it was necessary to have a connecting link/or for strategic reasons. The Committee recommended that among the exceptions, lines to be constructed in the context of development of remote backward areas, particularly tribal areas, should be included. The broad criteria for taking up new lines should include (1) strategic lines; (2) project-oriented lines to serve new industries, or to tap mineral and other resources; (3) lines aimed at development of backward areas including tribal areas; (4) lines to connect capitals of States and Union Territories; (5) lines to provide missing links which form alternative routes to relieve congestion on existing busy rail routes; and (6) lines to give access to other remote areas.

There was almost total lack of planning in taking up new lines for construction. Individual projects which satisfied the broad criteria, including the rate of return criteria, were selected in an *ad hoc* manner and not as a part of some well-conceived plan. Too many projects were taken up simultaneously resulting in the limited resources getting distributed thinly. Often, the on-going projects were slowed down or frozen, while new projects were taken up. Keeping in view the broad criteria laid down by the Committee, the Railway Board should draw up a long-term perspective plan for track expansion for the next 20 years in consultation with the Planning Commission for implementation from the start of the Seventh Plan. Projects should be taken up for execution strictly in the order of their priority in the Plan and once started, should be completed according to their time-schedule during the Seventh Plan period. Funds allocated for the construction of new lines should not be allowed to be diverted to any other project. It was also necessary to follow a phased programme of wiping out the arrears in track renewals by the end of the next ten years.

The Committee referred to the estimate made for construction of new lines (5,000 kilometres) in the next two decades by the National Transport Policy Committee. This meant an outlay of about Rs 375 crore (at 1984 prices) for the Plan period, i.e., about Rs 75 crore per year. The Planning Commission and the Ministries of Finance and Railways should explore (i) possibility of restoring the balance of Depreciation Reserve Fund to be kept outside the Plan funds; (ii) ploughing back of the excess of cumulative dividend for financing Railway development and renewable programmes, in addition to the normal plan allocation; (iii) foreign aid, as addition to the normal Railway Plan funds; (iv) whether expenditure on project-oriented lines could form part of the expenditure on the project itself; and (v) commercial exploitation of Railway lands/property.

Reports of the Railway Reforms Committee

An Expert Committee known as the Railway Reforms Committee was set up during May 1981 to examine, in depth, the working of the railways and to suggest, inter-alia, improvements to and modernisation of handling and hauling operations, operating techniques, planning and monitoring processes and technological inputs necessary for safe and smooth running of trains.

The Committee completed its assignment in 1985 and submitted 25 reports dealing with all aspects of Railway work, including resources for renewal and replacement, safety and accident prevention, transportation, railway track, bridges

and lands, railway reserve fund, production and maintenance of rolling stock, fare and freight structure, security, research and development, personnel, signalling and telecommunication, economics, metropolitan transport, materials management, dividend liability, health services, management information system, commercial affairs, resources mobilisation, railway regrouping, consultancy and export, coal and other bulk freight and traffic costing and Railway statistics.

Progress during the Sixth Plan (1980-85) Period

The Sixth Five Year Plan of the Railways was designed essentially as a 'Rehabilitation Plan'. This had become necessary because of inadequate outlays for replacement and renewals during the previous plans. The progress in the acquisition and condemnation of rolling stock is shown in Table 39.

TABLE 39. ROLLING STOCK: ACQUISITION AND CONDEMNATION

	Mid Term Plan Target	Acquisition	Condemnation
Locomotives	980	927	1,917*
Coaches	5,680	5,326	5,752
EMUs	390	707	54
Wagons	77,000	73,026	83,960

* including 31 diesel and 17 electric locomotives.
Source: *Indian Railways: Annual Report and Accounts*, 1984-85, p 7.

The Sixth Plan had envisaged 14,000 kms of track renewals which was lowered to 10,400 kms in the mid-term appraisal. However only 9,541 kms were renewed. The shortfall occurred mainly due to increase in the price of rail and other track components. About 1,499 kms of metre gauge routes were converted into broad gauge and 681 kms of doubling were completed. As against the target of electrification of 2,800 Route Kilometres (later reduced to 2,500 Route Kilometres), 1,522 Route Kilometres were electrified. About 900 kms of new lines were constructed.

The Sixth Plan had anticipated an originating traffic of about 309 million tonnes by 1984-85, which was reduced to 282 million tonnes at the time of the mid-term appraisal. The actual achievement was still lower at 264.8 million tonnes. As against the Sixth Plan outlay of Rs 5,100 crore, the actual expenditure during 1980-85 for the various plan programmes stood at Rs 6,585.44 crore.

Seventh Five Year Plan, 1985-90

The Seventh Plan document pointed out that the transport sector was burdened with overaged and obsolete assets and the backlog of replacements. About a quarter of the total length of the Railway track was overdue for renewal; more track kilometres would become overaged duirng the Plan period. Nearly eighty per cent of the equipment in the workshops and sheds required replacement. A large proportion of the rolling stock had outlived its economic life. It would not be possible to fully rectify the position during the course of a single plan period. A phased programme of replacements spread over two five year plan periods would have to be adopted for the purpose of planning transportation investments.

Therefore, the policy objectives were: (i) to replace the overaged assets in a phased manner and to ensure that in future, arrears in this regard were not allowed to build up; (ii) to modernise the transport infrastructure on the basis of new technologies; (iii) to ensure efficient maintenance of existing capacity; (iv) to maximise utilisation of existing assets; (v) to give priority to the completion of essential on-going works; (vi) to conserve energy, particularly diesel; (vii) to give special attention to improve accessibility to villages; (viii) to reduce transport effort by interrelated policy measures like dispersal of industries, balanced regional development and rational land use planning; (ix) to achieve integrated planning of mineral, industrial, energy and transportation development; (x) to promote introduction of container services, etc.; and (xi) to have a cost based price structure and to improve the financial viability of the undertakings.

According to the Seventh Plan, rail transport

capacity had lagged behind the requirements of the economy mainly on account of inadequate investments. The ageing of fixed assets of the system, and the capacity constraints experienced on critical routes, were some of the consequences of insufficient investments. In the Sixth Plan only 30 per cent of the total outlay was utilised for capacity generating projects, a substantially smaller share than in the previous plans.

The demand for rail freight traffic was estimated around 340 million tonnes (originating traffic) for 1989-90. Given the scarcity of resources and priority to be accorded to freight traffic, the Railways would have to contain the demand for passenger traffic with the aid of an appropriate pricing policy. For the Seventh Plan, therefore, increase in non-suburban passenger traffic was assumed at 2 per cent per annum only and most of it was for long distance travel, as the policy of shedding short-distance traffic was to be vigorously pursued.

Given the position of the railway system as it stood at the beginning of the Seventh Plan, the Plan document suggested: (i) replacement of overaged assets, (ii) modernization and technological up-gradation, (iii) development of rapid handling terminals, (iv) improved maintenance, (v) traction policy and (vi) review of on-going projects. A provision of Rs 12,334.30 crore was proposed in the Seventh Plan for Railways (Table 40).

TABLE 40. SEVENTH PLAN OUTLAY FOR RAILWAYS, 1985-90

(Rs Crore)

Rolling Stock	4,290.30
Workshop and Sheds)	1,200.00
Machinery and Plant)	
Track Renewals	2,500.00
Bridge Works	284.00
Lines Capacity Works	1,300.00
Signalling & Safety	400.00
Freight Operation's Information System	400.00
Electrification	830.00
Other Electrical Works	80.00
New Lines)	175.00
Staff Welfare)	
Staff Quarters)	
Users' Amenities)	
Other Specified Works)	
Railway Research	25.00
Inventories	100.00
Metropolitan Transport Projects	400.00
Total	12,334.30

Source: *Seventh Five Year Plan*, 1985-90, Vol II p 215

Some of the important features of the physical programme were: (i) to acquire 96,000 wagons (in terms of 4-wheelers), 6,970 passenger coaches, 950 electrical multiple units and 1,235 diesel/electrical locomotives; (ii) to undertake 19,000-21,000 kms of track renewal; (iii) electrification of 3,400 kms of track; and (iv) increase in the capacity for the manufacture of passenger coaches, EMUs and electric locomotives.

Reports of the Railway Convention Committee, 1985

First Report, April 1985

A new Convention Committee was set up in 1985. The first report examined the action taken by Government on the recommendations contained in the Ninth Report of the Railway Convention Committee, 1980, on cost of operation of railways (staff and fuel costs). The Railways had mentioned that most of the factors responsible for the high operating ratio, such as low rated bulk commodities moved (e.g. coal), increases in the wage bill due to additional dearness allowance, increase in the price of fuel, higher appropriation to the Depreciation Reserve Fund and large number of unremunerative branch lines, were beyond their control. The Committee pointed out that while the losses in respect of 144 unremunerative branch lines was Rs 60.80 crore, the working expenses of the Railways was Rs

4,661.47 crore in 1983-84. The operation of unremunerative branch lines had no substantial impact on the operating ratio. The capital invested on unremunerative branch lines was exempted from the payment of dividend to the General Revenues. Further, the Ministry of Railways had not critically examined the expenses on staff and traffic hauled, and the variations in the operating ratios in the different zones. The Railway Board should also look into the lacunae in the system and devise suitable measures for the losses suffered due to under-loading and pilferage of coal in transit and supply of better quality coal.

The Committee observed that the extent of utilisation of locomotives, as measured by their availability for traffic, number of hours worked, net tonne kilometres per engine hour, speed, engine kilometres per engine day, etc., showed that the performance levels of both diesel and electric locomotives in 1979-80 and 1980-81 were lower than in 1977-78 or even 1969-70. The deterioration was mainly on account of excessive en-route and terminal detentions, waiting for traffic, idling in sheds, etc.

Second Report, March 1986

The second report of the Railway Convention Committee, 1985 pertained to the action taken on cost of operation of Railways (materials). The Committee reiterated the need for regular monitoring of purchases at the Board level. As regards variation in price of proprietary items, it was found that in some cases the difference in prices was as high as 20 per cent for the same quantity, quality, source of purchase and date of purchase.

Third Report, February 1986

In the Third Report, the Committee gave its interim recommendations on the rate of dividend for 1986-87 and other ancillary matters. Pending submission of detailed memoranda by the Railways, the Committee recommended that the existing rates of dividend of 6 per cent on the capital invested up to 31-3-1980 (inclusive of 1.5 per cent on the capital invested up to 31-3-1964, less the capital qualifying for subsidy, for payment to States as grant in lieu of Passenger Fare Tax, and contribution for assisting the States for financing Safety Works) and 6.5 per cent on capital invested thereafter be adopted while framing the Revised Estimates for 1985-86 and the Budget Estimates for 1986-87. The concessions available to Railways in the matter of computing dividend and the subsidy to Railways from the General Revenues on the existing basis be also adopted provisionally while framing Revised Estimate for 1985-86 and Budget Estimate for 1986-87. The balances in the various Railway Reserve Funds (other than Development Fund) could carry the same rate of interest as the rate of dividend. Further, the rate of interest on the loans from General Revenues for Development Fund works could be the same as the dividend payable to the Central Government for the purposes of Revised Estimates for 1985-86 and Budget Estimates for 1986-87.

The Railway working for the year 1985-86 was likely to result into a deficit of about Rs 505 crore at the prevalent tariff of fares and freight, due to increase in the cost of inputs, etc. Ministry of Transport (Department of Railways) should effect steps for intensive utilisation of railway assets, and economy in avoidable expenditure, so as to maximise the efficiency and arrest the increase in working costs. The Committee confirmed provisionally that the contribution to the Depreciation Reserve Fund from Railways Revenue may be at Rs 920 crore in 1985-86 which might be stepped up to Rs 1,250 crore in 1986-87.

Sufficient appropriations to the Pension Fund should be made. The Railways should ensure early finalisation of actuarial estimation and make arrangements to find sufficient amounts to meet the future pensionary liabilities. The contribution to Pension Fund should be Rs 265 crore in 1985-86, enhanced to Rs 350 crore in 1986-87, subject to retrospective adjustments.

Fourth Report, April 1986

In the Fourth Report, the Committee examined the action taken by Government on the recommendations of Convention Committee (1980) regarding 'Track Expansion Programme of Railways'. The Railways had pointed to the paucity of resources and escalation of costs which

inhibited the timely execution of railway track expansion. The Convention Committee, 1985, recommended expeditious completion of on-going projects so that the physical targets could match the available resources.

The matter of dispersal and location of industries away from the four metropolitan cities of Bombay, Delhi, Calcutta and Madras was reiterated. Further, the Railway Board should continue the dialogue with the State Governments on the advisability of closing the totally uneconomic branch lines whose conversion may not be viable.

Fifth Report, May 1986

The Fifth Report pertained to Railway Electrification. A Central Organisation for Railway Electrification (CORE) was set up in 1981-82, to accelerate the pace of electrification, with headquarters at Allahabad and five field units at Vadodra, Mathura, Kota, Nagpur and Ranchi. CORE was expected to ensure bulk procurement of material and standardisation of materials and equipment for all the railway electrification projects, but was unable to bring about good results. The Committee, recommended the disbandment of CORE and its integration in the Railway Board to ensure effective and expeditious management of all Railway electrification projects. A member-in-charge of Electrical Engineering should be created in the Railway Board. The weak infrastructural set-up for implementation of the electrification programme envisaged in the Seventh Plan period, was likely to result in slippages.

Against the Sixth Five Year Plan target of 2,800 rkm to be energised, the achievement was 1,522 rkm (i.e. 54.39 per cent) which included works taken up from 1970-71 onwards. The spill-over of the Sixth Plan to the Seventh Plan was of 1,356 rkm. Adequate funds were provided in the first year of the Seventh Plan and the Railways should achieve the target of electrifying 3,400 kms in the Plan period. The cost of hauling traffic per 1,000 GKM was Rs 126.54 in respect of steam traffic, and Rs 13.84 in respect of electrified traffic movements. The process of phasing out steam locomotives should therefore be accelerated. As an immediate measure, coexistence of electric and steam tractions side by side, particularly in marshalling yards and trunk routes should be totally stopped.

The indigenous capacity for solid core insulators and telecom cables was short of the requirements causing imports. For 132/25 KV power transformers, 132/25 KV circuit breakers and 25 KV interrupters, though the indigenous capacity was adequate, it was proposed to procure these items under the World Bank loan with a view to updating the technology. While appreciating the efforts being made not only to indigenise the components required, but also to update their technology, the Committee recommended standardisation of components by the Railways. The Department of Railways should ensure that for electrification of about 3,400 rkm of trunk lines during the Seventh Plan, matching requirements of electric locomotives was also planned at the Chittaranjan Locomotive Works and Bharat Heavy Electricals Ltd. In view of the national importance of Railways, the Committee recommended that exemption from customs duty, as admissible under the existing rules, should be granted to the Railways for railway electrification.

There was no control over the electricity tariffs for railway traction. The State Electricity Boards fixed their tariffs without any consideration for the Railways. The tariffs varied from 55.49 to 87.79 paise per unit in 1984-85. The Railways were a public utility of national importance and a bulk consumer of electricity. Instead of enjoying any benefits on these two counts, they were made to pay a rate which was in some cases, even higher than industrial tariffs. The entire issue should be re-examined by the Ministry of Energy (Department of Power) in a national perspective keeping in view the increasing share of the Centre in electric generation and the need for Railways for electric traction. If need be, the Electric (Supply) Act, 1948 may be suitably amended to empower the central authority or the Government of India to regulate the tariffs for railway traction at least on a uniform pattern throughout the country. The State Governments should be persuaded to agree to such amendment in the interest of speedier

electrification of railway routes in the larger national interest, as well as in the interest of development of the States themselves.

Sixth Report, November 1986

The Railway Convention Committee 1985 submitted its Sixth Report on Resource Mobilisation, namely, Public Borrowing for augmenting Railway Plan Finance in November 1986. The Railways had decided, in consultation with the Ministry of Finance, to resort to public borrowings. For this purpose it was proposed to create a new company under the Ministry of Railways called the Indian Railway Finance Corporation Ltd. For the financial year, 1986-87, the Corporation was to raise Rs 250 crore through market borrowings. The bonds were to have a maturity period of ten to twenty years and carry a rate of interest (tax-free) of ten per cent per annum. The first trench of borrowings was proposed to be Rs 100 crore. It was proposed that the money raised through the bonds would be invested by the Corporation in assets usable by the Railways; these assets would then be hired out to Railways on recovery of charges that would cover (i) interest payable by the Corporation on the bonds (10 per cent) (ii) its service charges (1 per cent) and (iii) also annuity towards repayment of the bonds. The Corporation was to have some equity capital equivalent to $1/10^{th}$ of the proposed amount of the bonds, to be made available from General Revenues.

The Convention Committee pointed out that the Railways were paying dividend at the rate of 6 per cent on the capital invested up to March 31, 1980 and 6.5 per cent on the capital invested thereafter. At the end of 1985-86, the Railways had defaulted payment of dividend to the extent of Rs 526.36 crore to the General Revenues; this outstanding amount was termed Deferred Dividend Liability. In addition, an amount of Rs 336.36 crore was due to be paid for loan taken for development fund works. The total indebtedness of the Railways to the General Revenues was, therefore, Rs 863.22 crore at the end of 1985-86. The Committee therefore had their apprehensions as to the Railways borrowing funds from the market at 11 per cent as against 6 or 6.5 per cent which they paid to the General Revenues.

The Committee suggested that instead of creating a separate corporation for the Railways, a bigger corporation under the Ministry of Finance should be established to deal with the bond issue or market borrowings of all Government Corporations and Companies. Such a step would not only increase the efficiency and expertise in mobilising the public funds but would also ensure uniformity of approach, coordination and the methodology of raising public borrowings.

Government of India however went ahead with the formation of the Indian Railway Finance Corporation with effect from December 1986. The Corporation raised funds amounting to Rs 560 crore against the first issue of bonds floated in March 1987. The rate of interest for this issue was 10 per cent for Rs 250 crore and 9 per cent for the balance of Rs 310 crore. The funds that were to be secured against the second issue of bonds floated in January 1988 carried the rate of interest at 9 per cent.

Subsequent Reports

The 1985 Railway Convention Committee submitted a number of other reports before the expiry of the Lok Sabha in October 1989. In their Seventh Report, the Committee allowed the rates of dividend to be paid to the General Revenues and the contributions to the various funds of the Railways to continue in 1987-88 as in the previous years, pending a final memorandum from the Railways for the entire period of the Seventh Plan. The Contribution to the Depreciation Reserve Fund was recommended to be raised to Rs 1,350 crore for 1987-88. In their Eighth Report, the Committee referred to their Sixth Report in which they had expressed apprehension of the Railways resorting to market borrowings and expressed their feeling that it would have been appropriate for the Government to have taken prior or simultaneous concurrence of the Committee before making an announcement of the Corporation. In their Tenth Report, the Committee recommended the continuation of the rates of dividend to be paid to the General Revenues in 1988-89 at the same levels as in the previous years. They recommended an increase in the

contribution to the Depreciation Reserve Fund to Rs 1,500 crore and suitable enhancement of the appropriation to the Pension Fund from Rs 450 crore in 1987-88. The Committee also referred to the funds raised by the Indian Railway Finance Corporation through public borrowings to supplement the Railways' investment plans. If the buoyancy of railway earnings permitted public borrowings at higher rates of interest than that paid to the General Revenues, there was sufficient justification to compensate the General Revenues by providing higher rates of interest. Government should give careful thought to this question. In their Fourteenth Report, submitted in August 1989, the Committee expressed their unhappiness that passenger coaches had increased by only 125 per cent since 1951 while passenger originating traffic had increased by 195 per cent up to 1987-88. There was an unsatisfied demand which the Railways should plan to overcome. Similarly, in the case of goods traffic, there were 23,395 over-aged wagons as on March 31, 1985. A further 32,183 wagons would be ready for replacement by the end of the Seventh Plan. The Railways should make an earnest effort to ensure that the backlog of replacement of these over-aged wagons was wiped out by the end of the Seventh Plan.

Progress during the Seventh Plan

The Seventh Plan had envisaged that by 1989-90, the Railways would carry 340 million tonnes of freight traffic. By 1987-88, the traffic stood at 319 million tonnes. As regards passenger traffic, there was an increase of 459 million persons during the three years ending 1987-88, that is, at 4 per cent per annum as against the Seventh Plan proposal to contain increase in passenger traffic to about 2 per cent through appropriate pricing policies. The rolling stock was increased for diesel and electric locomotives by 393 and 183 respectively between 1984-85 and 1987-88, while the number of steam engines was reduced by over 1,500. The Railways were facing a shortage of motive power for freight operations, largely due to delay in stepping up the manufacturing capacity of electric locomotives at Chittaranjan, further compounded by the delay in initiating technological up-gradation of the existing locomotives, both diesel and electric. The number of wagons had declined from 365 thousands in 1984-85 to 347 thousands in 1987-88. A large number of wagons had to be stabled due to non-availability of components like wheel sets.

Statements pertaining to the development of Railways during the period 1950-51 to 1989-90 are given at appendix A.

Issues and Options

On March 1, 1990, the Ministry of Railways published a Status Paper on Indian Railways subtitled Some Issues and Options. It is reproduced in an Appendix B. It will be seen that the issues and options before the Government of India, the Indian Railways, and the Indian public have remained more or less the same as they were 40 years ago.

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APPENDIX A

STATEMENT 1. INDIAN RAILWAYS: PHYSICAL ACHIEVEMENTS

Year	Route Kilometres	Locomotives			Coaching Vehicles	Wagons	Volume of Traffic			
		Steam	Diesel	Electric			Passengers Originating (million)	Passenger Kilometres	Tonnes Originating (million)	Net Tonne Kilometres
1	2	3	4	5	6	7	8	9	10	11
1950-51	53,596	8,120	17	72	19,521	205,596	1,284	66,517	93	44,117
1951-52	54,019	8,322	17	72	20,505	213,283	1,208	63,072	98	47,395
1952-53	54,270	8,333	28	72	20,850	222,640	1,189	59,653	99	47,299
1953-54	54,479	8,397	28	72	21,640	227,294	1,196	59,908	100	48,288
1954-55	54,962	8,554	42	72	22,164	231,973	1,236	61,664	108	52,473
1955-56	55,011	9,026	67	79	23,288	240,756	1,275	62,400	116	59,576
1956-57	55,186	9,445	77	79	23,437	267,555	1,360	67,396	126	65,711
1957-58	55,461	9,801	96	89	24,104	289,758	1,410	69,271	135	74,580
1958-59	55,741	10,023	171	92	25,314	301,696	1,422	68,016	137	76,472
1959-60	55,953	10,148	181	91	26,507	304,133	1,509	79,809	147	82,006
1960-61	56,247	10,312	181	131	28,439	307,907	1,594	77,665	156	87,680
1961-62	56,374	10,484	228	208	28,678	319,340	1,692	81,885	161	91,218
1962-63	56,727	10,671	349	217	29,913	331,305	1,750	83,991	179	100,693
1963-64	56,923	10,810	486	245	30,531	344,465	1,872	88,588	191	106,841
1964-65	57,611	10,711	621	289	31,260	358,420	1,992	93,489	194	106,570
1965-66	58,399	10,613	727	403	31,477	370,019	2,082	96,294	203	116,936
1966-67	58,465	10,428	776	422	31,673	375,524	2,192	102,145	202	116,607
1967-68	58,877	10,226	892	479	32,302	377,693	2,257	107,163	197	118,860
1968-69	59,553	10,046	996	513	32,731	381,852	2,213	106,940	204	125,140
1969-70	59,684	9,700	1,091	552	34,811	383,891	2,338	113,382	208	128,248
1970-71	59,790	9,387	1,169	602	35,145	383,990	2,431	118,120	197	127,358
1971-72	60,067	9,222	1,288	639	35,561	382,725	2,536	125,329	198	133,265
1972-73	60,149	8,963	1,431	668	35,836	384,283	2,653	133,527	201	136,531
1973-74	60,234	8,847	1,610	669	36,432	388,366	2,654	135,664	185	122,354
1974-75	60,301	8,682	1,702	729	36,554	390,968	2,429	126,254	197	134,304
1975-76	60,316	8,496	1,803	796	36,821	395,250	2,945	148,761	223	148,219
1976-77	60,666	8,345	1,903	847	36,788	397,773	3,330	163,836	239	156,756
1977-78	60,693	8,215	2,025	901	37,228	399,971	3,504	176,635	237	162,687
1978-79	60,777	8,082	2,126	945	37,643	401,885	3,719	192,946	223	154,824
1979-80	60,933	7,856	2,243	974	38,166	405,183	3,505	198,657	218	155,995
1980-81	61,240	7,469	2,403	1,036	38,333	400,946	3,613	208,558	220	158,474
1981-82	61,250	7,245	2,520	1,104	37,960	392,062	3,704	220,787	246	174,202
1982-83	61,385	6,292	2,638	1,157	37,541	383,431	3,655	226,930	256	177,767
1983-84	61,460	6,217	2,800	1,194	37,931	374,757	3,325	222,935	258	178,446
1984-85	61,850	5,970	2,905	1,253	38,583	365,390	3,333	226,582	265	182,161
1985-86	61,836	5,571	3,046	1,302	38,277	359,617	3,433	240,614	286	205,904
1986-87	61,813	4,950	3,182	1,366	37,988	354,041	3,594	256,535	307	223,097
1987-88	61,976	4,427	3,298	1,436	37,749	346,844	3,792	269,389	319	231,241
1988-89(RE)	61,985	3,826	3,454	1,533			3,500	263,731	330	230,131
1989-90(BE)										

Source: *Indian Railways*, Annual Report and Accounts (Various Years)

STATEMENT 2. INDIAN RAILWAYS: FINANCIAL POSITION

Year	Capital at Charge	Gross Revenue	Expenditure	Net Revenue Receipts	Percentage of Col(5) to Col (2)	Operating Ratio Col (4) as (%) to Col (3)	Dividend to General Revenues*	Surplus or Deficit (-)
		- Rs Crore -					- Rs Crore -	
1	2	3	4	5	6	7	8	9
1950-51	827	263	216	47	5.75	82.13	32.51	15.05
1951-52	850	291	229	62	7.26	78.69	33.41	28.34
1952-53	857	271	224	47	5.50	82.66	33.99	13.19
1953-54	869	275	238	37	4.25	86.55	34.36	2.56
1954-55	902	287	243	44	4.89	84.67	34.96	9.10
1955-56	969	316	266	50	5.20	84.18	36.12	14.22
1956-57	1,072	348	290	58	5.45	83.33	38.16	20.22
1957-58	1,222	380	322	58	4.73	84.74	44.40	13.38
1958-59	1,357	394	335	59	4.37	85.03	50.39	8.93
1959-60	1,432	424	349	75	5.20	82.31	54.43	20.13
1960-61	1,521	460	373	87	5.77	81.09	55.86	32.01
1961-62	1,683	503	403	100	5.92	80.12	75.35	24.40
1962-63	1,897	568	444	124	6.50	78.17	81.26	42.06
1963-64	2,160	633	488	145	6.72	77.09	95.95	49.24
1964-65	2,435	661	543	118	4.85	82.15	104.93	13.18
1965-66	2,680	734	599	135	5.03	81.61	116.28	18.56
1966-67	2,842	769	655	114	4.02	85.18	132.35	-18.27
1967-68	2,978	818	708	110	3.69	86.55	141.53	-31.53
1968-69	3,101	899	756	143	4.60	84.09	150.67	-7.86
1969-70	3,196	952	805	147	4.59	84.56	156.39	-9.83
1970-71	3,330	1,007	862	145	4.35	85.60	164.57	-19.84
1971-72	3,519	1,097	928	169	4.80	84.59	151.24	17.84
1972-73	3,726	1,163	998	165	4.41	85.81	161.51	2.92
1973-74	3,893	1,138	1,083	55	1.42	95.17	170.92	-115.51
1974-75	4,106	1,415	1,342	73	1.79	94.84	187.47	-113.83
1975-76	4,355	1,776	1,638	137	3.15	92.23	198.14	-61.11
1976-77	4,534	2,046	1,749	296	6.54	85.48	209.05	87.24
1977-78	4,797	2,134	1,781	353	7.35	83.46	226.56	126.23
1978-79	5,024	2,161	1,900	261	5.19	87.92	224.16	36.66
1979-80	5,485	2,404	2,177	227	4.14	90.56	293.53	-66.24
1980-81	6,096	2,703	2,576	127	2.09	95.30	325.36	-197.87
1981-82	6,698	3,628	3,225	403	6.02	88.89	356.47	46.59
1982-83	7,251	4,483	3,929	554	7.64	87.64	435.98	118.31
1983-84	7,568	5,089	4,710	379	5.01	92.55	423.70	-44.75
1984-85	8,286	5,469	5,199	270	3.26	95.06	465.69	-195.59
1985-86	9,078	6,591	5,905	686	7.56	89.59	507.04	178.83
1986-87	10,373	7,683	7,002	681	6.56	91.14	578.85	101.99
1987-88	11,622	8,679	7,956	723	6.22	91.67	636.86	84.29
1988-89(RE)	12,912	9,639	8,892	747	5.80	93.00	719.00	28.00
1989-90(BE)	14,518	10,923	9,978	945	6.50	92.10	805.00	140.00

* Inclusive of payment to States in Lieu of Passenger Tax

Sources: (i) *Indian Railways*, Annual Report and Accounts, (Various Years); (ii) For 1988-89 and 1989-90, from *'Budget of the Railway Revenue and Expenditure of the Central Government for 1989-90*, Railway Board, Ministry of Railways. (The 1988-1990 figures do not include 'Miscellaneous Receipts and Expenditure data.)

STATEMENT 3. DEPRECIATION RESERVE FUND

(Rs Lakh)

Year	Appropriation to Fund From				Withdrawal from Fund	Net Accretion to Fund During the Year	Closing Balance
	Revenue	Capital	Interest on Balance	Total			
1	2	3	4	5	6	7	8
1951-52	30,00	21	3,58	33,79	35,87	-2,08	122,02
1952-53	30,00	33	4,09	34,42	40,89	-6,47	116,36
1953-54	30,00	36	3,61	33,97	38,02	-4,05	122,79
1954-55	30,00	37	3,35	33,72	45,82	-12,10	100,69
1955-56	45,00	41	3,26	48,67	45,89	2,78	103,47
1956-57	45,00	63	3,27	48,90	43,68	5,22	103,14
1957-58	45,00	1,23	3,15	49,38	63,62	-14,24	88,89
1958-59	45,00	87	2,53	48,40	80,72	-32,32	56,70
1959-60	45,00	85	2,11	47,96	68,36	-20,40	37,30
1960-61	45,00	79	85	46,64	64,04	-17,40	19,79
1961-62	65,00	1,77	86	67,63	58,23	9,40	29,19
1962-63	67,00	1,09	93	69,02	75,37	-6,35	22,84
1963-64	80,00	1,54	1,03	82,57	72,40	10,18	32,97
1964-65	83,00	1,25	1,44	85,69	75,39	10,30	43,27
1965-66	85,00	1,64	1,85	88,49	78,91	9,58	52,85
1966-67	100,00	2,01	2,60	104,61	79,69	24,92	77,76
1967-68	95,00	2,18	3,15	100,33	93,82	6,51	79,74
1968-69	95,00	2,40	3,69	101,09	80,39	20,70	98,17
1969-70	95,00	2,48	4,86	102,34	73,78	28,56	126,38
1970-71	100,00	2,53	6,01	108,54	90,68	17,86	144,47
1971-72	105,00	2,55	6,81	114,36	90,87	23,49	167,61
1972-73	110,00	2,58	7,95	120,53	113,60	6,93	174,16
1973-74	115,00	2,60	8,42	126,02	125,14	88	175,74
1974-75	115,00	2,70	9,18	126,88	122,52	14,36	189,98
1975-76	115,00	2,85	10,13	127,98	124,57	3,41	197,93
1976-77	135,00	2,87	10,88	148,75	125,22	25,53	218,67
1977-78	140,00	2,93	12,69	155,62	117,64	37,93	265,15
1978-79	145,00	2,80	14,77	162,57	136,19	26,38	282,87
1979-80	200,00	2,82	16,79	219,61	187,45	32,16	313,07
1980-81	220,00	3,20	17,44	240,64	278,63	-37,99	275,59
1981-82	350,00	3,30	12,61	365,91	504,31	-138,40	137,19
1982-83	556,00	3,43	5,79	565,22	655,58	-90,36	46,83
1983-84	850,00	3,73	5,32	859,05	783,78	75,27	122,10
1984-85	850,00	4,48	9,79	864,27	797,54	66,73	188,83
1985-86	920,00	6,38	10,48	936,86	981,48	-44,62	144,21
1986-87	1250,00	9,32	12,11	1271,43	1175,29	196,14	240,35
1987-88	1350,00	11,97	21,99	1383,96	1172,27	211,69	452,04
1988-89(RE)	1500,00	12,61	31,27	1543,88	1454,36	89,52	541,56
1989-90(BE)	1715,00	13,14	42,97	1771,11	1489,00	282,11	823,67

Source: *Explanatory Memorandum of the Railway Budget, 1989-90*, Railway Board, Ministry of Railways, Government of India. Pp. 140-142.

STATEMENT 4. RAILWAY PENSION FUND

(Rs Lakh)

Year	Appropriation to Fund					Withdrawn from Fund	Net Accretion to Fund	Closing Balance
	By Transfer from SRPF (Contributory)	Revenue	Capital	Interest on Balance	Total			
1	2	3	4	5	6	7	8	9
1964-65	2,97	11,60	40	27	15,24	2,21	13,03	13,82
1965-66	29	12,10	40	76	13,35	2,25	11,00	25,17
1966-67	6,13	13,60	40	1,40	21,53	3,77	17,76	44,09
1967-68	53	10,00	30	2,01	12,84	5,34	7,50	52,37
1968-69	4,73	10,00	30	2,65	17,68	6,37	11,31	67,90
1969-70	2,13	10,00	30	3,28	15,71	7,69	8,02	80,02
1970-71	87	15,00	50	3,87	20,24	8,65	11,59	92,86
1971-72	37	11,50	50	4,40	16,77	10,40	6,37	100,33
1972-73	4,95	16,00	72	5,44	27,11	10,46	16,65	125,06
1973-74	1,29	16,00	60	6,54	24,43	12,33	12,10	142,21
1974-75	3,71	16,00	60	7,80	28,11	18,98	9,13	159,94
1975-76	5,23	24,50	80	9,03	39,56	30,01	9,55	179,77
1976-77	3,81	35,00	90	10,24	49,95	40,25	9,70	199,71
1977-78	4,64	40,00	1,00	11,40	57,04	50,35	6,69	216,34
1978-79	6,39	50,00	1,00	13,02	70,41	62,96	7,45	241,52
1979-80	12,55	65,00	1,30	15,92	94,77	75,35	19,42	29,17
1980-81	11,76	85,00	1,50	19,40	117,66	105,57	12,09	333,75
1981-82	8,18	100,00	1,80	21,72	131,70	124,93	6,77	358,99
1982-83	9,85	150,00	2,02	24,64	186,51	180,73	5,78	394,32
1983-84	14,37	185,00	3,10	26,79	229,26	223,80	5,46	428,25
1984-85	8,26	225,00	4,00	27,63	264,89	278,15	-13,26	432,26
1985-86	9,89	265,00	5,00	27,70	307,59	352,58	-44,99	411,82
1986-87	6,19	354,00	5,98	24,84	391,01	464,66	-73,65	363,89
1987-88	41,88	454,60	7,00	19,04	522,52	711,04	-188,52	208,02
1988-89(RE)	7,11	555,00	8,00	11,18	581,29	650,00	-68,71	143,30
1989-90(BE)	--	705,00	9,00	9,77	723,77	700,00	23,77	167,07

Source: *Explanatory Memorandam on the Railway Budget, 1989-90*, Railway Board, Ministry of Railways, Government of India, p.152.

