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JOURNAL
OF INDIAN SCHOOL
OF POLITICAL ECONOMY

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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 AND DECAY OF THE INDIAN POLITY: SOME REFLECTIONS

Madhu Limaye

The paper begins with a discussion of the ancient Indian state system, the nature and role of panchayats, and the evolution of parliamentary institutions under the British rule. Next comes the enquiry into our constitutional evolution since Independence. This is followed by a survey of the main political parties and their electoral performance, including their performance in the recent Lok Sabha and Assembly elections. The main concern of the paper is the decay of the institutions created by our Constitution - legislature, judiciary, cabinet, Governor's Office, political parties. The last three sections suggest a programme of institutional reform, leading to a renewal of the political system.

During the days of our struggle for freedom not only Hindu antiquarians and romanticists but also serious historians asserted that democratic and republican ideas and institutions were not a new thing for India. Some of them maintained that India did not have to borrow these political forms from Britain and other Western countries. All it had to do was to dig into its hoary past and resuscitate the institutions which prevailed in ancient India. Muslim politicians and historians also said the same thing about Islam. They claimed that the Islamic communities in their pristine form were the most democratic in history. Historians of ancient India aggressively combated the view that constitutional or social advancement was a monopoly of the Western peoples. They rejected the theory that political greatness inhered in some chosen people. The theory was a superstition, pure and simple. K. P. Jayaswal even asserted that the Indians had "evolved the greatest constitutional principles in antiquity" [Jayaswal, 1955, Pp 352-53]. The claim, perhaps, was exaggerated. But it is a fact that the political forms in ancient India were of diverse character and that some republics and assemblies were functioning entities in those past ages.

I

In an interesting work based on a deep study of Panini and the subsequent grammarians of the age before Christ, Vasudevsharan Agarwal has given us a vivid portrait of the ancient *Janapadas* and republics [Agarwal, p 422]. He says that just as *Polis* was the master institution of the civilization of ancient Greece similarly *Janapada* was the key institution of the ancient Indian civilization. According to him, Panini has provided details of *Janapadas* in the Udichya and Prachya divisions and has mentioned also some Janapadas in other divisions. He says that the ancient *Janapadas* in India were vehicles of dharma, that is, of moral and ethical order and had a claim on the loyalty of the people. However, we do not have much information about the constitutions of republican states in India. This information has to be pieced together from the Epics and the Buddhist literature. We have the Krishna-Narada conversation in *Shantiparvam* and the famous story in *Mahaparinirvansutra* about the secret of the Vajjian (Vriji) republic's strength.

Shantiparvam of Mahabharata discusses at length various constitutional forms that prevailed in ancient India. In Chapter 82 of *Shantiparvam* of the critical edition of Mahabharata, Bhishma relates to Yudhishthira a most interesting dialogue between Narada and Krishna, leader of Andhaka-Vrishni republic. On Krishna's complaining to Narada about the acrimonious debates and factional conflicts of which he was very often the victim, Narada reads him a lecture on the strength and weakness of a republican polity (*samgha* or *gana*) and on the qualities required of a successful republican leader. Narada says :

"Disunion spells the destruction of republican polities (*Samghas*). You are head of a *Samgha*, O Keshava. You must therefore act in a manner which will save the republic from ruin. Without the virtues of wisdom, tolerance, self-restraint and sacrifice of material self-interest, a statesman cannot rule a *Samgha* effectively" [Bhandarkar Institute, p 26].

The Buddha episode also underlines the fact that the strength of the republican states lay in the continuing vitality of its institutional basis. When a representative of the King of Magadha sought

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Madhu Limaye was an active Socialist and an able Parliamentarian. He was elected four times to the Lok Sabha.

Buddha's advice on the feasibility of conquering Vriji (Panini) or Vajjis (in Pali), Buddha emphasised the secret of the strength of the Vajjian republic and said that, as long as the *samgha* continued to live up to these cardinal principles, it would not be possible to contemplate its ruin. Among the seven strong points Buddha mentioned, the following three are significant: (i) so long as the Vajjians hold full and frequent assemblies; (ii) so long as they meet together peacefully, adjourn peacefully and transact the business of the state in concord; and (iii) so long as they do not abrogate the ancient institutions which have stood them in good stead and do not enact anything new that militates against the spirit of the old forms, so long they will prosper and not decline [Davids et al, 1947, Pp. 73-76].

The first mention of *Janapada* states as geographical-cum-cultural units is in the late Vedic literature *Shatpatha* and *Aitareya Brahmanas*. The age of Panini was an age of *Mahajanapadas* : from Kamboja in the North-West to Sindhu-Sauveera-Kutch in the South to Anga, Banga, Kalinga and Soormas in the East names of about 175 *Janapadas* have been compiled. They were grouped in seven broad divisions : *Madhya, Prachya, Udichya, Dakshinapath, Aparanta, Vindhya* and *Parata*. From *Prachya*, the home of the monarchial constitution, this political form spread to other areas and gradually established its ascendency [Agarwal, p 419]. In monarchial states sovereignty resided in a single individual (*Ekaraj*). The King was always aided by a Council of Ministers (*Mantriparishad*). There was also an assembly called *Rajasabha* [Agarwal, Pp.392-97].

Panini's *Ashtadhyayi* lists the following 19 *Janapadas* as *Ekaraj Janapadas* - as distinguished from *Janapadas* with *Samgha* or *Gana* constitution : Kamboja, Gandhari, Madra, Salveya, Salva, Kalkoot, Kuru, Pratyagratha, Kosala, Ajada, Kunti, Avanti, Ashmaka, Kashi, Magadha, Kalinga, Soormas, Sauveer and Ambashtha. Patanjali has listed additional *Ekaraj Janpadas* belonging to the times of Panini such as Videha, Panchala, Anga, Darsa and Neepa. The sovereignty in the *Ekaraj* states was not located in a large number of noble houses - *Rajakulas* - but in the crowned head, the King [Agarwal, p. 434].

By the time of the demise of the empires of Pataliputra (Gupta) and Kanouj (Harsha), the republican states had either been wholly absorbed or destroyed by the monarchies. When the Muslim Turkish invaders arrived, for long centuries the old republics had passed into history and not a trace of them was left. In the whole country absolute monarchical principalities, constantly at war with one another, had replaced both the ancient republics and old Empires.

For more than 1300 years after the fall of Kanouj, Indian civilization remained absolutely sterile in the sphere of politics. It took a decisive turn towards other worldliness. The revival in the age of Vijaynagar had no lasting political significance.

When a large part of India was again brought under the control of a single authority during the days of the Mughal Empire, the state grew strong and the political system "more nearly approximated the hierarchical or bureaucratic model" [Metcalfe, 1979, p. 16]. Yet the Mughal authorities seldom tried to establish direct relations with the raiyats. They operated through the local landed elites, the rajas, zamindars, taluqdars and malguzars. Even the British administration with its well articulated "intrusive bureaucracy" did not put an end to the entrenched rajas, zamindars, and tax farmers in all parts of the country. In areas where a proprietary system of land tenure was established by the British administrators the traditional village officers like police patils, patwaris, kulkarnis, talathis, karnams and so on were pressed into service by the British.

II

A few political leaders and writers have seen in the Panchayats a survival from India's creative past. Among them have been British administrators like Henry Maine, Charles Metcalfe and Baden Powell. But their concept of the institution of Panchayats was overly idealised. The reality was more sordid [Maine, 1913; Metcalfe, 1979; Powell, 1983].

Maine offered a very idealised picture of the village communities. He wrote that while the affairs of the village are frequently managed by

a single headman, admittedly hereditary, in those parts of India in which the "village community is most perfect" the authority exercised elsewhere by the headman is lodged in a Village Council of Elders. It always bore a name (pancha) which recalls the ancient constitution of Council of Five Persons (Panchayats). Maine tended to emphasise the self-sufficiency of village units and the management of collective life by the Council without external assistance.

While Maine highlighted the collective ownership and kinship ties as the basis of village communities, Baden Powell took into account the existence of raiyatwari village. Without going into the controversies about the concept of various tenures, ownership and property, it can be said that what Charles Metcalfe portrayed as little "village republics" were custom-based, tradition-bound, status-governed institutions. Besides, the panchayats, unlike the ancient *ganas* or *samghas* (republics), were not states; they did not possess the attributes of sovereignty and could neither wage war nor make peace.

The village community, as an upholder of the hierarchical caste system, was a static and decadent institution. It had continued to coexist with the pre-British revenue administration. The village "republic" was far from being a democratic or egalitarian structure. To the caste groups relegated to inferior positions they could hold no attraction. The British administration substituted contract for status and introduced a money economy. In the resultant upheaval, the old village system began to break up. The British judicial principle enthroned individualism and the rapid increase in litigation sapped the old community ties on which the authority of the *panchas* was based.

When the British authorities began to think in terms of organizing primary schools and other social services, instead of reviving the old village panchayats they created new units of local self-rule such as local funds, rural boards, district boards and so on. They introduced the elective principle in the sphere of local bodies even before it was made applicable to the legislatures.

From 1830, dates the creation of legislative power as distinct from the executive power in British India. The erection of a uniform system of administration, the establishment of the three Metropolitan High Courts, the wide application of the British judicial principles, except in the narrowly defined sphere of personal law, the formation of legislative councils, the fashioning of a new type of Civil Service, perhaps, well supplied in administrative efficiency but deficient in imagination, were the next steps taken by the British rulers in India.

The new generation of the Western-educated Indians were impressed by these institutions. Popular representative assemblies of the Western type and the British judicial institutions, particularly, evoked admiration from the best minds of modern India. Dadabhai Naoroji, Surendranath Bannerjee, Pherozeshah Mehta, M. G. Ranade, K. T. Telang, G. K. Gokhale, G. Subramaniam, M. A. Jinnah, B. G. Tilak, C.R. Das, Motilal Nehru, Jawaharlal Nehru, Vallabhbhai Patel all were votaries of representative government. The Indian National Congress, during its long career, pursued singlemindedly the following goals: (i) Expansion of the Legislative Councils; (ii) Progressive increase of the Indian element in these Councils; (iii) Introduction of the elective principle in the filling up of the Councils as against nomination; (iv) Broadening of the franchise; (v) Progressive Indianisation of the Civil Service, the Armed Forces, and the Executive; (vi) Provincial autonomy; (vii) Progressive responsibility at the Centre; (viii) Attainment of full self-government or *Swaraj*.