STATEMENT 5. REVENUE RESERVE FUND

(Rs Lakh)

Year	Appropriation to Fund	Withdrawal from Fund	Net Accretion to Fund During Year	Closing Balance
1	2	3	4	5
1950-51	5,40	-1	5,41	13,58
1951-52	19,12	-18	19,30	33,72
1952-53	2,26	-4	2,30	36,05
1953-54	1,13		1,13	37,18
1954-55	1,18		1,18	38,36
1955-56	8,51	-2	8,53	46,89
1956-57	1,52		1,52	48,07
1957-58	1,61		1,61	49,68
1958-59	1,09		1,09	49,37
1959-60	1,90		1,90	51,60
1960-61	1,84		1,84	53,44
1961-62	1,93		1,93	55,37
1962-63	2,02		2,02	57,39
1963-64	1,79		1,79	58,57
1964-65	2,25		2,25	60,82
1965-66	2,39		2,39	63,20
1966-67	2,16	20,66	-18,50	44,70
1967-68	1,18	33,68	-32,50	12,20
1968-69	33	9,04	-8,71	3,49
1969-70	8,89	10,16	-1,18	2,31
1970-71	25,13	23,20	1,93	4,24
1971-72	9,02	12,95	-3,93	31
1972-73	2		2	33
1973-74	99,81	99,72	9	42
1974-75	184,49	168,33	16,16	16,58
1975-76	155,51	170,02	-14,51	2,07
1976-77	214,05	164,05	50,00	52,07
1977-78	166,27	180,55	-14,28	37,79
1978-79	1		1	33
1979-80	3		3	36
1980-81	5		5	41
1981-82	2		2	43
1982-83	2		2	45
1983-84	2		2	47
1984-85	2		2	49
1985-86	12		12	61
1986-87	2		2	63
1987-88	2		2	56*
1988-89(RE)	4		4	60
1989-90(BE)	4		4	64

* Excludes Rs 9 lakh TWFA

Source: *Explanatory Memorandum on the Railway Budget, 1989-90*, Railway Board, Ministry of Railways, Government of India, Pp. 144-147.

STATEMENT 6. DEVELOPMENT FUND

(Rs Lakh)

Year	Appropriation to Fund				Withdrawal from Fund			Net Accretion to Fund	Closing Balance	Loan Outstanding to General Revenues
	Revenue Surplus, etc.	Loan from General Revenues	Interest on Balances	Total	For Works	Interest on Loan	Total			
1	2	3	4	5	6	7	8	9	10	11
1950-51	10,00		52	10,52	5,35		5,35	5,17	19,44	
1951-52	10,00		65	10,65	7,70		7,70	2,95	22,48	
1952-53	12,00		76	12,76	8,10		8,10	4,66	27,14	
1953-54	2,65		73	3,29	9,81		9,81	-6,52	20,62	
1954-55	9,10		60	9,70	12,78		12,78	-3,08	17,54	
1955-56	7,08		49	7,57	12,14		12,14	-4,57	12,97	
1956-57	20,22		43	20,65	19,84		19,84	81	13,75	
1957-58	13,38		25	13,63	25,53		25,53	-11,90	15	
1958-59	8,93	10,98	-80	19,11	27,87	19	28,06	-8,95	1,69	10,98
1959-60	20,12	14,85	15	35,12	24,89	65	25,54	9,58	8,91	25,83
1960-61	32,01	3,58	48	36,07	23,32	98	24,30	11,77	19,13	29,41
1961-62	24,40		84	25,24	21,14	53	21,67	3,57	10,49	
1962-63	42,06		70	42,76	23,17		23,17	19,59	29,68	
1963-64	49,24		1,54	50,78	29,94		29,94	20,84	52,63	
1964-65	13,18		1,72	14,90	28,25		28,25	-13,35	38,99	
1965-66	18,56		1,34	19,90	28,91		28,91	-9,01	30,09	
1966-67			68	68	27,95		27,95	-27,27	3,37	
1967-68		11,24	19	11,43	19,15	24	19,39	-7,96	46	11,24
1968-69		14,06	14	14,20	16,59	80	17,39	-3,19	1,26	25,30
1969-70		18,14	9	18,23	17,08	1,52	18,60	-37	1,18	43,45
1970-71		21,58	9	21,67	18,23	2,46	20,69	98	1,34	65,03
1971-72	9,21	21,62	29	31,12	20,82	3,52	24,34	6,78	12	86,65
1972-73	2,92	15,72	32	18,96	21,49	3,71	25,20	-6,24	1,96	85,65
1973-74		22,65	8	22,73	19,39	4,69	24,08	-1,35	31	108,30
1974-75		21,90	3	21,93	16,17	6,00	22,17	-24	26	130,20
1975-76		22,34	8	22,42	16,32	7,33	23,65	-1,23	24	152,54
1976-77	25,86		22	26,08	17,62	8,24	25,86	22	14	152,54
1977-78	34,61		23	34,84	26,22	8,39	34,61	23	24	152,54
1978-79	34,68	5,37	41	40,46	25,94	8,74	34,68	5,78	6,06	157,91
1979-80		31,59	35	31,94	27,82	9,25	37,07	-5,13	90	189,50
1980-81		34,66	7	34,73	29,77	11,24	41,01	-6,28	-5,19	224,16
1981-82	44,07		19	44,26	27,23	11,84	39,07	5,19		224,16
1982-83	46,36		43	46,79	32,74	14,05	46,79			224,16
1983-84		49,59		49,59	32,65	16,23	48,88	71	71	273,75
1984-85		62,61	5	62,66	37,78	21,21	58,99	3,67	4,38	336,36
1985-86	62,11		16	62,27	42,10	24,39	66,49	-4,22	16	336,36
1986-87	101,99	11,80	1	113,80	84,03	29,93	113,96	-16		348,16
1987-88	84,29	53,79		138,08	103,50	34,58	138,08			401,95
1988-89(RE)	28,00	125,19		153,19	110,00	43,19	153,19			527,14
1989-90(BE)	140,00	51,40		191,40	140,00	51,40	191,40			578,54

Source: *Explanatory Memorandum on the Railway Budget, 1989-90*, Railway Board, Ministry of Railways, Government of India. Pp. 148-151

APPENDIX B

STATUS PAPER ON INDIAN RAILWAYS: SOME ISSUES AND OPTIONS

I. Role and Performance of the Railways

1. Indian Railways, as a part of the national infrastructure, have made a tremendous contribution to the national economy and in the emergence of modern India. They have given a fillip to industrial growth by interconnecting the primary production areas, industrial centres and markets. They have played a vital role in the national integration and defence of the country. Railways are the principal mode of transport for lower and middle income groups for traversing medium and long distances. Railways have played significant role in the Green Revolution by bringing in the inputs for agriculture, and then distribution of the agricultural produce. In fact, 22 per cent of the Railways' traffic throughput is accounted for by fertilizer and foodgrains alone. Railways are the bulk carriers of commodities like coal, raw materials, steel, mineral oils etc.[1] The land use by the Railways is the most economical. Railways are about six times more energy efficient than road. The geographical diversity of the country presents the Railways with enormous opportunities and challenges.

2. There has been phenomenal growth in the traffic carried by the Railways since Independence. Between 1950-51 and 1988-89, the passenger traffic went up four-fold and the freight traffic over five-fold. This growth of traffic has been catered to with the minimum of inputs. Owing to resource constraint, there has been only a small addition to the network. More and more traffic had to be squeezed through the existing routes, and today nearly 11,500 km of route are already saturated. The comparative indices of growth of traffic and capital inputs are given in Table 1 below:

TABLE 1. INDICES OF GROWTH OF TRAFFIC AND CAPITAL INPUTS[2]

	Traffic Output Indices		Capital Input Indices			
	Passenger km (PKM)	Net tonne km. (NTKM)	Coaches	Wagons	Tractive effort of locomotives	Running Track
1950-51	100	100	100	100	100	100
1988-89	396	522	212	265	197	131

3. In the face of limited investments in assets arising out of limitation of resources, much higher levels of traffic have been catered to through a quantum jump in the productivity of assets, as would be seen from Table II below, as well as from the fact that the total staff strength of Indian Railways has gone up by only 78 per cent in these 38 years:

TABLE II

Year	Coach Utilisation (Passenger km. per 1000 seating capacity) (BG) (million)	Wagon utilisation (NTKM per wagon day) (BG)	Track utilisation (million NTKM per route KM) (BG)
1950-51	N.A.	710	1.5
1960-61	61.2	998	2.8
1970-71	71.2	908	3.6
1980-81	105.2	986	4.3
1988-89	118.4	1453	6.1

4. It has been the effort that the benefits of this improved performance are passed on in a good measure to the people and to the country's economy. The railways have always exercised the utmost restraint in raising fare and freight tariffs. Whereas the index of input costs (with 1970-71 as the base year) has risen nearly eight-fold the freight rates have gone up only about six times and passenger fares less than four times. In spite of the policy of tariff restraint, Indian Railways have maintained their record of financial viability which, in the family of world Railways, is a rare achievement.

5. These have been some of the achievements of the Railways. But, then there have also been neglects in certain important areas because of resource constraint. Adequate attention could not be paid to passenger traffic. Some trains are so over-crowded that people have to travel on roof-tops. A large no of railway assets had to be allowed to continue on the system beyond their economic life. This led to expensive maintenance and more equipment failures. To give examples, the arrears of track renewal at the beginning of the VII Plan were about 19,500 km. which could only be brought down to about 12,000 km. by the end of the Plan. Besides, there are as many as 5,600 over-aged coaches still in service. We are also having to continue around 3,400 steam locos in spite of the fact that steam traction is out-dated and highly fuel-inefficient. Their phasing-out is likely to go up to the turn of the century.

II. Expectations from Railways

6. India lives in its seven lakh villages where the main source of livelihood is agriculture and agro-based industry. The people in these far-flung areas expect the Railways to play their role in enabling them to come on to the main stream of national development. People want more railway lines to

1. Please see Table A for the commodity wise breakdown of freight movement in 1988-89
2. Tables B and C give details of traffic throughput and asset base for some representative years.

promote faster economic development. People want conversion of Metre Gauge and Narrow Gauge lines to Broad Gauge, in the hope of getting improved facilities and quicker and more direct travel to various parts of the country. People want more passenger trains so that the present state of overcrowding and inconvenience is mitigated. Safety of rail travel, of course, is the primary and all pervading expectation of everyone. Besides, people want better amenities at stations and in trains for greater comfort. People travelling over long distances want faster speed. In the matter of freight, a rail-user expects an efficient service, free from delays, damages and pilferages. The country and the user also want the Railways to be financially viable, while at the same time maintaining reasonable fare and freight rates. At the individual and group levels, these expectations give rise to demands which, if they were to be fulfilled in toto, would involve investments that the country cannot afford. There has to be a judicious balance in the apportionment of resources to the various sectors.

III Future Traffic Projections

7. While the Railways are finding it difficult, even at present, to meet the demands of traffic on one hand, and the popular expectation on the other, the traffic projections for the turn of the century, on the basis of the prevailing tempo of agricultural and industrial growth are almost double the level reached at the beginning of the VII Plan and 60 per cent above what they are today. Accordingly, the objective is to build up capacity to carry by rail by 2000 A.D.: 370-400 billion net tonne km. freight traffic, 310-330 billion passenger km. (BPKM) non-suburban passenger traffic and 105-110 BPKM suburban passenger traffic. If rail capacity is not to become a constraint to economic growth, expansion of the rail network by construction of new lines and also of additional lines on existing routes would have to be speeded up. Added to this would be the requirement of additional rolling stock, electrification of selected routes, more signalling and telecommunication, upgradation of track structure and provision of additional terminal facilities for passenger and freight traffic. Adequate funding arrangements would be required for provision of proper amenities for passengers and other rail-users and railway staff. Side by side, the on-going exercise of clearing the huge back-log of replacement of over-aged assets has also to continue. It has been estimated that the size of the VIII and IX Plans for the Railways would have to be not less than Rs. 36,500 crore and Rs. 50,000 crore, respectively (at current prices), if Railways are to meet the traffic targets, both passenger and freight, for the year 2000 A.D.

Some Issues and Options

8. In the above background of Railways' role in relation to projected traffic growth and the expectations of the people, this paper concentrates on six basic issues: (a) technology upgradation; (b) expansion of network; (c) financial arrangements; (d) capital restructuring; (e) tariff policy; and (f) passenger service and freight movements.

IV (a). Technology Upgradation

9. One method of meeting the increase in demand of traffic is simply to multiply the existing assets in the same proportion. But in a resource-limit situation, significant savings in investments and in cost of operations, along with improvement in quality of service, can be realised by inducting modern technology. Railway Plan, therefore, include a quantum jump in technology in various spheres of working. Measures are on hand for improving the reliability and speed capability of track structure through the induction of heavier rails of higher tensile strength and laying them in the form of long welded rails with the use of prestressed concrete sleepers at closer spacing and with increased ballast cushion. In signalling, progressive introduction of centralised panel interlocking and development of train radio communication and solid state interlocking devices are among the various programme under way. The existing technology of both electric and diesel locomotives is almost three decades old. There is need for introduction of higher horse-power electric and diesel locomotives which are also more fuel-efficient. Passenger coaches of lighter weight with increased seating capacity and potential of higher speeds are envisaged. In the matter of wagons, bogie freight stock with better pay-load to tare weight ratio and improved bogie design, which would cause less wear and tear both on the wheel and the rail, are under development. Any new technology has also to take into account that the adverse impact on environment is minimum. This is equally applicable to the construction of new railway lines, as also to all spheres of operations. For improvement in the Management Information System, as well as customer services, selective use of computers with matching improvements in the connected communication net-work has been planned.

10. In view of the rapid growth of technology, it is necessary for us to build a technology base of our own, capable of not only selecting and assimilating the latest and most appropriate technologies but also of developing them further, continually, so as to achieve near self-sufficiency in technological know how by the turn of the century. With this in view, IR has drawn up a perspective plan for technology development, outlining the strategies to be adopted and identifying the following four missions to be taken up on priority:

(i) Operation of 4,500 tonne freight trains at double the existing average speeds on mixed traffic routes.

(ii) Operation of passenger services up to 160 km/h on mixed routes and 200 km/h on dedicated routes.

(iii) 'Heavy Haul' freight trains of up to 18,000 tonne trailing loads at 75 km/h.

(iv) Upgradation of the Metre Gauge System, covering passenger and freight services and transshipment facilities.

11. In regard to R&D efforts, it has been recognised that technology development on a continuing basis can best be achieved through the process of 'synergy', by close association and interaction of Research, Designs and Standards Organisation (RDSO) with the concerned industries (including the Railways' own production units) and various centres of learning like the universities and the IITs. With this view, a number of Technology Development Groups have been constituted, separately for each of the following areas: Electric locos & train sets, diesel-electric locos, overhead equipment for electric traction, wagons, coaches, heavy-duty track structure, bridges, train control and signalling systems, mechanised track maintenance and development of futuristic and 'Blue Sky Area' technologies.

12. It is recognised that import of technology is expensive in the beginning and involves heavy outgo of foreign exchange. It is only when the technology is fully assimilated and a sufficient degree of indigenisation achieved that it will prove cost-effective. This has been the philosophy of Indian Railways in recent times.

13. In the context of upgradation of technology and modernisation of Railways, certain issues have arisen, which need to be considered in depth to arrive at an acceptable consensus, even in cases where substantial preparatory steps have already been taken. These are briefly stated below:-

i) Operations Information System: This covers Computerisation of freight operations on a countrywide basis, and is expected to improve the efficiency of operations, and yield a saving of atleast 15 per cent of capital investments on wagons and 5 per cent on locomotives. Contrary views maintain that the savings are illusory, centralised control is strategically inadvisable and employment potential would be reduced, and the system is highly capital intensive.

ii) High Speed Passenger Trains: On the grounds that Railways should acquire the necessary technology for high speed operations and, at the same time, provide faster overnight or day express services between selected major cities, a few trains in the speed range 120-140 km/h have been introduced on the BG, notwithstanding the adverse effect that it may have had on freight traffic operations. However, there is another school of thought which maintains that selective upgradation of speed is of no use, and that by far the most advantageous method would be to upgrade the speeds of trains, both passenger and goods side by side, so that the present speed differential between the two is narrowed down, rather than widened.

iii) Electrification Vs. Dieselisation: Electrification is advocated on the basis of savings in foreign exchange since we are still not self-sufficient in petroleum products. Supporters of dieselisation maintain that electrification is capital intensive, that diesels can be run all over, whereas electric rolling stock can run only on electrified sections and that shortages of electricity will always be a problem to be faced. Escalation in electricity tariffs at a faster pace than that of diesel prices in the recent years has been yet another factor affecting the relative economics of diesel and electric traction.

iv) Continuance of steam locomotives: IR's plans as at present, are to eliminate steam traction by the year 2,000 AD. Some views are coming up now, questioning the wisdom of doing so, since a few other countries like China have been continuing with steam locomotives successfully and, moreover, steam traction has greater employment potential. Arguments in favour of its elimination are that steam traction is less fuel-efficient and it would also be in the overall interest of economy of operations to contain the staff strength of IR despite the increase in traffic.

v) Conversion of Metre Gauge to Broad Gauge: Persistent demands are made for conversion of MG to BG. Uniformity of gauge would have been ideal, but the country cannot afford the massive investments required. Even for conversions on a selective basis, sizeable additional investments would be required since the cost of conversion is nearly 3/4th of a new railway line. On the other hand there is a view, that a strengthened MG System can give almost the same service as a BG system. What should be the criteria for undertaking upgradation and conversion selectively? This would be an important issue to be considered, in view of resource constraints.

vi) Increasing the capacity of existing busy routes: Since the expansion of railway network is bound to be slow, the alternative would be to get the best out of the existing routes. This could be achieved by increasing the average speed of goods trains with the use of more powerful locomotives or by running 'heavy haul' i.e. longer and heavier trains with multiple locomotive. Some controversies are raised about the wisdom of going in for 'heavy haul' trains on account of terrain, inconveniences in operations and the need for import of technology for coordinated working of all the locomotives.

IV (b). Expansion of the Network

14. It is well known that the aspiration of the people for getting new railway lines opened in their areas, and for conversion of existing MG/NG lines into BG, have not been fulfilled to any appreciable extent. The large number of representations pouring into the Ministry of Railways and the persistent demands voiced in the Parliament in almost every debate pertaining to the Railways bear testimony to this. There are many reasons for this, but the most important one is the resource crunch. Even the few projects which get approved languish for want of adequate allocation of funds from year to year, leading to time and cost over-runs, and frustration amongst the people who were expecting to enjoy the benefits therefrom. As on 1st April, 1989, IR had on hand 32 new line projects already sanctioned, involving a total length of 2,620 km and requiring Rs 1,872 crore for completion. As against this, the Annual Plan for 1989-90 provided a budget allocation of Rs. 250 crores only for new lines, which means that, with the present level of investment, it would take 6 to 7 years to complete the on-going projects. Likewise, there are also 9 gauge conversion projects already sanctioned, involving a total length of 1,344 km and requiring Rs 526 crore for completion, whereas the budgetary allocation for the year is only Rs 84 crore. This again means a time frame of 5 to 6 years for completion of the ongoing projects. To study the future needs of IR for network development, the Planning Commission had appointed a Committee for Expansion of Railway Network (CERN). In there report submitted in December 1988, the Committee had recommended further development of the network in a selective manner, through a combination of new lines (2,902 km) and gauge conversion (2,306 km) aimed solely at capacity generation. The cost of the recommended new projects is about Rs. 4,400 crore. These have been identified as the minimum requirements up to the year 2,000 A.D. The management of funds that will be needed for the on-going projects and also for the new projects recommended by CERN for the purpose of capacity generation can thus be appreciated.

15. According to the existing policy, construction of new

lines is justified in the following areas[1] :-

(a) Project-oriented lines, to serve new industries or tap mineral or other resources;

(b) Lines to serve as missing links which can form alternative routes to ease the congestion on existing busy routes;

(c) Lines required on strategic considerations; and

(d) Development lines, to establish new growth centres or give access to remote areas.

16. Under categories (a) and (b), economically viable projects get priority. From the point of view of overall economics of railway working, it would be ideal to deploy the scarce national resources on viable projects which are cost-effective. But this does not lead to satisfaction amongst the people whose aspirations are left unfulfilled.

17. Several issues arise in this context, the more important of which are:-

- Should the policy be re-oriented to enable new lines being taken up to satisfy local aspirations and also to provide a vehicle for area development?
- If such projects are undertaken, how should they be financed?
- Who would bear the operating losses of such lines during the period between their commissioning and their becoming financially viable?

Earmarking Some Funds for Unremunerative Lines

18. It needs to be recognised that there is an imperative need for breaking the vicious "chicken or egg" syndrome in this matter. Railway can, and do trigger off development, and the Railways themselves benefit, in due course, from the development of the hinterland. It is also important to provide railway capacity ahead of demand, though not very much in advance, since Railways projects have a long gestation period. Therefore, should some new projects be taken up without waiting for full evidence of development of the areas concerned? In giving this slant to the policy it may be misunderstood as getting away from the wholesome and necessary policy hitherto followed by giving priority to lines required for movement of goods traffic. Nobody can suggest giving up the policy of emphasising the relevance of rate of return; but if we wait for taking up unremunerative projects, though justified on social or other needs, till the needs of the remunerative projects are fulfilled, at no point of time would it be possible even to make a start in other areas. Hence, there is a view that some amount should be earmarked for construction of new lines to open up back areas in pursuance of policy in para 15 (d) above.

19. Uneconomic operations, on the basis of national policy decisions, should not ordinarily be a burden on the Railway finance which has a separate identity of its own, with accountability for financial results. Would it, therefore be better if such operations in their entirety are entrusted to a Corporation or Agency to be supported by necessary subsidies from Government?

20. Yet another issue to be considered would be to make the cost of developmental lines a part of area development projects identified as such. In such cases, while the capital cost may be included in the overall costs, subject to transfer to the Railways when the developmental phase is completed, the operating loss may be reimbursed by the Government. Alternatively, special additional levy may be imposed on the users of such lines.

Lines in Rural Sector

21. In line with the same idea, it needs to be emphasised that if the Railways have to construct and operate new lines or acquire additional rolling stock, or make any other investments to fulfill the obligations devolving on them as a result of the thrust of the Government's policy to give atleast fifty per cent of the Plan allocation to the rural and the agricultural sector, the outlays required for such investments should come out of such overall allocation in addition to the normal Plan outlays for the financial disabilities that Railways may suffer on account of such operations.

Separate Fund for Developmental Lines

22. Sources of finance also have a decisive role in these matters. As a rule, financially viable projects are charged to Capital, which is provided by the General Exchequer. However, all new line projects, irrespective of their financial viability, are charged to Capital. All such investments entail a perpetual liability for payment of dividend by the Railways to the General Revenues. Can this pattern be changed? Can we think of a separate fund being set up for financing such developmental new lines, so as to avoid financial pressures being exerted either on the General Exchequer or on the Railways Budget?

Railway Development Securities

23. If funding of this type is accepted, one method could be to issue Railway Development Securities (Bonds), earmarked for specific projects, carrying interest at a rate not exceeding the dividend currently payable to the General Revenues. Such specific bonds could attract investment from the interested local population who would benefit from the project. Servicing of such securities - both payment of interest and redeeming them at maturity - could be either through special addition of levies over the normal fares and freight rates, or through inflated distances.

Participation of State Governments in new line projects

24. Some State Governments in the recent years have been coming forward with offers to share the cost of certain projects. One such project is Mankhurd-Belapur line in Maharashtra which is already in progress and where the State Government has agreed to share 2/3rd of the cost. The question is whether more of such participation should be encouraged even though this may ultimately involve diversion of

1 These are in keeping with the recommendations of the National Transport Policy Committee (NTPC) 1978 and the Railway Reforms Committee 1981.

resources of States from other developmental efforts, in view of the spin-off accruing directly to the people of that State from timely completion of special projects.

Uneconomic Branch Lines

25. A connected issue is about existing uneconomic branch lines on the railways which number about 143, involving annual loss of about Rs 100 crore. The question is whether such of these lines, where there are parallel roads to the railway alignment, and traffic has shifted to the road, should be allowed to continue in spite of heavy losses? Or should they if required, be continued on the basis of an arranged sharing of losses with the concerned State Government? It has also been contended that these lines have become a part of the socio-economic environment of the area they serve, and should be continued, to be operated despite losses.

Autonomous Authorities for Special Projects

26. Then there are certain important projects like the West Coast Line where the returns could be adequate to finance the capital raised from the market borrowing. In such cases, autonomous authorities, for the construction of such lines, could be set up. Such authorities could raise funds, levy appropriate charges after the line is completed, in such a manner, that the capital and interest thereon is paid back over 10-15 years. Creation of several such authorities projectwise could be considered.

IV (c). Financial Arrangements

27. Railways Finances were separated from General Finance in 1924. The most notable features of this separation were the fixation of definite annual contribution from Railways to General Revenue calculated with reference to the capital-at-charge of the Railway system, and secondly the establishment of a Reserve Fund and Depreciation Reserve Fund for Railways. This position has continued ever since and any changes in the financial relations between the Railway Finances and the General Finance are decided on the basis of the recommendations of the Railway Convention Committee of Parliament.

28. As far as the investments on the Railways are concerned, the existing arrangements provide that all new assets which are chargeable to Capital of the Railways be financed from the monies advanced by the General Finance. Costs of all replacements are to be met by the Railways as a part of working expenses. The Railways currently pay dividend @ 6.5 per cent on the capital provided by the General Finance.

29. Mid-way in the VII Plan, it was realised by the Government that because of constrained resources it would not be possible to fund the entire approved Plan of Railways through the normal channel of budgetary support extended by the General Finance. Therefore, it was decided by the Government that a part of the requirement of additional assets should be met through market borrowings. The arrangement considered most suitable for this purpose was to create an independent entity separate from the Ministry of Railways. This entity, i.e. Indian Railway Finance Corporation Ltd. (IRFC) came into existence on 12th December, 1986 as a wholly-owned Government Company under the administrative control of the Ministry of Railways.

The main objective of IRFC is to borrow funds from the market through issue of Bonds. The monies so raised are used for acquisition of assets which are leased by IRFC to Ministry of Railways and lease charges @ 14.5 per cent are payable to IRFC.

The cost of servicing the market borrowings through Indian Railways Finance Corporation are higher than the cost of capital provided by the Central Government.

Revenue and Expenses

30. Indian Railways are expected to work primarily on commercial lines so that they are able to cover their operating costs in full including the contribution to Depreciation Reserve Fund and generate enough revenue to pay for its dividend liability to the General Exchequer, as also provide for cost of works like passenger amenities, staff amenities and certain essential works for operating improvements (which are otherwise found unremunerative). At the same time, as a deliberate policy of the Government, Railways have, over the years, exercised a policy of tariff restraint with the result that a number of services are being run below cost. In this regard, the assessed annual loss on passenger and other coaching services is of the order of Rs 1,400 crore and on low-rated commodities of common use like foodgrains, salt, fodder, oil seeds, another Rs. 250 crore. These losses are being covered through cross-subsidisation from the rest of the freight traffic. In spite of the constraints, Indian Railways have a record of financial viability in that they have been paying dividend with a fair degree of regularity ever since Independence.

Investment Plans and Resource Mobilisation

31. A review of Plan investments in the past would indicate that the outlay on Railway sector, as a percentage of the total Plan outlay, which was of the level of 15.5 per cent to 11.1 per cent in the first 3 Plans, came down to as low as 6.9 per cent to 5.9 per cent in the next 4 Plans up to VII Plan. As a result, the investment planning for Railways in the recent years has barely been adequate to meet the minimum needs of traffic growth and the input on network expansion has been low.

32. As mentioned earlier, the Railway Plans are now financed through three main sources (i) internal resources generated by the System; (ii) assets procured by IRFC through market borrowings, which are then leased to the Railways; and (iii) budgetary support extended by the General Finance. The generation of internal resources is dependent on tariff revision and hence severely restricted. With 1970-71 as the base, present estimates are that the index of input costs specific to the Railways rose to 795.6 in the year 1989-90. As against this, the index of average rate realised from freight (per tonne km) has gone up to 624.3 and from passenger traffic (per passenger km) to 392.4 only. Actually more that 30 per cent of the increase in costs was absorbed by the system. However, since the V Plan, the budgetary support extended by General Finance has been coming down because of the overall resource position of the Government. Table III explains:

TABLE III

(Rs Crore)

Plan	Internal Resource	Bonds	% of Internal and Extrabudgetary Resource (IEBR) to total (2+3/7)	Budgetary Support	% of Budgetary support to total (5/7)	Total (2+3+5)
I	280	-	66%	142	34%	422
II	467	-	45%	576	55%	1043
III	545	-	32%	1140	68%	1685
1966-69	320	-	42%	442	58%	762
IV	397	-	28%	1031	72%	1428
V	384	-	25%	1141	75%	1525
1978-80	316	-	25%	935	75%	1251
VI	2783	-	42%	3802	58%	6585
VII	7168	2520	59%	6747	41%	16435

33 The translation of Plans into reality ultimately depends on the financial resources. At the current prices, the size of the VIII Plan has been estimated at Rs 36,500 crore and that of IX Plan at Rs. 50,000 crore if the Railways are to meet the targets. This would give an average annual investment of Rs. 7,300 crore in the VIII Plan and Rs. 10,000 crore in the IX Plan. As against this, the outlay in 1989-90 is Rs. 4,450 crore. Thus, there is a wide gap between the need-based requirements and actual allocations.

34. The conventional methods of increasing the net revenue, like upward revision of tariff, expenditure control, plugging of leakages of revenue through ticketless travel, pilferages and thefts and resultant claims for compensation and improvement of efficiency and productivity are inadequate for generating the levels of investment required. Hence, some unorthodox methods need to be devised for improving the internal resource generation and also for raising external resources.

35. Reimbursement from the General Revenues for the massive social burden carried by the Railways, additional non-Plan Revenue grants for overtaking the accumulated arrears of renewal and replacement of assets, exemptions from customs and excise duties amounting to about Rs 500 crore per year, and so on, are some of the measures mentioned in the past but not seriously taken up. These call for an indepth national debate in the context of the desire of the Government to fulfil, to the extent feasible, the aspirations of the people in the matter of rail facilities.

Commercial Exploitation of Land

36. Additionally, Railways should make efforts to commercially exploit the vast areas of land available with them, which may not be needed for immediate railway uses. Such steps have been taken by railway system in other parts of the world with very beneficial results which need to be emulated by the Indian Railways.

Market Borrowing & Budgetary Support

37. Market borrowings for financing the Railway Plan are comparatively expensive. Should these be continued or should the Centre remain responsible for providing the entire capital needed for additional assets on Railways so that the cost of operations are not burdened because of high cost of market borrowing?

Delinking of Railway Finances from General Exchequer

38. There could also be a view that the Railways finances should be totally de-linked from the General Exchequer, the Railways being fully responsible to fend for themselves in the matter of capital for investments and their operating costs. This would involve (i) complete freedom from the payment of dividend on the existing capital-at-charge (ii) all future investments being made from market borrowings by the Railways (iii) Railways being reimbursed all losses incurred on traffic carried below cost. It would also follow that the Railways would concentrate on commercial and trunk routes and the investment needs of the backward areas would be the responsibility of the Central Government. Rough estimates show that against the annual budgetary support of about Rs 1,400 crore to Rs 1,500 crore received, at present, the Railways would be entitled to a compensation of atleast Rs 1,650 crore annually on account of subsidy afforded to certain traffic.

39. The cost of market borrowing is high. The rate of interest on Tax Free Railway bonds is 9 per cent against the dividend rate of 6.5 per cent. There could be a valid argument that the general exchequer should reimburse the Railways to the extent of this differential in rates. Railways, however, should ensure repayment of public borrowing in time.

IV (d). Capital Restructuring

40. The pattern of Railway financing now in force is that the entire capital is provided by the general revenues through budgetary support as capital-at-charge. This capital is in the form of non-refundable interest bearing perpetual loans, albeit at an interest rate lower than the market rate. In the case of corporate bodies, whether in the private, joint or public sectors, equity capital attracts dividend only when surpluses are available, but as far as Railways are concerned, dividend is payable on the entire capital-at-charge, with a few exemptions, irrespective of the financial results of the years concerned. It may be argued that, the dividend rate being low, even a mix of equity and loans will not give much relief to the Railways. All the same it needs to be examined whether there

is a case for splitting up the capital-at-charge of the Railways into debt and equity on some appropriate basis.

41. Public Sector Enterprises which have been chronically in the red are given the facility of capital re-structuring in appropriate cases as rehabilitation packages. The components of such packages include writing off of loans and interest thereon, conversion of loans into equity and grant of further interest holiday. Can such concepts be applied to the Railways to give them relief from the crippling burden of interest (dividend) payments?

42. In the earlier attempt at re-structuring of capital on the Railways, elements of over capitalisation amounting to over a hundred crore of rupees were written off. Is it necessary to make a further review on these lines to eliminate the unnecessary flabbiness that may have crept into the railway capital structure?

43. On account of the capital-at-charge attracting dividend liability perennially, there are chunks of capital on which dividend paid to the general revenues would have amounted to much more than the initial investments. Can such components of capital, say invested over thirty or forty years ago, be dropped from the books, in view of the social burdens borne by the Railways?

44. Would it be possible or desirable to institute an amortisation fund to enable the Railways to write down the capital periodically?

45. Can some methods be devised to give relief to the capital structure of the Railways for the investments they have made in providing housing, medical and recreational facilities and other service buildings which are not directly concerned with railway operations?

46. Roads are built and maintained by the Government without any specific charge to the transport operators, except the levy of road tax on vehicles. It can be argued that on the same lines the entire capital of the Railways invested on track and signalling should be transferred to the Central Government, who should also be responsible for bearing the cost of maintenance thereof. The Railways could perhaps pay a contribution to the general revenues for the use of these facilities.

IV (e). Tariff Policy

47. Economic and financial considerations make it imperative that the tariff structure be cost-based or cost-oriented, minimising the level of cross-subsidisation. It is also necessary to have a self-correcting mechanism to periodically neutralise the unavoidable cost-escalations of inputs of the Railways. But past experience has shown that although tariff adjustments have taken place from time to time the service-wise breakups have not been cost based. This is so especially in the case of passenger services, with 89 per cent of revenue coming from second class. Computations reveal that passenger and other coaching services are subsidised to the extent of about Rs 1,400 crore. Is this level of cross-subsidisation necessary or healthy?

48. From another angle, it is seen that this large amount of passenger loss is loaded into the freight rates, which are in almost all cases passed on to the consumers through the prices of commodities thereby adding to the inflationary pressure. While increases in the passenger fares are by and large non-inflationary, increases in freight rates have an inflationary impact - direct as well as indirect.

Cross-Subsidisation

49. However much the economists and financial experts may wish to avoid cross-subsidisation and make each stream of traffic self-supporting, it may not be fully workable in our country for several years to come. With a substantial chunk of population below the poverty line, and another strata not very much above that line, it is a social necessity that their burden should be minimised through the mechanism of lower tariff rates of travel.

No doubt, there are very valid arguments against the general tax payer or the freight user being made to bear the burden of subsidised fares. But this cannot be helped till such time as the economic levels are raised upwards sufficiently.

Subsidies for Losses

50. Would it not be fair to all concerned, if the tariff policy provides for freight rates (on goods traffic) being made just self-supporting, without having to cross-subsidise passenger services, thus eliminating the avoidable inflationary impact, and passenger fares being subsidised, through compensation from the Government? It may be out of place to mention that in foreign countries, Railways are compensated in varying degrees (both in terms of capital financing and operating losses) for such social obligations. In 1988, such compensation amounted to Rs 1,700 crore in British Rail, about Rs. 10,000 crore in SNCF (French Railways), about Rs 14,000 crore in DB (Federal German Railways) and about Rs 1,100 crore in JRG (Japanese Railway Group)). It is a moot point whether IR should also be compensated for the losses it incurs on second class passenger traffic, as a part of Government's social subsidies.

Secrecy of Railway Budget

51. Another issue which calls for a debate is about the traditional secrecy that is being maintained in regard to the Railway Budget. Is it necessary to continue with this? Disclosure of proposals for fare and freight rate adjustments cannot in any way lead to hoarding or speculations, or profit making and, therefore, it appears meaningless to continue observing this tradition. It may be worth while to bring about complete openness and consultations in these matters.

Tariff Revision Mechanism

52. Is there any need for a permanent tariff revision machinery being set up to examine and recommend modification in tariffs at regular intervals? Or in the alternative, is it adequate to get the tariff structure periodically examined by an expert Tariff Committee?

IV (f). Passenger Services and Freight Movements

Priority between Freight and Passenger traffic

53. The available capacity on the Railways is shared between its two streams of traffic-passenger and goods. Hitherto, because of capacity constraint and in the larger interest of the economy, preference has been given to freight traffic to avoid bottlenecks in the developmental process. Over the years, the rising demand for passenger trains has not been

met in full, with the result that today, people are demanding more passenger trains almost everywhere. The planning for additional passenger trains has been below the rate of growth of passenger traffic. This explains the spectacle of overcrowding. Then there is also a sizeable unsatisfied demand where people take to other modes, in spite of their preference for a passenger train.

54. Within given resources, a better satisfaction of the rising demand for passenger trains can only be at the cost of freight traffic and hence reasonable balance is to be struck with freight getting priority. Or should there be a shift of emphasis towards passenger traffic?

Regulation of Passenger Traffic

55. In view of the rising demand and the limited capacity, should measures be taken to regulate the demand for passenger trains which may inter-alia include higher tariff during busy season, staggering of summer holidays in schools and colleges, cost-based fares, withdrawal of the existing concession and grant of cash compensation by employers in lieu of leave travel concession or free travel facility wherever now admissible.

Dedicated Routes

56. Suggestions have been received for dedicated high speed corridors between important cities for passenger traffic. The investments for these would be collossal. In one of the studies it was estimated that the cost of providing high speed corridor between Delhi and Kanpur would be about Rs. 1,500 crore at 1987 prices. With the same amount of money, much larger passenger demands could be met in the country.

More of Second Class Coaches

57. Passenger traffic moves in different classes, graded according to facilities, comfort and capacity to pay. The capacity in upper class passenger carriages is less than the second-class. A first class A.C. coach has 18 berths, a first class coach has 26 berths, an A.C. sleeper coach has 46 berths whereas a second class sleeper coach has 72 berths, and an ordinary general second class coach 90 seats. More passengers can be accommodated through a shift in production programme to provide for more of second class, more of general second class coaches and less of sleeper coaches. This may not be to the liking of passengers who are used to upper class travel.

Losses on Suburban Services

58. Within the passenger stream, there is an important category of suburban passenger (around metropolitan areas of Bombay, Calcutta and Madras) which accounts for 58 per cent of the total number of passengers on the Railways. These suburban services suffer a loss of about Rs. 122 crores per year, due to highly concessional monthly season tickets. While a decision has been taken that the nodal Ministry for future metropolitan transport needs will be the Ministry of Urban Development, there is a case for the existing services also being run as separate entities with their own Accounts and Balance Sheets. It is also to be deliberated whether the burden of heavy concession of season tickets should be borne by the employers or by the Local Self government or by the State Government?

Computerised Passenger Reservations

59. The system of passenger reservations has been computerised in nine major cities, and computerisation in nine more centres is likely to be completed in the year 1990-91. With the completion of these, nearly 60 per cent of the train reservation on the Indian Railways would be on the computer. This facility has been appreciated by the public. Installation and maintenance of the computer system is expensive. In view of this should there be forther expansion of this network and, if so, should there be a surcharge on issue of tickets from these counters to recover cost?

Station Amenities

60. There is a persistent demand for improvement in passenger amenities at stations. Indian Railways have about 7,000 stations. Provisions and up-keep of amenities is expensive. Larger allocation on this would need diversion of resources from other priority area. Whereas there is no denying that the basic amenities should be provided at all stations, the question is whether upgraded facilities involving substantially higher investments should be made available at important stations, based on the volume of traffic handled or on other consideration. Should the passengers at such stations pay a little extra in return for augmented amenities provide there?

Congestion on Platforms

61. At busy stations, platforms are congested, causing inconvenience to passengers. It may be necessary to regulate the entry of relatives and friends, either by raising the price of platform tickets or by imposing a complete ban on entry of persons other than passengers except in deserving cases, like old, sick and handicapped passengers. Should not the number of vending stalls and trollies on platforms be also reduced to relieve congestion?

Catering on Trains

62. Provision of food on the running train has always been a difficult job for the Railways, and passengers' reactions to changes made from time to time have been mixed. In the recent years, in order to supply hot and hygienic food, casseroles were introduced through a network of upgraded base-kitchens. This has drawn mixed reactions, particularly because of its higher price due to cost of packing. Should it not be that the emphasis be laid on standardised clean food packets instead of a variety of dishes to meet the individual tastes, in view of the difficulties in preparation and service?

Pantry Cars

63. There is a persistent demand for more Pantry cars on express trains because of the long non-stop runs. But, this means withdrawal of a passenger carrying coach, which could

accommodate more passengers. It is also to be considered whether a small self-service counter be provided in the middle of the train, to bring economy in staff and also in space.

Rail Yatri Nivas

64. There are demands for more Yatri Niwases, like the ones in Delhi and Calcutta. This has been found convenient by the passengers especially those belonging to middle income groups. But this would involve more capital outlay which can be used elsewhere for better amenities for passengers belonging to lower income groups.

Piecemeal Freight Traffic

65. The unit of transport on a Railway is a train and not a wagon. The rising demand for freight traffic in a resource-crunch situation has been met through a shift towards block rake movement instead of catering to piecemeal traffic. This has left a large unsatisfied demand of railway users who can book only a few wagons at a time. If this demand is to be fully met, Railways would need many more wagons and locomotives, more yards, and it will also cost more due to much higher wagon turn-round.

66. However, to carry piecemeal traffic, efforts are being made to promote containerisation and inter-modal integrated transport, particularly for export cargo, through a separate organisation - Container Corporation - formed for the purpose. Should the pace of investment on containerisation be accelerated?

Nodal Freight Stations

67. Even though some small stations have been closed for goods booking in the recent past, there are still a large number of stations open for booking of goods offered in wagon loads (smalls) or less that wagon loads. This is retarding the scale of operations and adversely affecting the overall rail transport output. There is a strong view that certain 'nodal' rail-heads should be opened for consolidating the smalls traffic brought by road from the radius of, say, 100 to 200 kms. The consolidated train loads should move between nodal points, which should have adequate infrastructure to serve as collection and distribution centres. This would provide inter-modal door-to-door service to smaller freight users through rail-road coordination.

Private Ownership of Wagons

68. There has been a suggestion that large freight users should own their wagons, to relieve the pressure on investment by Railways, for which they should be suitably compensated by way of some rebate in the freight charge. This is already being done in the case of some special types of wagons. This can be further deliberated upon.

Private Sidings

69. A large chunk of goods traffic is loaded or unloaded in private sidings. If the handling facilities in these sidings are upgraded and mechanised, the wagon detentions can be minimised thereby reducing the total requirements of wagons. This calls for additional effort and expenditure on the part of the users. Will the siding holders be ready to do so?

V Need for National Debate

70. These are some of the important issues which have been exercising the minds at various levels of Government, Railway Management as well as the rail users. The purpose of this 'paper' is to initiate a nation wide debate on the issues raised to enable us to achieve possible consensus. It is hoped that serious thought will be given to these issues by rail uses, transport experts, economists, the press and people from all walks of life, keeping in view, the people's expectations, within the framework of the overall interest of the national economy. The views and observations received will help us greatly in formulating the future policies and programmes of the Railways on the basis of a more comprehensive, representative and realistic response from the people, in tune with our objective of an open Government.

TABLE A. COMMODITY-WISE FREIGHT MOVEMENT (REVENUE TRAFFIC) 1988-89

	Tonnes Originating (in Millions)	Net Tonne Kilometres (in Millions)
Total Coal	128.01	82,694
Raw Material for steel plants	26.18	6,914
Pig Iron & Finished steel from steel plants	10.18	11,605
Iron Ore for export	13.64	7,843
Cement	25.91	16,895
Foodgrains	24.88	33,436
Fertilizers	16.10	16,267
Petroleum, Oil and Lubricants	22.60	14,135
Balance other goods	34.55	32,585
Total Revenue Earning Traffic	302.05	222,374

TABLE B TRAFFIC THROUGHPUT FOR REPRESENTATIVE YEARS
(in millions)

Years	Passenger		Total Freight	
	Number	Kilometres (PKMS)	Tonnage	Net Tonne Kilometres
1950-51	1,284	66,517	93.0	44,117
1960-61	1,594	77,665	156.2	87,680
1970-71	2,431	118,120	196.5	127,358
1980-81	3,613	208,558	220.0	158,474
1988-89	3,500	263,731	329.5	230,131

TABLE C. ASSET BASE OF RAILWAYS FOR REPRESENTATIVE YEARS

Assets	1950-51	1960-61	1970-71	1980-81	1988-89
Wagons (In 4. Wheel Unit)	208,431	322,839	472,862	531,585	524,931
Coaches	13,109	20,178	24,676	27,478	27,738
Steam Locos	8,120	10,312	9,387	7,469	3,826
Diesel Locos	17	181	1,169	2,403	3,454
Electric Locos	72	131	602	1,036	1,533
Electrified Route Kms.	388	748	3,706	5,345	8,880
Running Track Kms.	59,315	63,602	71,669	75,860	77,845
Total Route Kms.	53,596	56,247	59,790	61,240	61,985

HOUSEHOLD PURCHASES OF TEXTILES: 1972-1987
A DISAGGREGATED ANALYSIS

V.V.Divatia

The Market Research Wing of the Textile Committee, Government of India, has been conducting, since 1969, a sample survey of purchases of textiles by households. In an earlier paper, we had presented the data at the all-India level. In this paper, we present the disaggregated data, first by urban/rural areas and then further by income classes. There are marked and expected differences between the urban and rural areas: the per capita purchases in urban area are larger in quantity and better in quality as judged by their unit values. Probably somewhat unexpected is the result that this is true even of households in comparable income classes in urban and rural areas. These differences are largely confined to purchases of cotton textiles. They are small and possibly are narrowing down in respect of purchases of non-cotton and mixed fabric textiles.

In an earlier paper [Divatia, 1990], we examined the levels and trends in the purchases of textiles by households over a period of 15 years from 1972 to 1987. The analyis was confined to the all-India level only. In this paper, we pursue the analysis on the same lines, using the same source of data, and the same concepts, definitions, and analytical method, but now disaggregated first by urban/rural areas and then further by income classes. For easy reference to the urban-rural combined data, the Table numbers are kept, as far as possible, the same as in the previous paper. All the disaggregated data are not available uniformly for one and the same period. Hence, particular disaggregation is presented for the period for which it is available. For more explanation, please see the Technical Note at the end.

ALL TEXTILES

In Table 1 are given the estimates of household purchases of all textiles, classified by broad types, namely, cotton, non-cotton, and mixed/blended, separately for urban and rural areas. Side by side, are given the percentage shares of different types in the total purchases. It will be seen that, in urban area, the aggregate purchases increased from 1,530 million metres in 1974 to 4,117 million metres in 1987 which gives an annual rate of growth of 7.12 per cent. In rural areas, the aggregate purchases increased from 6,417 million metres in 1974 to 8,675 million metres in 1987, that is, at an annual rate of only 2.76 per cent. We shall presently turn to the reasons for the large difference in the rates of growth in the textile purchases in urban and rural areas. However, we may note that, in spite of this difference, the share of the rural purchases in the total textile purchases is still very large; it was 67.82 per cent in 1987.

A major reason for the large difference in the growth rates of textile purchases in urban and rural areas is the fact that population in urban areas has been growing much faster than in rural areas. But, it is also possible that the per capita purchases in rural areas are increasing at a lower rate than in urban areas. To examine this, in Table 1.1, we have presented the per capita purchases in urban and rural areas. It will be seen that the annual rate of growth (1974-87) of per capita purchases of all textiles together (col. 5 and 9) is lower in rural (1.06 per cent) than in urban (2.55 per cent) area. But the growth rates are different for different types of textiles. For cotton textiles (cols. 2 and 6), the per capita purchases declined in urban area (0.56 per cent annually) and declined even more in rural (1.07 per cent) area; and as the cotton textiles are predominant, this gets reflected in the growth rates of all textiles taken together as mentioned above. But, annual growth rates are larger in rural than in urban area for both non-cotton (cols. 3 and 7) and mixed fabric textiles (cols. 4 and 8); they are 11.05 and 8.19 per cent, respectively in urban area and 13.17 and 11.93, per cent respectively in rural area.

To see the differences between the urban and rural areas differently, and somewhat directly, we have expressed, in cols. 10-13 of the Table, per capita purchases in urban areas as multiples of per capita purchases in rural areas. For instance, in

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1974, the per capita urban purchases of all textiles taken together were a little below, 0.96 times, the rural purchases (col. 13). This may be a freak result. In 1975 and 1976, the per capita urban purchases were 1.09 times, that is, 9 per cent above, the rural purchases. The multiple has fluctuated from year to year, from 1.16 to 1.37; but there is a general trend to increase. In later years, the per capita urban purchases were at least 20 per cent above the rural purchases. But, this is not uniformly so for different types of textiles. The per capita purchases of cotton textiles in urban area as multiples of those in rural area have probably increased but only slightly; those of non-cotton, after an initial increase, have declined particularly after 1981; and those of mixed fabric textiles have declined over the whole period.

Returning to Table 1.0, it will be seen that much of the difference in the growth rates of textile purchases in urban and rural areas is in the purchases of cotton textiles. The aggregate purchases of cotton textiles in urban areas increased at an annual rate of 3.88 per cent while in rural areas by only 0.60 per cent. In comparison, the difference in the growth rates of purchases of non-cotton and mixed fabric textiles is not much; the annual growth rates for non-cotton textiles were 16.00 per cent for urban areas and 15.04 per cent for rural areas; and, for mixed fabric textiles, they were 12.98 and 13.86 per cent, respectively. Thus, the growth rates for non-cotton and mixed fabric textiles are much larger than for cotton textiles and the difference between the growth rates for urban and rural areas is much smaller in the case of non-cotton and mixed fabric textiles than for the cotton textiles. As a result, the shift from cotton to non-cotton and mixed fabric textiles is greater in rural areas than in urban areas.

In Table 1.2 are given the values of per capita purchases of textiles in urban and rural areas. Because of the rise in prices of textiles over the period, the growth rates in values of purchases are naturally larger than growth rates in quantities of purchases. For instance, while the annual growth in the per capita quantities of purchases of textiles in urban areas was 2.55 per cent, the growth in value of purchases was 13.36 per cent; the corresponding growth rates for rural areas are 1.06 and 11.78 per cent, respectively.

The difference between the growth rates in per capita quantities and values of purchases is accounted for by the increase in prices or rather in the unit values. This may be seen from Table 1.3 in which are given the unit values of different types of textiles purchased in urban and rural areas. In cols. 6 and 11 are given the indexes of unit values with 1980 as the base year. It will be seen that the rise in the index is similar in urban and rural areas; 7.31 and 7.09 per cent per annum, respectively. In cols. 12-15, the unit values in urban areas are shown as multiples of unit values in rural areas. It will be seen that the unit values in urban areas have been in all cases higher than in rural areas but that, while the differential, that is, the difference in the quality of purchases, has increased in the case of unit values of cotton textiles, it has narrowed down in the case of non-cotton and mixed fabric textiles. For all textiles taken together, the unit values in urban areas have stayed 64 to 89 per cent above the unit values in rural areas presumably because of better quality of textiles purchased in urban areas.

CITIES, BIG TOWNS, AND SMALL TOWNS

The MRW publishes data on household purchases of textiles in urban area broken down into cities, big towns, and small towns. The classification of the urban population into cities, big towns, and small towns follows the scheme in the population censuses of 1971 and 1981 of which details are given in the Technical Note appended at the end. In the following, we shall briefly examine the differences between the cities, big towns, and small towns in the matter of textiles purchases. The MRW also classifies rural population into highly developed, developed, and undeveloped villages and gives data on textile purchases separately for the three classes. For reasons given in the Technical Note, we do not propose to utilise this classification of the rural population.

In Table 2.1, we give the per capita purchases of cotton, non-cotton, and mixed fabric textiles in cities, big towns, and small towns respectively. If we examine Table 2.1 along with Table 1.1, we see that the urban-rural differences are well graduated between cities, big towns, small towns, and rural area. For instance, consider the per

capita purchases of all textiles taken together in a given year, say, 1987. They were 20.44 metres in urban area and 14.94 metres in rural area (Table 1.1). Looking at Table 2.1, we see that they were 29.31 metres in cities, 21.81 metres in big towns, and 16.72 metres in small towns, all above the 14.92 metres in rural area. We may note that the differences are largely confined to purchases of cotton textiles and not so much of non-cotton and mixed fabric textiles. The annual rate of growth (1980-87) of per capita quantities of purchases of all textiles taken together was 3.23 per cent in urban area and 3.70 per cent in rural area (Table 1.1) while, looking at Table 2.1, we see that it was 6.67 per cent in cities (col. 5), 3.36 per cent in big towns (col. 9), and 1.57 per cent in small towns. Thus the urban-rural differential, in terms of quantities of per capita purchases of all textiles taken together, has a regular gradient from cities to big towns, to small towns, and finally to rural area. But, while the differential between the cities and rural area has been increasing over the years, that between big towns and small towns on the one hand and the rural area on the other has been declining.

There is a similar gradient in the value of per capita purchases of all textiles taken together (Tables 1.2 and 2.2). For instance, the values of purchases in 1987 were: Rs 881.27 in cities, Rs 710.96 in big towns, Rs 477.58 in small towns, (Table 2.2) and Rs 269.59 in rural area (Table 1.2). The annual rate of growth (1980-87) of per capita value of purchases of all textiles taken together was 10.95 per cent in urban area and 12.36 per cent in rural area (Table 1.2) while, looking at Table 2.2, we see that it was 14.12 per cent in cities, 11.22 per cent in big towns, and 9.51 per cent in small towns. Thus, the urban-rural differential, in terms of value of per capita purchases of all textiles taken together, has a regular gradient from cities to big towns, to small towns, and finally to rural area. But, again, while the differential between the cities and rural area has been increasing, but now only moderately, over the years, that between big towns and small towns on the one hand and the rural area on the other has been declining.

The differences in unit values (Table 2.3) within urban area are not very large. For instance, in 1987, for all textiles taken together they were Rs 30.07 per metre in cities, Rs 32.60 per metre in big towns, and Rs 28.56 per metre in small towns; but only Rs 18.05 per metre in rural area. The rates of increase (1980-1987) are similar in all cases and the differences in unit values or in the the quality of the textiles purchased do not seem to have increased in the recent years.

These several observations are based on the quantity, value, and unit values of all textiles taken together. But, as in the case of urban and rural area, the composition of the purchases in terms of different types of textiles, namely, cotton, non-cotton, and mixed fabric, purchased are different in cities, big towns, and small towns and may have undergone some changes over the years. The interested reader may want to examine these data separately for cotton, non-cotton, and mixed fabric textiles and modify and /or elaborate some of the observations made in the above. For his convenience full data on quantities, values, and unit values are presented in Tables 2.1, 2.2 and 2.3, respectively.

COTTON TEXTILES

We shall now examine the differences between the purchases of cotton textiles in urban and rural areas. In Table 3.0, we give the quantities of aggregate purchases, in urban and rural areas, of cotton textiles broken up into mill-made, powerloom, handloom, khadi, and hosiery. It should be noted that while the series for purchases of all textiles given in Table 1.0 covered the period from 1974 to 1987, the series given in Table 3.0 for purchases of cotton textiles covers the period from 1980 to 1987 because for the period from 1974 to 1979 reliable data are not available separately for mill-made, powerloom and handloom textiles. For further explanation, please see the Technical Note. Even in 1980 and 1981, purchases of mill-made and powerloom textiles (Cols. 2 and 3) do not seem to be properly distinguished, much of powerloom textiles being classified as mill-made. For this reason, the growth rates (G.R.) shown at the bottom of Col. 2 are for mill-made and powerloom textiles taken together. The separation between mill-made and powerloom from 1982 onwards seems to be reliable.

It will be seen that the purchases of mill-made and powerloom textiles together increased at an annual rate of 1.46 per cent in urban area and actually declined at an annual rate of 2.79 per cent in rural area. But, judging by the separate figures for mill-made and powerloom textiles since 1982, while the purchases of powerloom in urban area were only about half of mill-made textiles, they were more than twice in rural area. In 1987, the mill-made and powerloom textiles constituted 43.61 and 22.33 per cent respectively (Cols. 8 and 9) of purchases of all cotton textiles in urban area, they constituted 20.44 and 38.02 per cent, respectively in rural area.

Handloom textiles also seem to have a different position in the urban and rural areas. In the urban area, they increased at an annual rate of 14.93 per cent while, in rural area, at 25.83 per cent. In 1987, they constituted 22.50 and 30.42 per cent of purchase of all cotton textiles in urban and rural areas, respectively.

Purchases of khadi are on the decline in both urban and rural areas; but more so in the rural area (12.37 per cent per annum) than in urban area (7.59 per cent). In 1987, their share in the purchases of all cotton textiles was just 1.05 per cent in rural area and 0.61 per cent in urban area.

Hosiery is on the increase in both urban and rural area and at about the same rate; 11.34 and 11.39 per cent per annum respectively. In 1987, it constituted 10.95 and 8.56 per cent of purchases of all cotton textiles in urban and rural areas, respectively.

Purchases of all cotton textiles taken together increased at the annual rate of 4.39 per cent in urban area and 2.84 per cent in rural area (over the period 1980-1987). But part of the difference is because the growth rate of population in urban area is more than in rural area. To eliminate this difference, we should compare the per capita purchases. This is done in Tables 3.1 and 3.2 where we give per capita purchases of cotton textiles of different types both in terms of quantity (Table 3.1) and in terms of value (Table 3.2). It will be seen that the annual rate of growth of per capita quantity of purchases of all cotton textiles together, in terms of value, is lower, not higher, in urban area (0.52 per cent) than in rural area (1.20 per cent). On the other hand, in terms of value, the annual growth is higher in urban area (7.02 per cent) than in rural area (6.40 per cent). It means that, in the rural area, while the per capita quantities have increased, there is shift towards lower valued materials. As we have already noticed, the shift from mill-made to powerloom and handlooms, which have somewhat lower unit value, is greater in rural area than in urban area. We shall presently examine the unit values of different types in the two areas.

In cols. 14-19 of the Tables 3.1 and 3.2, the per capita purchases in urban and rural areas are directly compared by expressing the urban purchases as multiples of the rural. It will be seen that though, in terms of quantities, the multiples are somewhat fluctuating, they have generally increased in value terms. It means that in comparison to urban area, there is a shift in rural area, not only to lower valued types such as from mill-made to powerloom and handloom, but within each type to lower valued materials. Handloom seems to be an exception where the per capita value of purchases in urban area as multiple of purchases in rural area has declined over the years.

In Table 3.3 are given the unit values of different types of cotton textiles purchased in urban and rural areas. In cols. 14-19, the unit values in urban area are expressed as multiples of unit values in rural area. It is clear that the unit values of urban purchases are higher than those in rural area; but there is no evidence of the differential widening over the years. The annual rates of increase in the unit values are more or less similar in the two areas.

Khadi seems to be an exception. The unit values of khadi have increased at an annual rate of 5.25 per cent in urban area and by as much as 10.89 per cent in rural area. This is also reflected in Tables 3.1 and 3.2. The per capita purchases of khadi have declined both in terms of quantity and value. But the difference between the rates of quantity and value of purchases is much larger in rural area than in urban area; in urban area, the annual rate of decline is 11.02 per cent in terms of quantity and 10.33 per cent in terms of value. The corresponding rates for rural area are 13.77 and 4.41 per cent respectively. This deserves a more careful examination.

NON-COTTON TEXTILES

We may next proceed to household purchases of non-cotton textiles, namely, pure silk, art silk, woollen, acrylic, nylon and polyester. All taken together (Table 1.1, cols. 3 and 7), the annual rate of growth (1974-87) in the aggregate purchases of non-cotton textiles is somewhat higher in rural area (13.17 per cent) than in urban area (11.05 per cent). Surprisingly, even in pure silk (Table 4.0, cols. 2 and 13), the annual rate of growth (1976-87) is higher in rural area (18.38 per cent) than in urban area (11.85 per cent). On the other hand, in art silk (cols. 3 and 14), the annual rate of growth in rural area (10.16 per cent) is much lower than in urban area (13.10 per cent). Possibly, some of the purchases of art silk in rural area have been reported as of pure silk. We should note however that the annual growth rate of woollens (cols. 4 and 15) also is somewhat higher in rural area (16.06 per cent) than in urban area (13.40 per cent). The real difference, and in the expected direction, is in the matter of purchases of nylon and polyester textiles. The annual rate of growth of purchases of nylon textiles (cols. 5 and 16) in rural area (12.37 per cent) is almost five times of that in urban area (2.58 per cent). In polyester (cols. 6 and 17) also the annual rate of growth is considerably higher in rural area (28.95 per cent) than in urban area (21.92 per cent).

The higher rates of growth of non-cotton purchases in rural area comes out more sharply when we examine the purchases on a per capita basis (Table 4.1) because the rate of growth of population in rural area is smaller than in urban area. For instance, the annual rate of growth of per capita purchases of pure silk (col. 2) in rural area is 15.65 per cent compared to 7.17 per cent in urban area. Of course, this does not mean that per capita purchases of pure silk in rural area is higher than in urban area; but it does mean that the urban -rural differential is narrowing down. For instance, the per capita urban purchases of pure silk in urban area as a multiple of it in rural area (col. 16) was a little under 10 in 1980-82 and it came down to under 5 in 1986-87. This is more or less true of per capita purchases of other types of non-cotton textiles.

The annual rates of growth of value of per capita purchases (Table 4.2) are naturally higher than the rates of growth of quantities of per capita purchases because of the general rise in unit values over the period. But this does not affect much the value of per capita purchases in urban area as multiplies of those in rural area (cols. 16-21). This is because the increase in unit values is similar in urban and rural area. In fact, there is some evidence that the increase in unit values is somewhat smaller in rural than in urban areas and that therefore urban-rural differential in terms of per capita value of purchases is narrowing down somewhat more than in quantity terms.

MIXED FABRIC TEXTILES

Among the mixed fabric textiles, polyester-cotton is the principal variety and its share in all mixed fabrics has been increasing both in urban and rural areas; in urban area, it increased from 82.83 per cent in 1976 to 88.13 per cent in 1987 and, in rural area, from 80.30 per cent in 1975 to 85.60 per cent in 1987 (Table 5.0). In fact, in 1987, among all types of textiles, polyester-cotton was the second most important both in urban and rural area; after mill-made cotton in urban area and after powerloom cotton in rural area. Polyester-wool and polyester-viscose are negligible while the share of unspecified mixed fabrics is declining in both urban and rural areas.

The annual rates of growth in aggregate purchases of all varieties of mixed fabric textiles are similar to those in the purchases of non-cotton textiles. In particular, as in the case of non-cotton textiles, they are somewhat higher in rural than in urban area. Again, because the increase in rural population has been slower than in urban population, the difference between rates of growth in urban and rural areas becomes enhanced when the purchases are considered on a per capita basis (Table 5.1). In consequence, the urban-rural differentials seen when the per capita purchases in urban area are expressed as multiples of rural purchases are narrowing down (cols. 12 and 16).

Because of the general rise in unit values, the rates of growth in per capita purchases in value terms (Table 5.2) are higher than those in quantity terms. Further, because the unit values of all types are somewhat higher in urban than in rural area

(Table 5.3, cols. 12-16), the urban-rural differential in value terms is larger than in quantity terms (Tables 5.1 and 5.2; col. 16). But, the annual rise in unit value (Table 5.3) of polyester-cotton is slightly smaller in rural (3.75 per cent) than in urban area (4.26 per cent) and the annual rise in the unit values of unspecified mixed fabric textiles is slightly higher in rural (10.36 per cent) than in urban area (10.30 per cent) so that, on balance, the trend in the urban-rural differential in value terms is similar to the differential in quantity terms; both show signs of declining over the years.

PURCHASES OF SOME SPECIFIED ITEMS OF TEXTILES

We may now examine urban-rural differences, if any, in the purchases of some specified items of textiles. The items are: dhoties, sarees, long cloth/ sheeting/ grey cloth, shirting/ poplin/ patta cloth, coating/ suiting, ladies' dress material, chaddar/ bed sheet/ bed cover, towels/ turkish towels, readymade garments, hosiery goods, and others. Figures for these items are given for all types of fabrics, that is, cotton, non-cotton, and mixed fabrics, together and not separately for each type. In Table 6.1 are given the quantities of their aggregate purchases (cols. 2-12) and unit values (cols. 13-23), and, in Table 6.2, the value of purchases (cols. 2-13) and the shares of different items in the value of of all purchases (cols. 13-23), in urban and rural areas respectively. In these Tables, 'others' (cols. 12 and 23) mean 'other than the specified items'. In col. 23 of Table 6.2 is given the value of their purchases as per cent of the value of the purchases of all textiles taken together which is about 5 per cent in urban area and under 10 per cent in rural area. In other words, the specified items account for almost 95 per cent in urban area and over 90 per cent in rural area of the value of purchases of all textiles.

Dhoties and sarees account for about one-third of purchases of all textiles in value terms. But, in comparison with sarees, dhoties is a much smaller item; moreover, it is on the decline. In spite of the increase in population, the aggregate quantities of dhoties purchased in urban area (Table 6.1, col. 2) have more or less remained constant and, as a result, their value as a percentage of the value of purchases of all textiles (Table 6.2, col. 13) declined from 2.98 per cent in 1978 to 1.66 per cent in 1987. In rural area, the quantities of aggregate purchases of dhoties actually declined at an annual rate of 0.72 per cent and their value as per cent of the value of purchases of all textiles declined from 11.12 per cent in 1978 to 6.29 per cent in 1987. The unit values of dhoties (Table 6.1, col. 13), as of all textiles, have been higher in urban area than in rural area. Moreover, the unit values have increased at a higher annual rate in urban area (8.84 per cent) than in rural area (6.69 per cent). Consequently, the urban-rural differential in the quality of dhoties purchased has widened over the years.

The case of sarees is different. The aggregate quantities of their purchases have increased both in urban and rural areas and at about the same annual rate; 7.43 per cent in urban (Table 6.1, col. 3) and 7.06 per cent in rural area (Table 6.1, col. 3). In urban area, the value of purchases of sarees as a percentage of the value of purchases of all textiles has fluctuated (if we omit 1978) between 35.34 and 38.05 per cent (Table 6.2, col. 14) without a clear evidence of either a systematic increase or decline. However, in rural area (Table 6.2, col. 14), the same has increased from 19.81 per cent in 1978 to 27.38 per cent in 1987. The unit values of sarees (Table 6.1 col. 14) in rural area are almost half of what they are in the urban area but they have increased at about the same annual rate, 9.17 per cent in urban area and 9.62 per cent in rural area, and the urban-rural differential in the quality of sarees purchased has not widened over the years.

Two other important items are shirting/ poplin/ patta cloth and coating/ suiting (Table 6.1, cols. 5 and 6). The quantities of their purchases have grown at about the same annual rate in urban area (3.47 and 3.56 per cent respectively) and at somewhat lower rates in rural area (2.60 and 2.09 per cent respectively). But the value of their purchases as percentage of the value of purchases of all textiles has declined in urban area; in rural area, the same also declined in respect of shirting, etc. but remained more or less unchanged in respect of coating, etc. (Table 6.2, cols. 16 and 17). The unit values have been higher in urban than in rural area (Table 6.1, cols. 16 and 17); but they have increased at a somewhat higher rate in

rural than in urban area so that the urban-rural differential in the matter of quality of material used has narrowed down.

Another important items, though of a somewhat smaller size, is ladies' dress material (Table 6.1 col. 7). The quantity of its purchases increased at a considerably higher annual rate in urban area (5.78 per cent) than in rural area (3.82 per cent). In value terms, it constitutes about 10 per cent of the value of purchases of all textiles, slightly lower in urban than in rural area (Table 6.2, col. 18). The unit values have been higher in urban than in rural area; but the differential has not widened over the years.