The only eminent exception, to this long line of leaders, was Mahatma Gandhi. He had no love for the aforesaid institutions. He was the only anti-parliamentarian in the whole group of outstanding men. In his aversion for Western political forms he never changed. He denounced the prevailing concept of self government similar to the one in Canada as "English rule without Englishmen". In his *Hind Swaraj*, Gandhi wrote : "That which you consider to be the Mother of Parliaments is like a sterile woman or a prostitute. That Parliament has not yet, of its own accord, done a single good thing. ... it is generally acknowledged that the members are hypocritical and selfish. Each thinks of his own little interest. It is fear that is the guiding motive. What is done today may be undone tomorrow. It is not possible

to recall a single instance in which finality can be predicted for its work. When the greatest questions are debated, its members have been seen to stretch themselves and to doze. Sometimes the members talk away until the listeners are disgusted. Carlyle has called it the 'talking shop of the world'. Members vote for their party without a thought. Their so-called discipline binds them to it. If any member, by way of exception, gives an independent vote, he is considered a renegade. If the money and the time wasted by Parliament were entrusted to a few good men, the English nation would be occupying today a much higher platform. Parliament is simply a costly copy of the nation. Parliaments are really emblem of slavery" [Raghavan Iyer, 1986, p. 210]. Later when Gandhi had become the foremost leader of the Indian people and when the Swaraj Party had already been formed and had emerged as the largest party in the Central Assembly, Gandhi wrote : "Parliament is indeed barren. I do not imagine that its nature can change in India. I live, however, in the hope that our Parliament will only remain barren and not give birth to a wicked son" [Raghavan Iyer, 1986, p. 380].

Gandhi's alternative was the *panchayat*. His "Swadeshi spirit" led him to this discovery. As early as 1916, Gandhi said : "I observe the indigenous institutions and the village panchayats hold me. India is really a republican country, and it is because it is that, that it has survived every shock hitherto delivered.... The vast organization of caste answered not only the religious wants of the community, but it answered too its political needs. The villagers managed their internal affairs through the caste system, and through it they dealt with any oppression from the ruling power or powers. It is not possible to deny of a nation that was capable of producing the caste system its wonderful power of organization" [Raghavan Iyer, 1986, Vol. III, Pp. 328-29].

Gandhi's concept of *Swaraj* was an ocean of village Panchayats, a complete republic, independent of its neighbours for its own vital wants and interdependent where dependence was a necessity. The government of the village would be conducted by a *panchayat* of five persons annually elected by the adult villagers, male and female possessing minimum prescribed qualifications. There would be thus perfect democracy based on individual freedom. The individual would be the architect of his own government. Gandhi did not go into the question of the incompatibility of the caste system and individual freedom. However, it must be noted that, in the late thirties, he had begun to modify his views on caste and *varna* in a more progressive direction. In the last years of his life, Gandhi went so far as to approve inter-community marriages provided they did not involve religious conversions [Ministry of Information and Broadcasting, Vols. LIII, LVI, and LXXX].

The Government of India Act of 1919 introduced elected majorities in the Provincial Legislatures as well as in the Central Assemblies. The first election held under the Act in 1920 was boycotted by the Congress and the Khilafatists and so the field was wholly left to the Liberals, Justice Party, and other pro-Government groups and parties. In the 1923 elections, the newly formed Swarajya Party entered the field and it emerged as the largest party in the Central Assembly. It was a well organised party with its own programme and discipline, and easily dominated the proceedings. At the Provincial level it refused to accept office under the scheme of dyarchy with its transferred subjects; it was committed to a policy of obstruction.

The Constitution Act of 1935 established Provincial Autonomy. The franchise was broadened. About 14 per cent of the population secured the right to vote. Now the Congress formally entered the electoral field and it dominated the general constituencies. Except in the North West Frontier Province it did not have any success in the Muslim reserved constituencies. The Justice Party (Madras Presidency), Agriculturists Party (Uttar Pradesh), Lokashahi Swarajya Party (Bombay), and Hindu Mahasabha were crushed. The Congress formed its own Ministries in six Provinces, and in the North West Frontier Province and Assam it was able to take power with the help of some smaller groups.

In the Muslim-majority Provinces of the Punjab, Sind and Bengal the Congress did badly. It did not even attempt to put up candidates for the Muslim seats on any considerable scale. The

Muslim League of M.A. Jinnah fared well only in Bombay and the United Provinces (present Uttar Pradesh). In the Muslim majority areas other than Bengal, it was not even able to establish its presence. The Congress did not take the Muslim League into partnership. In Punjab, Bengal, and Sind, the Unionist Party, the Krishak Praja Party, and some disparate Muslim groups held the field. The entire Muslim community was frightened by the vast power of the Congress. Within months, Muslim leaders and groups who had hitherto spurned Jinnah began to rally round the Muslim League. During the War, the League's influence grew rapidly and in the 1945 elections to the Central Assembly there was total polarisation of the country. Jinnah's Muslim League captured all the reserved Muslim seats and the Congress dominated the general constituencies. The Provincial Assembly poll accentuated the polarisation at the mass level. The Congress and the Muslim League became the sole spokesmen of the non-Muslim and Muslim areas respectively; the Khan Brothers' success in the Frontier Province did not materially affect the reality of a sharply polarised country.

Despite his anti-parliamentarianism, politically Gandhi could be the leader of the Congress only on condition that he accepted the national movement's commitment to a British type constitution for India. In fact, he and the Congress had given practical demonstration of how the Provincial Autonomy, erected on the principle of collective responsibility and the Governors acting as constitutional heads, could be exploited to implement the constructive programme and agrarian policy of the Congress. Nevertheless Gandhi was always reluctant to face the problem of transfer of responsibility at the Centre. He had once confided in Mahadev Desai that he was not in sympathy with the ideas of Tej Bahadur Sapru and Srinivasa Shastri, who advocated the need for a strong federal government, and had remarked that he would be satisfied if the new Act conceded genuine Provincial Autonomy. He thought that *Swaraj* could be evolved out of this. He is not known to have attacked the Cabinet Mission Plan on the ground that it reserved for the Centre only three subjects. But both Jawaharlal Nehru and Vallabhbhai Patel had serious reservations about a restrictive Centre. They thought a three-subject Centre would be too weak. Gandhi did not mind a loose federation. To him Provincial Autonomy was basic. Residuary powers were to be vested in the Provinces. His main objection centered on the coercion of Assam, the Pathans, and the Sikhs, and the exercise by the European MLAs of their vote in the elections to the Constituent Assembly. Gandhi was not prepared to contemplate their being forced to join the North-eastern and Eastern group dominated by the Muslim League against their wishes. He even asked Assam Congress leaders to rebel [Raghavan Iyer, 1986, Vol. III, p. 264; Pp. 301-302].

It was the outbreak of the Second World War and the position taken by Jawaharlal, Vallabhbhai, and C. Rajagopalachari (Rajaji) that forced Gandhi to take up the question of the transfer of power at the Centre and the formation of a national government responsible to the elected Central Assembly.

On 15th August 1947, when the goal was finally reached, two vital and major changes had occurred : The country was partitioned under the Mountbattan Plan which provided for the creation of two Dominions of Muslim and non-Muslim majority areas; and the Government of the new Indian Dominion was made responsible to the Constituent Assembly, elected through an indirect election, by the provincial assemblies. (The federal assembly under the 1935 Act was to be elected in a similar manner). The Constituent Assembly was given a dual function : it was to frame the new Constitution of India, and it was also to act as the legislature till a new legislature had been set up under the new Constitution. When the country was ultimately partitioned, all restrictions on the Constituent Assembly were removed and it proceeded to frame a Constitution, the main outline of which was determined by Nehru and Patel with the help of Dr. B. R. Ambedkar.

Gandhi never spelt out what kind of structure, if any, he would like to have at the district, provincial and central level. Even in his so-called political testament in which he proposed disbanding of the Congress organization, written a day before his assassination, his horizon did not

extend beyond one hundred contiguous panchayats, and election of one first grade leader per two panchayats. Gandhi's views regarding village self-sufficiency and village government through village panchayats were completely ignored by Nehru and Patel. The Gandhians in the Working Committee and the Constituent Assembly acquiesced in the new political structure. Within a year of Gandhi's death, Dr. B.R. Ambedkar, as the Chairman of the Drafting Committee, moved the Draft Constitution for consideration. It was a liberal democratic document. The draft married the British parliamentary form with the federal principle in an attenuated form.

On 4th November 1948 referring to the criticism that the Draft Constitution had not raised and built the new constitution upon the village and district panchayats, Ambedkar said that some Indian intellectuals' love for the village panchayats was pathetic. It derived from the fulsome praise conferred on them by Metcalfe who described them as little republics having nearly everything that they wanted within themselves. But, Ambedkar asked, what part had the village panchayats played in shaping the history of their country? That they had survived was a fact, but they had survived at a low, selfish level of existence. He held that these village republics had been the dens of ignorance, localism, narrow-mindedness, casteism and communalism; they had been "the ruination of India" [Constituent Assembly Debates, Vol. VII, Pp. 38-39]. Ambedkar knew from close observation and personal experience that the evils of untouchability and caste oppression existed in the worst form at the village level. He had a dread of the dominant caste controlling the lower echelons of the government and thought that the central organs, including the Supreme Court, alone would be non-involved and sympathetic to the aspirations of the depressed classes. They could look, if at all, only to the Centre for protection. Ambedkar declared that he was glad that the Draft Constitution had rejected the corporative basis of the village panchayats and village communities and had adopted the individual as the basis. Ambedkar's tone was abrasive and language harsh. Whether he was hitting at Gandhi's ideas specifically or not, on the question of centralised polity, with individual as the unit, there can be little doubt that he was speaking for Nehru, Patel, and other leaders belonging to the school of thought dominant in the Constituent Assembly. There was not a single part of the Constitution devoted to the local bodies; panchayats, municipalities, and zila parishads. There was a mention of local bodies or organs of local self-government in the Seventh Schedule (Entry 5), List II which listed the subjects to which the legislative power of the States would extend. A directive principle also made mention of village panchayats. These provisions are:

Entry 5: Local government, that is to say, the constitution and powers of municipal corporations, improvement trusts, district boards, mining settlement authorities and other local authorities for the purpose of local self-government or village administration.

Directive Principles of State Policy: (Article 40): The State shall take steps to organise village panchayats and endow them with such powers and authority as may be necessary to enable them to function as units of self-government.

The Constitution as it came to be adopted gave a short shrift to the Gandhian ideal. But, through it, was India able to realise, if not a social democratic, at least, a rudimentary welfare state which Nehru and others had in mind? In the next section, we shall examine this question in the light of the constitutional structure as it has come to be shaped, in the last 40 years, through 66 amendments of the Constitution.

III

The Preamble to the Constitution said that the people of India had resolved to constitute India into a Democratic Republic. The words "Socialist" and "Secular" are subsequent additions. But, in fact, they added nothing, because these concepts were implicit in the four principles which the Preamble adumbrated: Social, Economic, and Political Justice, Liberty of Thought, Expression, Belief, Faith, and Worship; Equality of Status and Opportunity, and Fraternity, assuring Dignity of the Individual. The chapters on Fundamental Rights and Directive Principles of State Policy were in the nature of instruments for achieving the aforesaid goals. The higher judiciary was entrusted with the task of acting as

the custodian of popular liberties.