Finally, we may examine the incidence of textile purchases. In Table 9.0, we present percentages of households, in urban and rural areas, reporting at least some purchase during a year. These are shown separately for different types of textiles. Almost 95 per cent of the households, in both urban and rural areas, report purchases of cotton textiles each year. There is little difference in this matter between urban and rural areas. Next most common is polyester cotton; almost 80 per cent in urban area and 60 to 70 per cent in rural area have reported purchases of polyester-cotton each year with the percentage in rural area increasing over the years. Percentages of households reporting other types of textiles are smaller, and smaller in rural area than in urban area.

HOUSEHOLD PURCHASES BY INCOME GROUPS

MRW surveys provide data on household purchases of textiles by income groups. It should be noted that the income groups are at current prices and hence that they are not comparable over the years. Therefore, the comparisons between different income classes should be only for a given year.

In the previous paper [Divatia, 1990], we noted that, in all years, there exists a strong relation between income and purchases of textiles. Our interest now is to examine whether this connection is similar in both urban and rural areas. In Tables 7/U and 7/R, we give, for urban and rural area respectively, per capita quantities (cols. 2-8), per capita values (cols. 9-15), and unit values (cols. 16-22) of purchases of all textiles taken together by households in different income groups. It will be seen that, in 1987, the per capita purchases of all textiles taken together in urban area were were 12.04 metres in the lowest income class and 39.44 metres in the highest income class; that is the per capita purchases in the highest income class were 3.28 times those in the lowest income class. Further, the unit value of the purchases in the highest income class was 1.82 times that in the lowest income class. It means that the households in the highest income class purchases larger quantities of higher valued textiles. As a result, the value of per capita purchases in the highest income class was almost 6 times that in the lowest income class. This relation between income and the quantity and quality of the textile purchases is well graduated over the several income classes and, with minor variations, prevails in all the years. As mentioned above, the income classes are not comparable over the years. But, on a comparison between the lowest and the highest income classes in a year, it seems that the difference between the two is widening over the years. For instance, in 1976, the value of per capita purchases of textiles in the highest income class was about 5 times that in the lowest income class while, in 1987, it was almost 6 times.

There is a similar relation between income and textile purchases in rural area; but, probably, the differences between the income classes are somewhat less sharp than in the urban area (Table 7R). In 1987, the estimates for the highest income classes, namely, Rs 60,000+ is out of line probably because of too few observations. We may therefore compare the next highest income class, namely, Rs 40,000 - 59,999 with the lowest income class. The value of per capita purchases in this income class, in rural area, was 4.34 times that in the lowest income class while, in urban area, it was 4.67 times. Of course, in all income classes, with a few exceptions, the per capita textile purchases and their unit values are lower in the rural area than in the urban area.

In Tables 7.1, 7.2, and 7.3 we give, for urban and rural areas separately, similar data for per capita purchases of cotton, non-cotton, and mixed fabric textiles. The relation between income and the purchases of different types of textiles and the urban-rural differences in that respect, are similar to those in per capita purchases of all textiles taken

together (Table 7). The interested reader may want to examine these data more closely.

In Table 8, we give the percentage of total income spent on purchases of textiles by household in different income groups. The data are available only for the period 1984-87. As is to be expected, in all the years, the percentage of income spent on textile purchases decreases as we move from low income to high income households. This is true both in urban and rural areas. However, we should note that, in each income group, the percentage of total income spent on textile purchases is lower in rural area than in urban area. It means that the the relatively smaller quantities and values of per capita textile purchases in rural than in urban area, noted in the above, is not entirely due to the fact that the average income of rural households is lower than of urban households.

We have earlier noted that almost all households purchase some fabrics during a year (Table 9.0). Of course, this could not be true of all income classes. The relevant data are available only for the year 1987 (Table 9.1). The most frequently reported purchases are of cotton, cotton polyester, and polyester in that order in both urban and rural areas. As is to be expected, for almost all fabrics, the proportion of households reporting some purchase during the year is smaller in rural than in urban area and this is true of all income classes. The notable exception is the purchase of art silk in higher income groups of Rs 40,000 - 59,999 and Rs 60,000+. The proportion of households reporting purchases of art silk in these income classes is higher in rural than in urban area; 43.42 and 63.86 per cent respectively in rural area compared to 29.33 and 30.88 per cent respectively in urban area.

For almost all items, the proportion of households reporting some purchase during the year increases as we move from lower to higher income groups and, except for some statistical aberrations, the progression is everywhere smooth. Again, this is true of both urban and rural area. In fact, in the case of polyester cotton, the progression in the incidence of purchases is somewhat steeper in rural than in urban area. The real irregularity is to be seen in the purchase of pure silk in rural area. The proportion of households reporting some purchase of pure silk jumps from 9.51 per cent in the income group Rs 20,000-39,999 to 39.55 per cent in the income group Rs 40,000 - 59,999 and then comes down to 4.24 per cent in the income group Rs 60,000+. The middle figure is obviously suspect. It is also noteworthy that, in rural area, while the incidence of purchases of woollen, cotton viscose, polyester woollen, polyester viscose, and other mixed fabrics increases from lower to higher income groups, there are no households reporting purchases of these types in the higher income group, namely, Rs 60,000+. Possibly, the number of households in this income class is too small to catch reporting of purchases of these items. Incidence of purchases of acrylic in rural area is small and irregular and there are no households reporting purchases of acrylic in income classes Rs 40,000 - 59,999 and Rs 60,000+.

URBAN SHARE IN HOUSEHOLD PURCHASES OF DIFFERENT TYPES OF TEXTILES

We had earlier noted that, in spite of the much lower rate of growth of textile purchases in rural area (2.76 per cent) as compared to urban area (7.12 per cent), purchases in rural area still accounted for 67.82 per cent of all textile purchases in 1987. But, as we have now seen, not for all types of textiles, are the rates of growth lower in rural than in urban area. Hence, it may be useful to examine the urban/rural shares in the purchases of different types of textiles and, in particular, how these have moved over the years.

In Table 10.0, we give the urban shares in the total quantities of purchases of different types of textiles; that is, purchases in urban area as percentages of urban + rural purchases. Taken all textiles together (col. 20), the urban share has gradually grown over the years, from 19.25 per cent in 1974 to 32.18 per cent in 1987; the reason, as already noted, is that the proportion of population living in urban area has been growing and further that the urban-rural differential in terms of per capita purchases has been growing over the years. This is also true of all cotton textiles taken together (col. 7); the urban share increased from 17.12 per cent in 1974 to 27.36 per cent in 1987. However, within the cotton group, there are

different trends. The urban shares in purchases of mill-made cloth and also of powerloom cloth have fluctuated; but there are indications of its declining in mill-made cloth and increasing in powerloom cloth (cols. 2 and 3; for reasons earlier explained, we should neglect figures for 1980 and 1981). The urban share in handloom (col. 4) declined from 33.96 per cent in 1980 to 20.88 per cent in 1983 but since then has remained steady around 20.0 per cent. The urban share in hosiery declined from 29.06 per cent in 1980 to 24.83 per cent in 1986; the sudden rise to 32.52 per cent in 1987 seems to be freakish.

The urban share in all non-cotton textiles taken together (col. 14) increased from 35.19 per cent in 1974 to 60.40 per cent in 1981 but thereafter declined to 45.12 per cent in 1986; the small increase in 1987 is probably not indicative of any increase in future. As earlier mentioned, a part of the reported purchases of pure silk in rural area is likely to be of art silk and hence we shall not comment on urban shares in pure and art silk (cols. 8 and 9). The two other important items are, nylon and polyester. The urban shares in both show much fluctuations but there is evidence, in both cases, of their declining.

The urban shares in mixed fabric textiles have fluctuated without any clear indication of increase or decline.

In Table 10.1, we give urban shares in the quantities of purchases of some specific items of textiles. For instance, in 1987, the urban share of purchases of dhoties was 13.86 per cent (col. 2) and, of sarees, 36.46 per cent (col. 3); both have increased only slightly over the years. The highest urban share is in readymade garments (col. 10) and it increased from 23.89 per cent in 1978 to 39.76 per cent in 1987 with much fluctuation in between. The urban shares in towel/ turkish towel and in hosiery also increased. In most other cases, there is no clear indication that the urban share either increased or declined over the years.

Here is thus a wealth of statistical data on the household purchases which the Market Research Wing of the Textile Committee, Ministry of Textiles, collects in an annual sample survey and publishes every year. The purpose of this paper, as of the previous one, was to bring to light this information and indicate some lines of analysis.

TECHNICAL NOTE

Sampling Design: In the Technical Note appended to the previous paper [Divatia, 1990], we described the sampling design and noted that the design had remained basically the same but that the sample panel was expanded from time to time. In the context of the disaggregation into urban/rural and urban further into cities, big and small towns, presented in this paper, we need to note that the population size groups, defining such disaggregation, evolved in 1969 underwent changes from time to time. The 1969 population size groups were changed in 1977 using 1971 Census of Population data. Again, around early 1980s, estimated 1980 population figures began to be used. Finally, in 1987, 1981 Census data were used and one more population size group was added to the earlier seven groups. The sampling scheme given in the previous paper [Divatia, 1990] was based on the 1961 Population Census population size groups. Here (see following page) we present the sampling scheme as it evolved in 1977 and 1987 using the population size groups of the 1971 and 1981 population censuses respectively.

Notice that while the design was to select equal number of households from each centre selected from a population size group, evidently this was not possible for the the 6th and 7th size groups based on the 1981 Population Census. While the sampling design is generally satisfactory, sometimes it seems to be distorted for the sake of administrative or some other convenience. For instance, the 1987 Report states: "In the first instance, the consumer panel in the western region were taken up. During the year 1987 consumer panel in 5 new urban centres and 18 rural centres in the western region were added to the existing consumer panel" [p. 147]. This type of adjustments *after the selection of the sample* is not advisable.

A comment on the classification of the urban population into cities, big towns, and small towns, is necessary. MRW does not define these categories in terms of population size groups and, though this is nowhere clearly stated, we presume that centres selected from any given population size group are always uniquely classified as cities/ big towns/ small towns for all the years for which

the population size classification remains unchanged; otherwise, comparability of estimates for cities/big towns/small towns will not be maintained over the years. As for rural areas, MRW makes a further classification of villages into highly developed, developed, underdeveloped, and backward villages. But this is a classification of only the *selected* villages and not of all the villages from which sampling is drawn with each such category as a stratum. Besides the classification is based on the dubious criterion of per village income data (presumably household incomes). It is also not possible to aggregate the estimates of these village categories at the rural level because data for weighting are not available. These sub-classifications of rural areas are therefore omitted from the analysis here.

SAMPLING SCHEME

Population Size Group 1971	Number of Centres	Number Selected	Households Selected in each Centre	Total Households Selected
I. Towns & Cities				
(1) >30 lakh	3	3	300	900
(2) 15-30 lakh	4	2	300	600
(3) 7.5-15lakh	4	3	150	450
(4) 3-7.5 lakh	32	10	150	1500
(5) 1-3 lakh	99	10	50	500
(6) < 1 lakh	2779	30	50	1500
Total Urban		58		7450
II. Villages	6 lakh	100*	20	2000
Population Size Group 1971	Number of Centres	Number Selected	Households Selected in each Centre	Total Households Selected
I. Towns & Cities				
(1) >50 lakh	3	3	300	900
(2) 20-50 lakh	4	2	300	600
(3) 10-20 lakh	5	5	160	800
(4) 5-10 lakh	28	9	150	1350
(5) 2-5 lakh	62	9	50	450
(6) 1-2 lakh	114	9		480
(7) < 1 lakh	3029	26		1280
Total Urban		63		5860
II. Villages	5.57lakh	118		2360

* Of these, only 86 villages were covered in 1977.

Changes in population size groups in 1977 and 1987 could raise the question whether the estimates for cities, big and small towns are comparable over time. However, it may be noted that the number of selected centres in the top two population size groups has not changed, although the size groups have changed. Further the top five selected centres continue to be the same, viz., Bombay, Calcutta, Delhi, Madras, and Ahmedabad. Right up to number 20 on the list of selected centres given in the 1977 and 1987 MRW's Reports on Consumer Purchases of Textiles there is only one change of town. The ranks have undergone a few changes between the 6th and 20th town on the list. It is mostly in the lower population size groups that major changes have taken place. Therefore, it is likely that only some small towns and villages have gone over to one higher category of the population size groups. In view of this, there may not be much disturbance in the comparability of estimates for cities/ big towns/ small towns over the years. Nevertheless, it is desirable that they are used with caution and only broad classificatory data are used for analysis. On their part, MRW should define cities, big towns, and small-towns in terms of the population

size groups and ensure that, so long as the population size-groups remain unchanged, the selected centres are not shifted from one category to another.

In the present paper, we have tried to present the urban/rural break up of the several sets of data for the same periods for which the all-India data were given in the previous paper [Divatia, 1990]. But, this has not been always possible. For instance, while the per capita estimates of quantities and values of textile purchases of different types were earlier given for the period 1972-87, in this paper they are given for the period 1974-87. Again, while the aggregate household purchases of cotton textiles were earlier given for the period 1976-87, in this paper they are given for the period 1980-87; but now we have given estimates of per capita purchases as well. Similarly, while the aggregate household purchases of non-cotton and mixed fabric textiles were earlier given for the period 1975-87, they are now given for the period 1976-87, again, adding per capita estimates. Aggregate quantities and values of household purchases of specific items of textiles were earlier given for the period 1975-87; now they are given for the period 1978-87. Estimates for different income groups were earlier given for the period 1974-87; now they are given for 1976-87. In most of these cases, the estimates for earlier years were either not available or the break ups were not compatible with the respective overall figures. For instance, the 1977 Report of MRW, in its Table 2.5 (p. 10) gives a figure of 72.51 metres and value of Rs. 485.73 for per household purchases of cotton textiles in urban areas. Table No. II-2 (p. 275) which gives per household purchases of mill-made & powerloom, handloom, Khadi and hosiery, add up to 67.42 metres and a value of Rs. 445.86. Similar differences exist for rural areas also.

Finally, we may note that Unit Values are derived from 'aggregate' figures of quantities purchased and values thereof, and not from per capita estimates although they are given alongwith per capita estimates. The per capita estimates are rounded to 2 decimal places. Therefore, if the unit values are derived from the per capita estimates of quantities and values, they may not quite agree with the unit values as given in the several Tables.

Distributions of Households, Population, and Income, by Income Groups: Apart from the mass of data on household purchases of textiles that MRW collects through its annual surveys, some data on household characteristics such as size and income are also collected. These data are collected at the house-listing stage in the selected blocks in the cities, towns, and villages and thus involve a much larger sample than that used for filling up more detailed questionnaires. In particular, we have, for both urban and rural areas, distributions of households by income groups (Table 11.1), and average size of households in different income groups (Table 11.2). By combining the two, we shall derive distribution of population by household income groups (Table 11.3). These data are presented for the period 1981-87. We should emphasise that what we have in Table 13.3 is not the distribution of population by income groups but of population in the households belonging to different household income groups.

Besides, we have already presented data on the proportion of income spent on purchases of textiles by households in different income groups for the years 1984-87 (Table 8). We also have value of aggregate purchases of textiles by households in different income groups. Earlier, we have presented these data on a per capita basis for the years 1976-87 (Tables 7/U and 7/R). Here we present the aggregate values for the years 1984-87 (Table 12.1). By combining Tables 8 and 12.1, we shall derive the distribution of household income by household income groups (Table 12.2).

Our interest is in comparing the distribution of households (Table 11.1), distribution of population (Table 11.3), and distribution of household income (Table 12.2) in different household income groups. For convenience of comparison, we bring the three distributions together, separately for urban and rural areas (Tables 13.1, 13.2, and 13.3, U/R), for the common period 1984-87, expressing them in percentage terms and giving side by side the cumulative percentage distributions.

In the previous paper [Divatia 1990, p. 349], we compared the distribution of households with the

distribution of income. The comparison, though useful, misses the fact that the households in higher income groups are of larger size (Table 11.2) and thereby overstates the income inequality. In the context of urban/ rural comparison, there is the additional fact, to be noted from Table 11.2, that the increase in the size of household with the increase in household income is sharper in rural than in urban area and that, in corresponding income groups, the size of household is larger in rural than in urban area. Hence, a comparison of the distribution of households and the distribution of the household income may also overstate income inequality in rural as compared to urban area.

To correct this, we need to compare the distribution of population and income of households classified *in per capita income classes*. The MRW does not furnish the necessary data. In the circumstance, the next best comparison is between the distributions of population (Table 13.2) and of income (Table 13.3) of households classified in household income classes.

For instance, in 1987, 86.0 per cent of the urban households had annual income of less than Rs 40,000 (Table 13.1/U); in other words, 14.0 (100.00 - 86.00) per cent of the households had annual income of Rs 40,000 or more. But, they accounted for 39.24 (100.00 - 60.76) per cent of total income (Table 13.3/U). To put it differently, 14.0 per cent of the richest urban households accounted for 39.24 per cent of urban income. This is a measure of inequality in the household incomes in urban area. But, if we take into account the fact that the households with higher incomes are generally larger in size, we see that the 14.0 per cent of the richest urban households accounted for 16.41 (100.00 - 83.59) per cent of the urban population, and the inequality in urban incomes appears slightly moderate.

In rural area, in 1987, the income level broadly comparable to the income of Rs 40,000 in urban area was Rs 20,000; 11.68 (100.00 - 88.32) per cent of the households had annual income of Rs 20,000 or more. They accounted for 17.31 (100.00 - 82.69) per cent of the rural population (Table 13.2/R) and 35.47 (100.00 - 64.53) per cent of the rural income (Table 13.3/R). Two points may be noted. First, on a comparison of the distribution of population with the distribution of household income, the income inequality appears much more moderate than on a comparison of the distribution of household with the distribution of household incomes. Second, if we compare distribution of households with distribution of income, 14.0 per cent of the richest urban households accounted for 39.24 per cent of the urban income; while 11.68 per cent of the richest rural households accounted for 35.47 per cent of rural income. It would therefore seem that, on this basis, the income inequality in rural area is of the same order as in urban area. But, if we compare distribution of population with distribution of income, 16.41 per cent of the urban population living in the richest urban households accounted for 39.24 per cent of urban income; while 17.31 per cent of the rural population living in the richest rural households accounted for 35.47 per cent of the rural income. In other words, compared to the urban rich, a somewhat larger proportion of the population belonging to the richest households in rural area accounted for a much smaller proportion of rural income. Thus, on this basis, the income inequality in rural area would appear to be smaller than in urban area.

Finally, we should mention that the derived income distributions is only a by-product of the MRW surveys and should be checked with other income data before drawing serious conclusions.

REFERENCE

Divatia V.V. 1990; 'Household Purchases of Textiles: 1972-1987' in *Journal of Indian School of Political Economy*, Vol. II, No. 2, May-August 1990.

TABLE 1.0. AGGREGATE QUANTITIES OF HOUSEHOLD PURCHASES OF TEXTILES IN URBAN AND RURAL AREAS

	Urban							Rural						
	Aggregate Quantities(million metres)				Per cent Share in Total			Aggregate Quantities(million metres)				Per cent Share in Total		
Year	Cotton	Non-cotton	Mixed/ blended	Total	Cotton	Non-Cotton	Mixed/ Blended	Cotton	Non-cotton	Mixed/ blended	Total	Cotton	Non-Cotton	Mixed/ Blended
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1974	1184	158	188	1530	77.39	10.33	12.29	5731	291	395	6417	89.31	4.53	6.16
1975	1342	146	209	1697	79.08	8.60	12.32	5668	222	370	6260	90.54	3.55	5.91
1976	1285	133	198	1616	79.52	8.23	12.25	5295	124	264	5683	93.17	2.18	4.65
1977	1530	240	225	1995	76.69	12.03	11.28	5732	206	364	6302	90.96	3.27	5.78
1978	1696	313	304	2313	73.32	13.53	13.14	5662	232	453	6347	89.21	3.66	7.14
1979	1600	332	334	2266	70.61	14.65	14.74	5864	264	490	6618	88.61	3.99	7.40
1980	1670	414	427	2511	66.51	16.49	17.01	5437	408	691	6536	83.19	6.24	10.57
1981	1612	421	464	2497	64.56	16.86	18.58	4980	276	725	5981	83.26	4.61	12.12
1982	1737	471	546	2754	63.07	17.10	19.83	5355	386	1053	6794	78.82	5.68	15.50
1983	1687	507	547	2741	61.55	18.50	19.96	5600	530	991	7121	78.64	7.44	13.92
1984	1673	635	523	2831	59.10	22.43	18.47	5640	717	990	7347	76.77	9.76	13.47
1985	1839	765	651	3255	56.50	23.50	20.00	6270	905	1185	8360	75.00	10.83	14.17
1986	2049	814	734	3597	56.96	22.63	20.41	6147	990	1351	8488	72.42	11.66	15.92
1987	2301	898	918	4117	55.89	21.81	22.30	6110	982	1583	8675	70.43	11.32	18.25
G.R.	3.88	16.00	12.98	7.12				0.60	15.04	13.86	2.76			

G.R. = Annual Compound Growth Rate.

TABLE 1.1. PER CAPITA QUANTITIES OF HOUSEHOLD PURCHASES OF DIFFERENT TYPES OF TEXTILES

(Quantities in Metres)

	Urban				Rural				Urban as Multiple of Rural			
Year	Cotton	Non-Cotton	Mixed/ Blended	Total	Cotton	Non-Cotton	Mixed/ Blended	Total	Cotton	Non-Cotton	Mixed Blended	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1974	10.20	1.36	1.62	13.18	12.23	0.63	0.87	13.73	0.83	2.16	1.86	0.96
1975	11.23	1.22	1.74	14.19	11.79	0.45	0.77	13.01	0.95	2.71	2.26	1.09
1976	10.21	1.07	1.57	12.85	10.95	0.26	0.55	11.76	0.93	4.12	2.85	1.09
1977	11.41	1.78	1.68	14.87	11.65	0.42	0.74	12.81	0.98	4.24	2.27	1.16
1978	12.47	2.25	2.19	16.91	11.37	0.45	0.86	12.68	1.10	5.00	2.55	1.33
1979	11.35	2.35	2.37	16.07	11.50	0.52	0.96	12.98	0.99	4.52	2.47	1.24
1980	10.82	2.65	2.76	16.23	10.49	0.77	1.33	12.60	1.03	3.44	2.08	1.29
1981	10.02	2.61	2.89	15.53	9.43	0.52	1.37	11.32	1.06	5.02	2.11	1.37
1982	10.37	2.81	3.26	16.45	9.94	0.72	1.95	12.61	1.04	3.90	1.67	1.30
1983	9.73	2.92	3.15	15.80	10.24	0.97	1.81	13.02	0.95	3.01	1.74	1.21
1984	9.29	3.52	2.90	15.71	10.15	1.29	1.78	13.23	0.91	2.73	1.63	1.19
1985	9.83	4.09	3.48	17.40	11.11	1.60	2.10	14.81	0.88	2.56	1.66	1.17
1986	10.57	4.20	3.79	18.55	10.76	1.73	2.36	14.85	0.98	2.43	1.61	1.25
1987	11.42	4.46	4.56	20.44	10.52	1.69	2.73	14.94	1.09	2.64	1.67	1.37
G.R.	-0.56	11.05	8.19	2.55	-1.07	13.17	11.93	1.06				
G.R.*	0.52	9.12	6.08	3.23	1.20	18.36	9.94	3.70				

G.R. = Annual Compound Growth Rate. * Annual Compound Growth Rate for 1980-87.

TABLE 1.2 PER CAPITA VALUES OF HOUSEHOLD PURCHASES OF DIFFERENT TYPES OF TEXTILES

(Values in Rs)

	Urban				Rural				Urban as Multiple of Rural			
Year	Cotton	Non-Cotton	Mixed Blended	Total	Cotton	Non-Cotton	Mixed Blended	Total	Cotton	Non-Cotton	Mixed Blended	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1974	58.57	25.63	33.56	117.76	55.02	8.00	12.61	75.63	1.06	3.20	2.66	1.56
1975	67.97	30.97	42.09	141.03	56.61	7.37	13.67	77.64	1.20	4.20	3.08	1.82
1976	63.72	25.47	41.10	130.29	50.06	4.59	11.32	65.97	1.27	5.55	3.63	1.97
1977	76.45	49.47	48.77	174.69	57.99	7.15	15.95	81.09	1.32	6.92	3.06	2.15
1978	91.41	60.12	66.83	218.36	63.10	8.83	19.23	91.16	1.45	6.81	3.48	2.40
1979	88.45	70.18	73.09	231.72	67.40	11.45	24.35	103.20	1.31	6.13	3.00	2.25
1980	101.85	86.45	95.88	284.18	76.29	18.99	34.94	130.22	1.34	4.55	2.74	2.18
1981	105.07	98.91	111.32	315.30	71.11	13.24	37.05	121.40	1.48	7.47	3.00	2.60
1982	116.53	116.28	129.41	362.23	79.90	20.37	56.19	156.47	1.46	5.71	2.30	2.32
1983	115.68	121.71	129.65	367.04	85.24	29.57	55.86	170.66	1.36	4.12	2.32	2.15
1984	114.78	151.87	121.77	388.41	88.43	41.08	56.51	186.02	1.30	3.70	2.15	2.09
1985	128.46	200.20	149.85	478.51	101.44	53.89	68.54	223.87	1.27	3.72	2.19	2.14
1986	148.20	203.24	170.64	522.08	104.65	62.52	78.82	245.99	1.42	3.25	2.16	2.12
1987	172.76	232.89	201.27	606.92	109.38	70.74	89.47	269.59	1.58	3.29	2.25	2.25
G.R.	7.72	19.48	14.58	13.36	6.10	22.86	18.62	11.78				
G.R.*	7.02	15.89	9.60	10.95	6.40	27.20	13.94	12.36				

G.R. = Annual Compound Growth Rate. * Annual Compound Growth Rate for 1980-87.

TABLE 1.3 UNIT VALUES OF DIFFERENT TYPES OF TEXTILES

(Unit Values in Rs/Metre)

	Urban					Rural					Urban as Multiple of Rural			
Year	Cotton	Non-Cotton	Mixed Blended	Total	Index@	Cotton	Non-Cotton	Mixed Blended	Total	Index*	Cotton	Non-Cotton	Mixed Blended	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1974	5.74	18.81	20.70	8.92	59.56	4.48	12.36	14.51	5.46	58.38	1.28	1.52	1.43	1.64
1975	6.03	25.16	23.95	9.88	69.79	4.78	15.94	17.69	5.94	66.20	1.26	1.58	1.35	1.66
1976	6.24	24.08	26.16	10.15	71.73	4.58	17.91	20.78	5.63	68.96	1.36	1.34	1.26	1.80
1977	6.70	27.65	29.07	11.74	79.65	4.98	17.07	21.55	6.33	72.42	1.35	1.62	1.35	1.86
1978	7.36	26.82	30.42	13.03	82.70	5.62	20.06	22.81	7.37	80.67	1.31	1.34	1.33	1.77
1979	7.80	29.81	30.86	14.42	87.58	5.86	22.11	25.34	7.95	86.45	1.33	1.35	1.22	1.81
1980	9.44	32.33	34.77	17.52	100.00	7.28	24.15	26.24	10.34	100.00	1.30	1.34	1.33	1.70
1981	10.48	37.78	38.58	20.31	112.77	7.54	25.33	26.99	10.72	103.61	1.39	1.49	1.43	1.89
1982	11.23	41.33	39.68	22.02	120.02	8.04	28.43	28.76	12.41	111.31	1.40	1.45	1.38	1.77
1983	11.89	41.64	41.11	23.23	124.22	8.32	30.51	30.82	13.10	116.93	1.43	1.36	1.33	1.77
1984	12.36	43.08	41.94	24.72	128.15	8.71	31.83	31.71	14.07	121.76	1.42	1.35	1.32	1.76
1985	13.07	48.96	43.07	27.50	137.47	9.13	33.61	32.66	15.12	127.21	1.43	1.46	1.32	1.82
1986	14.02	48.41	45.07	28.14	142.51	9.73	36.10	33.35	16.57	134.24	1.44	1.34	1.35	1.70
1987	15.13	52.24	44.17	29.70	149.43	10.40	41.86	32.83	18.05	142.55	1.45	1.25	1.35	1.65
G.R.	8.34	7.59	5.93	10.55	7.31	7.25	8.66	5.95	10.53	7.09				
G.R.*	6.44	6.31	3.29	7.47	5.40	5.13	7.61	3.68	8.36	5.15				

G.R. = Annual Compound Growth Rate. * Annual Compound Growth Rate for 1980-87. @ Base: 1980=100

TABLE 2.1 PER CAPITA QUANTITIES OF HOUSEHOLD PURCHASES OF DIFFERENT TYPES OF TEXTILES IN CITIES, BIG TOWNS AND SMALL TOWNS

(Quantities in Metres)

	City				Big Town				Small Town			
Year	Cotton	Non-Cotton	Mixed/Blended	Total	Cotton	Non-Cotton	Mixed/Blended	Total	Cotton	Non-Cotton	Mixed/Blended	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1980	11.79	4.01	2.64	18.44	11.40	2.99	3.34	17.73	10.20	1.93	2.64	14.77
1981	11.58	3.12	2.36	17.05	9.97	2.82	3.72	16.51	9.39	2.32	2.82	14.53
1982	11.70	3.81	2.59	18.10	9.97	3.14	4.39	17.49	9.95	2.35	3.26	15.56
1983	11.17	3.34	2.37	16.89	9.48	3.50	4.03	17.01	9.23	2.62	3.25	15.10
1984	11.67	4.41	2.49	18.57	8.67	4.39	3.43	16.49	8.51	2.97	2.94	14.43
1985	12.50	5.88	3.45	21.84	10.11	4.94	4.15	19.20	8.73	3.20	3.33	15.26
1986	14.63	4.96	3.87	23.47	9.74	5.70	5.04	20.48	9.19	3.55	3.46	16.21
1987	18.35	5.63	5.33	29.31	10.85	5.33	5.62	21.81	8.90	3.81	4.01	16.72
G.R.	5.52	7.75	10.41	6.77	-0.60	11.52	5.92	3.36	-1.81	9.91	4.76	1.57

G.R. = Annual Compound Growth Rate.

TABLE 2.2 PER CAPITA VALUES OF HOUSEHOLD PURCHASES OF DIFFERENT TYPES OF TEXTILES IN CITIES, BIG TOWNS AND SMALL TOWNS

(Values in Rs)

	City				Big Town				Small Town			
Year	Cotton	Non-Cotton	Mixed/Blended	Total	Cotton	Non-Cotton	Mixed/Blended	Total	Cotton	Non-Cotton	Mixed/Blended	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1980	123.73	133.58	98.45	355.76	105.49	105.41	116.32	327.22	90.82	59.24	88.41	238.46
1981	138.50	125.52	94.25	358.27	103.06	109.22	146.29	358.57	91.72	84.08	106.11	281.91
1982	150.18	158.66	116.85	425.69	115.60	147.36	179.67	442.62	103.68	92.49	122.40	318.57
1983	149.66	148.88	104.64	403.18	113.42	170.07	164.48	447.97	103.04	99.81	131.18	334.04
1984	154.36	205.19	118.92	478.46	108.98	196.97	148.34	454.30	100.82	120.65	116.64	338.11
1985	179.43	331.08	164.59	675.09	128.92	234.53	180.95	544.40	108.67	141.62	136.90	387.18
1986	229.31	267.79	181.09	678.19	131.60	271.87	232.48	635.95	120.76	162.29	152.13	435.18
1987	309.15	322.88	249.25	881.27	167.19	285.35	258.42	710.96	121.76	186.21	169.61	477.58
G.R.	11.97	16.05	13.85	14.12	5.80	16.84	9.76	11.22	4.31	16.42	8.15	9.51

G.R. = Annual Compound Growth Rate

TABLE 2.3 UNIT VALUES OF DIFFERENT TYPES OF TEXTILES IN CITIES, BIG TOWNS AND SMALL TOWNS

(Unit Values in Rs per Metre)

	City				Big Town				Small Town			
Year	Cotton	Non-Cotton	Mixed/Blended	Total	Cotton	Non-Cotton	Mixed/Blended	Total	Cotton	Non-Cotton	Mixed/Blended	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1980	10.50	33.32	37.29	19.30	9.25	35.30	34.83	18.46	8.91	30.66	33.50	16.15
1981	11.96	40.20	40.01	21.01	10.34	38.70	39.28	21.71	9.77	36.30	37.59	19.40
1982	12.84	41.62	45.20	23.52	11.60	46.91	40.97	25.30	10.42	39.42	37.52	20.48
1983	13.39	44.52	44.08	23.87	11.97	48.58	40.78	26.34	11.16	38.10	40.38	22.12
1984	13.23	46.50	47.77	25.76	12.57	44.86	43.25	27.55	11.85	40.57	39.67	23.44
1985	14.35	56.29	47.67	30.92	12.75	47.47	43.57	28.35	12.45	44.24	41.12	25.37
1986	15.67	53.97	46.74	28.90	13.51	47.68	46.11	31.05	13.14	45.65	43.98	26.85
1987	16.85	57.35	46.76	30.07	15.41	53.54	45.98	32.60	13.68	48.87	42.30	28.56
G.R.	6.11	7.69	3.15	6.89	6.44	4.77	3.62	7.60	6.23	5.90	3.23	7.81

G.R. = Annual Compound Growth Rate

TABLE 3.0. AGGREGATE QUANTITIES OF HOUSEHOLD PURCHASES OF COTTON TEXTILES

	Urban										Rural									
	Aggregate Quantities (Million Metres)					Per cent Share in Total					Aggregate Quantities (Million Metres)					Per cent Share in Total				
Year	Millmade	Power Loom	Hand Loom	Khadi	Hosiery	Millmade	Power Loom	Hand Loom	Khadi	Hosiery	Millmade	Power Loom	Hand Loom	Khadi	Hosiery	Millmade	Power Loom	Hand Loom	Khadi	Hosiery
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
1980	1293.93	37.81	212.41	22.71	103.15	77.48	2.26	12.72	1.36	6.18	4440.35	148.92	413.01	182.92	251.81	81.67	2.74	7.60	3.36	4.63
1981	1269.67	30.46	186.96	13.73	111.18	78.76	1.89	11.60	0.85	6.90	3249.24	914.16	420.40	119.90	276.30	65.25	18.36	8.44	2.41	5.55
1982	667.94	284.73	642.98	22.78	118.58	38.45	16.39	37.02	1.31	6.83	687.02	2077.23	2142.97	90.53	357.25	12.83	38.79	40.02	1.69	6.67
1983	646.91	295.12	597.83	13.09	134.05	38.35	17.49	35.44	0.78	7.95	631.06	2273.16	2264.74	68.02	363.02	11.27	40.59	40.44	1.21	6.48
1984	624.62	336.20	582.70	10.72	118.76	37.34	20.10	34.83	0.64	7.10	677.65	2097.35	2457.40	54.39	353.22	12.02	37.19	43.57	0.96	6.26
1985	672.82	380.38	620.23	13.79	151.78	36.59	20.68	33.73	0.75	8.25	948.66	2319.27	2466.29	63.63	472.15	15.13	36.99	39.33	1.01	7.53
1986	827.85	468.61	571.59	9.99	170.96	40.40	22.87	27.90	0.49	8.34	902.43	2455.43	2198.07	73.44	517.63	14.68	39.95	35.76	1.19	8.42
1987	1003.41	513.80	517.83	14.10	251.86	43.61	22.33	22.50	0.61	10.95	1248.72	2323.19	1858.56	63.89	522.72	20.44	38.02	30.42	1.05	8.56
G.R.	1.46	**	14.93	-7.59	11.34						-2.79	**	25.83	-12.37	11.39					

G.R. = Annual Compound Growth Rate.
** G.R.s in Col.2 of Tables 3.0, 3.1, 3.2, 3.3 are for the combined group millmade and powerloom.