The written Constitution was conceived by the founding fathers as an enduring document. They knew that, historically speaking, nothing is permanent. What they had sought to do was to provide a relatively stable and enduring framework. They conceded that change was inevitable. They also knew that some modifications would be introduced. Hence, they tried to achieve flexibility by dividing the provisions of the Constitution into three broad categories. In the first category were articles which could be changed very easily by passing a law which required only a simple majority of those present and voting in the two Houses of Parliament. In this category come Articles 2 and 3. Article 2 relates to the admission or establishments of new States, and Article 3 involves formation of a new State out of the existing State or States through separation and amalgamation of territories. It also provides for adding, diminishing, and changing the area, boundary or name of any State. All this can be done by a simple majority, although the changes thus brought about are of an important character. The reorganization of the States was carried out, in the main, by legislation requiring simple majority.

The question of the abolition or creation of Upper Houses in the States also can be disposed of by Parliament by a simple majority (Article 169). There are many other Articles which state that the constitutional position could be changed by simple parliamentary legislation (Article 275: Variation in grants-in-aid to the States; Codification of the Privileges of members of Legislatures : Articles 105 and 194, etc.)

The second category of Articles - and the bulk of the Articles were in this category - could be amended by Parliament, but they required a special majority, that is, half the total membership of each House of Parliament and two-thirds of those present and voting.

In the third category were Articles which impinged on the Centre-State relations, and in this area it was felt that the consent of at least half the States should be necessary. It was this condition which drew fire in the Constituent Assembly in the course of the debate on the Article 368 (Draft Article 304).

A perusal of the debate shows that most of the speakers who took part in the discussion pressed for a very flexible procedure of amendment. They wanted that Parliament should be empowered to make changes in the Constitution by a simple majority, at least in the first ten or five years - a course favoured by Jawaharlal Nehru himself at one time. They were dead set against the States being given a "veto" in the matter of Constitutional amendments. Some pleaded that Parliament at least be given the power to override the "veto" and re-enact the amendment should the States refuse to ratify it. Most of them thought that the States constituted a vested interest and a drag on the country's progress. H.V. Kamath waxed eloquent about the supremacy of Parliament and said that if the proviso about the ratification by the States was not dropped the "unifying forces" would be put at a "disadvantage" and the centrifugal or disruptive forces might gain "ascendency". He did not want the "dead" to rule the "living". He also did not want the Constituent Assembly's will to prevail over the will of the future Parliaments elected on adult suffrage. In view of this vociferous criticism, Ambedkar, who himself sympathised with the centralist point of view, had to use all his skill to defend the proviso about ratification by the States. In view of the subsequent development of regional forces, it would be interesting to hear what Ambedkar had to say in defence of the ratification clause. Ambedkar said:

"We cannot forget the fact that while we have in a large number of cases invaded provincial autonomy, we still intend and have as a matter of fact seen to it that the federal structure of the Constitution remains fundamentally unaltered. We have by our laws given certain rights to provinces, and reserved certain rights to the Centre. We have distributed legislative authority; we have distributed executive authority and we have distributed administrative authority. Obviously to say that even those articles of the Constitution which pertain to the administrative, legislative, financial, and other powers, such as the executive powers of the provinces, should be made liable to alteration by the Central Parliament by two-thirds majority, without permitting the provinces or the States to have any voice, is in my judgement altogether nullifying the fundamentals of the Constitution " [Constituent Assembly Debates, Vol. IX, p. 1661].

Dr. Ambedkar therefore rejected the argument of those who wanted to make all articles amendable by a simple parliamentary majority.

That would result in tyranny. While he admitted that the Constituent Assembly was not elected on adult franchise, he said that in terms of quantum of knowledge and information, it would be superior to future Parliaments elected on universal suffrage.

While the Constituent Assembly (and its Drafting Committee) could be accused of being conservative, it was not a partisan body and was not moved by party considerations. Its chief qualities, Ambedkar could have justly added, were national feeling and, above all, disinterestedness. Ambedkar then went on to bring out the real significance of the Constitution they were framing:

"The Constitution is a fundamental document. It is a document which defines the position and power of the three organs of the State - the executive, the judiciary and the legislature. It also defines the powers of the executive and the powers of the legislature as against the citizens, as we have done in our Chapter dealing with Fundamental Rights. In fact, the purpose of a Constitution is not merely to create the organs of the State but to limit their authority, because if no limitation was imposed upon the authority of the organs, there will be complete tyranny and complete oppression" [Constituent Assembly Debates, Vol. IX, p. 1662].

Ambedkar's general argument about the fundamental nature of the written Constitution was quite sound, but those who worked the institutions created under the Constitution were human beings, and even in the early years these men and women were not able to overcome their prejudices, passions, and narrow interests, and function in the true spirit of the Constitution. The first to work against the spirit of the Constitution and the limitation of authority was the higher judiciary itself. The Constitution provided for judicial review and made the Supreme Court the highest constitutional tribunal of the land. But, totally oblivious of the evolution of the socio-economic programme of the national movement and treating the Directive Principles of State Policy as of no consequence, the judges failed to understand that the right to property could not in modern times be allowed to remain unfettered and uncircumscribed if the ideal of social justice was to be achieved. There was a great deal of debate over the property provision in the Chapter on Fundamental Rights and Jawaharlal Nehru and G.B. Pant had made it clear that the Congress was determined to fulfil its commitment on the abolition of the zamindari system. The jurists like K.M. Munshi and Alladi Krishnaswamy Ayyar had assured Jawaharlal that the compromise Article 31 would not enable the judiciary to obstruct the implementation of the land reform laws. But the conservative judges of the higher courts could not set aside the influences of their upbringing and background nor overcome the prejudices they had acquired while practising their legal profession. This brought them into conflict with Parliament and a head-on collision was the unfortunate result.

The Property Clause was the subject of repeated Constitutional amendments. The First Amendment inserted 31A to save laws providing for acquisition of estates and facilitate land reform. New Provision 31B and the Ninth Schedule gave protection to laws included in it no matter whether they infringed any provision of Fundamental Rights or not. The Fourth Amendment, the Seventeenth Amendment and the Twenty-fifth Amendment, (though not the Forty-Second Amendment) were all designed to facilitate progressive changes in property relations. But the Supreme Court, unmindful of the popular will and peoples' interest, continued to strike down laws and define "compensation" as "compensation at full market value" thereby defeating the purpose of reform. The Golaknath Judgement barring future infringement of fundamental rights, which included right to property, produced a reaction. The Indira Congress Government tried to establish the supremacy of Parliament and indirectly of the Executive through the Nath Pai Bill (which it failed to pass) and the Twenty- Fourth Amendment. This Amendment as well as the Twenty-Fifth and the Twenty- Sixth Amendments were pushed through the Parliament after the Congress obtained two-thirds majority in 1971. All these Amendments were passed by the Lok Sabha in the year 1971 itself. The Twenty-Fifth Amendment dealt with the Property Articles and the Twenty-Sixth abolished the Princely privileges[1]. The Keshavanand Bharati decision upheld the Amendments, but struck down part of the new Article 31C and laid down the principle that amendment of the Constitution did not comprehend destruction of the basic features of the Constitution.

Mrs. Indira Gandhi took advantage of the Emergency, the incarceration of the Opposition leaders and the general suppression of freedom to enact the Forty-Second Amendment which had several regressive features some of which are outlined below. I shall leave out the innocuous amendments such as the insertion of the words "secular socialist" after "democratic" in the Preamble and the addition of a Chapter on Duties (IV-A). Among the main reactionary changes were the following : (1) The Amendment of Article 31-C gave protection to *all laws* passed to give effect to *any* provision of Directive Principles of state policy (chapter IV) from any challenge on the ground that they are void as being violative of Articles 14, 19 and 31. (2) The new Article 31-D empowered Parliament to pass laws prohibiting any association as "anti-national" without fear of their being challenged as violative of fundamental rights. (3) A new Article 126-A debarred the High Courts from pronouncing on the constitutionality of any Central laws. What was worse was the taking away of the Supreme Court's power to decide the constitutionality of State laws - a provision which would have destroyed a uniform evolution and application of legal principles throughout the country. (4) Another Amendment froze the delimitation of constituencies and representation of people at the level of 1971 till after the Census of the year 2001. Because of the rapid pace of urbanisation and large-scale migration of the poor to towns and cities, this has affected adversely the urban poor's representation in Legislatures. It also removed all possibility of rotating the reserved seats. (5) There was an amendment to Article 311 relating to the dismissal of Civil Service personnel in the States and at the Centre which had the effect of removing the safeguards provided by the original Article. (6) The Amendment to Article 352 empowered the President to proclaim a state of emergency in *a part* of the territory of India. (7) The Amendment to Article 368 laid down that no amendment of the Constitution made or purporting to have been made under Article 368 could be called into question in any court except on the ground that the procedure laid down therein had not been followed. The change sought to negative the Supreme Court doctrine of the basic features or structure of the Constitution being beyond the power of Parliament to whittle down or destroy. (8) Under the new Amendment Act the Union List was expanded to empower the Government of India to deploy armed forces or any other force of the Union in the States in aid of civil power; and, finally, (9) The 42nd Amendment transferred Administration of justice and constitution of all courts lower than the High Courts (11-A); Forests (17-A); Protection of wild life (17-B); Population Control and Family Planning (20-A); Education, including technical and vocational training (25); and Weights and Measures (33-A) from the State List to the Concurrent List.

The Janata Government repealed most of the obnoxious amendments on the basis of the consensus embodied in the 43rd and 44th Constitution Amendment Acts, but the provisions relating to freezing of the delimitation of constituencies and popular representation as also expansion of the Concurrent List remained, for their repeal could not secure Congress Party's approval. The Congress Party had enough strength in the Rajya Sabha to veto these proposals. The dingdong battle between executive supremacy and citizens' liberty, therefore, continued. Rajiv Gandhi launched his offensive against freedom in 1985 with the Fifty-Second Amendment which throttled dissent and made legislators slaves amidst a chorus of foolish and demoralised oppositionists and a large number of intellectuals suffering from various degrees of elation and self-delusion. He next brought in the Fifty-Ninth Amendment which re-established the old emergency provision in the name of tackling the Punjab problem. Under the Rajiv regime, every institution and relationship created under the Constitution - governor, speaker, chief minister, judge, cabinet, departments of government, balanced Centre-State relations, President's Office and President-Prime Minister relationship - was devalued or turned upside down. The polity has been twisted out of shape. The Prime Minister's Office and his advisors have eclipsed all other institutions.

We have not dealt here with Amendments involving creation of new States and the jungle of Article 371 "alphabetical amendments" enacted under Mrs. Indira Gandhi and Rajiv Gandhi. Nor would we deal with provisions which put certain new subjects under the Concurrent List (as has already been referred to in the context of the Forty-Second Amendment) nor the useless resolution which the Rajya Sabha passed on the Centre's taking over powers of legislation

under certain subjects in the State List in relation to Punjab under Article 249 on the advice of some Opposition leaders. Nor shall we touch on the Amendments which increased the total strength of the Lok Sabha or extended, every ten years, the operation of the reservation provision for Scheduled Castes and Tribes and Anglo-Indians.

IV

The Constitution attached great importance to free and fair elections, and therefore envisaged an autonomous Election Commission to conduct the elections. Two Representation of Peoples Acts (1950 and 1951) created the framework for the election to the Lok Sabha and the State Assemblies. Every adult man and woman of 21 years or more was entitled to be put on the voters' register. This broad franchise was achieved in the Western world after a long and arduous struggle. In India, thanks to Gandhi's advocacy, the principle of universal suffrage was enshrined in the Constitution itself (1949). The size of the electorate created on the basis of the new franchise was colossal. As far as the areas directly held by the British in India were concerned elections of course were no novelty. But the electorate then was confined to a small segment, and it was called upon to elect legislatures with limited authority. The number of voters in the first general election was over 170 million.

With partition and creation of two Dominions, the Muslim League ceased to be a force in India and the Congress wholly dominated the scene. In the interval between independence and the first general election (1947-52), several parties entered the political and electoral field. First, the Communist Party. The Communist Party was founded in Kanpur in 1925. This is the official version although there is some dispute about it. Before the launching of the Party, communist groups had come into existence in some industrial towns like Calcutta, Bombay, and Kanpur. The Communist Party of India (CPI) was put under ban after the collapse of the Civil Disobedience Movement in 1934. It was legalised on 24th July 1942 when it adopted a pro-war policy and started cooperating in the British war effort. In the first general election held in 1951-52, the CPI emerged as the largest parliamentary party and maintained this position in the next two general elections (1957 and 1962). Second, the Socialist Party. In 1934, a group of socialist Congressmen founded the Congress Socialist Party as a group within the Congress. At the Kanpur National Conference held in 1947 the Party dropped the prefix 'Congress' from its name. In 1948, it left the Congress. In October 1952, there was a merger of Acharya Kripalani's Kisan Mazdoor Praja Party and the Socialist Party and the unified party was called the Praja Socialist Party (PSP).

The Jan Sangh was formed in 1951, with Shyama Prasad Mukherjee at its head; but the activists of the Rashtriya Swayamsevak Sangh (RSS), a militant Hindu organization, formed its backbone. Besides, there had come up several regional parties at the State level.

The results of the first election - staggered over a period of more than three months - held many surprises. The Congress majority at the Centre was still huge, but the Party had been badly mauled in many local areas - old Madras State, Hyderabad, Travancore-Cochin, Orissa, Pepsu, and Rajasthan.

The main features of the political situation as revealed by the first general election were : (a) A sharp reduction of the Congress vote, especially at the State level to a plurality of only 45 per cent; (b) Emergence of the Communist Party as the first opposition party in Parliament, and, in still greater strength, in the State legislatures of Travancore-Cochin, Madras, Hyderabad, and West Bengal; (c) Socialists' failure to win a large legislative representation owing to their organisational weakness and the scattered character of their following; (d) Surprising strength shown by regional and sectional parties in some States - Akalis in Punjab, Jharkhand in Bihar, Ganatantra Parishad in Orissa and Peasants' and Workers' Party in the Marathi speaking areas of Bombay. Except for the Socialist Party, which won a little over 10 per cent of the total votes, the popular vote of other parties, including the Communists, compared very badly with that of the Congress.

The second general election did not bring about a basic shift in the voting pattern. After the major exercise of reorganization of States in 1956, the Congress improved its performances both in terms of seats and votes. But in Kerala, the

Communists were able to win a majority and form a Government. In the Marathi-speaking areas of Bombay, an alliance based on the issue of a separate Maharashtra State, with Bombay as capital, became very powerful and the Congress could hold its own only in the Eastern part of Maharashtra. With the formation of Maharashtra State in 1960, the Congress re-established its supremacy.

In the first two general elections, the challenge to the Congress came mainly from the Left Parties. With the reorganization of States on a linguistic basis, the fabric of national unity was badly shaken, and linguistic chauvinism became a powerful disturbing factor. Some shift in popular mood became discernible half-way through the Second Lok Sabha. The Congress Party's lip service to socialism, its adoption of a resolution on cooperative farming, the establishment of a large public sector, and its external policy of non-alignment threw the socialists and communists into confusion. Cooperationist tendencies had surfaced in both the parties in 1953 itself. This resulted in the gradual alienation of their radical wings from the dominant leadership of these parties. The PSP split over the issue of Congress-PSP cooperation and the anti-cooperationists formed a separate party called the Socialist Party. In 1964, the PSP and the Socialist Party united to form the Samyukta (United) Socialist Party (SSP) after Asoka Mehta and his followers left the PSP to join the Congress. However, the unity did not last long and a section revived the PSP.

Under the guidance of Rajaji, an openly conservative challenge to the Congress materialised in the shape of the Swatantra Party in 1959-62. In the third general election, there was a clear shift to the right, evident not so much in the number of seats and votes secured by the Right parties in the Lok Sabha election but, in the elections to the State assemblies. In several States, they achieved the status of recognised Opposition. Thus, the Swatantra Party became the official Opposition in Gujarat, Rajasthan, Bihar, and Orissa. The Jan Sangh emerged as the largest non-Congress party in Uttar Pradesh, and the DMK, which was by no means a Left party but rather represented an aggressive form of regionalism, displaced the Communists as the premier non-Congress party in the Madras Assembly.

The humiliating defeat in the border war with China in 1962 shattered Nehru's health and also lowered his stature in the Party. In 1963, a meeting of the Syndicate - a group of Congress organizational bosses consisting of S. Nijalingappa, Atulya Ghosh, N. Sanjiva Reddy and Kamaraj, with S.K. Patil on the periphery - at Tirupati decided to make Kamaraj the next Congress President. The meeting also considered it desirable that, since Nehru was getting on in age, Lal Bahadur Shastri should succeed him as the Prime Minister. These opinions prevailed. The Kamaraj Plan, fabricated by the Syndicate, was mainly an attempt to thwart Morarji Desai's succession. Indira Gandhi supported it because she rightly thought that ultimately it would lead to her election as leader [Ghosh Atulya, 1970, p. viii].

The Kamaraj Plan became a reality in August 1963. Several Chief Ministers resigned, among them, Mandloi B.A., Chandra Bhanu Gupta and Bakshi Gulam Mohammad; the last one was an 'ardent' supporter of the Plan. Chief Ministers of Bihar, Orissa and Madras also resigned. One result of the Kamaraj Plan was a debacle of the Congress, in 1967, in Kamaraj's own State of Madras. (The State was renamed, Tamil Nadu, in 1968, at the instance of the DMK Government.) Many Union Ministers, including Morarji Desai and S.K. Patil, were eased out. Lal Bahadur Shastri also was allowed to resign, although he was reinducted some months later.

In 1964, the CPI also split on both domestic and international issues. The breakaway group called itself the CPI-Marxist (CPI-M or briefly CPM). There was a further division, this time among the Marxists, and a new party calling itself the CPI-Marxist-Leninist (CPI-ML) came into existence. However, it never became a coherent party. It has since splintered into several groups each using the CPI-ML label. The CPI has declined over the years and the CPI-M, which leads the Left Front governments in West Bengal and Kerala, is now the largest Communist Party in India.

The split in the Socialist and Communist Parties in 1964 reduced the influence of these parties in Parliament. The anti-Congress wave of 1967

brought about an increase in the overall Opposition strength in the legislatures. The Jan Sangh contested elections on a large scale in 1952, 1957, 1962 and 1967 and progressively improved its performance both in terms of seats and votes. From 3.10 per cent vote and 3 seats in the first Lok Sabha in 1952, it climbed to 5.90 per cent vote but only 4 seats in 1957. It slowly increased its vote to 6.40 in 1962 and got 14 seats. There was a quantum jump in 1967, with a record share of 9.40 per cent in the popular vote. In the Fourth Lok Sabha, the Jan Sangh had a bloc of 35 seats, the DMK 24, and the Swatantra 44 seats, while the SSP and PSP had 23 and 15 seats respectively and the CPI and CPM had 24 and 19 respectively.

The 1962 election had produced another Congress victory under Jawaharlal's leadership. But, after the India-China war in October 1962 and India's dismal performance, a process of disillusionment set in. Dr. Rammanohar Lohia now deemed it necessary to unite the opposition forces to dislodge the Congress from power. He launched a programme of mass action and unification at two levels. On the one hand, he gave a call for socialist unity and, on the other, he asked the opposition parties to achieve electoral adjustments among themselves without bringing in ideological differences. The formation of the Samyukta Socialist Party (SSP) in 1964 and the adoption of the policy of non-Congress unity at its National Conference in Kota (1966) set the stage for the new move. The Swatantra Party and the Jan Sangh had decided that they would have nothing to do with the Communist Parties, and the Communists, too, had resolved that they would have no truck with the Right parties. The Kota statement, therefore, rejected calls for left Democratic Unity (the Communist line) or unity of Democratic parties (the Swatantra line) as being divisive of opposition forces.

The policy of non-Congress unity did not lead to wholly satisfactory results. But, coupled with mass actions in 1965-1966, it created a massive anti-Congress wave in the country. Partial electoral adjustments were worked out in several States. The result of the "vote-saving" tactic was the defeat of the Congress in a large number of States. That Party was reduced to the status of a minority without the possibility of its being able to form stable Governments in cooperation with Independents and minor parties. In Uttar Pradesh, Bihar, and Punjab, Samyukta Vidhayak Dals (United Legislature Parties - SVDs) were formed and, in view of the electoral verdict against the Congress, both the Jan Sangh and the CPI agreed to set aside their ideological differences and cooperate in the formation of coalition Governments. A Jan Sangh resolution said:

"Because of the defeat of the Congress and the inability of any of the parties to secure a majority, it has become impossible in many States to form a Government unless all non-Congress parties come together. To let the Congress form a Government in such States would not only amount to flouting the people's feelings but would also strike at their self-confidence. This situation is not conducive for the development of democracy. It can encourage elements that do not believe in democracy. Hence the Central Working Committee favours the inclusion of the Jan Sangh MLAs in non-Congress Ministries" [Bharatiya Jana Sangh, Pp. 193-94].

The CPI-M, which any way did not have much support in the Hindi-speaking States, decided to support the SVD Governments from without. In Orissa, a Swatantra-dominated Government took office, and the DMK alliance gave DMK's Annadurai an absolute majority of his own in Madras (Tamil Nadu). In Kerala and West Bengal, however, Marxist-dominated Left-oriented Ministries were established. In Haryana and Madhya Pradesh, there were large-scale defections from the Congress (till 1967, defections were invariably from the Opposition) and non-Congress Governments, with Jan Sangh's participation, were established in these States. In Rajasthan, Governor Sampurnanand's manipulations frustrated the claim of the non-Congress parties to be put in power, and defections from its ranks allowed Mohanlal Sukhadia to form a Congress Ministry.