TABLE 3.1. PER CAPITA QUANTITIES OF HOUSEHOLD PURCHASES OF DIFFERENT TYPES OF COTTON TEXTILES IN URBAN AND RURAL AREAS

(Quantities in Metres)

	Urban						Rural						Urban as Multiple of Rural					
Year	Millmade	Power-Loom	Hand-Loom	Khadi	Hosiery	Total Cotton	Millmade	Power Loom	Hand Loom	Khadi	Hosiery	Total	Millmade	Power Loom	Hand Loom	Khadi	Hosiery	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1980	8.38	0.24	1.38	0.15	0.67	10.82	8.57	0.29	0.80	0.35	0.49	10.49	0.98	0.85	1.73	0.42	1.38	1.03
1981	7.90	0.19	1.16	0.09	0.69	10.02	6.15	1.73	0.80	0.23	0.52	9.43	1.28	0.11	1.46	0.38	1.32	1.06
1982	3.99	1.70	3.84	0.14	0.71	10.37	1.28	3.86	3.98	0.17	0.66	9.94	3.13	0.44	0.97	0.81	1.07	1.04
1983	3.73	1.70	3.45	0.08	0.77	9.73	1.15	4.16	4.14	0.12	0.66	10.24	3.23	0.41	0.83	0.61	1.16	0.95
1984	3.47	1.87	3.23	0.06	0.66	9.29	1.22	3.78	4.42	0.10	0.64	10.15	2.84	0.49	0.73	0.61	1.04	0.91
1985	3.60	2.03	3.32	0.07	0.81	9.83	1.68	4.11	4.37	0.11	0.84	11.11	2.14	0.49	0.76	0.65	0.97	0.89
1986	4.27	2.42	2.95	0.05	0.88	10.57	1.58	4.30	3.85	0.13	0.91	10.76	2.70	0.56	0.77	0.40	0.97	0.98
1987	4.98	2.55	2.57	0.07	1.25	11.42	2.15	4.00	3.20	0.11	0.90	10.52	2.32	0.64	0.80	0.64	1.39	1.09
G.R.	-2.30	**	10.68	-11.02	7.21	0.52	-4.33	**	23.83	-13.77	9.62	1.20						

G.R. = Annual Compound Growth Rate.
** G.R. not calculated, separately.

TABLE 3.2. PER CAPITA VALUES OF HOUSEHOLD PURCHASES OF DIFFERENT TYPES OF COTTON TEXTILES IN URBAN AND RURAL AREAS

(Values in Rs)

	Urban						Rural						Urban as Multiple of Rural					
Year	Millmade	Power-Loom	Hand-Loom	Khadi	Hosiery	Total Cotton	Millmade	Power Loom	Hand Loom	Khadi	Hosiery	Total	Millmade	Power Loom	Hand Loom	Khadi	Hosiery	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1980	82.28	2.10	13.35	1.29	2.84	101.85	65.12	1.88	5.00	2.61	1.68	76.29	1.26	1.11	2.67	0.49	1.70	1.34
1981	86.66	1.83	12.22	0.85	3.51	105.07	49.02	12.87	5.69	1.64	1.88	71.11	1.77	0.14	2.15	0.52	1.87	1.48
1982	48.55	19.01	43.19	1.50	4.28	116.53	12.43	32.24	31.08	1.30	2.85	79.90	3.91	0.59	1.39	1.15	1.50	1.46
1983	46.67	20.09	43.32	0.90	4.71	115.68	11.51	36.26	33.27	1.08	3.12	85.24	4.06	0.55	1.30	0.83	1.51	1.36
1984	45.26	21.89	42.81	0.71	4.11	114.78	12.79	32.96	38.50	0.91	3.27	88.43	3.54	0.66	1.11	0.78	1.26	1.30
1985	50.58	24.30	47.35	0.85	5.38	128.46	17.79	37.65	39.94	1.34	4.72	101.44	2.84	0.65	1.19	0.63	1.14	1.27
1986	65.31	32.97	43.11	0.54	6.25	148.20	17.42	42.59	37.46	1.52	5.67	104.65	3.75	0.77	1.15	0.36	1.10	1.42
1987	83.77	35.64	39.56	1.07	12.72	172.76	25.11	41.47	34.31	1.62	6.87	109.38	3.34	0.86	1.15	0.66	1.85	1.58
G.R.	3.97	**	24.34	-10.33	11.67	7.02	0.40	**	32.57	-4.41	22.34	6.40						

G.R. = Annual Compound Growth Rate.
** G.R. not calculated, separately.

TABLE 3.3. UNIT VALUES OF DIFFERENT TYPES OF COTTON TEXTILES

(Unit Values in Rs/metre)

	Urban						Rural						Urban as Multiple of Rural					
Year	Millmade	Power-loom	Hand-loom	Khadi	Hosiery	Total Cotton	MillMade	Power loom	Hand loom	Khadi	Hosiery	Total Cotton	Millmade	Power-loom	Hand-loom	Khadi	Hosiery	Total Cotton
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1980	9.85	8.58	9.73	8.78	4.27	9.44	7.61	6.55	6.28	7.39	3.45	7.28	1.29	1.31	1.55	1.19	1.24	1.30
1081	10.98	9.67	10.51	10.00	5.08	10.48	7.97	7.44	7.15	7.21	3.6	7.54	1.38	1.30	1.47	1.39	1.41	1.39
1982	12.17	11.18	11.25	11.03	6.04	11.23	9.75	8.36	7.81	7.75	4.30	8.04	1.25	1.34	1.44	1.42	1.41	1.40
1983	12.51	11.81	12.57	11.88	6.09	11.89	9.97	8.72	8.03	8.65	4.70	8.32	1.26	1.35	1.57	1.37	1.30	1.43
1984	13.05	11.73	13.24	11.97	6.24	12.36	10.48	8.73	8.70	9.32	5.14	8.71	1.24	1.34	1.52	1.28	1.21	1.42
1985	14.06	11.95	14.28	11.53	6.63	13.07	10.59	9.16	9.14	11.89	5.64	9.13	1.33	1.30	1.56	0.97	1.18	1.43
1986	15.30	13.64	14.62	10.58	7.09	14.02	11.03	9.92	9.74	11.81	6.26	9.73	1.39	1.38	1.50	0.90	1.13	1.44
1987	16.82	13.97	15.39	15.28	10.17	15.13	11.68	10.37	10.72	14.73	7.63	10.40	1.44	1.35	1.44	1.04	1.33	1.45
G.R.	6.39	**	6.93	5.25	10.06	6.44	**	6.04	7.20	10.89	11.60	5.13						

G.R. = Annual Compound Growth Rate.
** G.R. not calculated, separately.

TABLE 4.0. AGGREGATE QUANTITIES OF HOUSEHOLD PURCHASES OF NON-COTTON TEXTILES

	Urban											Rural										
	Aggregate Quantities (Million Metres)					Per cent Share in Total						Aggregate Quantities (Million Metres)					Per cent Share in Total					
Year	Pure Silk	Art Silk	Woollen	Nylon	Poly-ester	Pure Silk	Art Silk	Woollen	Acrylic	Nylon	Poly-ester	Pure Silk	Art Silk	Woollen	Nylon	Poly-ester	Pure Silk	Art Silk	Woollen	Acrylic	Nylon	Poly-ester
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1976	23	23	12	33	42	17.29	17.29	9.02		24.81	31.58	13	45	18	15	33	10.48	36.29	14.52		12.10	26.61
1977	48	29	18	46	99	20.00	12.08	7.50		19.17	41.25	14	56	22	55	59	6.80	27.18	10.68		26.70	28.64
1978	51	40	22	51	149	16.29	12.78	7.03		16.29	47.60	11	46	39	36	100	4.74	19.83	16.81		15.52	43.10
1979	61	37	25	48	161	18.37	11.14	7.53		14.46	48.49	21	54	31	46	112	7.95	20.45	11.74		17.42	42.42
1980	84	47	34	56	190	20.29	11.35	8.21	0.72	13.53	45.89	31	47	47	72	201	7.60	11.52	11.52	2.45	17.65	49.26
1981	98	50	38	42	189	23.28	11.88	9.03	0.95	9.98	44.89	16	50	39	37	133	5.80	18.12	14.13	0.36	13.41	48.19
1982	90	50	41	59	228	19.11	10.62	8.70	0.64	12.53	48.41	31	53	56	37	205	8.03	13.73	14.51	1.04	9.59	53.11
1983	79	54	43	52	276	15.58	10.65	8.48	0.59	10.26	54.44	30	70	82	86	257	5.66	13.21	15.47	0.94	16.23	48.49
1984	78	69	46	49	387	12.28	10.87	7.24	0.94	7.72	60.94	35	101	78	66	428	4.88	14.09	10.88	1.26	9.21	59.69
1985	103	78	53	42	484	13.46	10.20	6.93	0.65	5.49	63.27	57	121	85	73	559	6.30	13.37	9.39	1.10	8.07	61.77
1986	112	85	55	38	520	13.76	10.44	6.76	0.49	4.67	63.88	69	96	102	76	641	6.97	9.70	10.30	0.61	7.68	64.75
1987	124	111	51	83	527	13.81	12.36	5.68	0.22	9.24	58.69	75	130	82	123	569	7.64	13.24	8.35	0.31	12.53	57.94
G.R.	11.85	13.10	13.40	2.58	21.92							18.38	10.16	16.06	12.37	28.95						

G.R. = Annual Compound Growth Rate.
Quantities of Acrylic are small and are not shown here. Interested reader may obtain them by subtracting the total of the items shown in this table from the quantity of Non-Cotton textiles given in Table 1.0.

TABLE 4.1. PER CAPITA QUANTITIES OF HOUSEHOLD PURCHASES OF DIFFERENT TYPES OF NON-COTTON TEXTILES

(Quantities in Metres)

	Urban							Rural							Urban as Multiple of Rural						
Year	Pure Silk	Art Silk	Woo-llen	Acrylic	Nylon	Poly-ester	Total	Pure Silk	Art Silk	Woo-llen	Acrylic	Nylon	Poly-ester	Total	Pure Silk	Art Silk	Woo-llen	Acrylic	Nylon	Poly-ester	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1976	0.18	0.18	0.11	-	0.26	0.34	1.07	0.03	0.08	0.04	-	0.04	0.07	0.26	6.00	2.25	2.75	-	6.50	4.86	4.12
1977	0.36	0.21	0.13	-	0.34	0.74	1.78	0.03	0.11	0.05	-	0.11	0.13	0.42	12.22	1.99	2.71	-	3.05	5.89	4.24
1978	0.37	0.29	0.16	-	0.37	1.07	2.25	0.02	0.09	0.08	-	0.07	0.19	0.45	16.44	3.18	2.09	-	5.29	5.56	5.00
1979	0.45	0.25	0.18	-	0.33	1.15	2.35	0.05	0.10	0.06	-	0.08	0.22	0.52	9.71	2.39	2.85	-	3.96	5.13	4.52
1980	0.54	0.30	0.20	0.02	0.34	1.26	2.65	0.06	0.09	0.09	0.02	0.14	0.38	0.77	9.59	3.35	2.14	1.40	2.39	3.33	3.43
1981	0.61	0.31	0.23	0.02	0.26	1.18	2.61	0.03	0.10	0.07	0.00	0.07	0.25	0.52	19.70	3.27	3.21	22.57	3.67	4.65	4.98
1982	0.54	0.30	0.24	0.02	0.35	1.36	2.81	0.06	0.10	0.10	0.01	0.07	0.38	0.72	9.40	3.02	2.34	3.00	5.12	3.57	3.92
1983	0.45	0.31	0.25	0.02	0.30	1.59	2.92	0.06	0.13	0.15	0.01	0.16	0.47	0.97	8.18	2.43	1.62	2.23	1.90	3.38	3.01
1984	0.43	0.38	0.25	0.03	0.27	2.14	3.52	0.06	0.18	0.14	0.02	0.12	0.77	1.29	6.86	2.12	1.80	1.96	2.32	2.78	2.73
1985	0.55	0.42	0.28	0.03	0.22	2.59	4.09	0.10	0.22	0.15	0.02	0.13	0.99	1.60	5.47	1.94	1.88	1.48	1.71	2.62	2.55
1986	0.58	0.44	0.28	0.02	0.19	2.68	4.20	0.12	0.17	0.18	0.01	0.13	1.12	1.73	4.80	2.61	1.58	1.75	1.47	2.40	2.42
1987	0.61	0.55	0.25	0.01	0.41	2.61	4.46	0.13	0.22	0.14	Neg.	0.21	0.98	1.69	4.69	2.50	1.79	-	1.95	2.66	2.64
G.R.	7.17	8.70	8.24	*	-1.57	16.69	11.06	15.65	9.28	13.58	*	9.59	26.57	18.18							

G.R. = Annual Compound Growth Rate.
* G.R. Not Calculated

TABLE 4.2. PER CAPITA VALUES OF HOUSEHOLD PURCHASES OF DIFFERENT TYPES OF NON-COTTON TEXTILES

(Values in Rs)

	Urban							Rural							Urban as Multiple of Rural						
Year	Pure Silk	Art Silk	Woollen	Acrylic	Nylon	Polyester	Total	Pure Silk	Art Silk	Woollen	Acrylic	Nylon	Polyester	Total	Pure Silk	Art Silk	Woollen	Acrylic	Nylon	Polyester	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1976	7.76	1.99	4.50	-	4.39	6.83	25.47	0.70	1.02	1.21	-	0.48	1.18	4.59	11.09	1.95	3.72	-	9.15	5.79	5.55
1977	17.76	3.15	6.37	-	5.61	16.58	49.47	1.15	0.73	1.29	-	1.34	2.64	7.15	15.44	4.32	4.94	-	4.19	6.28	6.92
1978	18.33	3.84	6.76	-	6.31	24.88	60.12	0.84	0.71	2.44	-	0.87	3.97	8.83	21.85	5.43	2.77	-	7.22	6.27	6.81
1979	24.13	3.97	7.44	-	5.56	29.08	70.18	2.03	1.16	1.99	-	0.97	5.30	11.45	11.89	3.43	3.73	-	5.73	5.49	6.13
1980	29.43	5.65	9.24	0.46	6.17	35.51	86.45	3.11	1.45	2.63	0.31	2.13	9.37	18.99	9.48	3.89	3.51	1.49	2.90	3.79	4.55
1981	37.30	6.65	13.38	0.42	5.91	35.25	98.91	1.44	1.45	2.30	0.01	1.13	6.92	13.24	25.86	4.60	5.82	57.21	5.24	5.10	7.47
1982	38.90	8.49	13.66	0.83	8.31	46.09	116.28	2.99	1.46	3.64	0.15	1.06	11.07	20.37	13.01	5.80	3.76	5.45	7.82	4.16	5.71
1983	35.81	8.00	14.35	0.44	7.30	55.82	121.71	3.64	1.96	6.18	0.18	2.33	15.27	29.57	9.83	4.08	2.32	2.48	3.13	3.66	4.12
1984	36.33	10.57	15.83	0.64	5.98	82.52	151.87	4.29	3.07	6.06	0.31	1.99	25.36	41.08	8.47	3.44	2.61	2.07	3.00	3.25	3.70
1985	49.76	13.56	16.54	0.64	5.73	113.97	200.20	7.22	3.82	6.13	0.32	2.34	34.06	53.89	6.90	3.55	2.70	1.98	2.44	3.35	3.72
1986	54.72	15.09	18.24	0.52	5.41	109.25	203.24	9.82	3.96	7.29	0.28	2.64	38.53	62.52	5.57	3.81	2.50	1.89	2.05	2.84	3.25
1987	62.83	21.68	19.11	0.40	11.99	116.89	232.89	13.85	6.57	6.83	0.12	4.55	38.82	70.74	4.54	3.30	2.80	3.33	2.64	3.01	3.29
G.R.	16.14	21.36	13.72	*	4.02	25.83	19.32	28.70	20.49	18.96	*	15.64	35.76	27.61							

G.R. = Annual Compound Growth Rate.
* G.R. Not Calculated

TABLE 4.3. UNIT VALUES OF DIFFERENT TYPES OF NON-COTTON IN TEXTILES

(Unit Values in Rs/Metre)

	Urban							Rural							Urban as Multiple of Rural						
Year	Pure Silk	Art Silk	Woollen	Acrylic	Nylon	Polyester	Total	Pure Silk	Art Silk	Woollen	Acrylic	Nylon	Polyester	Total	Pure Silk	Art Silk	Woollen	Acrylic	Nylon	Polyester	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1976	42.35	10.91	47.08	-	16.15	20.48	24.08	25.85	11.02	32.50	-	15.53	17.30	17.91	1.64	0.99	1.45	-	1.04	1.18	1.34
1977	49.63	14.59	47.44	-	16.35	22.46	27.65	40.43	6.38	28.86	-	11.98	22.02	17.07	1.23	2.29	1.64	-	1.36	1.02	1.62
1978	49.98	13.38	42.86	-	17.24	23.42	26.82	39.36	8.15	33.38	-	12.86	20.80	20.06	1.27	1.64	1.28	-	1.34	1.13	1.34
1979	54.51	15.89	42.44	-	16.92	25.53	29.81	45.19	10.78	32.45	-	11.76	24.63	22.11	1.21	1.47	1.31	-	1.44	1.04	1.35
1980	54.24	18.68	42.12	22.67	17.07	28.92	32.33	51.87	16.00	29.02	16.10	15.35	24.20	24.15	1.05	1.17	1.45	1.41	1.11	1.19	1.34
1981	61.20	21.40	56.66	16.50	22.64	29.99	37.78	47.63	15.30	31.13	1.00	16.11	27.47	25.33	1.29	1.40	1.82	16.50	1.41	1.09	1.49
1982	72.36	28.42	55.78	46.33	23.59	33.83	41.33	51.94	14.89	34.98	20.50	15.46	29.09	28.43	1.39	1.91	1.59	2.26	1.53	1.16	1.45
1983	78.63	25.69	57.88	25.33	24.35	35.08	41.64	66.53	15.33	41.24	19.20	14.84	32.48	30.51	1.18	1.68	1.40	1.32	1.64	1.08	1.36
1984	83.90	27.59	62.00	19.17	21.98	38.41	43.08	68.06	16.91	43.13	19.00	16.77	32.92	31.83	1.23	1.63	1.44	1.01	1.31	1.17	1.35
1985	90.39	32.53	58.40	24.00	25.50	44.06	48.96	71.51	17.83	40.68	18.20	18.12	34.39	33.61	1.26	1.82	1.44	1.32	1.41	1.28	1.46
1986	94.72	34.42	64.29	25.25	27.63	40.73	48.41	81.39	23.59	40.83	26.33	19.86	34.36	36.10	1.16	1.46	1.57	0.96	1.39	1.19	1.34
1987	102.06	39.34	75.47	40.00	29.11	44.68	52.24	107.41	29.35	48.39	23.33	21.49	39.64	41.86	0.95	1.34	1.56	1.71	1.35	1.13	1.25
G.R.	8.40	11.86	4.62	#	5.89*	7.66*	7.42	10.68	11.11	4.09	#	4.34*	6.88*	8.12							

G.R.= Annual Compound Growth Rate;
# Not Calculated;
* G.R. for Nylon and Polyester are for 1976-87.

TABLE 5.0 AGGREGATE QUANTITIES OF HOUSEHOLD PURCHASES OF MIXED FIBRE TEXTILES

	Urban								Rural							
	Aggregate Quantities (in million metres)				Per cent Share in Total				Aggregate Quantities (in million metres)				Per cent Share in Total			
Year	Polyester Cotton	Polyester Wool	Polyester Viscose	Other Mixed	Polyester Cotton	Polyester Wool	Polyester Viscose	Other Mixed	Polyester Cotton	Polyester Wool	Polyester Viscose	Other Mixed	Polyester Cotton	Polyester Wool	Polyester Viscose	Other Mixed
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1976	164	5	-	29	82.83	2.53	-	14.65	212	1	-	51	80.30	0.38	-	19.32
1977	184	4	-	37	81.78	1.78	-	16.44	280	3	-	81	76.92	0.82	-	22.25
1978	245	4	-	55	80.59	1.32	-	18.09	347	5	-	101	76.60	1.10	-	22.30
1979	268	6	-	60	80.24	1.80	-	17.96	374	2	-	114	76.33	0.41	-	23.27
1980	344	8	-	75	80.56	1.87	-	17.56	572	5	Neg.	114	82.78	0.72	-	16.50
1981	373	10	11	70	80.39	2.16	2.37	15.09	579	3	5	138	79.86	0.41	0.69	19.03
1982	404	11	34	97	73.99	2.01	6.23	17.77	826	4	5	218	78.44	0.38	0.47	20.70
1983	441	9	22	75	80.62	1.65	4.02	13.71	747	4	9	231	75.38	0.40	0.91	23.31
1984	443	9	6	65	84.70	1.72	1.15	12.43	776	4	16	194	78.38	0.40	1.62	19.60
1985	568	11	9	63	87.25	1.69	1.38	9.68	950	5	13	217	80.17	0.42	1.10	18.31
1986	618	9	5	102	84.20	1.23	0.68	13.90	1152	6	27	166	85.27	0.44	2.00	12.29
1987	809	11	15	83	88.13	1.20	1.63	9.04	1355	6	29	193	85.60	0.38	1.83	12.19
G.R.	14.08	9.36	*	8.14					17.04	10.68	*	11.72				

G.R. = Annual Compound Groth Rate.
* Not Calculated

TABLE 5.1. PER CAPITA QUANTITIES OF HOUSEHOLD PURCHASES OF DIFFERENT TYPES OF MIXED FIBRE TEXTILES

(Quantities in Metres)

	Urban					Rural					Urban as Multiple of Rural				
Year	Poly-ester Cotton	Poly-ester Wool	Poly-ester Viscose	Other Mixed	Total	Poly-ester Cotton	Poly-ester Wool	Poly-ester Viscose	Other Mixed	Total	Poly-ester Cotton	Poly-ester Wool	Poly-ester Viscose	Other Mixed	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1976	1.31	0.03	-	0.23	1.57	0.44	0.00	-	0.11	0.55	2.98	19.35	-	2.09	2.85
1977	1.38	0.03	-	0.27	1.68	0.57	0.01	-	0.16	0.74	2.42	3.00	-	1.69	2.27
1978	1.77	0.03	-	0.40	2.19	0.66	0.01	-	0.19	0.86	2.68	3.34	-	2.06	2.55
1979	1.91	0.04	-	0.42	2.37	0.73	0.00	-	0.22	0.96	2.61	8.93	-	1.89	2.47
1980	2.22	0.06	-	0.48	2.76	1.10	0.01	0.00	0.22	1.33	2.01	5.63	-	2.22	2.07
1981	2.32	0.06	0.07	0.44	2.89	1.10	0.01	0.01	0.26	1.37	2.12	10.40	6.80	1.70	2.11
1982	2.43	0.07	0.21	0.56	3.26	1.55	0.01	0.01	0.38	1.95	1.57	8.55	22.90	1.45	1.67
1983	2.54	0.05	0.13	0.43	3.15	1.37	0.01	0.02	0.42	1.81	1.86	7.61	7.50	1.01	1.74
1984	2.46	0.05	0.03	0.36	2.90	1.40	0.01	0.03	0.35	1.78	1.76	6.71	1.09	1.03	1.63
1985	3.04	0.06	0.05	0.33	3.48	1.68	0.01	0.02	0.39	2.10	1.81	5.79	2.33	0.86	1.66
1986	3.19	0.04	0.03	0.53	3.79	2.02	0.01	0.05	0.29	2.36	1.58	4.01	0.56	1.83	1.60
1987	4.02	0.05	0.08	0.41	4.56	2.33	0.01	0.05	0.34	2.73	1.73	5.00	1.60	1.21	1.67
G.R.	9.28	5.28	*	3.67	8.68	15.20	8.71	*	10.01	14.49					

G.R. = Annual Compound Growth Rate.
* Not Calculated

TABLE 5.2. PER CAPITA VALUES OF HOUSEHOLD PURCHASES OF DIFFERENT TYPES OF MIXED FIBRE TEXTILES

(Values in Rs)

Year	Urban					Rural					Urban as Multiple of Rural				
	Poly-ester Cotton	Poly-ester Wool	Poly-ester Viscose	Other Mixed	Total	Poly-ester Cotton	Poly-ester Wool	Poly-ester Viscose	Other Mixed	Total	Poly-ester Cotton	Poly-ester Wool	Poly-ester Viscose	Other Mixed	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1976	35.02	2.38	-	3.70	41.10	10.23	0.12	-	0.97	11.32	3.42	19.83	-	3.81	3.63
1977	41.96	2.99	-	3.82	48.77	14.08	0.38	-	1.49	15.95	2.98	7.87	-	2.56	3.06
1978	57.35	3.23	-	6.25	66.83	16.62	0.62	-	1.99	19.23	3.45	5.22	-	3.14	3.48
1979	62.20	3.94	-	6.95	73.09	21.31	0.44	-	2.60	24.35	2.92	9.05	-	2.67	3.00
1980	78.73	6.24	-	10.91	95.88	31.04	0.72	0.05	3.13	34.94	2.54	8.70	-	3.48	2.74
1981	90.07	6.72	2.59	11.95	111.32	31.93	0.35	0.44	4.33	37.05	2.82	19.02	5.89	2.76	3.00
1982	96.45	9.60	6.83	16.53	129.41	48.40	0.82	0.41	6.57	56.19	1.99	11.78	16.72	2.52	2.30
1983	105.82	6.32	5.45	12.06	129.65	45.61	0.32	0.50	9.44	55.86	2.32	19.94	10.97	1.28	2.32
1984	103.75	6.45	1.46	10.11	121.77	48.06	0.67	0.92	6.86	56.51	2.16	9.67	1.59	1.47	2.15
1985	128.46	8.57	2.14	10.69	149.85	57.67	1.07	0.71	9.08	68.54	2.23	7.98	2.99	1.18	2.19
1986	139.57	7.03	1.63	22.40	170.64	70.05	0.66	1.46	6.65	78.82	1.99	10.60	1.12	3.37	2.16
1987	171.32	9.79	4.21	15.95	201.27	78.70	1.28	1.71	7.78	89.47	2.18	7.65	2.46	2.05	2.25
G.R.	13.99	12.21	*	14.31	14.21	15.20	13.19	*	21.44	19.96					

G.R. = Annual Compound Growth Rate.
* Not Calculated

TABLE 5.3. UNIT VALUES OF DIFFERENT TYPES OF MIXED FIBRE TEXTILES

(Unit Values in Rs/Metre)

Year	Urban					Rural					Urban as multiple of Rural				
	Poly-ester Cotton	Poly-ester Wool	Poly-ester Viscose	Other Mixed	Total	Poly-ester Cotton	Poly-ester Wool	Poly-ester Viscose	Other Mixed	Total	Poly-ester Cotton	Poly-ester Wool	Poly-ester Viscose	Other Mixed	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1976	26.91	59.80	-	16.10	26.16	23.39	60.00	-	9.16	20.78	1.15	1.00	-	1.76	1.26
1977	30.58	100.25	-	13.84	29.07	24.74	62.33	-	9.05	21.55	1.24	1.61	-	1.53	1.35
1978	32.42	111.50	-	15.65	30.42	25.72	66.40	-	10.64	22.81	1.26	1.68	-	1.47	1.33
1979	32.70	90.50	-	16.65	30.86	29.08	98.50	-	11.77	25.34	1.12	0.92	-	1.41	1.22
1980	35.44	120.75	-	22.52	34.77	28.15	75.00	-	14.25	26.24	1.26	1.61	-	1.58	1.33
1981	38.83	108.10	37.82	27.44	38.58	29.13	62.33	46.60	16.57	26.99	1.33	1.73	0.81	1.66	1.43
1982	39.80	145.55	33.50	29.30	39.68	31.46	109.25	43.80	16.71	28.76	1.27	1.33	0.76	1.75	1.38
1983	41.62	121.78	42.95	27.89	41.11	33.39	43.25	30.22	22.34	30.82	1.25	2.82	1.42	1.25	1.33
1984	42.19	129.11	44.00	28.02	41.94	34.40	92.50	31.94	19.65	31.71	1.23	1.40	1.38	1.43	1.32
1985	42.31	145.73	44.44	31.75	43.07	34.27	121.20	31.00	23.63	32.66	1.23	1.20	1.43	1.34	1.32
1986	43.78	151.44	63.40	42.58	45.07	34.76	63.17	30.85	22.92	33.35	1.26	2.40	2.05	1.86	1.35
1987	42.66	179.27	56.60	38.72	44.17	33.74	123.67	34.31	23.42	32.83	1.26	1.45	1.65	1.65	1.35
G.R.	4.26	7.15	*	10.30	5.09	3.75	3.88	*	10.36	4.70					

G.R. = Annual Compound Growth Rate.
* G.R.s not calculated

TABLE 6.2. AGGREGATE VALUES OF HOUSEHOLD PURCHASES OF SPECIFIC ITEMS OF TEXTILES

	Aggregate Values (million Rs)											Percentage Share										
Year (1)	Dhoti (2)	Saree (3)	* (4)	* (5)	* (6)	* (7)	* (8)	* (9)	* (10)	* (11)	Others (12)	Dhoti (13)	Saree (14)	* (15)	* (16)	* (17)	* (18)	* (19)	* (20)	* (21)	* (22)	Others (23)
											Urban											
1978	898	9849	835	5581	5406	2615	730	168	1882	782	1384	2.98	32.69	2.77	18.52	17.94	8.68	2.42	0.56	6.25	2.60	4.59
1979	1047	11546	639	5583	5663	2663	600	177	2254	851	1651	3.20	35.34	1.96	17.09	17.33	8.15	1.84	0.54	6.90	2.60	5.05
1980	1346	15835	803	7338	7131	3815	1235	290	3321	1210	1676	3.06	35.99	1.83	16.68	16.21	8.67	2.81	0.66	7.55	2.75	3.81
1981	1322	17947	911	7743	9000	4038	1507	260	4153	1418	2404	2.61	35.40	1.80	15.27	17.75	7.96	2.97	0.51	8.19	2.80	4.74
1982	1433	22414	1056	8273	9788	5717	1761	358	4967	1881	2988	2.36	36.96	1.74	13.64	16.14	9.43	2.90	0.59	8.19	3.10	4.93
1983	1337	22556	928	9413	10165	6418	1907	318	5284	1980	3360	2.10	35.43	1.46	14.78	15.97	10.08	3.00	0.50	8.30	3.11	5.28
1984	1505	25195	1111	9904	11350	7000	2126	338	5895	2172	3376	2.15	36.01	1.59	14.15	16.22	10.00	3.04	0.48	8.42	3.10	4.82
1985	1885	34068	908	12293	13330	7698	2763	461	8928	2624	4570	2.11	38.05	1.01	13.73	14.89	8.60	3.09	0.51	9.97	2.93	5.10
1986	2048	36666	996	13358	14689	9403	3731	616	11165	3201	5343	2.02	36.23	0.98	13.20	14.51	9.29	3.69	0.61	11.03	3.16	5.28
1987	2031	43384	968	15270	16392	10473	3446	691	17185	5550	6876	1.66	35.48	0.79	12.49	13.41	8.57	2.82	0.57	14.06	4.54	5.62
G.R.	8.88	17.27	3.40	11.94	13.24	17.49	21.33	15.97	25.26	21.48	19.08											
											Rural											
1978	5203	9272	1939	9866	4444	4161	1323	440	4168	1635	4350	11.12	19.81	4.14	21.08	9.50	8.89	2.83	0.94	8.91	3.49	9.29
1979	5556	11294	1871	11272	5315	5471	805	533	3886	1507	5117	10.56	21.46	3.56	21.42	10.10	10.40	1.53	1.01	7.38	2.86	9.72
1980	6320	16155	2282	15168	7574	6107	1944	545	3947	1727	5783	9.36	23.91	3.38	22.45	11.21	9.04	2.88	0.81	5.84	2.56	8.56
1981	5531	16017	1898	13468	6504	6805	1993	472	5085	1628	4716	8.63	24.98	2.96	21.01	10.14	10.61	3.11	0.74	7.93	2.54	7.36
1982	6753	19722	2044	16856	11090	9426	2293	624	7047	2625	5838	8.01	23.39	2.42	19.99	13.15	11.18	2.72	0.74	8.36	3.11	6.92
1983	7911	21376	2509	18994	10826	9397	2819	628	8528	3409	6920	8.48	22.91	2.69	20.35	11.60	10.07	3.02	0.67	9.14	3.65	7.42
1984	8496	25633	2476	20640	11445	10261	3442	753	9205	3708	7279	8.22	24.81	2.40	19.97	11.08	9.93	3.33	0.73	8.91	3.59	7.04
1985	9148	31372	2315	24483	13236	12448	3610	874	14029	5129	9736	7.24	24.82	1.83	19.37	10.47	9.85	2.86	0.69	11.10	4.06	7.70
1986	9893	34521	2496	27198	15413	13311	4542	1135	14518	5790	11798	7.04	24.55	1.78	19.34	10.96	9.47	3.23	0.81	10.32	4.12	8.39
1987	9853	42874	2633	28207	16005	14984	4821	1482	16494	6881	12375	6.29	27.38	1.68	18.01	10.22	9.57	3.08	0.95	10.53	4.39	7.90
G.R.	8.25	17.36	3.61	12.49	15.27	14.64	18.99	12.88	19.88	20.33	12.43											