The SVD Governments did not last long. The reasons for their break-up were various, the more important being defections on a large scale (Haryana, Punjab, and Bihar), the non-implementation of agreed programmes such as abolition of land revenue on uneconomic holdings (UP), and differences over the attitude

to the Indira Congress after the 1969 split in the Congress, the CPI and Ajoy Mukerji (West Bengal) and CPI and Muslim League (Kerala) favouring cooperation with the Indira Congress. Increasingly the CPI and the CPI-M drifted apart and the Marxist-dominated coalitions in Kerala and West Bengal disintegrated. The convulsions in the Congress affected the fortunes of the Jan Sangh also and in 1971 its vote came down to 7.40 per cent and its Lok Sabha group was reduced to 22 seats. Most of its seats were won in the old Madhya Bharat region of Madhya Pradesh. It lost heavily in the key State of Uttar Pradesh.

The break up of the non-Congress Governments and the split in the Congress (1969) gave Indira Gandhi an opportunity to appeal to the disillusioned masses, with the attractive slogans of Garibi Hatao, Abolition of Privy Purses, Bank Nationalisation - measures which had been struck down by the Supreme Court - and so on. Mrs. Gandhi was returned with a two-thirds majority in the Lok Sabha (1971) and the successful Bangladesh Operation in December 1971 enabled her, in 1972, to carry the States as well.

But the complexion of the State Congress Governments and the Central Cabinet of the post-1971 period was not the same. The Kamaraj Plan of 1963 had dealt a decisive blow to democratic functioning within the Congress and its administrations. Elected Chief Ministers were removed and nominees of the Centre were increasingly imposed on the States. The instability of the interregnum (1967-71) concealed the reality for some time, but after the overwhelming vote for Mrs. Gandhi in 1971, the pattern of central interference and the outright nomination of Chief Ministers became the accepted reality. Election of the leaders of the Congress Legislature Parties ceased altogether or was reduced to a farce. Unstable non-Congress Governments and rapid turnover of Congress Chief Ministers brought about a demoralising deterioration of State administrations and law enforcement agencies.

The Congress Party's internal democracy and debates at the meeting of the All India Congress Committee (AICC) and the Pradesh Congress Committees (PCCs), from 1951 to 1969, however circumscribed, was not devoid of real value. Discussions then were genuine. They had not yet become a ritual or a competitive exercise in sycophancy as it increasingly became under Congress Presidents S.D. Sharma and Devkant Barua. From 1978 on, Indira Gandhi became President of her Party, and after her return to power in 1980, she resolved to combine that office with Prime Ministership. Nehru had once done the same thing in 1951, but he gave up the Congress Presidentship soon after the first general election. During the later Indira years internal elections were discontinued. Yet the outward forms such as the sessions and meetings of the AICC, Working Committee, Central Parliamentary Board, the Congress Parliamentary Party were retained. After Indira Gandhi, Rajiv Gandhi continued to combine Presidentship of the Party with the Prime Ministership and even the outward forms of Party functioning fell into disuse or became *melas*. The collapse of internal democracy within the Congress is paralleled by the absence of internal democracy and discussion within other political parties. These have been replaced by individual and group conflicts.

Between 1972 and 1977, Bihar saw three Congress Chief Ministers in quick succession: Kedar Pande, Abdul Gafoor, Jagannath Mishra. Madhya Pradesh had P.C. Sethi and Shyama Charan Shukla. Maharashtra's relatively efficient administration was dealt a blow by the game of musical chairs. Between 1972 and 77, the State had V.P. Naik, S.B. Chavan and Vasant Dada Patil as Chief Ministers. In Uttar Pradesh, we had during this period Kamalapati Tripathi, H.N. Bahuguna and N.D. Tiwari. The dreary practice continued under the Janata Party as also under the 1980 Indira and 1985 Rajiv administrations.

The Janata Party at the Centre brought about the overthrow of elected Chief Ministers in Haryana, Bihar and Uttar Pradesh. In Madhya Pradesh where the erstwhile Jan Sangh was dominant, Kushabhau Thakare, the Jan Sangh boss engineered the resignation of the unanimously elected Chief Minister, Kailash Joshi, replaced him by Virendra Saklecha, and, after a while, dumped him on the ground that he was corrupt and installed Sunderlal Patwa, all in less than three years. Evidently, there was not much difference

between the ways of the Congress and the ways of the Jan Sangh group and other constituents of the Janata Party.

V

Now we shall turn to the details of the electoral performance of national political parties in the nine Lok Sabha polls held during the period from 1951 to 1989.

Congress: In its 105th year, the Indian National Congress strides the Indian political scene like a colossus, massive and durable. Even in its defeat in 1989, it secured the largest number of seats and votes. The Congress percentage of popular vote in 1952 was 45.00 per cent but it won a two-thirds majority. In the 1957 elections, it increased to 47.80 per cent and its two-thirds majority was reinforced by some increase in the voting strength. In the 1962 elections, Congress share of popular vote dropped back to 45.00 per cent but there was no erosion of the two-thirds majority. (The two-thirds majority enabled the Congress Government to amend the Constitution at will). In 1966, Indira Gandhi, supported by the majority of Congress Chief Ministers and the leaders of Syndicate, defeated Morarji Desai in a contested election as leader of the Congress Parliamentary Party. In the 1967 anti-Congress upsurge, the Congress vote dropped to 40.80 per cent, and it lost for the first time its two-thirds majority. The erosion of the Congress strength and defeat of many Congress stalwarts like Kamaraj, S.K. Patil and Atulya Ghosh strengthened Indira Gandhi's position. She refused to be the pliant instrument she was expected to be by the Syndicate. In 1969, the Syndicate tried to impose on her its own candidate for the Presidentship of India. That decided her and she struck at Morarji Desai and the Syndicate; she dismissed Morarji Desai, secured the defeat of Sanjiva Reddy in the Presidential election, and later captured the Congress through a *coup d'etat*.

The Indian National Congress split in 1969 after the 'expulsion' of Mrs. Indira Gandhi by the Working Committee by a majority of one. Since Mrs. Gandhi was able to establish that she was the majority, both at the grassroots and in the AICC, she was able to appropriate the original name of the Party. The group led by Nijlingappa and Morarji Desai was given the name Congress (Organization) popularly known as Congress-O. During 1969-77, the other Congress was popularly called the Indira Congress (or the new Congress or the ruling Congress). In 1977, the Congress-O merged in the Janata Party. Towards the end of the year, Indira Gandhi separated from the Brahmanand Reddy-Swaran Singh-Y.B. Chavan group which she charged was in collusion with the ruling Janata Party and officially called her new Party the Congress-I. This name continues to be used till today. The Reddy-Chavan Congress became a mere rump and is designated today as Congress(Socialist) or briefly Congress(S).

In 1971, there was another fluctuation in the tide of public opinion, and a mere three percentage points increase in the Congress vote from 40.80 per cent to 43.70 per cent gave the Congress again a two-thirds majority. After the defeat of 1977, when its popular vote was sharply reduced to 34.52 per cent (in North and Central India the decline was more precipitate), it staged a come back three years later in 1980 with 43.06 per cent votes and a two-thirds majority. In the abnormal election in the wake of Mrs. Gandhi's tragic assassination held in December 1984, the rise in the Congress vote was impressive, but the increase in seats was absolutely spectacular - Congress(I) won an unprecedented three-fourths majority in the Lok Sabha. The Congress-I lost its majority in the 1989 Lok Sabha poll and decided to sit in the opposition.

Communists: Next we consider the Communist Party of India (CPI) and its break away group, CPI-Marxists (CPI-M). In the first two general elections, the united Communist Party was returned as the largest Opposition Party. The CPI share of the popular vote in the first general election was 3.3 per cent (in fact it was more than 5 per cent because in some States it did not enter the electoral fray as the CPI but as a part of a Front); its percentage went up to 8.9 in 1957. It climbed up to 9.9 in 1962. This was the high water mark of the united CPI's electoral performance. The Party maintained its leading position in the Opposition in the Second and the Third Lok Sabha. But, despite the impressive increase in popular vote, the strength of the united CPI and

its allies in the first three Lok Sabhas, was a little less than 30 and much short of 10 per cent seats which would have enabled its parliamentary leader to receive the status of the officially recognised Leader of the Opposition. In 1964 there was a split in the CPI, and the Swatantra Party and the Jan Sangh forged ahead in 1967. The vote of the two Communist Parties (4.8 and 4.5) together was still 9.3 per cent, but it was now divided. The CPI secured 24 seats and the CPI-M 19 in the Fourth Lok Sabha. After the Congress split in 1969, the paths of the two Communist Parties diverged.

The CPI-M contested the 1971 mid-term poll on an anti-Congress platform, and in the Fifth Lok Sabha won the largest number of seats (25) within the Opposition with a mere 5.10 per cent vote. Still the number was much short of the coveted 10 per cent. The CPI on the other hand was an ally of the Congress and, with its help, retained its Fourth Lok Sabha strength of 24. In 1977, the CPI-M entered into electoral adjustments with the Janata Party and easily outdistanced its CPI rival on an anti-emergency platform. The CPI's support to the emergency tarnished its image and it fell behind in the race for supremacy. Although it mended its fences with the CPI-M in 1979 and 1984, it could not recover its 1967 strength. It was clearly established that the CPI-M was the leading Communist Party, although its influence was mainly confined to the three States of West Bengal, Kerala and Tripura. The CPI-M and CPI obtained 6.10 and 2.60 per cent votes respectively in the elections to the Seventh Lok Sabha (1979-80). The CPI steadily lost support even in Bihar where it was very much ahead of the CPI-M a decade ago. In the Eighth Lok Sabha (1984) the CPI-M secured 22 seats and 5.75 per cent votes and the CPI only 6 seats and 2.71 per cent votes. In the 1989 Lok Sabha elections, the CPI-M secured 32 seats and the CPI only 12. On the whole, the performance of the Left was not good except in West Bengal.

Bharatiya Janata Party (BJP): When Indira Gandhi dissolved the Lok Sabha and, after nineteen months of Emergency rule, announced a fresh election, a new party under the name of Janata Party was created by some opposition groups. There was no BJP then; it came into existence in 1980. Its previous incarnation was called the Jan Sangh. In 1977, the Jan Sangh 'merged' in the Janata Party, but the merger was not genuine. It continued to function as a cohesive group and retained its separate identity. When discussions for the unification of opposition parties were going on in 1976, Charan Singh raised the question of the Jan Sangh's connection with the RSS which was then a banned organization. The Jan Sangh representative said at the meeting that it was open to the new party to define its attitude to the RSS. There the matter rested. On 18th January 1977, Mrs. Gandhi announced her decision to hold the Lok Sabha elections and also initiated the policy of discharge of political detenus. This precipitated the decision on unity and the Janata Party was launched as a parliamentary party in the manner of the old Swarajya Party. Organizational fusion was to follow after the elections. In March-April-May 1977 the RSS leaders, who had come out of jail, began to talk about changing the character of the RSS and admitting non-Hindus, etc. But when their Jan Sangh colleagues succeeded in becoming Chief Ministers in three States and Chief Executive Councillor in the Union Territory of Delhi, the RSS leadership changed its tune and reverted to its Hindu policy. When the new Party's Constitution was under discussion the Constitution Sub-Committee decided, with only Sunder Singh Bhandari of the Jan Sangh dissenting, that members of the Janata Party should not be allowed to become members of any communal organization. There was a heated discussion on this issue in the meeting of the Janata Party's Working Committee held in August 1977 and Prime Minister Morarji Desai intervened to say that he would take up the matter with the RSS leader, Balasaheb Deoras, and find a solution. But in fact nothing was done to settle this problem. Meanwhile, the Jan Sangh-RSS refused to merge their youth, student, and labour organizations with the corresponding front organizations of other Janata Party constituents.

By 1978, the internal conflict within the Janata Party had assumed a serious form and the Jan Sangh supported the ouster of Charan Singh and Raj Narain from the Cabinet. Gradually Lok Dal-led Governments in Uttar Pradesh, Bihar,

Haryana, and even in Orissa, came under attack and the double role of the Jan Sangh became a live issue. The toppling of the three aforementioned Lok Dal State Governments, with the Jan Sangh playing the lead role, pushed the double membership issue to the forefront. Unlike other groups - Congress-O, Socialists, and Lok Dal - the Jan Sangh had preserved both its separate identity, cohesiveness, as well as its links with the RSS. It never really merged in the Janata Party. For factional considerations, some non-Jan Sangh Janata leaders, including some Socialists, did not take a position on the double membership issue and even called it a non-issue when the Party split in July 1979. However, soon after the Lok Sabha poll, the truncated Janata Party suffered one minor and one major split on the same issue of double membership. First, Jagjivan Ram, who had been projected as the future Prime Minister by the Janata Party in the Lok Sabha poll of 1980, walked out of the Party on the ground that it was under the domination of the Jan Sangh-RSS axis. Next, in March-April 1980, the majority in the Executive Committee of the truncated Janata Party decided that the double membership was after all a live issue and that a decision could no longer be delayed. At this point, the Jan Sangh members, who had continued to function as a separate group, left the Party and launched the Bharatiya Janata Party (BJP). L.K. Advani said that the Jan Sangh was compelled to adopt the name Bharatiya Janata Party because only as a faction of the Janata Party claiming to be the real Janata Party could they be allotted a symbol as had been done in the case of the Congress-I and Janata Party (Secular) in 1979, and so, in 1980, they could not go back to their old Jan Sangh name.

The hall-mark and the secret of the JS-BJP's continuing identity and its internal cohesion was its link with the RSS. That continued through all the three phases - as the Jan Sangh, as an organised group within the Janata Party, and as the BJP. L.K. Advani has repeatedly said that the BJP is proud of its RSS ancestry and its vital links with the RSS and has even asserted that in a way the BJP is closer to the parent body than even the Jan Sangh was. He has admitted that if there had been no emergency, and if the RSS had not been banned in 1975, there would have been no Janata Party and, in any case, the Jan Sangh would not have 'submerged' its identity in that Party. The BJP has now virtually buried A.B. Vajpayee's Gandhian socialism. It is now openly flaunting its concept of the Hindu Rashtra and is resolved to create a 'Hindu vote bank'. It wants to play, quite openly, the 'Hindu Card'.

The Jan Sangh was part of the Janata Party in Lok Sabha poll of 1977 and 1980 and so its separate voting figures can neither be meaningfully compiled nor can they have much significance. In 1984, the BJP secured the largest opposition vote, that is 7.72 per cent (as against Janata Party's 6.18, Lok Dal's 5.96 and CPI-M's 5.75 per cent respectively). But its performance in terms of seats was miserable. It won only two seats and they were virtually gifts from the Janata Party (Gujarat) and Telugu Desam (Andhra Pradesh). Thanks to the emergence of Choudhary Charan Singh, its loss of support in Uttar Pradesh, first noticed in 1969, became permanent. It did not do well in that State either in the 1980 or in the 1985 Assembly elections.

The BJP's acknowledged areas of substantial influence are Himachal Pradesh, Rajasthan, Delhi, and Madhya Pradesh. It is a major force in Gujarat and its presence in Maharashtra and Bihar is not negligible. The BJP apparently has been active these last two years but its leadership is aging and it too suffers from a sclerosis like the two Communist Parties. In this respect at least the two poles seem to meet.

Socialists : As mentioned earlier, the Socialist Party left the Congress within a year of the achievement of Independence. The Congress had resolved to change its Constitution and ban organised parties within its fold. The dominant leadership, including Gandhians like J.B. Kripalani and Shankarrao Deo, thought that such parties would weaken the Congress. Apparently they did not mind the existence of non-ideological factions and power groups and these have continued to proliferate to this day. Originally, both Acharya Narendra Deva and Dr. Rammanohar Lohia preferred to remain in the Congress and were prepared to contemplate disbanding the Party. Lohia argued that the need of the hour was to secure and strengthen the new state which India had won after centuries of foreign rule and to

prepare the ground for socio-economic change. But, the overwhelming weight of opinion in the Socialist Party was in favour of leaving the Congress; also Nehru thought that the dissolution of the Socialist Party would produce adverse international reactions. From 1948-52, the Socialist leadership made ceaseless efforts to expand the Party base. But, it was over-optimistic about its strength. It underrated the power of the Congress. The Congress had been built up by Mahatma Gandhi as a great mass organization over a period of almost two decades. The Party leaders also underestimated the innate conservatism of the inert and silent majority. The Socialist Party, then mostly manned by inexperienced but enthusiastic young cadres, could not match the skills and inherent strength of the Congress electoral machine. In the first general election, the Socialist Party's performance in the matter of winning seats was dismal though it had secured more than 10 per cent votes. The CPI, which had just emerged from the phase of violent struggle, did far better. The Socialist leadership was thoroughly demoralised. The utterly exaggerated fear of Communists swamping the country deeply affected a section of the leadership. The influence of Jawaharlal Nehru and Vinoba Bhave was also quite potent as far as Jayaprakash Narayan was concerned. Only Acharya Narendra Deva and Rammanohar Lohia were undismayed and wanted to stick to the Oppositional course. It was at this point that Socialists committed two fundamental mistakes. One was the decision to unite with the non-ideological KMPP led by Kripalani which, indeed, was an inferior edition of the Congress. "It lowered the barrier" between the idea-oriented Socialist Party and the power-oriented Congress, as Asoka Mehta later admitted, and opened the way for the eventual Socialist exodus to the Congress. The other, graver mistake - not unconnected with the first - was to seek cooperation with the Congress in the Government as well as outside or rather to respond favourably to Nehru's invitation for cooperation.

These blunders committed by the Party's popular leader, Jayaprakash Narayan, (JP) at a critical juncture in the life of the Party, led to destructive controversies and finally a split. The larger group which continued to function as the Praja Socialist Party (PSP) steadily lost support and the smaller group - first as the Socialist Party (SP) and then as the Samyukta Socialist Party (SSP) - gained some ground. But in the long run both lost heavily. By 1971, the cooperation-inclined PSP as also the SSP, the champion of militant Opposition and non-Congressism, were reduced to a pathetic state.

In the 1957 elections, the two factions together had polled nearly 12.6 per cent votes, but only a few seats. The PSP won 19 seats and Lohia led SP only eight seats. In 1962, the PSP got 14 seats and the SP only 6 seats, the total vote being 8.9 (6.8 + 2.1) per cent. In 1967, the PSP got only 15 seats but Lohia's SSP captured 23 seats, the total vote of the two factions being 8 per cent. Even the two together had less than the Swatantra Party's 44 seats, now the largest group in the Lok Sabha. In 1971, the PSP could get two seats and the SSP three. The joint vote was now a mere 3.4 per cent. The movement, riven by factions, reunited under the banner of the JP movement (1974-75) and, finally, under the larger umbrella of the Janata Party (1977-79). But the Socialist lost their distinctive identity and capacity for independent socialist action.

Swatantra Party : The Swatantra Party, a queer marriage of feudal elements, rich farmers, dissident Congressmen and, above all, the political wing of the Forum of Free Enterprise, appeared like a bright meteor in the electoral sky. It won 18 Lok Sabha seats in 1962 and emerged as the official Opposition in Gujarat, Rajasthan, Bihar, and Orissa. In 1967, it became the largest Opposition party in the Lok Sabha. In Bihar, it disintegrated and was replaced as the largest Opposition by the Lohia-led SSP. But, its pre-eminence continued in Rajasthan and Gujarat, and in, Orissa, it was the dominant partner in the coalition Government set up in that State. However, by 1971, it had become a shadow of its former self, with only eight Lok Sabha seats, and was absorbed first by the Bharatiya Lok Dal (BLD), founded by Charan Singh, and later by the JP movement and the Janata Party. Piloo Mody, the colourful former Swatantra politician, toyed with the idea of reviving it in the early eighties, but the poor response it evoked discouraged him.

He died prematurely and, with his death, the Swatantra idea was buried.

BKD-BLD-Lok Dal : In the upheaval caused by the general election of 1967 a number of dissident Congressmen came together and formed a new Party, Bharatiya Kranti Dal, (BKD) at Patna, under the leadership of Mahamaya Prasad Sinha, the SVD Chief Minister of Bihar. After Chaudhary Charan Singh's defection from the Congress, he formed the Jan Congress which also joined the BKD. Soon, it came to be wholly controlled by Charan Singh, its influence being largely confined to Uttar Pradesh where it made a good showing in the 1969 mid-term poll and displaced the Jan Sangh as the largest Opposition party. (In 1967 the Jan Sangh had obtained 98 seats; within two years Charan Singh's BKD brought about a reversal of fortunes. It secured 98 seats and reduced the Jan Sangh to 49 seats). In the 1974 UP Assembly elections, Charan Singh formed an alliance with the Raj Narain group and Dr. Faridi's Muslim Majlis. The election results were unsatisfactory, for the alliance got only 106 seats, and Charan Singh began to work for a broader unity. The Bharatiya Lok Dal (BLD) was launched in 1974. The BLD absorbed the by now extremely weakened Swatantra Party, Biju Patnaik's Pragati Dal and a section of the SSP led by Raj Narain. With Devilal's and Karpoori Thakur's joining the BLD, it became an important force in the vast area extending from Haryana and parts of Rajasthan to the Bay of Bengal in the East.

The BLD merged in the Janata Party in 1977. When the Janata Party broke up following (a) the exclusion of Charan Singh and Raj Narain from the Cabinet; and (b) the toppling of the Bihar, UP and Haryana Governments led by BLD men, a new Party under the label Lok Dal was created which consisted of most of the BLD men, the bulk of the old SSP and Biju Patnaik's Orissa group. The Lok Dal was the dominant opposition party in Haryana, UP and Bihar. It also had a base in the border districts of Rajasthan in the eighties. It should be noted that the BKD and the SSP had large following among *Kisan* (farming) communities and backward classes in UP and Bihar, and the Lok Dal inherited this following.