Col. (4) & (16) = Long Cloth, Sheeting, Grey Cloth; Col. (5) & (17) = Shirting, Poplin, Patta Cloth; Col. (6) & (18) = Coating, Suiting; Col. (7) & (19) = Ladies' Dress Material; Col. (8) & (20) = Chaddar, Bed Sheet, Bed Cover, Col. (9) & (21) = Towel, Turkish Towel; Col. (10) & (22) = Readymade Garments; Col. (11) & (23) = Hosiery Goods;
G.R. Annual Compound Growth Rate

TABLE 7/U. PER CAPITA PURCHASES OF ALL TEXTILES BY HOUSEHOLDS IN DIFFERENT INCOME GROUPS (URBAN AREAS)

	Quantity in metres							Value in Rs.							Unit Value in Rs.						
	Income Groups							Income Groups							Income Groups						
Year	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	Total	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	Total	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1976	8.46	9.59	11.95	13.99	17.00	17.63	12.85	56.80	68.81	100.31	155.56	217.27	286.19	130.29	6.71	7.18	8.39	11.12	12.78	16.23	10.15
1977	7.81	10.59	13.00	15.36	18.53	19.90	14.87	55.47	81.98	124.46	184.00	266.44	402.32	174.69	7.10	7.74	9.57	11.98	14.38	20.22	11.74
1978	9.77	11.06	13.40	16.63	20.50	22.90	16.91	76.09	97.84	143.40	209.66	299.40	425.75	218.36	7.79	8.85	10.70	12.61	14.60	18.59	13.03
1979	10.05	10.51	12.43	14.84	18.63	20.65	16.07	77.58	104.98	144.44	206.91	299.17	405.60	231.72	7.72	9.99	11.62	13.94	16.06	19.64	14.42
1980	8.85	12.11	12.63	14.70	16.92	20.22	16.23	102.33	146.53	167.45	224.21	302.04	430.07	284.18	11.56	12.10	13.26	15.25	17.85	21.27	17.52

	Income Groups							Income Groups							Income Groups						
	<3000	3000-5999	6000-9999	10000-19999	20000-39999	40000+	Total	<3000	3000-5999	6000-9999	10000-19999	20000-39999	40000+	Total	<3000 5999	3000-9999	6000-19999	10000-39999	20000+	40000	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1981	10.07	11.69	14.68	15.55	19.24	*	15.53	129.28	170.46	247.00	310.93	497.63	*	315.30	12.84	14.58	16.83	20.00	25.86	*	20.31
1982	9.71	11.61	14.27	15.54	19.69	23.89	16.45	124.89	184.74	264.14	331.69	482.15	673.71	362.23	12.86	15.91	18.51	21.34	24.49	28.20	22.02
1983	10.97	10.77	12.97	15.51	17.68	24.29	15.80	155.58	176.25	247.62	350.72	447.85	717.23	367.04	14.18	16.36	19.09	22.61	25.33	29.53	23.23
1984	9.13	11.07	12.20	15.20	18.08	24.28	15.71	142.36	179.49	240.24	364.20	495.12	751.59	388.41	15.59	16.21	19.69	23.96	27.38	30.96	24.72
1985	9.47	12.12	14.31	16.38	18.39	26.24	17.40	163.41	204.85	290.25	403.07	543.22	990.05	478.51	17.26	16.90	20.28	24.61	29.54	37.73	27.50
1986	11.39	11.57	13.41	15.24	19.17	33.30	18.55	195.35	216.77	291.47	393.19	596.32	1099.39	522.08	17.15	18.74	21.74	25.80	31.11	33.01	28.14

	Income Groups							Income Groups							Income Groups						
	<6000	6000-9999	10000-19999	20000-39999	40000 59999	60000+	All Groups	<6000	6000-9999	10000-19999	20000-39999	40000 59999	60000+	All Groups	<6000	6000-9999	10000-19999	20000-39999	40000 59999	60000+	All Groups
1987	12.04	13.98	16.47	21.85	34.04	39.44	20.44	233.80	316.63	453.31	696.47	1091.43	1397.90	606.92	19.42	22.65	27.52	31.88	32.06	35.44	29.70

* Included in the previous group

TABLE 7/R. PER CAPITA PURCHASES OF ALL TEXTILES BY HOUSEHOLDS IN DIFFERENT INCOME GROUP (RURAL AREAS)

	Quantity in metres							Value in Rs							Unit Value in Rs						
	Income Groups							Income Groups							Income Groups						
Year	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	Total	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	Total	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1976	6.60	9.43	13.17	20.86	24.70	16.55	11.76	29.82	45.34	77.31	142.60	168.24	94.41	65.97	4.52	4.81	5.87	6.84	6.81	5.70	5.63
1977	10.03	10.26	13.40	15.82	17.66	6.51	12.81	50.09	54.03	89.21	124.82	170.90	44.79	81.09	4.99	5.27	6.66	7.89	9.68	6.88	6.33
1978	8.99	10.08	11.71	13.89	16.99	13.40	12.68	52.04	60.54	86.51	117.57	168.25	115.49	91.16	5.79	6.01	7.39	8.46	9.90	8.62	7.37
1979	9.41	10.16	11.62	13.72	16.77	9.42	12.98	57.44	67.13	92.90	126.75	169.91	88.95	103.20	6.10	6.61	7.99	9.24	10.13	9.44	7.95
1980	9.39	8.77	11.41	13.88	15.20	17.86	12.60	65.09	69.37	107.44	142.91	171.87	260.86	130.22	6.93	7.91	9.42	10.30	11.31	14.61	10.34
	Income Groups							Income Groups							Income Groups						
	<3000	3000-5999	6000-9999	10000-19999	20000-39999	40000+	Total	<3000	3000-5999	6000-9999	10000-19999	20000-39999	40000+	Total	<3000	3000-5999	6000-9999	10000-19999	20000-39999	40000+	Total
1981	8.81	10.18	11.21	15.86	16.70	*	11.32	75.65	99.01	124.00	188.43	233.52	*	121.40	8.59	9.73	11.06	11.88	13.98	*	10.72
1982	8.37	10.57	13.92	17.42	19.85	9.57	12.61	74.36	117.37	169.76	246.80	305.25	195.45	156.47	8.88	11.10	12.20	14.17	15.38	20.42	12.41
1983	8.75	10.58	13.07	19.07	16.82	17.03	13.02	86.82	124.23	166.46	274.21	278.53	291.12	170.66	9.92	11.74	12.73	14.37	16.55	17.09	13.10
1984	8.78	11.61	14.00	16.44	16.26	12.98	13.23	90.01	142.96	192.02	259.02	323.97	192.92	186.02	10.25	12.31	13.72	15.76	19.92	14.86	14.07
1985	9.89	12.53	14.90	18.68	17.74	20.53	14.81	103.71	160.50	220.65	306.38	339.31	455.12	223.87	10.49	12.81	14.81	16.40	19.13	22.17	15.12
1986	9.73	12.30	14.58	16.73	21.05	13.89	14.85	114.04	163.95	224.49	306.35	419.69	330.33	245.99	11.72	13.33	15.40	18.31	19.94	23.78	16.57
	Income Groups							Income Groups							Income Groups						
	<6000	6000-9999	10000-19999	20000-39999	40000 59999	60000+	All Groups	<6000	6000-9999	10000-19999	20000-39999	40000 59999	60000+	All Groups	<6000	6000-9999	10000-19999	20000 39999	40000 59999	60000+	All Groups
1987	11.66	13.66	16.32	20.32	20.96	13.16	14.94	158.22	212.03	318.17	430.57	687.04	363.11	269.59	13.56	15.52	19.50	21.19	32.78	27.59	18.05

* Included in the previous group.

TABLE 7.1/U. PER CAPITA PURCHASES OF COTTON TEXTILES BY HOUSEHOLDS IN DIFFERENT INCOME GROUPS (URBAN AREAS)

	Quantity in metres							Value in Rs							Unit Value in Rs						
	Income Groups							Income Groups							Income Groups						
Year	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	All Groups	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	All Groups	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	All Groups
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1976	7.75	8.49	10.02	10.72	12.34	11.81	10.21	40.05	45.45	57.52	71.50	90.98	102.87	63.72	5.17	5.35	5.74	6.67	7.37	8.71	6.24
1977	7.11	9.28	10.71	11.65	13.14	12.39	11.41	40.93	53.48	66.30	82.52	102.02	108.63	76.45	5.76	5.76	6.19	7.08	7.76	8.77	6.70
1978	8.90	9.51	10.64	12.29	14.43	13.91	12.47	53.19	61.66	72.61	90.87	114.28	126.42	91.41	5.98	6.48	6.82	7.39	7.92	9.09	7.36
1979	9.17	8.68	9.60	10.48	12.70	12.85	11.35	58.75	60.07	68.10	82.32	108.70	122.37	88.45	6.41	6.92	7.09	7.85	8.56	9.52	7.80
1980	7.31	9.15	9.44	10.23	11.16	12.31	10.82	56.49	66.54	77.12	89.97	106.73	131.58	101.85	7.73	7.27	8.17	8.79	9.56	10.69	9.44
	Income Groups							Income Groups							Income Groups						
	<3000	3000-5999	6000-9999	10000-19999	20000-39999	40000-59999	All Groups	<3000	3000-5999	6000-9999	10000-19999	20000-39999	40000-59999	All Groups	<3000	3000-5999	6000-9999	10000-19999	20000-39999	40000-59999	All Groups
1981	7.94	8.70	9.98	9.94	11.14	*	10.03	63.79	76.68	93.78	102.97	139.81	*	105.07	8.03	8.81	9.40	10.36	12.55	*	10.48
1982	7.80	8.75	9.54	9.64	11.46	13.84	10.37	67.68	83.36	97.78	107.11	138.68	182.07	116.53	8.68	9.53	10.25	11.11	12.10	13.16	11.23
1983	8.45	7.71	8.60	9.19	10.21	14.03	9.73	78.40	75.67	92.75	105.84	126.46	200.83	115.68	9.28	9.81	10.78	11.52	12.39	14.31	11.89
1984	7.21	8.08	8.09	8.76	9.84	12.86	9.29	73.29	80.43	91.34	104.23	130.06	187.51	114.78	10.17	9.95	11.29	11.90	13.22	14.58	12.36
1985	7.04	8.75	9.51	9.15	9.59	12.64	9.83	77.95	91.01	106.45	115.47	133.00	203.14	128.46	11.07	10.40	11.19	12.62	13.87	16.07	13.07
1986	8.57	7.98	8.41	8.58	9.66	18.72	10.57	93.08	90.72	101.16	114.91	136.99	301.31	148.20	10.86	11.37	12.03	13.39	14.18	16.10	14.02
	Income Groups							Income Groups							Income Groups						
	<6000	6000-9999	10000-19999	20000-39999	40000 59999	60000+	All Groups	<6000	6000-9999	10000-19999	20000-39999	40000 59999	60000+	All Groups	<6000	6000-9999	10000-19999	20000 39999	40000 59999	60000+	All Groups
1987	8.31	8.44	8.90	11.44	19.24	22.41	11.42	99.41	105.89	123.42	173.92	320.36	415.78	172.76	11.96	12.55	13.87	15.20	16.65	18.55	15.13

* Included in the previous group.

TABLE 7.1/R. PER CAPITA PURCHASES OF COTTON TEXTILES BY HOUSEHOLDS IN DIFFERENT INCOME GROUPS (RURAL AREAS)

	Quantity in metres							Value in Rs							Unit Value in Rs						
	Income Groups							Income Groups							Income Groups						
Year	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	All Groups	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	All Groups	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	All Groups
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1976	6.36	9.01	12.24	18.75	22.22	14.60	10.95	25.75	37.89	57.98	99.00	116.71	67.16	50.06	4.05	4.21	4.74	5.28	5.25	4.60	4.58
1977	9.41	9.61	12.13	13.83	14.78	5.78	11.65	41.99	44.03	62.49	78.85	93.21	34.31	57.99	4.46	4.58	5.15	5.70	6.31	5.94	4.98
1978	8.32	9.40	10.50	12.11	13.86	11.62	11.37	41.15	48.77	59.52	76.07	91.04	69.23	63.10	4.95	5.19	5.67	6.28	6.57	5.96	5.62
1979	8.91	9.51	10.36	11.72	13.70	7.89	11.51	47.15	53.70	62.22	74.75	91.23	49.00	67.40	5.29	5.65	6.01	6.38	6.66	6.21	5.86
1980	8.79	8.04	9.84	11.38	11.92	13.39	10.49	53.30	52.11	69.19	80.42	90.49	124.67	76.29	6.06	6.48	7.03	7.07	7.59	9.31	7.28

	Income Groups							Income Groups							Income Groups						
	<3000	3000-5999	6000-9999	10000-19999	20000 39999	40000+	All Groups	<3000	3000-5999	6000-9999	10000-19999	20000 39999	40000+	All Groups	<3000	3000-5999	6000-9999	10000-19999	20000 39999	40000+	All Groups
1981	7.85	8.78	9.17	12.51	12.73	*	9.43	53.75	63.27	68.54	100.13	116.80	*	71.11	6.85	7.21	7.47	8.00	9.18	*	7.54
1982	7.42	8.80	11.08	12.72	13.97	5.21	9.94	53.05	69.20	88.47	105.04	130.16	53.67	79.90	7.15	7.86	7.98	8.26	9.32	10.30	8.04
1983	7.63	8.65	10.40	14.31	11.77	12.07	10.24	58.80	70.45	85.79	121.05	112.74	106.16	85.24	7.71	8.14	8.25	8.46	9.58	8.80	8.32
1984	7.49	9.43	10.81	11.92	10.76	9.29	10.15	58.57	80.38	91.71	107.28	113.24	84.30	88.43	7.82	8.52	8.48	9.00	10.52	9.07	8.71
1985	8.51	10.03	11.35	13.17	11.77	12.94	11.11	69.37	87.87	102.47	125.41	121.89	129.26	101.44	8.15	8.76	9.03	9.52	10.36	9.99	9.13
1986	8.12	9.58	11.01	11.73	13.26	8.00	10.76	69.27	87.47	105.90	120.68	132.43	88.13	104.65	8.53	9.13	9.62	10.29	9.99	11.02	9.73

	Income Groups							Income Groups							Income Groups						
	<6000	6000-9999	10000-19999	20000-39999	40000 59999	60000+	All Groups	<6000	6000-9999	10000-19999	20000-39999	40000 59999	60000+	All Groups	<6000	6000-9999	10000-19999	20000 39999	40000 59999	60000+	All Groups
1987	9.25	10.28	10.93	13.09	9.78	6.58	10.52	86.85	101.96	121.84	143.94	118.17	91.44	109.38	9.39	9.92	11.15	11.00	12.08	13.90	10.40

* Included in the previous group

TABLE 7.2/U. PER CAPITA PURCHASES OF NON-COTTON TEXTILES BY HOUSEHOLDS IN DIFFERENT INCOME GROUPS (URBAN AREAS)

	Quantity in metres							Value in Rs							Unit Value in Rs						
	Income Groups							Income Groups							Income Groups						
Year	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	All Groups	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	All Groups	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	All Groups
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1976	0.35	0.45	0.77	1.23	1.86	2.84	1.07	7.07	7.60	14.11	32.33	50.66	83.89	25.47	20.20	16.89	18.32	26.28	27.24	29.54	24.08
1977	0.42	0.68	1.08	1.80	2.71	4.76	1.78	7.95	13.41	25.10	46.84	82.05	189.49	49.47	18.93	19.72	23.24	26.02	30.28	39.81	27.65
1978	0.48	0.79	1.33	2.06	3.10	5.09	2.25	11.39	15.56	30.99	52.39	89.92	156.23	60.12	23.73	19.70	23.30	25.43	29.01	30.69	26.82
1979	0.32	0.79	1.26	2.14	3.03	4.19	2.35	7.02	17.16	33.82	57.91	93.34	150.36	70.18	21.94	21.72	26.84	27.06	30.81	35.89	29.81
1980	0.77	1.52	1.53	2.02	2.72	4.17	2.65	20.81	37.95	39.45	56.45	88.68	154.92	86.45	27.03	24.97	25.78	27.95	32.60	37.15	32.33

	Income Groups							Income Groups							Income Groups						
	<3000	3000-5999	6000-9999	10000-19999	20000-39999	40000-59999	All Groups	<3000	3000-5999	6000-9999	10000-19999	20000-39999	40000-59999	All Groups	<3000	3000-5999	6000-9999	10000-19999	20000-39999	40000-59999	All Groups
1981	0.85	1.17	2.13	2.52	4.22	*	2.61	25.35	36.41	64.28	92.39	186.19	*	98.91	29.82	31.12	30.18	36.66	44.12	*	37.78
1982	0.89	1.21	2.02	2.62	3.83	5.33	2.81	26.65	38.42	72.72	101.57	168.89	254.00	116.28	29.94	31.75	36.00	38.77	44.10	47.65	41.33
1983	1.18	1.38	2.05	3.05	3.94	4.80	2.92	36.52	41.78	67.35	115.44	165.00	267.60	121.71	30.95	30.28	32.85	37.85	41.88	55.75	41.64
1984	0.86	1.49	2.14	3.31	4.49	7.01	3.52	31.12	47.75	74.60	134.56	204.12	348.99	151.87	36.19	32.05	34.86	40.65	45.46	49.78	43.08
1985	0.88	1.49	2.36	3.75	4.72	8.24	4.09	29.23	50.54	90.45	151.92	227.92	508.11	200.20	33.22	33.92	38.33	40.51	48.29	61.66	48.96
1986	1.62	2.00	2.58	3.40	5.19	7.66	4.20	58.00	70.12	97.46	144.33	263.24	438.27	203.24	35.80	35.06	37.78	42.45	50.72	57.22	48.41

	Income Groups							Income Groups							Income Groups						
	<6000	6000-9999	10000-19999	20000-39999	40000 59999	60000+	All Groups	<6000	6000-9999	10000-19999	20000-39999	40000 59999	60000+	All Groups	<6000	6000-9999	10000-19999	20000 39999	40000 59999	60000+	All Groups
1987	1.57	2.64	3.68	5.32	7.49	8.47	4.46	55.69	106.01	169.89	290.54	426.95	540.11	232.89	35.47	40.16	46.17	54.61	57.00	63.77	52.24

* Included in the previous groups

TABLE 7.2/R. PER CAPITA PURCHASES OF NON-COTTON TEXTILES BY HOUSEHOLDS IN DIFFERENT INCOME GROUPS (RURAL AREAS)

	Quantity in metres							Value in Rs							Unit Value in Rs						
	Income Groups							Income Groups							Income Groups						
Year	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	Total	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	Total	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1976	0.09	0.12	0.32	0.62	0.72	0.82	0.26	1.08	2.31	6.21	10.83	13.92	11.27	4.59	12.00	19.25	19.41	17.47	19.33	13.74	17.91
1977	0.33	0.23	0.44	0.52	0.97	0.71	0.42	3.34	3.20	8.35	9.58	25.74	9.91	7.15	10.12	13.91	18.98	18.42	26.54	13.96	17.07
1978	0.19	0.23	0.42	0.59	1.42	0.27	0.45	3.57	3.41	8.53	12.73	32.73	5.97	8.83	18.79	14.83	20.31	21.58	23.05	22.11	20.06
1979	0.19	0.21	0.42	0.66	1.22	0.59	0.52	3.05	3.88	8.34	16.76	30.31	17.33	11.45	16.05	18.48	19.86	25.39	24.84	29.37	22.11
1980	0.42	0.29	0.63	1.02	1.03	1.21	0.77	7.36	6.04	14.38	23.12	25.84	43.30	18.99	17.52	20.83	22.83	22.67	25.09	35.79	24.15

	Income Groups							Income Groups							Income Groups						
	<3000	3000-5999	6000-9999	10000-19999	20000-39999	40000-59999	Total	<3000	3000-5999	6000-9999	10000-19999	20000-39999	40000-59999	Total	<3000	3000-5999	6000-9999	10000-19999	20000-39999	40000-59999	Total
1981	0.35	0.45	0.53	0.71	0.98	*	0.52	7.33	10.95	13.38	18.88	29.60	*	13.24	20.94	24.33	25.25	26.59	30.20	*	25.33
1982	0.33	0.53	0.81	1.11	0.93	1.58	0.72	6.53	13.41	22.58	33.73	31.97	60.83	20.37	19.79	25.30	27.88	30.39	34.38	38.50	28.43
1983	0.48	0.80	0.91	1.48	1.72	1.36	0.97	10.58	19.83	26.67	49.50	67.22	61.16	29.57	22.04	24.79	29.31	33.45	39.08	44.97	30.51
1984	0.66	1.10	1.28	1.63	2.56	0.99	1.29	15.04	30.97	40.03	55.54	105.24	30.78	41.08	22.79	28.15	31.27	34.07	41.11	31.09	31.83
1985	0.69	1.22	1.49	2.17	2.11	4.35	1.60	15.90	33.81	50.85	73.05	83.26	195.59	53.89	23.04	27.71	34.13	33.66	39.46	44.96	33.61
1986	0.69	1.23	1.49	2.06	2.95	3.26	1.73	18.77	37.04	49.16	80.14	122.96	134.45	62.52	27.20	30.11	32.99	38.90	41.68	41.24	36.10

	Income Groups							Income Groups							Income Groups						
	<6000	6000-9999	10000-19999	20000-39999	40000 59999	60000+	All Groups	<6000	6000-9999	10000-19999	20000-39999	40000 59999	60000+	All Groups	<6000	6000-9999	10000-19999	20000 39999	40000 59999	60000+	All Groups
1987	0.87	1.28	2.07	2.62	4.48	4.66	1.69	27.70	43.44	83.97	123.92	358.70	196.59	70.74	31.84	33.94	40.57	47.30	80.07	42.19	41.86

* Included in the previous group

TABLE 7.3/U PER CAPITA PURCHASES OF MIXED FIBRE FABRICS BY HOUSEHOLDS IN DIFFERENT INCOME GROUPS (URBAN AREAS)

	Quantity in metres							Value in Rs							Unit Value in Rs						
	Income Groups							Income Groups							Income Groups						
Year	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	All Groups	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	All Groups	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	All Groups
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1976	0.36	0.65	1.16	2.04	2.80	2.98	1.57	9.68	15.76	28.68	51.73	75.63	99.43	41.10	26.89	24.25	24.72	25.36	27.01	33.37	26.16
1977	0.28	0.63	1.21	1.91	2.68	2.75	1.68	6.59	15.09	33.06	54.64	82.37	104.20	48.77	23.54	23.95	27.32	28.61	30.74	37.89	29.07
1978	0.39	0.76	1.43	2.28	2.97	3.90	2.19	11.51	20.62	39.80	66.40	95.20	143.10	66.83	29.51	27.13	27.83	29.12	32.05	36.69	30.42
1979	0.56	1.04	1.57	2.22	2.90	3.61	2.37	11.81	27.75	42.52	66.68	97.13	132.87	73.10	21.09	26.68	27.08	30.04	33.49	36.81	30.86
1980	0.77	1.44	1.70	2.45	3.04	3.74	2.76	25.02	42.04	50.88	77.79	106.63	143.58	95.88	32.49	29.19	29.93	31.75	35.08	38.39	34.77

	Income Groups							Income Groups							Income Groups						
	<3000	3000-5999	6000-9999	10000-19999	20000-39999	40000+	All Groups	<3000	3000-5999	6000-9999	10000-19999	20000-39999	40000+	All Groups	<3000	3000-5999	6000-9999	10000-19999	20000-39999	40000+	All Groups
1981	1.28	1.82	2.57	3.09	3.88	*	2.89	40.14	57.37	88.94	115.57	171.63	*	111.32	31.36	31.52	34.61	37.40	44.23	*	38.58
1982	1.02	1.95	2.71	3.28	4.40	4.72	3.27	30.56	62.96	93.64	123.01	174.58	237.64	129.41	29.96	32.29	34.55	37.50	39.68	50.35	39.68
1983	1.33	1.68	2.32	3.27	3.53	5.46	3.15	40.66	58.80	87.52	129.44	156.39	248.80	129.65	30.57	35.00	37.72	39.58	44.30	45.57	41.11
1984	1.06	1.50	1.97	3.13	3.75	4.41	2.90	37.95	51.31	74.30	125.41	160.94	215.09	121.77	35.80	34.21	37.72	40.07	42.92	48.77	41.94
1985	1.55	1.88	2.47	3.48	4.08	5.36	3.48	56.23	63.30	93.35	135.68	182.30	278.80	149.85	36.28	33.67	37.79	38.99	44.68	52.01	43.07
1986	1.20	1.59	2.42	3.26	4.32	6.92	3.79	44.27	55.93	92.85	133.95	196.09	359.81	170.64	36.89	35.18	38.37	41.09	45.39	52.00	45.07

	Income Groups							Income Groups							Income Groups						
	<6000	6000-9999	10000-19999	20000-39999	40000 59999	60000+	All Groups	<6000	6000-9999	10000-19999	20000-39999	40000 59999	60000+	All Groups	<6000	6000-9999	10000-19999	20000 39999	40000 59999	60000+	All Groups
1987	2.16	2.90	3.89	5.09	7.31	8.56	4.56	78.70	104.73	160.00	232.01	344.12	442.01	201.27	36.44	36.11	41.13	45.58	47.08	51.64	44.17

* Included in the previous group

TABLE 7.3/R. PER CAPITA PURCHASES OF MIXED FIBRE FABRICS BY HOUSEHOLDS IN DIFFERENT INCOME GROUPS (RURAL AREAS)

	Quantity in metres							Value in Rs							Unit Value in Rs						
	Income Groups							Income Groups							Income Groups						
Year	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	All Groups	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	All Groups	<1500	1500-2999	3000-5999	6000-9999	10000-19999	20000+	All Groups
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1976	0.15	0.30	0.61	1.49	1.76	1.13	0.55	2.99	5.14	13.12	32.77	37.61	15.98	11.32	19.93	17.13	21.51	21.99	21.37	14.14	20.78
1977	0.29	0.42	0.83	1.47	1.91	0.02	0.74	4.76	6.80	18.37	36.39	51.95	0.57	15.95	16.41	16.19	22.13	24.76	27.20	28.50	21.55
1978	0.48	0.44	0.80	1.19	1.70	1.51	0.86	7.33	8.36	18.47	28.77	44.49	40.29	19.23	15.27	19.00	23.09	24.18	26.17	26.68	22.81
1979	0.31	0.44	0.84	1.34	1.85	0.94	0.95	7.24	9.56	22.34	35.24	48.36	22.62	24.35	23.35	21.73	26.60	26.30	26.14	24.06	25.34
1980	0.18	0.44	0.94	1.48	2.25	3.26	1.33	4.43	11.22	23.87	39.37	55.54	92.89	34.94	24.61	25.50	25.39	26.60	24.68	28.49	26.24

	Income Groups							Income Groups							Income Groups						
Year	<3000	3000-5999	6000-9999	10000-19999	20000-39999	40000+	All Groups	<3000	3000-5999	6000-9999	10000-19999	20000-39999	40000+	All Groups	<3000	3000-5999	6000-9999	10000-19999	20000-39999	40000+	All Groups
1981	0.61	0.95	1.51	2.64	2.99	*	1.37	14.57	24.79	42.08	69.42	86.93	*	37.05	23.89	26.09	27.87	26.30	29.07	*	26.99
1982	0.62	1.24	2.03	3.59	4.95	2.78	1.95	14.78	34.76	58.71	108.03	143.12	80.95	56.19	23.84	28.03	28.92	30.09	28.91	29.12	28.76
1983	0.64	1.13	1.76	3.28	3.33	3.60	1.81	11.45	33.95	54.00	103.66	98.57	123.80	55.86	17.89	30.04	30.68	31.60	29.60	34.39	30.82
1984	0.63	1.08	1.91	2.89	2.94	2.70	1.78	16.40	31.61	60.28	96.20	105.31	77.84	56.51	26.03	29.27	31.56	33.29	35.82	28.83	31.71
1985	0.69	1.28	2.06	3.34	3.86	3.24	2.10	18.44	38.82	67.33	107.92	134.16	130.27	68.54	26.72	30.33	32.68	32.31	34.76	40.21	32.66
1986	0.92	1.49	2.08	2.94	4.84	2.63	2.36	26.00	39.44	69.43	105.53	164.30	107.75	78.82	28.26	26.47	33.38	35.89	33.95	40.97	33.35

	Income Groups							Income Groups							Income Groups						
	<6000	6000-9999	10000-19999	20000-39999	40000 59999	60000+	All Groups	<6000	6000-9999	10000-19999	20000-39999	40000 59999	60000+	All Groups	<6000	6000-9999	10000-19999	20000 39999	40000 59999	60000+	All Groups
1987	1.54	2.10	3.32	4.61	6.70	1.32	2.73	43.67	66.63	112.36	162.71	210.17	75.08	89.47	28.36	31.73	33.84	35.30	31.37	56.88	32.83

* Included in the previous group

TABLE 8. PER CENT OF TOTAL INCOME SPENT ON TEXTILES PURCHASES BY HOUSEHOLDS IN DIFFERENT INCOME GROUPS

	Urban						Rural					
Year	<6000	6000-9999	10000-19999	20000-39999	40000-59999	60000+	<6000	6000-9999	10000-19999	20000-39999	40000-59999	60000+
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1984	23.06	17.93	15.42	11.34	7.46	*	17.97	15.91	12.86	9.65	2.81	*
1985	24.78	20.64	16.82	12.15	9.32	*	19.93	17.46	15.30	10.99	6.52	*
1986	25.94	20.36	16.07	13.23	10.34	*	19.99	18.02	15.10	12.32	4.36	*
1987	23.76	20.95	17.19	14.37	14.20	12.94	16.15	15.50	14.24	12.37	13.78	4.95

* Included in previous group.

TABLE 9.0. PERCENTAGE OF HOUSEHOLDS REPORTING PURCHASES OF DIFFERENT FABRICS

Year	Cotton	Pure Silk	Art Silk	Woollen	Acrylic	Nylon	Polyester	Cotton Viscose	Poly-Cotton	Poly-Woollen	Poly-Viscose	Other Mixed	All Textiles
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
							Urban						
1981	96.76	20.70	16.57	20.56	2.24	17.71	44.19	1.23	80.95	7.55	2.66	19.62	99.41
1982	97.64	19.82	15.31	21.00	2.33	19.25	48.16	1.09	78.84	7.38	3.02	22.86	99.21
1983	97.40	15.34	14.58	22.62	2.58	18.30	51.70	0.66	79.92	6.48	2.58	20.59	99.52
1984	97.02	14.16	15.17	21.52	2.25	18.37	58.99	0.00	78.51	5.13	1.04	15.16	99.45
1985	95.89	17.54	15.87	24.57	3.46	18.27	61.19	2.65	80.50	6.76	4.22	17.97	99.10
1986	95.71	18.98	17.32	23.10	2.48	15.92	63.49	4.06	81.44	6.55	2.15	17.52	98.84
1987	95.67	20.82	23.29	26.82	1.85	35.44	61.83	3.63	86.46	7.20	3.79	18.38	98.88
							Rural						
1981	96.41	5.24	9.18	14.02	3.13	8.96	18.34	5.39	56.34	4.11	4.38	13.71	97.14
1982	97.79	6.34	8.89	16.67	3.34	8.68	22.36	4.56	63.92	3.37	3.24	19.76	98.85
1983	97.84	3.73	10.18	20.29	1.94	12.44	25.01	1.33	61.89	1.68	2.10	19.34	98.84
1984	97.52	3.38	10.74	17.31	2.32	10.40	30.91	2.22	63.48	0.73	1.71	16.04	99.00
1985	97.86	7.21	12.58	20.36	4.12	11.73	39.05	5.39	69.14	3.21	4.18	20.41	99.24
1986	96.38	6.27	11.22	20.53	1.84	10.29	35.58	4.01	69.55	1.60	3.76	16.44	97.70
1987	94.87	6.30	14.29	19.91	0.85	25.18	36.14	3.06	72.25	1.43	4.59	17.32	96.98

TABLE 9.1. PERCENTAGE OF HOUSEHOLDS IN DIFFERENT INCOME CLASSES REPORTING PURCHASES OF DIFFERENT FABRICS IN 1987

	< 6000	6000-9999	10000-19999	20000-39999	40000-59999	60000+
			Urban			
Cotton	94.72	95.49	95.93	95.42	96.22	96.17
Pure Silk	07.73	09.62	17.20	24.73	30.95	47.63
Art Silk	14.26	16.28	22.16	28.18	29.33	30.88
Woollen	12.12	18.92	24.46	30.41	35.91	45.97
Acrylic	00.77	01.01	01.52	01.85	02.43	05.05
Nylon	24.14	25.33	34.07	40.35	40.85	52.13
Polyester	41.71	57.56	61.90	66.71	67.79	69.08
Cotton viscose	03.94	03.12	02.78	04.02	04.43	05.53
Polyester cotton	74.87	80.92	87.27	88.65	87.82	97.32
Polyester woollen	01.56	03.22	05.79	09.76	10.99	14.73
Polyester viscose	02.63	02.99	03.14	04.45	05.10	05.71
Other Mixed	12.92	16.09	17.44	19.12	21.44	26.16
All Textiles	97.15	98.81	98.90	98.95	99.51	99.07
			Rural			
Cotton	93.25	95.79	94.46	95.88	97.56	95.76
Pure Silk	02.07	04.10	08.79	09.51	39.55	04.24
Art Silk	08.05	10.59	14.57	27.15	43.42	63.86
Woollen	10.66	18.52	25.28	26.56	46.19	00.00
Acrylic	00.55	00.36	00.25	03.88	00.00	00.00
Nylon	14.11	25.38	27.38	34.96	54.28	45.70
Polyester	24.57	32.75	41.96	46.83	63.50	95.76
Cotton viscose	04.10	01.21	01.08	05.86	28.42	00.00
Polyester cotton	54.50	72.04	80.31	85.06	91.50	95.76
Polyester woollen	00.48	00.21	02.01	02.94	15.78	00.00
Polyester viscose	02.59	02.48	03.88	09.31	41.96	00.00
Other Mixed	09.32	16.32	20.43	23.34	54.76	00.00
All Textiles	95.21	97.34	97.17	98.28	-	-

TABLE 10.0. URBAN SHARES IN TOTAL QUANTITIES OF PURCHASES OF DIFFERENT TYPES OF TEXTILES

(Per cent)

	Cotton						Non-Cotton							Mixed/Blended					
Year	Mill-Made	Power-Loom	Hand-Loom	Khadi	Hosiery	Total Cotton	Pure Silk	Art Silk	Woollen	Acry-lic	Nylon	Poly-ester	Total Non-Cotton	Poly-ester Cotton	Poly-ester Wool	Poly-ester Viscose	Other Mixed	Total Mixed	All Textiles
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1974						17.12							35.19					32.25	19.25
1975						19.14	50.00	20.93	31.88	-	49.69	-	39.67	37.67	60.00	-	30.15	36.10	21.33
1976						19.53	63.89	33.82	40.00	-	68.75	56.00	51.75	43.62	83.33	-	36.25	42.86	22.14
1977						21.07	77.42	34.12	45.00	-	45.54	62.66	53.81	39.66	57.14	-	31.36	38.20	24.04
1978						23.05	82.26	46.51	36.07	-	58.62	59.84	57.43	41.39	44.44	-	35.26	40.16	26.71
1979						21.44	74.39	40.66	44.64	-	51.06	58.97	55.70	41.74	75.00	-	34.48	40.53	25.51
1980	22.56	20.25	33.96	11.04	29.06	23.50	73.04	50.00	41.98	23.08	43.75	48.59	50.36	37.55	61.54	-	39.68	38.19	27.76
1981	28.10	3.22	30.78	10.28	28.69	24.45	85.96	50.00	49.35	80.00	53.16	58.70	60.40	39.18	76.92	68.75	33.65	39.02	29.45
1982	49.30	12.05	23.08	20.10	24.92	24.49	74.38	48.54	42.27	42.86	61.46	52.66	54.96	32.85	73.33	87.18	30.79	34.15	28.84
1983	50.62	11.49	20.88	16.14	26.97	23.15	72.48	43.55	34.40	37.50	37.68	51.78	48.89	37.12	69.23	70.97	24.51	35.57	27.79
1984	47.96	13.82	19.17	16.46	25.16	22.88	69.03	40.59	37.10	40.00	42.61	47.48	46.97	36.34	69.23	27.27	25.10	34.57	27.81
1985	41.49	14.09	20.09	17.81	24.33	22.68	64.38	39.20	38.41	33.33	36.52	46.40	45.81	37.42	68.75	40.91	22.50	35.46	28.02
1986	47.84	16.03	20.64	11.97	24.83	25.00	61.88	46.96	35.03	40.00	33.33	44.79	45.12	34.92	60.00	15.63	38.06	35.20	29.76
1987	44.55	18.11	21.79	18.08	32.52	27.36	62.31	46.06	38.35	40.00	40.29	48.08	47.77	37.38	64.71	34.09	30.07	36.71	32.18

TABLE 10.1. URBAN SHARE OF TOTAL QUANTITIES OF PURCHASES OF SPECIFIC ITEMS OF TEXTILES AGGREGATE QUANTITIES

(Per cent)

Year	Dhoti	Saree	*	*	*	*	*	*	*	*	Other	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1978	12.29	34.92	27.77	26.73	41.92	32.22	29.27	23.33	23.89	25.78	20.28	26.71
1979	11.92	34.41	23.33	24.04	38.24	25.97	35.51	20.81	28.97	25.47	18.16	25.51
1980	13.72	34.04	25.90	25.98	32.97	31.58	32.31	25.93	36.65	30.69	20.00	27.76
1981	15.22	34.81	30.62	25.57	40.52	30.02	33.19	29.93	34.97	31.21	26.32	29.45
1982	13.30	35.16	31.86	23.86	33.33	31.07	34.01	28.82	30.63	26.68	29.87	28.84
1983	11.21	34.23	26.78	24.51	38.17	33.13	31.16	24.69	26.85	28.72	24.04	27.79
1984	12.48	33.11	28.54	24.78	39.70	31.97	31.79	24.71	28.21	27.34	26.22	27.81
1985	13.41	33.31	24.40	25.09	38.77	30.89	34.73	26.24	29.38	26.08	25.73	28.02
1986	13.56	35.65	26.45	26.18	39.74	31.74	35.97	29.74	31.82	26.85	27.76	29.76
1987	13.86	36.46	23.37	28.78	43.42	34.48	34.43	28.24	39.76	32.91	28.56	32.18

* Col. (4)= Long Cloth, Sheeting, Grey Cloth; (5)= Shirting Poplin, Patta Cloth; Col. (6)= Coating, Suiting; Col. (7)= Ladies' Dress Material; Col. (8)= Chaddar, Bed Sheet, Bed Cover; (9)= Towel, Turkish Towel; Col. (10)= Readymade Garments; Col. (11) Hosiery Goods.