During Charan Singh's prolonged illness and coma - he died in May 1987 - the Lok Dal split into two factions. One was led by Ajit Singh, son of Charan Singh, while the other included Karpuri Thakur, Devilal, H.N.Bahuguna and so on. Eventually, in March 1988, the Ajit Singh faction merged in the Janata Party. Earlier, V. P. Singh and some of his associates belonging to the Congress(I) had formed a non-party platform under the name of Jan Morcha. In course of time, there was a move to merge Jan Morcha, Janata Party, Lok Dal, and Congress(S) into a single party. However, on this issue, there was a split in the Lok Dal, the major faction led by Devi Lal supporting the move while the minor faction led by Bahuguna deciding to stay out. Congress(S) and an insignificant faction of the Janata Party also stayed out. Thus, ultimately in October 1988, Jan Morcha and the predominant sections of Janata Party, and the Devilal faction of Lok Dal came together to form a new party called the Janata Dal with V. P. Singh as the President. He relinquished this office some months after he became the Prime Minister.

Regional Parties : As noticed above, the first general election itself revealed the not inconsiderable clout of the parties based on regional, linguistic, communal, tribal, and caste loyalties. In Orissa, Punjab, Rajasthan, Bihar, and the Marathi-speaking parts of Bombay, regional forces had surfaced as significant political factors. But, the growth of regional parties was circumscribed by the process of national consolidation. The Swatantra Party absorbed many regional groups, the Ganatantra Parishad of Orissa being the most important. In 1957, the Akalis had politically merged in the Congress, but the union proved ephemeral. The cadres of parties like the Ram Rajya Parishad and Hindu Mahasabha were drawn increasingly towards the Jan Sangh.

In 1957, there rose, in the deep South, a truly regional party in the form of Dravida Munnetra Kazhagam (DMK). It grew rapidly in the next five years. Th DMK was the child of a social reform movement, called Dravida Kazhagam (DK) led by Periyar Ramaswamy Naiker. It was loosely structured and was not a party in the real sense of the term. Periyar was a former Congressman. He was more of a social reformer than a politician. Periyar's marriage in his old age with a young girl triggered a controversy within the DK Movement

and Annadurai broke away from Periyar and formed the DMK. 'Munnetra' means progressive. The DMK emerged as an important force in the Madras Assembly. In 1962, it won 50 seats and became the recognised Opposition. It pushed the Communists and the Swatantra Party to the margin and proclaimed separation of Tamil Nadu as its goal. The 1967 elections gave the DMK, which had in the meantime diluted its separatism, an absolute majority in the Madras (Tamil Nadu) Assembly and it secured in the Lok Sabha 24 seats, that is one seat more than the SSP. After Chief Minister Annadurai's death in 1969, Karunanidhi succeeded him as leader and Chief Minister. In the 1971 election, the DMK made an alliance with the Indira Congress and was returned to power. During its second term, the DMK split amid charges by a popular celluloid hero, M.G. Ramachandran (MGR), that Karunanidhi's Government was steeped in corruption and had betrayed the great Anna's heritage. MGR thereupon launched a new Party and called it All India Anna DMK (AIADMK). The DMK Government was dismissed during the emergency. MGR made an alliance with the Indira Congress and was able to win a majority in the Tamil Nadu Assembly. The AIADMK's hobnobbing with the Janata Party and its joining Charan Singh's Cabinet angered Mrs. Gandhi. She decided to bury the hatchet and made a successful alliance with the DMK in the 1979 Lok Sabha poll. However, the DMK was beaten in the Assembly poll and MGR again became the Chief Minister. The alliance between MGR and the Congress-I was revived. In the second half of the eighties, MGR suffered a stroke, but continued as Chief Minister. After his death in 1987, his Party split into two groups, one led by his wife Janaki and the other by MGR's actress friend Jailalitha. In the ensuing Assembly elections the Congress-I decided to go it alone but could not check the irresistible current of regionalism. The regional sentiment and regional parties are so well entrenched in that State that the Congress(I) failed even to seize the coveted Number Two position. Jailalitha's AIDMK was a wee bit ahead of the Congress-I. Perhaps, an alliance with her might have made the difference between victory and defeat. But the victory of Jayalalitha-Congress front would still have been a victory of another brand of regionalism. The anti-DMK vote was divided and Karunanidhi again became the Chief Minister. Subsequently, Janaki retired from politics and her faction, which had not done well in the Assembly elections, melted away. In the 1989 Lok Sabha poll, Rajiv Gandhi decided to form a front with Jailalitha and the two inflicted a humiliating defeat on the DMK.

In 1982, the dictatorial ways of the Central Congress leaders and the humiliation meted to the Chief Ministers - for instance, T. Anjaiah in Andhra Pradesh, - deeply hurt the self-respect of the Andhra people and the film actor N.T. Rama Rao, a good communicator, rode on the crest of a wave of Telugu *asmita* (pride in one's distinctive identity) to an impressive victory in the Assembly elections in 1983. The electorate was sharply polarised between the Congress-I which secured 60 seats and the newly-formed Telugu Desam which won 202 seats out of the total Assembly strength of 294 seats. N.T. Rama Rao (NTR) became the Chief Minister. In 1984, a revolt was engineered by the Congress-I within the Telugu Desam Party under the leadership of N. Bhaskar Rao. The Congress-I promised him Chief Ministership. Governor Ramlal dismissed Chief Minister N.T. Rama Rao and installed Bhaskar Rao as Chief Minister. A storm of indignation swept the country. Ramlal resigned, and the Bhaskar Rao Ministry collapsed. Thereupon the new Governer Shankar Dayal Sharma invited NTR to form the Government and the popular resentment subsided. NTR's waning popularity received a boost, thanks to the immoral action of the Congress-I.

In the 1984 Lok Sabha poll following the tragic assassination of Mrs. Gandhi, thanks to the sympathy wave for Rajiv Gandhi, BJP, Lok Dal, and Janata Party candidates were mercilessly decimated throughout the country. But the resentment over the dismissal of the Andhra Pradesh Chief Minister N.T. Rama Rao in 1984 was still fresh in the popular mind, and it was so widespread and deep in that State that the irresistible pro-Rajiv tide was turned back and a party appealing chiefly to the regional-linguistic pride and self-respect of the Telugu people emerged triumphant to such an extent that Telugu Desam

became the largest opposition group in the Eighth Lok Sabha with 30 seats. Soon after the Lok Sabha poll, the Chief Minister went in for a mid-term election in 1985 and again captured 202 seats.

In Karnataka, Devraj Urs had built up a good base for the Congress which gave the Congress a plurality of anything between 55 to 70 per cent votes in three successive Lok Sabha elections (1971, 1977 and 1980). This goodwill was frittered away. In 1979, Mrs. Gandhi and Sanjay Gandhi turned against Devraj Urs and the Gundu Rao interval brought about voters' alienation from the Congress in the State. Consequently, in the Assembly election in 1983, the Congress-I got only 89 out of a total of 224 seats; it was the first Congress defeat in that State after Independence. No Party secured a majority. The Janata Party secured 95 seats and was able to form a Government with the help of the Left Parties and the BJP. Yet the voters had not turned wholly against the Central Congress leaders and, in 1984, the Janata Party could capture only 4 out of 28 Lok Sabha seats, the rest went to the Rajiv Gandhi-led Congress-I. The Karnataka voters used their franchise discriminatingly. They plumped for national unity and a stable Centre as there was no credible and effective non-Congress alternative at the Centre in 1984. But when, upon Rajiv's challenging the Chief Minister to hold a poll for the Assembly, the House was dissolved, the Janata Party under R.K. Hegde's leadership won an absolute majority with 139 seats. It was no longer dependent on the BJP or the Left. The BJP's withdrawal from the Janata-dominated alliance made not the slightest impression on the electors. The Karnataka people combined awareness of the imperatives of national unity with the preservation of Kannada *asmita*.

Rajiv Gandhi's smashing victory in the Lok Sabha elections did not reverse the trend towards the assertion of regional individuality and identity. In the Punjab Assembly elections, after the Rajiv-Longowal Accord, the Akalis defeated the Congress. The Accord was negotiated by Rajiv Gandhi in July 1985 with one faction of the already divided Akali Dal. Prakash Singh Badal and Amarendra Singh were kept out. Longowal was murdered by the terrorists, but in the elections that followed the Akali Dal won a majority and Barnala became the Chief Minister. Badal group broke away from Barnala in the course of time, and the Government soon collapsed. The Longowal Accord promised Chandigarh to Punjab, provided for territorial adjustment on the basis of the twin 'principles' of absolute contiguity and village as the basic unit. Several Commissions grappled with the territorial problem but the unrealistic basis made a satisfactory solution impossible. The provision about irrigation water was unjust to Rajasthan and Haryana. Even so, the Tribunal's decision was rejected by Barnala. In the beginning, Rajiv Gandhi's Accord was universally acclaimed, but it tried to reach a political settlement by ignoring the past history of the dispute and also without successfully defeating terrorism. It was ridiculous to hope that any Akali faction would fight terrorism vigorously.

Some people argued that Rajiv did not wish to win and that he deliberately put the Akalis in power. But this was not so; the regional trend continued to gather momentum. The outcome of the Haryana elections in 1987 was determined, in the main, by the struggle waged by Devilal against the Rajiv-Longowal Accord with astonishing persistence. Bhajanlal's anti-Sikh utterances and his "militant" stand on the issue of Haryana's Capital and territorial adjustments were not of much help to the Congress. The feeling that Haryana's interests had been neglected by the Centre was very strong. Haryana was Rajiv's greatest electoral disaster.

In Assam, the force of middle class linguistic-chauvinism successfully challenged and threw the Congress-I out of power. The Assam Gana Parishad triumphed. In Kashmir, Rajiv Gandhi was compelled to make peace with Farooq Abdullah. But the latter had to pay a heavy price. As a consequence of its alliance with the Congress, the National Conference became unpopular in the Kashmir Valley. In the next round of elections in Kerala and West Bengal in 1987, although a Leftist Alliance with national outlook had triumphed, the anti-Centre rhetoric and anti-Centre sentiments influenced the electorate to a considerable extent.

Some people think that the regional upsurge is

not only natural and inevitable but that it is a welcome development. I do not agree with this sanguine view.

VI

There is another aspect, equally important, of the functioning of our political parties to which scant attention has been given by our political thinkers. Democratic parties' health presupposes not only toleration and capacity for collective action but also a balance between freedom of expression for individual members and the varying trends of opinion within the party on the one hand and the need for disciplined action on the other. Further, a party has to reconcile the claims of central direction necessary for national cohesion with the requirement of autonomous functioning at State and local levels without which effective party life is not possible.