TABLE 11.1. DISTRIBUTION OF HOUSEHOLDS BY HOUSEHOLD INCOME GROUPS

(Thousand)

Year	Annual Household Income in Rupees													
	<3000	3000-	6000-	10000-	20000-	40000+	All Groups	<3000	3000-	6000-	10000-	20000-	40000+	All Groups
	Urban							Rural						
1981	705	4769	7854	4993	2512		20833	18133	28922	17251	6122	4786		75214
1982	816	3630	8474	6242	3149	3671	25984	18475	28182	21495	10141	3028	1593	82915
1983	894	3257	8581	7984	3071	3872	27659	16258	29258	25059	11238	3098	2058	86969
1984	860	3360	8095	8679	3694	4192	28879	14100	30384	24616	13796	3959	1856	88711
1985	1106	3382	7725	9284	4482	4680	30659	13907	29280	27176	14703	3951	1887	90904
1986	383	3461	7200	10193	5355	5086	31678	6714	26746	28928	18009	6197	2473	89069
1987		3403*	7373	10931	8342	4892	34940		30537*	32292	22535	9089	2199	96652

TABLE 11.2. HOUSEHOLD SIZE IN DIFFERENT HOUSEHOLD INCOME GROUPS

1981	5.08	5.88	6.34	6.81	7.26	7.43	7.72	5.13	7.03	7.73	9.31	7.82	6.77	7.02
1982	4.57	5.80	6.19	6.60	7.00	7.33	6.44	4.81	6.18	6.97	7.93	9.25	11.04	6.50
1983	4.69	5.59	5.98	6.38	6.96	7.08	6.27	4.61	5.78	6.55	7.74	9.80	10.30	6.29
1984	4.74	5.39	5.97	6.35	6.87	6.95	6.24	4.51	5.65	6.63	7.45	8.94	10.18	6.26
1985	4.21	5.10	5.69	6.26	6.71	7.06	6.10	4.40	5.55	6.33	7.49	9.72	10.74	6.21
1986	5.50	5.06	5.59	6.13	6.66	7.05	6.12	4.20	5.42	6.42	7.43	8.80	9.89	6.42
1987		4.57*	5.29	5.69	6.19	6.76	5.77		4.59*	5.85	6.71	8.62	10.10	6.01

TABLE 11.3. POPULATION IN DIFFERENT HOUSEHOLD INCOME GROUPS

(million)

1981	3.58	28.04	49.79	34.00	18.24		160.81	93.02	203.32	133.35	57.00	37.43		528.15
1982	3.73	21.06	52.46	41.20	22.05	26.91	167.40	88.86	174.17	149.82	80.42	28.01	17.59	538.88
1983	4.19	18.21	51.32	50.94	21.37	27.41	173.46	74.95	169.11	164.14	86.98	30.36	21.20	546.80
1984	4.07	18.11	48.33	55.11	25.38	29.13	180.15	63.59	171.67	163.20	102.78	35.39	18.90	555.52
1985	4.66	17.25	43.96	58.12	30.08	33.04	187.10	61.19	162.50	172.02	110.12	38.40	20.27	564.52
1986	2.10	17.51	40.25	62.48	35.66	35.86	193.87	28.20	144.96	185.72	133.81	54.54	24.46	571.63
1987		15.55*	39.00	62.20	51.64	33.07	201.45		140.17*	188.91	151.21	78.35	22.21	580.92

* For <6000 group

TABLE 12.1. AGGREGATE VALUE OF PURCHASES OF TEXTILES BY HOUSEHOLDS IN DIFFERENT HOUSEHOLD INCOME GROUPS

(Rs in million)

	Urban						Rural					
Year	<6000	6000-	10000-	20000-	40000+	Total	<6000	6000-	10000-	20000-	40000+	Total
1984	3831	11610	20071	12564	21896	69972	30266	31338	26622	11466	3646	103338
1985	4294	12758	23426	16338	32712	89528	32428	37957	33740	13031	9224	126380
1986	4207	11731	24568	21267	39422	101216	26983	41692	40992	22889	8080	140615
1987	3636	12349	28195	35963	42129	122266	22177	40054	48109	33734	12535	156609

TABLE 12.2. HOUSEHOLD INCOME BY HOUSEHOLDS INCOME GROUPS IN URBAN AND RURAL AREAS

(Rs in million)

	Urban						Rural					
Year	<6000	6000-	10000-	20000-	40000+	Total	<6000	6000-	10000-	20000-	40000+	Total
1984	16613	64752	130162	110794	293512	615833	168425	196970	207014	118819	129751	820979
1985	17328	61812	139275	134469	350987	703871	162709	217394	220523	118571	141472	860670
1986	16218	57618	152881	160748	381257	768723	134982	231365	271470	185787	185321	1008926
1987	15303	58947	164021	250267	315570	804109	137320	258414	337848	272705	130541	1136828

TABLE 13.1. PERCENTAGE AND CUMULATIVE PERCENTAGE OF HOUSEHOLDS IN DIFFERENT HOUSEHOLD INCOME GROUPS

	Annual Household Income in Rupees(Urban)									Annual Household Income in Rupees(Rural)								
Year	<6000	6000-	10000-	20000-	40000+	<6000	<10000	<20000	<40000	<6000	6000-	10000-	20000-	40000+	<6000	<10000	<20000	<40000
	Percent of Household					Cumulative Percent of Household				Percent of Household					Cumulative Percent of Household			
1984	14.62	28.03	30.05	12.79	14.51	14.62	42.64	72.69	85.49	50.14	27.75	15.55	4.46	2.09	50.14	77.89	93.44	97.91
1985	14.64	25.20	30.28	14.62	15.26	14.64	39.83	70.12	84.74	47.51	29.90	16.17	4.35	2.08	47.51	77.40	93.58	97.92
1986	12.14	22.73	32.18	16.90	16.06	12.14	34.86	67.04	83.94	37.57	32.48	20.22	6.96	2.78	37.57	70.05	90.27	97.22
1987	9.74	21.10	31.29	23.87	14.00	9.74	30.84	62.13	86.00	31.60	33.41	23.32	9.40	2.27	31.60	65.01	88.32	97.72

TABLE 13.2. PERCENTAGE AND CUMULATIVE PERCENTAGE OF POPULATION IN DIFFERENT HOUSEHOLD INCOME GROUPS

	Annual Household Income in Rupees(Urban)									Annual Household Income in Rupees(Rural)								
Year	<6000	6000-	10000-	20000-	40000+	<6000	<10000	<20000	<40000	<6000	6000-	10000-	20000-	40000+	<6000	<10000	<20000	<40000
	Percent of Population					Cumulative Percent of Population				Percent of Population					Cumulative Percent of Population			
1984	12.32	26.83	30.59	14.09	16.17	12.32	39.15	69.74	83.83	42.35	29.38	18.50	6.37	3.40	42.35	71.73	90.23	96.60
1985	11.71	23.49	31.06	16.08	17.66	11.71	35.20	66.26	82.34	39.63	30.47	19.51	6.80	3.59	39.63	70.10	89.61	96.41
1986	10.12	20.76	32.23	18.40	18.50	10.12	30.88	63.11	81.50	30.29	32.49	23.41	9.54	4.28	30.29	62.78	86.18	95.72
1987	7.72	19.36	30.87	25.63	16.41	7.72	27.08	57.95	83.59	24.13	32.52	26.03	13.49	3.82	24.13	56.65	82.69	96.18

TABLE 13.3. PERCENTAGE AND CUMULATIVE PERCENTAGE OF INCOME IN DIFFERENT HOUSEHOLD INCOME GROUPS

	Annual Household Income in Rupees(Urban)									Annual Household Income in Rupees(Rural)								
Year	<6000	6000-	10000-	20000-	40000+	<6000	<10000	<20000	<40000	<6000	6000-	10000-	20000-	40000+	<6000	<10000	<20000	<40000
	Percent of Income					Cumulative Percent of Income				Percent of Income					Cumulative Percent of Income			
984	2.70	10.51	21.14	17.99	47.66	2.70	13.21	34.35	52.34	20.52	23.99	25.22	14.47	15.80	20.52	44.51	69.72	84.20
985	2.46	8.78	19.79	19.10	49.87	2.46	11.24	31.03	50.13	18.90	25.26	25.62	13.78	16.44	18.90	44.16	69.79	83.56
986	2.11	7.50	19.89	20.91	49.60	2.11	9.61	29.49	50.40	13.38	22.93	26.91	18.41	18.37	13.38	36.31	63.22	81.63
987	1.90	7.33	20.40	31.12	39.25	1.90	9.23	29.63	60.76	12.08	22.73	29.72	23.99	11.48	12.08	34.81	64.53	88.52

REVIEW ARTICLE*

IMAGINING INDIA

N.V. Sovani

The late Professor Ralph Turner, Professor of history at Yale University, used to remark around the 'fifties that he wanted to read Indian History written by an American scholar because the existing writings on Indian History, mostly by the British and Indian historians' were so warped by their own preoccupations that, one could never understand from them the inwardness of the process of Indian history. We used to be first puzzled by the remark but gradually we came to appreciate the thrust of Professor Turner's thought. Embree's essays are a good example and I dare say what the late Professor Turner had in mind was work of the kind of Ainslie Embree's. The essays in this book are in the best historical tradition and open up a vista of innovative insights into the past and present history of India. The essays contained in this book are separate pieces on different themes and do not develop a single integrated thesis or argument. But there is a strong suggestion of an underlying core of thought.

That core is the thought that India has a genuine cultural unity in a pluralistic society held together by mutual interests of groups and not by the dominance of any central power. Undergirdling the modern nation of India is the interplay of Brahmanical ideology (or classified Indian culture) with the historical experiences arising out of the infusion of two alien civilizations, the Islamic and the Western. This ideology refers to the values and concepts that are identifiable in literary traditions, tradition (here) meaning not a fixed residue handed down from the past but rather an enduring structure with adequate mechanisms that permits it to be both historically determined and a continuously renewed creative force (p. 4).

This at once leads to the rejection of the traditional periodization of Indian history into Hindu, Muslim and British. But this poses an infinitely more complex problem namely the necessity of coming to terms with a historical experience where all great civilizations interact in a fashion that has no real analogy elsewhere. The argument throughout the collection of these essays is that the inner meaning of historical experience of the meeting of the three civilizations is to be found in the creativity and vitality of indigenous Indian culture. One of the ineluctable facts of Indian history is that fundamental institutions survived, although they underwent great changes, during over 500 years of political domination by Turkie or other Islamic rulers and during a century and half of British rule in the sub-continent. These changes were sometimes imposed by the rulers, sometimes they were results of conscious choices made by Indians, and very often they were the results of forces indigenous to India, and it is almost incidental that they took place during a period of foreign rule (p. 4).

Such a rich and novel theme will take volumes to set out fully. What these essays provide are some of the glimpses into the panorama that this theme unfolds. Yet it seems necessary, in the reviewer's opinion, to sketch it somewhat fully than an ordinary review might warrant because that alone will put it across the general reader and arouse his curiosity about the book. That is why this rather longish review article.

The central theme of Indian unity branches out into several sub-themes connected with the historical rise and content of Indian nationalism. The historical process is honeycombed with action and reaction, the challenge and response, between the intellectual and cultural furniture that the British administrators brought with them from home and their misunderstandings about the reality on the ground in India on the one hand and, on the other, misunderstandings of India's national leaders regarding western concepts and institutions and of the reality in India. What resulted was not a synthesis but often a symbiosis[1].

To begin with Indian unity, Embree in the essay on 'Brahmanical Ideology and Regional Identities' opens by observing that one can accept the

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* Ainslie T. Embree, *Imagining India: Essays on Indian History*, Edited by Mark Juergensmeyer, Oxford University Press, Delhi, 1989, Pp. x + 220, Royal, Rs 190.

enduring significance of the nuclear regions of the historical geography of India while at the same time asserting the reality of an all-India civilization.

Of the two broad categories of these unifying linkages one is ideological, the Brahmanical Tradition; the other is the historical experience resulting from the impact of two alien civilizations, the Islamic and the western. Both are artifacts of time and history, and the discussion of regions versus an all-India civilization is only hundred years old because in that period it became a part of the meanings of the lives of the people of India.

To call the Indian identity as Brahmanical is preferable to Hindu because it has the advantage of indicating well-defined intellectual continuities and commonalities since at least the third century B.C. By Brahmanism is meant the coherent and consistent intellectual statements of the great classical texts. On the level of ideas Indian religion shows none of the eclecticism that has shaped the Christian and Islamic traditions. While not eclectic Brahmanical ideology has been flexible, but with an ability to adjust itself to radically different political and social situations without yielding ground[2]. The genius of Brahmanical tradition is precisely its extra-ordinary continuity and its adherence to its own inner core of meaning that is a major factor in the unity of Indian civilization. It is difficult to sum up the contents of this Brahmanical ideology but some of the items are as follows: A sense of order throughout the cosmos, of everything being linked to one another and the order is maintained by the Brahman, the possessor of knowledge. The third is the concept of many levels of truth because there are many possibilities and contradictions, all of which may be true in some sense. The fourth is the pervasive doctrines of karma, and reincarnation and the concept of *Dharma* as the centre of tradition. Linked to this is the sense of a hierarchical structure in which each entity occupies a necessary and a logical place.

Unlike Europe, India did not develop a large number of nationalities that became the bases of nation-states. The two causes for this were the relationship of Brahmanical ideology to the political authorities and the effect of alien intrusions from central Asia and west.

The vital factor in the development of European nation-states was the division of power between church and state or pope and emperor. In the struggle for power kings were able to get their territorial claims legitimised by sacred authority, so that very early in the Middle Ages ethnicity, language, an actual territory with defined boundaries, and the concept of sovereignity, were all fused to form a basis for the nation-state. The Brahmanical emphasis on kingship is on the ruler as a part of a universal order rather than, in the European sense, in territorial sovereignity. It worked against the development of nationalism in India and was also a potent factor in the process of political unification associated with the Islamic and British intrusion and the development of the Indian national movement in the twentieth century.

Regionalism is not the counter force to unification that it has appeared to be in many readings of Indian History. But this is not 'unity in diversity', the most popular characterization of Indian society, because that leaves many crucial questions unanswered. While it is true that complex structures of Hinduism differentiate Indian civilization from the other world cultures, it is not at all clear that in the past it ever acted as a unifying factor in the political realm. On the contrary, it can be argued that Hinduism as a social system works against political and social integration. The cement of unity is external, both as a product of historical force or as ideology, to the reality of the regions. The forces that destroyed the attempts of imperial unifications under the Tughlaqs or Mughals, were not expressions of regionalism but of powerful internal political rivals to the imperial institution.

Confusion is caused in the discussion of the unity of India because of the tendency to identify the modern nation state of India with the India of historical imagination (Aryavarta). This is confirmed by the fact that "India" as the designation of a cultural region is a Western construct which has become a part of the emotional and intellectual inheritance of the 19th and 20th century Indian elites. The India of Brahmanical ideology was made congruent with the India of Western

imagination and, above all, with the actual boundaries that were created in the second half of the nineteenth century to define the territories under the administrative control of the Government of India. The process by which this was accomplished is an essential feature of the intellectual history of modern India.

This leads to a discussion of the present boundaries of India in 'Frontiers into Boundaries: The Evolution of the Modern State'. In the second half of the eighteenth century, the 'ritual hegemony' that the Mughal empire had exercised over many of its frontier areas was replaced by the attempts of the British centralized bureaucracy to assert direct administrative control upto a clearly defined linear boundary.

A frontier is an area, often a zone of transition, not only between ethnic groups but also between geographical regions; a boundary is a line drawn on the ground or on the map. Boundary is a feature associated with the rise of the modern nation-state. Territorial sovereignty in pre-British India meant, in pragmatic terms, the ability to collect revenues and commend the loyalty of local chieftains in time of war. Boundaries clearly demarcated on the ground and drawn on the maps, along with their corollary, a system of relationship with neighbouring states based on formal treaties were embedded in European political thinking and hence the obsession of the East India Company officials, even before the middle of the 18th century, with fixing of boundaries. This endeavour continued throughout.

British rule in India and the boundaries of the territories actually controlled by the Government of India were established in the latter half of the 19th century. But the process inevitably involved a foreign policy which seemed to be directed from London but in actual fact from the compulsions of the Government of India acting on its own as a state which had to guard, preserve and make safe its own boundaries.

The theme is developed in the essay on the 'Diplomacy of Dependency: Nineteenth Century Foreign Policy'. The foreign relations of India, despite ultimate control by Great Britain, expressed needs and interests rooted in the subcontinent and the style of this diplomacy was a formative legacy for modern India. The Government of India pursued policies in foreign affairs in the nineteenth century that reflected the political, economic and geographical realities of the situation, with the impulse for these policies coming from within the structures of the bureaucracy of the Government of India, not of Great Britain. Secondly, these policies were the product of territorial control by a well-organised authority, and, given the fact of power, the alien origin of the ruling group is not the decisive factor. Any strong power would have behaved much the same in relation to neighboring states. Thirdly, when foreign policy became visible, that is, when the stage was reached for public pronouncements of policy aims and for the defence of their execution, London often seemed to be the place of origin. But this is misleading. In fact, to a quite extraordinary degree, decisions were made in Calcutta that reflected pressures from district officers, agents on the frontiers, and officials of provincial capitals. The role of London was to demonstrate how actions that had been taken in India were the products of national policy, when in fact either the Home Government had been ignorant of the course of events or actively disapproved of them, but felt compelled to accept them. Fourthly, it is this background of an active and, in many ways, an autonomous foreign policy that has provided the inheritance for India's foreign policy since 1947.

Two general statements concerning the foreign relations of the Government of India (1830-1914) can be made. One, the Government of India was unwilling to permit any genuinely independent country to exist on its borders. The formal statement of this was that the government did not desire to control its neighbours; it did, however, insist on governments that were not hostile (Burma, Afghanistan). The second characteristic is expansionism. Though partly a reflection of British imperialism, to a remarkable degree it grew out of pressures generated in India, not in Great Britain, and served what can only be described as Indian interests. This enthusiasm for conquest fits the conventional stereotype of the imperialist but it is also a by-product of expansionist nationalism, with its search for national identity and its fulfillment of national destiny. Lord Curzon, the most Asiatic of Viceroys as

Watcha called him, proclaimed this with great clarity. "On the west, India must exercise a predominant influence on the destinies of Persia and Afghanistan; on the north it can veto any rival in Tibet; on the north-east it can exert great pressure upon China, and it is one of the guardians of the autonomous existence of Siam" [Curzon, 1909, p 12]. Modern Indian statesmen may share Curzon's sense of manifest destiny for India but they would of necessity be more circumspect in expressing it.

The second major sub-branch of the main theme concerns the complicated problem of religion and its role in politics within the framework of western type democracy. How these developed historically as an encounter between British liberal perspectives and the perspectives of the leaders of India's rising nationalism is discussed in the chapter on 'Pledged to India: The Liberal Experiment 1885-1909'.

Gladstone declared in 1881 that "we are pledged to India... and we have no choice but to apply ourselves to the redemption of that pledge" (statement that is echoed in Nehru's "tryst with destiny" in 1947) and this redemption was evolved and implemented in the liberal era of 1886-1909 which was also the early formative period of the Indian nationalist movement. The events of this period provided the framework in which influences from India and Great Britain coalesced to create a distinctive and coherent political ideology for modern India.

The British liberals believed, in the words of Morley, that the "British ruled India in order to implant-slowly, prudently, judiciously - those ideas of justice, law, humanity which are the foundations of our civilization". Most of the influential of India's nationalist leaders accepted Morley's statement as a reasonable summing of the nature of relationship between the two countries. The issues at stake had to do with the transplantation of ideas and institutions from one culture to another, with the function of values in shaping social structures, and, above all, with interpretations by both Indians and British, of Indian civilization. Most of the British involved in India were convinced that Indian civilization and Western democratic political systems were fundamentally incompatible. And almost without exception the Indian nationalist leaders believed that the Indian political system should be transformed by the British through the introduction of representative government, free speech, constitutionalism and all the other landmarks of liberty. In this borrowed theology neither Britain nor India had written the parts that they were playing.

The British liberal's sympathetic understanding of these nationalist aspirations was coloured by their sense that India was not vital to British interests. The conservatives and some liberals held exactly the opposite view. But both alike came to the view that the introduction of self-governing institutions would mean ruin to India and treason to their own trust. The Liberal dilemma was: a reasonable pledge had been made for the material and moral improvement of India, but education, which was at the heart of this reform, seemed to lead inexorably to Brahmanical dominance and violence. The continuance of a strong British administration was the only defence against a return to the past. And yet how to sympathetically meet the demands of the nationalist Indians?

The central problem for the Indians was to find a standing place within their own history that would permit them to maintain self-esteem and self-confidence. The hard facts were that the centuries of Muslim domination were followed by the new intrusion of western power and it was Hindu intellectuals who devised a satisfactory way of coming to terms with this.

Consciously or not they separated what they regarded as valid and worthwhile in the Indian tradition from what they identified as Asian, the western term as a synonym for despotism, and as far as India was concerned, what they had in mind were the Turkish or the pre-British Muslim rulers. This was a reading of Indian history that could hardly be accepted by the Muslim thinkers. But it was well suited to Hindu social and political reformers. The acceptance of providential design in Indo-British relations permitted them to accept western criticism of Indian society as corrupt, idolatrous and stagnant while asserting the inherent greatness of the Hindu tradition.

They themselves were products of British education and were a microscopic minority, as the

British repeatedly pointed out; but they were a dominant minority. It was not only the future that belonged to them but also the past for they were drawn from traditional elites, particularly the Brahmins and other high castes, whose links with the fabric of Indian culture were strong. While the British questioned their right to speak for the Indian masses, they maintained that the educated people of India were the legitimate spokesmen of its illiterate masses[3]. To believe otherwise was to suppose that foreign officials knew them better than their own countrymen. The natural order of things Indian, was that those who think must govern those who toil. And Britain was upsetting this order.

Morley reminded the educated Indians that being intoxicated by English ideas about freedom, nationality, self-government, they had made the mistake of believing that India was a nation. It was not in the past or then. Indians had not understood Burke's (whom they admired fervently) celebrated saying "How weary a step do those take who endeavour to make out of a great mass a true political personality".

Such was the ideological and intellectual impasse that was the background for the India Councils Act of 1909 which provided for elections to the provincial councils, with separate electorates for Muslims.

The great irony of the decision taken in 1909 was that despite the well reasoned arguments against attempting to transfer western political institutions to India, the India Councils Act did precisely that by embodying in the new legislation that most characteristic of western political idea, namely that the fundamental basis of a state was the aggregation of individuals. The concept was implicit in the Act; that the will of the majority was the will of the nation. Westerners had wrestled with the problem of the rights of minorities but they were thinking of minority opinions. In India something quite different was involved-the rights of minority communities. One can imagine the basis of Indian state being 'a community of communities' instead of a community of individuals. Morley had pointed in this direction when he had suggested the establishment of some kind of electoral college with proportional representation that would have recognised communal groupings.

Yet it was what the Indian national leaders wanted because of their liberal philosophy as well as their justified sense that they would emerge as the natural leaders in an all-India system founded upon a numerical majority. The belief in political power based on simple majority is being challenged (at the end of the twentieth century) in the name of regional autonomy, group identities defined in terms of religion and ethnicity and more generally, arguments for a loose federal system.

The theme is developed further with reference to modern times in "Religion and Politics in the 1980's". It is misleading to suggest that religious differences are fundamental. Very often commentators use the labels of religious terminology as a convenience for avoiding careful analysis of complex situations. What is essential in looking at religion and politics is to see how complex indeed, how convoluted the relationship is.

In the simplest formulation, issues involving religion and politics can be stated in terms of national unity versus religious communalism. The latter term embodies the fact that religious groups stress the importance of membership of their group over national identity and that they seek their own advantage over those of other groups and of the nation as a whole. What this definition conceals is that the majority community can equate its own interests with the national interest, and see even rational claims for justice by a minority religious community as an attack on national unity. 'National unity' thus can become a code phrase to denigrate legitimate assertions of cultural pluralism.

The fundamental causal factor in the religious communities and politics in India has to do with the nature of political representation. Somewhat paradoxically, some of the decisions that led to India's present political structure, while ensuring democracy, also made inevitable the intertwining of religion and politics and the conflicts that follow from that relationship. Liberal political thinkers were concerned with the rights of minority opinions, but the issue in India was very different: not the right of dissenting opinion and individual freedom, but the rights of groups in terms of customs and social practices, which were

seen as having a religious basis. This included the vast corpus of law dealing with inheritance, marriage and family relationships. Could the majority legislate for minority groups in these matters?

The assertion that groups have rights that cannot be challenged by majority decision on the ground that the nation is an aggregate of groups, not individuals, is on one level merely an interesting theoretical proposition. That it is an intensely practical issue was shown by the Shah Bano case in 1986 and Sikhs in 1980's.

The second factor is the frequent perception by minority groups that in a rapidly changing society members of other groups are benefitting economically while they are being deliberately excluded. Religious leaders and politicians have made skillful use of the frustration of poverty and unemployment to mobilize constituencies under the banner of religion. The factors at work may be almost wholly economic and social but it is easy to make the transition to seeing one's group as victimised for religious reasons by the majority community.

A third factor (an obverse of second) is the attitudes of the activities of groups from the majority Hindu community who feel that their religious and cultural traditions, which they identify with the nation, are being threatened by concessions being made to minority communities.

A fourth factor is that the most vociferous and violent guardians of religion in India are not members of the older generation but young men. This peculiar role of young men, along with the other three factors-the claim that groups not individuals, should be represented in the political system, the perceived grievances of minorities, the identification of nationalism with Hindu culture-were all inter-woven in the complex mosaic of Indian life. A fifth component is the role of goondas who are for hire by politicians, religious leaders and businessmen who want to cause trouble for their opponents. The use of the vocabulary of religion has corrupted political discourse in India and is likely to continue to do so in the immediate future.

Such are the perspectives that these thought-provoking essays of Embree open up. It is obvious that they are different from the traditional and prevailing views about the subject and they are of great interest to the student of Indian history. One may not agree with everything that Embree says but if one does hold a different opinion then one better have very good arguments up ones sleeve. What more does a student desire?

NOTES

1. This is effectively brought out in the essay, *Landholding and the Concept of Private Property*. Private property was an inalienable human right *pace* Locke and Blackstone alongwith liberty and consisted of owning and disposing of property that one had gained by mixing one's labour with the land. This was the mental furniture that Company's servants took with them to Bengal in 1760. The other furniture was the widely accepted idea that the king was the proprietor of every area of land in the kingdom, that Indian rulers owned all land and private property was unknown in India.

The reality on the ground in India was various and complicated. Ordinary people had no idea of *meum* and *tuam* and spoke of 'ours' not 'mine'. A thing of value was regarded as being part of an aggregate, rather than belonging to a single person. One might have absolute rights of a certain kind in a piece of land, but others might also have equally absolute rights of another kind in it. Alienation of these rights was possible but not alienation of land itself in a way that excluded the exercise of the rights enjoyed by others. In place of ownership what the society was concerned to defend was the 'interests' of different groups.

Given the institution of property as understood by the British and the Indian understanding of 'interests' in land, the changes that took place in relation to land holding were inevitably complex and hard to control. The result was not a synthesis of the alien and the indigenous. Instead, distortions took place that strictly were not the product of the new institution, but were alterations in the old structure.

2. An aspect of this is developed in the essay on *An Outsider's View-al-Biruni* where travellers' accounts of India and Indian civilization before the pre-modern period are reviewed and al-Biruni's invaluable insights into Indian civilization are brought out in contrast with others. In that context Embree makes an important point: " It is worth mentioning a curious fact: while we have a vast number of interpretations of Indian civilization by foreigners, we have virtually none from the same periods of other civilizations by Indians. I am not sure what this means - but one can atleast say that the curiosity that foreigners have always felt about India is in reverse proportion to Indian interest in the outside world. I am referring, of course, to the pre-modern period, but one could make the same point for the modern world without doing too much violence to facts" (p. 47).

3. Embree points out in another connection that Gandhi's main contribution was to answer that British question decisively. In the essay on *Gandhi's Role in Shaping an Indian Identity* he remarks that Gandhi's political approach - his policies, his ethics, his methods, his whole lifestyle - made it possible for persons from every strata of Indian society to find that self-identification with the destiny of the country which

is at the heart of nationalism. Gandhi's peculiar genius lay in his understanding of how the complex fabric of traditional Indian society could be related to the essentially modern phenomenon of the movement for political independence. What he did was to give the masses for the first time a sense of involvement in the nation's destiny while persuading the old leaders to accept his leadership. His Swaraj had almost an apolitical meaning like "abandonment of the fear of death" or the ability to regard every inhabitant of India as our own brother or sister. No other leader in history in his own lifetime had done so much to make a people into a nation. Gandhi continuously expressed his belief in the truth of all religions which was in itself the most Hindu of statements. The Muslims denied this inclusiveness. They applauded Gandhi for demonstrating that the Congress was a Hindu organisation, but the other reality was the existence of the Muslim nation in India. It was a different type of nationalism. Gandhi, no more than the British, could have created Muslim separatism. Its components existed within the fabric of Indian culture and experience in exactly the same way as did the mainstream of nationalism represented by the Congress.

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REVIEW ARTICLE*

RURAL EMPLOYMENT

P.S. Palande

Increasingly, governments in developing countries have been adopting intermediation measures to generate employment, such measures being oriented towards specific target groups. The book under review is a study of such efforts, especially in Maharashtra. The author starts by making the point that planning strategies pursued so far have failed to address themselves to the problem of unemployment. As a result, unemployment of a very high order persists. Godbole indicates the seriousness of the problem by quoting from the Seventh Plan which estimated that the absolute magnitude of addition to the labour force would be 3.9 crore and 8.1 crore during 1985-90 and 1990-2000, respectively. Taking into account the estimated backlog of unemployment as of 1985, the additional employment to be generated by the year 2000 would be around 13 crore (p. 1). Creating additional employment of this order is a challenging job. The Plan expected that with the projected GDP growth rate of 5 per cent per annum, a fast rate of growth of agriculture, combined with even faster rate of growth of industry, together with specific employment generation programmes would make the provision of jobs to all the labour force possible by the year 2000. This possibility is examined on the basis of a wealth of information presented in the book. The topics covered include: employment and growth; employment in the organised and in the informal sector; major rural employment programmes of the Government of India; employment profile of Maharashtra; an overview of the EGS in Maharashtra; problems of agriculture in Maharashtra; issues in water and land management; and suggestions for future strategy. Issues such as migration and urbanisation and their impact on the employment situation, informal sector, lack of public involvement, bureaucratisation of the development schemes, etc., have also been examined to see how far they have assisted or impeded the process of employment generation.

In the organised sector, it is the public sector which has contributed substantially to the generation of employment; in comparison, the employment in the private sector industry increased only slowly and later even declined. Thus, employment in the public sector industry grew from 133.22 lakh in 1976 to 180.28 lakh in 1987. On the other hand, the employment in the private sector industry increased from 68.44 lakh in 1976 to 75.52 lakh in 1983, and then declined and stagnated at about 73.50 lakh in the next four years (Pp. 2 and 4). On the whole, however, the trend of growth of employment in the organised sector throughout the Plan period was sluggish which indicates that a high growth of output was achieved by substituting capital for labour. The rapidly increasing cost of labour in the organised sector is at the root of this phenomenon. In fact, the percentage increase in emoluments of the employees has actually been higher than the increase in the all-India consumer price index. In other words, the real wages of employees in the organised sector have increased. Simultaneously, the gap between the wages in industry and agriculture has widened considerably over the years. It would have been useful if some light were thrown on whether per employee productivity has, during this period, remained constant, or has registered a fall thereby causing the costs to rise.

Government's response to the demand for higher employment has been to enlarge public works programmes such as the National Rural Employment Programme (NREP), the Rural Landless Labour Employment Guarantee Programme (RLEGP) and recently the Jawahar Rojgar Yojana (JRY). Godbole feels that a

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* *Rural Employment Strategy: A Quest In Wilderness* - Madhav Godbole, Himalaya Publishing House, Bombay, 1990, Pp. 296, Price Rs 250.

patchwork of public works programmes in an otherwise unchanged Plan strategy is unlikely to tackle the basic issues meaningfully. In his opinion, the efforts by way of public works programmes are like treating the symptoms rather than the disease. Further, a number of 'populist' schemes have been undertaken by the Government of India and the State Governments. These include distribution of subsidised rice, distribution of sarees and dhotis, mid-day meal schemes, old age pension schemes and so on. Commenting on such schemes, Godbole states: "It is disconcerting to see that a plethora of such populist programmes, which often create a make-believe dream world, and were deprecatingly called 'populist' programmes by the Centre-State Relations Commission and the Ninth Finance Commission earlier, have now acquired legitimacy and are being called welfare programmes" (p. 188).This is a surprisingly candid observation from a serving bureaucrat. Plan strategies have been giving pre-eminent position to growth and its trickle down effect, with employment relegated as a subsidiary or a secondary objective, though it has been recognised that benefits of economic growth have failed to percolate to the most needy and deserving sections of society.

Since the performance of the organised sector in employment creation has been somewhat dismal, a determined effort will have to be made to generate new work opportunities in agriculture and related activities, in village and small scale industries and in the creation of infrastructure and rural assets. The book brings out the large untapped potential for employment in rural areas and makes out a case for an alternative forward looking strategy in this direction. Godbole notes that although the Plans recognise that broadbased agricultural development holds a key to the alleviation of rural poverty and unemployment, the impact of the schemes and programmes undertaken so far has been marginal. A quick assessment of the various developmental schemes undertaken during the Seventh Plan, brings out that the overall performance has been fairly good. But this otherwise good performance is not matched by an equally impressive performance in generation of employment which has not been given sufficient importance, albeit labour is the most important resource at the command of the poor. The author also reviews the major rural employment programmes of the Government of India which include Rural Employment Programme, Crash Scheme for Rural Employment, Pilot Intensive Rural Employment Programme, Food for Work Programme, Integrated Rural Development Programme, National Rural Employment Programme, Rural Landless Labour Employment Guarantee Programme and the recent Jawahar Rojgar Yojana, etc. Crores of Rupees have been spent on these schemes and they have also generated sizeable employment. But the author feels that there has been a proliferation of such programmes most of which have had problems in reaching the very poor. In its Mid-term Appraisal of the Seventh Plan, the Planning Commission has also noted that it is necessary to sharpen the effectiveness of the employment programmes by making them more purposive and more selective, linking them up more closely with the developments in the economy of the rural areas including rural towns, and introducing policy initiatives in other areas like industry and services to provide stronger and lasting support to the efforts for creation of employment and income opportunities for the poor.

The most important part of the book deals with the study of the Employment Guarantee Scheme (EGS) in Maharashtra in sufficient detail. After first tracing the evolution of the scheme and the legal and administrative provisions governing its operation in practice, the author reviews the trends of employment generated and the expenditure on the same. This is followed by some observations on the Scheme's impact on general agricultural operations and wage rates. To begin with, he distinguishes between the EGS on the one hand and the other employment programmes such as IRDP, NREP, and JRY on the other. "EGS provides statutory guarantee of work to a person who is in need of work in the rural area and who is prepared to take up any unskilled work offered to him. It is also open-ended with a firm commitment of the State Government that any expenditure required for the scheme would be found on priority by, if necessary, curtailing the

outlay for any other Plan or non-Plan scheme of the State Government. Finally, EGS in not confined either to persons below the poverty line or to any other special categories. Any member of the rural community or a person residing in 'C' class municipal area can take advantage under the scheme. While some of the other programmes contemplate giving assistance to only one person in a family, under EGS any number of persons in the family have to be provided work if they ask for it. Thus, none of the programmes taken up by the Government of India during the last 25 years can be strictly compared with the scope or the reach of the EGS" (p. 36).

The author points out that some economists have commended the scheme for its self-targeting nature, automaticity and open-endedness. It has been argued that by meeting variable rural needs for employment when and where they are expressed, the scheme ensures that the employment provided under it reflects the need for such employment in various parts of the State at different times. It has also been argued that one of the greatest advantages of the scheme is that the data collected can provide valuable insights into the nature of employment and income problems, which should help in planning for the rural economy. The author quotes evidence to show that a significant proportion of beneficiaries under EGS have been women and also the weaker sections especially scheduled castes and scheduled tribes.

The weaknesses of the scheme relate to items like inadequate preparation of plans and estimates, the nature of works undertaken, adverse ratio of labour to material cost, corruption and leakages, inadequacy of maintenance of assets created, etc. It has been noticed that proper surveys, plans and estimates and blue- prints of the works to be included in the shelf of projects could not be prepared due to the massive number of works involved. *Ad hoc* work programmes have resulted in dilution in the quality of work. The span of control for technical and administrative supervision was too large keeping the staff idle for considerable part of the year, adding to the infructuous expenditure and overall costs. An almost inevitable feature of a large public works programme seems to be the massive leakages and overhead costs. The Maharashtra Legislative Committee also observed that EGS is a scheme for corruption, which has corrupted not only the bureaucracy but also various other elements in society.

The costs of these programmes appear to be vastly understated. In addition to the costs reflected in the government budgets, there are hidden subsidies in these programmes. For example in the EGS, establishment costs are not reflected fully. In respect of NREP and RLEGP as also in JRY, the subsidised cost of food is not fully reflected in the budgetary figures. If these hidden subsidies are taken into account, the actual costs of the programmes would be even larger than those reflected in the budget documents.

At the time of launching of the Scheme, a number of guidelines had been laid down. In practice, these were not fully followed, often because of popular pressures and populist policies pursued. The basic character of the scheme itself has changed from being a primary source of livelihood in the non-agricultural season to a supplementary source of livelihood practically throughout the year. This is contrary to the general view that special schemes for generating employment should really be unnecessary except perhaps during temporary periods of special difficulties such as droughts, etc. Originally, only productive community assets were contemplated to be taken up under the Scheme. But over the years, due to pressures for starting new works within close proximity of the village, works benefitting private individuals have been taken up. Moreover, the target group has not always been properly identified in advance and the beneficiaries have included some large and well-to-do cultivators also (p. 185). Unfortunately, who this target group is has not been specified anywhere. Presumably, landless labourers and small cultivators are supposed to be covered under the scheme. And as pointed out in the book itself (p. 77, for instance), these are the very categories which have in fact benefitted. The author's point, therefore, that the beneficiaries included large and well-to-do cultivators relates really to the fact that the assets created under the programme brought greater benefit to them. But from the data given by him, the benefit of

employment as such still went mainly to those for whom the programme was designed. The data also show that the number of able-bodied male workers has gone down significantly and instead, a large number of women, children and old persons now work on the EGS. The employment of children on a large scale has resulted in increasing the rate of drop-outs among the school-going children. Similarly, in the wake of certain court judgements, the wage structure on the EGS has changed radically. The courts have held that the workers on EGS have the same protection of labour laws as any other workers especially in regard to their wages. As a result, the initial concept of paying a subsistence wage or a wage lower than the minimum wage for agricultural labour to the workers on the EGS had to be given up. The courts have also held that a large section of labour and staff would become permanent employees of the Government. This naturally has increased the expenditure on wages.

Godbole emphasises larger public participation and involvement of beneficiaries, who seem to look upon such programmes with some detachment as they are fully government funded programmes. He also suggests greater involvement of the bureaucracy and the voluntary agencies. The book provides insights into the implementation experience of the EGS over a period of fifteen years, and other programmes such as NREP and the RLEGP. But, although the views of a number of authorities have been quoted, one gets the feeling that the bureaucrat in the author has prevented him from stating his own judgement explicitly. At best, one can only make a conjecture of what he has in mind with reference to the observations of others in the line. For example, he refers to the fear often expressed that under the EGS the resources to be devoted to special schemes will go on increasing. Similarly, a number of doubts also arise such as whether EGS would generate the kind of employment the country needs, whether it would create a permanent volume of employment, whether it would lead to net increase in employment in the economic system as a whole, the alternative uses to which the resources to be used on EGS which were then estimated at Rs. 50 crore a year could be invested, and whether EGS would make effective contribution to capital formation and economic growth. These issues have been mentioned but have not been specifically dealt with. Godbole's main point is that there has to be a distinction between short- term programmes of public works and the long-term employment policy. The public works or the wage employment programmes could be appropriate as stop- gap or short-term arrangements and in fact, initially they were conceived mainly as scarcity or famine relief works. It was only later that they came to be looked upon as short-term solutions to the problems of unemployment and underemployment in the rural areas. In fact, when the EGS was launched by the Government of Maharashtra, it was strongly opposed by the Government of India and was also frowned upon and even severely criticised by a number of academics and policy makers on the same grounds. However, over the years, such programmes have become an integral part of the Plan strategy even at the national level and efforts are afoot to replicate Maharashtra pattern all over the country. On the point of distinction between short-term and long-term programmes, there could be some disagreement. A specific project or work taken up under the EGS may be of a short duration; but that does not make EGS itself a short- term programme. The scheme envisages the preparation of a shelf of projects to be readily available whenever the need for starting a work arises. If this is ready, then EGS itself can still become a long-term and sustainable programme. Godbole seems to suggest that programmes like EGS can solve the problem only partially and may even pose problems in terms of commitment of resources and therefore, other areas of possible expansion will have to be explored. He, therefore, possibly concurs with VKRV Rao's assessment at the very inception of the scheme viz." Paradoxically one might say that the scheme will have served its purpose when it is no longer required. It should, therefore, wither away in course of time and all efforts must be made to see to it that the flow of people demanding employment diminishes over the years" (p. 89).

The Author accordingly recommends a new thrust of policy with emphasis on improving agriculture and related systems. Also, "In the redesigning of development strategy, emphasis

must be placed on creation of employment opportunities based on upgradation of skills rather than perpetuating living standards at subsistence levels by providing unskilled jobs" (p. 193). He quotes the examples of three villages in Maharashtra to show how "a well designed set of programmes can convert a poor labour surplus village economy into a prosperous village economy with practically full employment in on-farm and off-farm activities" (p. 191).The book brings out the large potential for employment in agro-based industries and activities such as horticulture, dairy development, sericulture, and sheep and goat development. A solution to the problem is possible only if employment is given the importance it deserves. Godbole, therefore, pleads: "One significant lesson from the past is that creation of employment opportunities for the masses needs to be explicitly brought to the centre stage as an important objective by linking it with growth and equity" (p. 189). Godbole brings to bear on the study his vast experience as a bureaucrat and especially his first hand acquaintance with the subject under discussion. Apart from reproducing relevant government orders, the value of the book is considerably enhanced by the very large number of Tables containing information which would not be readily available to an outsider.

BOOK REVIEWS

"Pesticides Industry in India: Issues and Constraints in Growth" By U.K. Srivastava and N.T. Patel, Published by Mohan Primalani for Oxford and IBH Publishing Co. Pvt Ltd., New Delhi 1990, Pp. 343 Price Rs 295/-.

Together with hybrid & HYV seeds and chemical fertilisers, pesticides constitute the third major input of the Green Revolution technology. Use of pesticides and the pesticides industry have rapidly grown during the last twenty years. During 1984-85, total turnover of pesticides in India was of the order of about Rs 556 crore. However, the use of pesticides is concentrated in selected districts of a few States like Andhra Pradesh, Karnataka, Gujarat and the Punjab. States like Assam, Bihar, Madhya Pradesh, and Rajasthan account for 1% or less of the total pesticides used in the country. The bulk of the pesticides are accounted for by crops like paddy and cotton. Sugarcane, barley, rape and mustard, tobacco, gram etc. and plantation crops like rubber, tapioca, coconut and spices make negligible use of pesticides. This pattern is, however, likely to undergo a major change during the next decade of agricultural development. Already in 1988, the share of Indian pesticides industry was the second highest in the Asian market.

The book under review is the outcome of a study designed to examine the working of various constituents of the pesticides industry and bring out constraints to its growth. The constituents of the industry are - the manufacturers who produce the technical grade material, the formulators who use the material, and the wholesalers and the retailers through whom the material is sold to the farmers. There are 79 technical grade pesticides manufacturers in the country. Of these only 10 account for 80% of the production. The total number of registered manufacturers is about 800. Of these 180 are associated formulators while the remaining are non associated. There are 77,080 pesticides distribution points operated by various agencies. Of them 4,973 were operated by departments, 16,237 by cooperatives, and 55,870 by private traders. Andhra Pradesh, Uttar Pradesh, Gujarat and West Bengal account for more than 52% of these distribution points.

The bulk of the analysis of the study was based on case studies of four major technical grade material manufacturers, eight formulators (four from Gujarat and four from Andhra Pradesh) and 17 dealers. The outcome of the analysis has led the authors to identify a series of major problems faced by manufacturers, formulators, dealers and farmers and make recommendations to solve these problems. These are summed up below.

Farmers

Problem	Recommendation
1. Farmers get sub-standard product	They should be provided better quality products
2. Credit for enough time is not available	The period of credit should be at least for six months
3. Expiry dates are written in English which farmers are not able to read	They should be written in Hindi or regional language
4. Lack of knowledge of method of application	Training to farmers should be provided
5. Variations in the doses recommended by agricultural universities, companies and state departments confuses the farmers	The recommendations should be mutually sorted out

Dealers

1. Period of credit is very short	Credit period should be for six months
2. The life time of the formulated pesticides is very short	Unsold quantity of pesticides whose expiry date is over should be replaced by the company.
3. Dealers give no guidance to farmers	Training should be provided to dealers about the use of appropriate type of pesticides for different crops and pest attacks
4. Harassment from pesticides inspectors	Dealers should not be victimised because of the lapses of local formulators who produce sub-standard products

Formulators

1. Non availability of credit	Credit facilities should be provided to all formulators without bank guarantee for 90 days
2. Artificial shortage of technical grade pesticides	All technical pesticides should be made available even in the peak season
3. Variation in taxes, electricity charges from State to State	Rates of different taxes should be uniform throughout the country
4. Artificial shortage of technical grade pesticides	Under the OGL policy the permitted agencies should be allowed to import specified technical pesticides from any source in the international market.
5. Non-associated formulators get no encouragement from govemment	They should get incentive from Government
6. Harassment by pesticide inspectors	There should be proper checking on pesticide inspectors
7. Substandard products of a few local formulators	No recommendation

Manufacturers

1. Capacity utilisation is low	
2. Pesticides industry is very risky	
3. The formulators do not lift the technical grade material allotted to them	Under the 50% allocation of technical pesticides scheme, formulators should be compelled to lift allotted quota.
4. Import duty on intermediates is very high	It should be reduced by 50%
5. The price of imported technical pesticides is lower then that of indigenous pesticides	This should not be so

A perusal of the recommendations would show that while they are generally unexceptionable, the authors have not considered it necessary to show how they could be implemented.

A chapter is devoted to describe the regulatory framework of fertiliser industry. It consists of the Insecticide Act, 1968 under which the central Insecticides Board and the Registration Committee are constituted, and the licensing procedure prescribed; Prevention of Food Adulteration Act and the Indian Factories Act. Analysis of market samples in various parts of India has shown widespread contamination of vegetables and fruits with pesticides residues. These are caused by excessive spraying by farmers. DDT is not recommended for edible crops and yet it is used because of cheapness. Laboratories are not properly equipped to analyse food samples and food inspectors do not have adequate technical training. Agencies connected with food and agricultural commodities have to be strengthened to discharge their duty of safeguarding the health of consumers and the public.

There are as many as 20 annexures while the main text goes over only 135 pages, the rest of the pages are covered by the annexures.

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Challenge to India's Unity - Assam Students' Agitation and Government, by D.P. Kumar, B.R. Publishing Corporation, Delhi, Pp. 356, Price Rs 240/-.

Until the early part of this century, Assam was a land of plenty. It had a limited population on large tracts of fertile land. In contrast, the adjoining districts of Bengal were over-populated. As a result, Muslims from the heavily over-populated Mymensingh district started moving into Assam in small numbers to settle and cultivate surplus lands. With Independence, and partition of Bengal into East Pakistan - now Bangla Desh - the influx of migrants from the newly formed country into Assam and its neighbouring States increased. Initially the migrants were Bengali Hindus, taking refuge away from the new theocratic Muslim State. But the Muslim farmers from East Pakistan also continued to move and settle in the rich fertile Brahmaputra valley. This movement, albeit small, continues even today. While the migrants who came in before Independence assimilated with the local population, speaking their language and following their customs, the new entrants after partition maintained their Bengali identity,

language and culture. At the same time, the educated Bengali was able to corner the bulk of white collared employment available in Assam.

The advent of planning brought with it a number of new educational institutions into Assam - engineering, medical, other technical institutions, in addition to those in the arts and humanities fields. Qualified Assamese started to come out from these institutions to discover that the limited employment opportunities available in the State were being encroached upon by the newly arrived Bengali refugees. The problems was, therefore, economic: lack of opportunities for the local people. Simmerings of discontent had commenced by the early 1960's. At first the protests were for change in the language policy: Assamese alone should be the State language and medium of instruction in educational institutions. With the break-up of the State into Arunachal Pradesh, Meghalaya, Nagaland and Mizoram during the late sixties and early seventies, Assam became a truncated State with its land area diminishing but the population in the Brahmaputra valley remaining intact. The demand arose for ousting all outsiders - 'foreigners' - from the State; this demand multiplied to culminate into the 'Assam Agitation' from 1979.

The book under review traces the Assam agitation through its various phases until the signing of the Assam Accord in 1985 and the establishment of the Asom Gana Parishad (AGP) Government, the problems faced by the new Government both with the Centre in implementing the Accord and with the seperatist agitations of the Bodos, the Plains tribals and others. The first five chapters discuss the past history of Assam until Independence. It relates to the early migration of the tribes from the East, the politics of the British Government to move in Bengalis into Assam, the role of the Muslim League to attempt to make Assam into a predominantly Bengali Muslim State, the migration after Independence and the sharp rise in the population of Assam as compared to the rest of the country. The next two chapters relate to the break-up of Assam into the new north-eastern States and the pressure of population in this truncated State. These hundred or more pages have a lot of repetition, which breaks the flow of an otherwise interesting background study. A few examples of such repetitions are (a) the quotations from the 1931 Census Report repeated on pages 39 and 51, and for Sibsagar District, on pages 31 and 51; (b) the hoisting of the Pakistani flag by Bengali Muslims at Tezpur at the time of the Chinese invasion in 1962 on pages 8, 54, and 70; (c) Chief Election Commissioner's statement in 1978 of the influx of people into Assam from neighbouring countries, quoted on pages 91, 103 and 113-114; and (d) tables on comparative population increase between 1901 and 1981 on pages 52-53 and again in Chapter 7.

The main thrust of the book, viz. the six year long agitation by the All Assam Students' Union (AASU), begins from Chapter 8. The discontent began with the proposed by-election in 1979 for the Mangaldoi Lok Sabha constituency. It was found that out of an electoral college of 600,000, there were 45,000 illegal voters, who were declared to be Bangla-Deshi infiltrators. The AASU was up in arms, and took the lead for an anti-foreigners agitation. The by-election could not be held and popular resentment against the Government - both Centre and State-started rising. Then began the various 'bundhs' which became the way of life for the people of Assam and the neighbouring States over a period of six years. Negotiations continued first at Officers' level, later at the State Governor's level and still further at the Central Ministers' level. Despite the promulgation of Ordinances for preventive detention, the Assam imroglio continued. The ASSU and its partner, the All Assam Gana Sangram Parishad (AAGSP), wanted all 'foreigners' who had entered Assam after 1951 to be sent away from Assam, while the Centre wanted the cut off date to be 1971. The argument of the Assam agitation leaders was that the influx of the people from East Pakistan/Bangla Desh was endangering their culture and linguistic, political and ethnic indentity. That of the Government was that the refugees should be allowed to stay on humanitarian grounds. Ultimately, a compromise settlement was reached in August 1985 and the

Assam Accord was signed on 15th August of that year.

According to this Settlement, (reproduced as Annexure in the book) the base year for detection and deletion of names of foreigners from the electoral rolls was fixed as January 1, 1966. The names of all foreigners who came to India between January 1, 1966 and March 24, 1971 were to be deleted from the electoral rolls for a period of ten years; thereafter they could be restored. Foreigners who came to Assam after March 25, 1971, should be detected, their names deleted from the electoral rolls and they should be expelled in accordance with the law. The Central Government agreed to make arrangements for purposes of detection and expulsion of foreigners, as also for closing of the border between Assam and Bangla Desh.

Following the State elections, and coming of the AGP into power in 1985, problems of a completely different type emerged. Chapter 12 onward of the book discusses these problems. While the Centre continued to drag its feet regarding fencing of the border and formation of tribunals for detection of foreigners, minority groups started raising their heads in Assam. There came into being the United Muslim Front, the Plains Tribal Council of Assam, the Cachar & Karimganj Students Association, etc. all wanting a slice of the State as an independent territory. And finally the terrorist organisation ULFA - the United Liberation Front of Assam - which is fighting for an 'independent' Assam.

In Chapter 14, the author wonders what the future holds for Assam. Would the AGP 'be able to handle with imagination and wisdom the task of building homogeneity harmony and peace in the strife torn Assam' (p 323). What would happen if the other ethnic communities still in Assam like the tribal communities, who together form the matrix of the society, wish to assert their own identity and seperateness (p 326). If the AGP were unable to contain these tendencies, the present truncated State of Assam would shrink still further in size. Again, would the predominantly Bengali district of Cachar cede from Assam to form a separate Union Territory. There was also the danger of Assam becoming a predominantly Muslim State with the continuing migration from Bangla Desh.

There are other factors that need to be highlighted while discussing the problems faced by Assam and its neighbouring States *vis-a-vis* Bangla Desh. The border between Bangla Desh and India is really an artificial border and anyone can walk across from any number of points on both sides. Religious oppression brought in the Hindus from Bangla Desh, but it is the economic 'oppression' that continues to bring in people still, in the hope of a better life in this country. At the same time, economic development within Assam has proceeded at a very slow pace since Independence. With the agitation over the six years 1979-85, progress was more or less at a stand-still. Thus, while it will be impossible to deport lakhs of people back to Bangla Desh and see that they do not return, financial constraints make it difficult to develop the State at a rapid pace for overcoming the problems it faces today.

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The Administrator Special Issue : Village Study; July-September, 1990, Vol. XXXV No. 3, Lal Bahadur Shastri National Academy of Administration, Mussoorie, Pp. 113, Price Rs 15/-.

This special issue of 'Administrator' deals with village studies and includes papers on four selected themes relating to i) transformation in villages, ii) village-level perceptions, iii) impact of State intervention and iv) environmental issues. As the Guest Editor has pointed out, the Journal has tapped the wealth of information on villages already available in the Lal Bahadur Shastri National Academy of Administration in the form of village reports prepared by the trainee administrators. But in addition, there are contributions from academicians, administrators, experts, planners and activists. Their papers cover a cross-section of villages in the country from different States covering different themes on village study. The diverse subjects covered

include the effectiveness of anti-poverty programmes, distortions and inequalities in tribal villages, peasant mobilization, the structure and functioning of village economies, management of common property resources, widening rural-urban disparities and so on. Apart from presenting differing view-points and perceptions, the articles also analyse the problems from different angles and indicate some areas of practical action based on first-hand experience in handling village problems. Inspite of the varied backgrounds and convictions of the contributors, one common theme that seems to run through many papers is that there is a wide gap between what was envisaged by way of development in villages and what has actually been achieved on the ground. Another common point stressed in the articles suggests that concrete results can be achieved in the villages only on the basis of collective action whether it is in respect of managing of village resources or tackling of environmental problems. The studies have brought out that villages which have adopted such an approach have achieved better development. This substantiates the view that India's large village population can overcome many of its complex problems more with its own initiatives rather than through dependence on the Government apparatus.

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ANNOTATED INDEX OF BOOKS AND ARTICLES IN INDIA

EDITOR'S NOTE

These abstracts are prepared by the author of each book/article sent to us voluntarily in response to our invitation through the Economic and Political Weekly. These cover publications after 1st January 1986. Only abstracts of books/articles so received are published The index therefore is not exhaustive and complete.
The limit of 250 words and 100 words for abstracts of books and articles respectively is strictly enforced. Only a minimum amount of copy editing is done in order to bring the abstracts within the prescribed limits. The readers should approach the author of the abstract, not this Journal, for any clarifications.

BOOKS

1988

Mukherjee Neela and Amitabha Mukherjee, *India's Foreign Trade by Regions*, Indus Publishing Company, New Delhi, 1988, Pp. 176. Rs 150/- hardback.

India's foreign trade has undergone structural changes in terms of direction. Several forces like new economic times, better terms, new opportunities and developmental requirements of the country exerted pressure on the direction of foreign trade from time to time bending it towards a host of countries and regions.

India's direction of foreign trade is a vast topic given the different countries involved, the size of trade and the number of commodities traded. The present study is an attempt to discuss the performance of India's exports and trade policies. It analyses and gives exclusive treatment of India's trade with different regions, trading blocks and currency areas, and also presents an overall picture of the dynamics of India's trade relationship with important countries like U.K., U.S.A., Japan, West Germany, etc.

1989

Mukherjee Amitabha, *Towards a Non-Static Theory of Profit Maximization:* Abhinav Publications, New Delhi, 1989, Pp. 246. Rs 250/- hardback.

This book is an exercise in pure theory at the micro-level. Abandoning the traditional concept of profit, as being the residual difference between revenue and cost, the book examines in detail new concepts of profit and attempts at determining the behaviour of firms (where management and ownership is separated) in terms of these new profit concepts.

The entire gamut of the theories of the firm and the theories of pricing and output determination under different market conditions is examined, to establish how conventional analysis leaves no room for firm's growth, as the surplus generated by a firm exhausts in returns to factor inputs. A general theory of profit is then presented and the relationship between profit and other variables, notably growth is examined, within a firm. An attempt is made to resolve the conflict that may arise in the managerial objectives and the objectives of the firms (in the long-run) where ownership is separate from management.

Mukherjee Amitabha, *Economic Theory of Human Resources*, Indus Publishing Company, New Delhi, 1989, Pp. 263. Rs 250/- hardback.

This book is a reassessment of both classical and neo-classical economists having special regard to the theory of human resources, and establishes that they, with the exception of Marx, strove to offer a defense for the power-status structure of their time. It shows how even the neo-classical economics of Marshall could not be freed from a search of that defense of the ongoing power-status arrangement. The theme of the book is how the theory of human resources, embellished by the law of diminishing returns, moulded the thoughts of economists and Marshall and addressed themselves to, and how the origin and

development of optimum theory of population marked the breaking away of economics from the classical stranglehold but at the cost of ushering economists into an age where they lost touch with the objective forces at work in the community of resources.

1990

Dev Raj, *Economic Development: Critical Analysis of GSP*, Anmol Publishers, New Delhi, 1990, Rs 450/-

This book is the first full fledged book having eight chapters on GSP and its role in the economic development of developing countries. The concept of GSP emerged with the aim to increase export earnings, to promote industrialisation and to accelerate the rates of economic growth of developing countries.

GSP treatment is accorded virtually to all the developing countries through reduction or exemption from custom duties on a non-reciprocal basis. It is a "Trade Policy" instead of "Aid Policy". Starting from the concept, origin and definition of GSP in this book, the author has analysed the pattern of trade flow prior to the introduction of GSP, causes which have stood in the way of utilisation of GSP, benefits, errosive impact of Non-tariff barriers and Multilateral Trade Negotiations on GSP concessions, GSP role in balance of trade in developing countries and strategy to maximise the benefits from GSP. To maximise GSP benefits, successful entry of products exported under GSP is the main step which can be achieved by establishing consumers' acceptability, by gaining confidence of importers, by timely deliveries and by dependable sources of suppliers.

GSP is considered as the harbinger of a new era of trade relations between developed and developing countries. It has brought considerable improvement in the market access for the product of developing countries.

The bibliography and appendices given at the end of the book, will considerably help the students of International Economics, Research Scholars, GSP donor and beneficiary countries.

Mukherjee Amitabha, *Studies in Multilevel Planning: Researches in Decentralisation* (with Special Reference to District Planning in India), Volume-1, General Editor: B.N. Yugandhar, Heritage Publishers, New Delhi, 1990, Pp. 302. Rs 295/- hardback.

This book reviews the literature covering the entire gamut of multi-level planning with special reference to District Planning in India. The literature on every aspect of decentratlised planning has been reviewed and documented: evolution of decentralised planning in India; regional planning in India; rationale of decentralised planning; space, spatial-organisation, region and regional organisation; theories, strategies and approach to decentralised planning, all form part of the book. Each aspect of decentralised planning has been provided with a bibliography and bibliographies on decentralised planning and administration; project planning; and feasibility studies and regional planning, carried out in various part of the world. It is an invaluable guide to researchers, administrators and planners for understanding and formulating better decentralised plans at sub-national levels.

This book is first in the Series on Studies in Multi-level Planning.

Mukherjee Amitabha, *Studies in Multilevel Planning: Foundations of Decentralisation with Special Reference to District Planning in India*, Volume-2, General Editor, B.N. Yugandhar, Heritage Publishers, New Delhi, 1990, Pp. 304. Rs. 350/- hardback.

This book is an exercise in synthesising. It explains in detail the various theoretical underpinning of decentralised planning. Since each territorial tier in a decentralised planning set up can be conceived of as a delineated region, the book opens with the discussion on space, regions and regionalisation. Central place theories;

theories of growth pole and growth centre; theories of regional planning; growth and income generation models; principles of planning; theories of location have all been examined from a decentralised level perspectives. Even typology of planning has been dealt with in detail, to provide a clear view of the possible character and content of planning at district and sub-district levels.

The book will be of immense use for planners, administrators, scholars and students who are looking for a reference on the theoretical foundations of decentralised planning. But the book will be of best use for those engaged in the task of training those people who would eventually man positions that have a direct bearing on the process of planning and implementing plans.

Yugandhar B.N. and Mukherjee Amitabha (Eds), *Readings in Decentralised Planning with Special Reference to District Planning*, Volume-1, New Delhi, 1990, Pp. 512. Rs. 500/- hardback.

An International Experts Group Meeting on Decentralised Planning was held at the Lal Bahadur Shastri National Academy of Administration, Mussoorie, from 11th to 13th June 1990. This book is a revised version of the papers read at the Conference; the proceedings and its recommendations. The sweep of the papers cover everything relevant currently for district planning: the concepts, the resources, the database, the role of the administrator, the training needs, people's participation, agro-climatic zones and the know-how to frame a district plan. Each paper is by an acknowledged expert in his respective field with long years of experience at micro-planning, both academically and as a practical planner. The proceedings and the recommendations are particularly important because they are harbingers of hope and give a view of the probable shape of things as they might emerge in the foreseeable years ahead of us. The book would be of immense interest to administrators, planners, academicians and students of decentralised Planning.

ARTICLES

1986

Hooja Rakesh; 'Special Schemes Organization and Alternative Energy with Special Reference to Problems of Administering Biogas Programme' *Agriculture Administration in India* (ed.) Hoshier Singh, Printwell Publishers, Jaipur.

Field level problems of implementing the National Project on Biogas Development and the Community Biogas Plants Programme in Rajasthan have been discussed with reference to the role of District Rural Development Agencies, and the Special Schemes Organization in the State Secretariat. Policy issues related to subsidies, staffing patterns, provision for demonstrations and extension efforts, involvement of voluntary agencies, coordinating biogas efforts with other alternate energy projects, etc., have also been examined.

Hooja Rakesh and R.S. Mathur; 'Obtaining Institutional Credit for Market Yard Development', *Agriculture Administration in India* (ed.) Hoshiar Singh, Printwell Publishers, Jaipur.

The paper briefly summarizes administrative arrangements at State and lower levels to regulate and develop agricultural marketing in Rajasthan and the working of the Directorate of Agriculture Marketing, State Agricultural Marketing Board and Krishi Upaj Mandi Samitis.

Different steps in preparing a market yard project - site selection, and acquisition, determining need for shops, godowns, auction platforms, etc., preparing layout plans and cost estimates - are discussed. Government and banks jointly assess the likely marketable surpluses and economic viability of the Mandi Samitis for sustaining the project costs and repaying loans.

Problems of project implementation and shifting of trade to new market yards are also touched.

1988

Kripa Shankar: 'Land Transfers in Uttar Pradesh', *Economic and Political Weekly*, July 23, 1988

A study of land transfers during 1952-53 to 1982-83 in selected 19 Naya Panchayats in different regions of rural Uttar Pradesh, consisting of 1,730 such cases, showed that annually roughly 0.2 per cent of the cultivated land was sold in the State. Those who sold their entire landholding accounted for one-third of the total land sold in the State. They mostly belonged to the category of marginal and small farmers. Apart from those who had sold their entire landholding, marginal farmers also sold more land than what they purchased. On the other hand, other categories of farmers purchased more land than what they had sold and were thus net gainers. The greatest gainers were the semi-medium and medium and large farmers who together accounted for 60 per cent of the land purchased in the State. By and large, land was sold to meet consumption needs as only 2 per cent of the land was sold to acquire some machinery and equipment.

The Journal will publish in each issue Annotated Bibliography of Books and Articles on Indian Economy, Polity and Society, published after January 1, 1986. Authors are requested to send their entries with full details of publication and annotation not exceeding 250 words for books and not exceeding 100 words for articles. Use separate sheet for each entry.

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I, P.S. Palande, hereby declare that the particulars given above are true to the best of my knowledge and belief.

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P.S. Palande
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