Most parties have been riven by factions. This was especially so in the case of the Congress Party after Independence. Other parties, too, suffered from the same disease. State and regional organisations came to be dominated by machine politicians such as S.K. Patil, Atulya Ghosh, Nijalingappa, and Chandrabhan Gupta. These had their merits. They collected funds, helped maintain party activists and organised election campaigns. However, their methods stifled party growth and fostered favouritism. Their conduct of party affairs left many political workers out in the cold. Only two courses were open to them. They could either form dissident parties of their own or appeal to the central leaders for help against the State bosses. There is also another type of State leaders with a mass base of their own, leaders with popular appeal. They refuse to work within the party framework. Often they act arbitrarily and produce dissidents by their high-handed methods. The dissatisfied elements therefore begin to see in central intervention the only effective protection against the wilfulness of provincial bosses. Both the situations reinforce tendencies towards excessive centralisation. An unscrupulous, power hungry 'supreme leader' exploits these situations to establish his or her personal ascendancy. The result in either case is deterioration and decay of party organisation and party democracy. The phenomenon is not confined to the Congress Party. It prevails in all parties with little or no ideological base.

The parties of the Left which constituted the main challenge to the Congress in the initial years were ideologically oriented. They claimed to passionately discuss policies, programmes, and tactical lines. In the Socialist Movement, considerable internal democracy prevailed. Delegates' elections, free discussion, and election of National and State Executives and chief office bearers was the order of the day. If anything, there was, some people felt, an excess of freedom leading to ideological splits which tended to destroy the mystique of collective leadership, and, by stages, the freedom of discussion came to be abused.

Although the Communist Party was a highly centralised Party, and although its proceedings were conducted *in camera* and were shrouded in secrecy, the trend since 1952 has been towards internal liberalisation, barring the short period of Ranadive dictatorship. Even the ideological subordination to dominant external parties has been on the decline. At Amritsar in 1958 the Communist Party adopted the peaceful path and thereafter there could be no return to Stalinism. Dissent surfaced in the CPI over the Czechoslovak issue in 1968 and, to some extent, over de-Stalinisation and *Perestroika*. As for the CPI-M, it denounced *Perestroika* outright. It still swears by Marxism-Leninism and pays reverence to Stalin. In the Soviet Union and Eastern Europe, democratic centralism is synonymous with dictatorship and they have discarded it. But the CPI-M bosses still hug to that pernicious doctrine.

Nevertheless, elections to the Committees in these parties cannot be called wholly farcical. The greatest failing of these parties is the aging leadership, with the same person hanging on to a post for long stretches of time. Rajeshwar Rao was the General Secretary of CPI for over 25 years and E.M.S. Namboodiripad has become virtually a permanent General Secretary of the CPI-M. The average Politburo age is 75. The change, if any, is imperceptible.

VII

Over a period of 30 years or more, the principal institutions of constitutional government have fallen into decay. It was generally accepted that there was regular Cabinet functioning in the major part of the tenure of Jawaharlal Nehru as Prime Minister. He had weighty colleagues like Sardar

Patel. Even after the Sardar's death, Nehru sought to strengthen the Cabinet by retaining and bringing in powerful men like Maulana Azad, Rafi Ahmad Kidwai, G.B. Pant, Morarji Desai and so on. But in his last years, with his mind unsettled by the humiliating defeat in the border war with China, his understanding clouded by his concern for his own position as the Prime Minister, and his desire to ensure his daughter's succession, he agreed to implement the Kamaraj Plan and dealt an irreparable blow to the Cabinet system. Under Lal Bahadur Shastri, the process of creating personalised system of parallel government in the shape of the Prime Minister's Secretariat, then headed by L.K. Jha, first got under way, and this was perfected by Mrs. Gandhi and P.N. Haksar, her Principal Private Secretary, in the late sixties and early seventies. From that point, the descent to a government through and by Special Assistants was achieved very quickly. Under Indira Gandhi's second. tenure in the eighties, R.K. Dhawan, a stenographer raised to Special Assistant of Joint Secretary's rank, could give approval, convey displeasure, and even reprimand officials, Cabinet Ministers, Chief Ministers and the President of the Republic in the name of the Prime Minister. The power, which M.O. Mathai enjoyed, was never as wide as that wielded by R.K. Dhawan, and the former was effectively debunked by members of Parliament. Nehru was forced to remove him.

Forgotten now was the theory and principle that Cabinet members were respectable colleagues, collectively responsible to the Lok Sabha, that the Chief Ministers, constitutionally, were independent heads of State governments, accountable to the State Assemblies concerned, and that the President's Office was an office of great dignity, though not of much power, and that the Head of the State was chosen by an electoral college which included the State Assemblies. Forgotten, too, was the fact that the officials were under their respective departments and, properly speaking, any instructions to them had to be channelised through the Ministers and Departmental Secretaries. From the President, Cabinet members, and Chief Ministers, down to the Public Sector Chairmen and departmental officials, everybody was reduced to the status of *chaprasis* (peons). Things became worse under Rajiv Gandhi. The turnover in his advisors was bewilderingly rapid. The first Thakkar Report reveals the lamentable state of affairs at the heart of political India, but the Opposition boycotted the debate instead of focusing on this cancerous growth and using the opportunity to demand not only full disclosures, but to educate the people on the multilevel remedial action[2].

Another grave distortion that crept into the functioning of the Cabinet system was the increasing distance between the dignified holders of Cabinet office and the actual wielders of Ministerial power whose status was that of junior Ministers, that is, Ministers of State without a seat in the Cabinet. Thus, Om Mehta, Minister of State for Home Affairs, wielded effective power in the Home Ministry and Brahmanand Reddy, the Cabinet Minister for Home Affairs, provided the facade. In the prelude to the proclamation of Emergency in 1977, Om Mehta was brought into the consultation process at an early stage because he enjoyed the confidence of Mrs. Gandhi. Throughout the Emergency, he was the real Home Minister and Reddy only a dummy. Under Rajiv Gandhi, Minister of State Natwar Singh was the effective Minister in the External Affairs Department and N.D. Tiwari and Narasimha Rao were mere figure heads. In K.K. Tiwari, the Information and Broadcasting Ministry found a new boss and H.K.L. Bhagat was on the verge of being sidelined, although he was a Cabinet Minister and Tiwari only a Minister of State. Three Home Ministers held Cabinet membership during Arun Nehru's tenure as Minister of State for Internal Security but he was the boss because he enjoyed Rajiv Gandhi's confidence. Buta Singh himself told Parliament that, during Arun Nehru's tenure, no files were sent to the Cabinet Ministers in the Home Department and important reports of the intelligence agencies were kept by Arun Nehru and no paper could move without his consent. Why then did Rajiv Gandhi not make Arun Nehru Home Minister directly answerable to the Parliament? Because, he was operating not a Cabinet Government but a Government by cronies.

Thus was generated an irresponsible and unaccountable power at the highest level of Government. The question arises as to what kind of a Ministerial and Cabinet outfit Indira Gandhi and Rajiv Gandhi were running and what kind of Cabinet Ministers did we have. They were

obviously men without self-respect and without any pride in the dignity of their own Departments. Evidently, they believed that the glamour of high office was enough compensation for loss of real power.

In the early years after Independence there was a general aversion to the issuance of ordinances, which was regarded as a kind of extraordinary legislation. It was not a favoured mode of legislation. The issuance of ordinances pre-empted detailed examination of legislation by Joint Committees of the two Houses or the Select Committee of either House. Under Rajiv Gandhi this procedure was put into virtual cold storage. Only a few bills went to the Committees for scrutiny. For some years, the Executives in the States had practically usurped the legislative powers of the Legislatures by recourse to the blatantly unconstitutional practice of repromulgation of ordinances without their being converted into Acts. The unhealthy practice was at long last struck down by the Supreme Court in December 1987.

It is amazing that the legislators did not mind the Executive taking away their right of legislation and repeatedly resorting to repromulgation of Ordinances; they did not object to the aborting of the procedure of Joint Committees or Select Committees designed for in-depth examination of the proposed legislation; they did not even protest against shortened sessions and the progressive atrophy of the opportunities for airing public grievances. Yet, they voted with alacrity and indecent haste, bordering on secretiveness, fat salaries, allowances, amenities and pensions for themselves. The Salary, Allowances, and Pension of Members of Parliament Act has been amended several times. The Amendments made in 1986 and 1988 under Rajiv Gandhi's rule have further expanded the facilities given to members. Members of State Legislatures have crossed all limits and wantonly aggrandised themselves.

Parallel to the usurpation of the legislative function was the decline of the Legislature's scrutiny over expenditure. Increasingly, the discussion of the Budget has become perfunctory. The situation is truly lamentable. The administrative and non-plan expenditure exceeds revenue receipts and no one cares. In the fiscal year 1989-90, the Lok Sabha could not discuss even 15 per cent of the total demands for grants amounting nearly to Rs 81,000 crore; demands for grants of only three Ministries were discussed. Members were more interested in holidays and long recess. Fortunately, there has been a reversal of this deplorable trend of the past several years in the first year of the Ninth Lok Sabha. Under Rabi Ray's Speakership this year (1990-91), the Lok Sabha has been able to discuss the demands of nine Ministries [*The Hindu*, 16th May 1990].

If the duration of different sessions of States Assemblies are compiled and tabulated, it will be realised that the sessions of these bodies have now become a ritual. In 1960 and 1961 in Bihar, for example - which has among the worst records at present - the Assembly sessions lasted 179 and 236 days and the number of actual sittings were 106 in both years. From 1965 on, the situation began to worsen. Progressively the duration of sessions and number of actual sittings went down. Twenty years later, that is, in 1980 and 1981 the number of sittings had gone down to 47 and 41. This is only by way of illustration. This alarming trend is visible in most States.

The real reason why the number of sittings of the Assembly were reduced was that the Ministries, ruling by dubious methods and steeped in corruption, were afraid to face the elected houses. The lesser the number of sittings the better. The MLAs acquiesced because they were bought off by increasing their salaries, allowances and perks. They were put in charge of boards and corporations and so they did not mind their being slowly divested of the legislative functions.

The elected Assemblies have become increasingly turbulent and unmanageable and have ceased to be forums of orderly debate. Shouting, stripping, disrobing, beating one another up has become the order of the day. The ruling majorities have become intolerant and frequently resort to barracking. The Opposition Parties, too, instead of relying on facts and figures, arguments and logic, and mastery of procedure, substitute demonstrations and slogan shouting for reasoned speech and skilful use of parliamentary devices. The presiding authorities are the worst offenders. They act arbitrarily and arrogate to themselves powers that do not belong to them. They often stifle discussion and abuse their office.

The faulty and reckless economic regulation, the widespread corruption that prevails at all levels of Government, interference with the work

of law enforcement agencies by politicians belonging to the ruling parties - and these have been changing in the States - have all helped expand the shadow and shady economy. It is alleged that lucrative posts of inspectors and other officers in the police, excise, customs, octroi, labour, health, electricity, and so on have been auctioned by the Chief Ministers and Ministers. It is further alleged and widely believed that their relatives, sons, daughters, daughters-in-law, and the whole army of what are designated as PAs to the Ministers, have been extorting money for "strategic postings"; that, these officers, in turn, mercilessly fleece their victims. Smuggling, bootlegging, drug peddling, unofficial despatches of coal and other mineral products, including uranium, bring vast profits to the mafias who operate in the mining areas, with the active connivance of public sector bureaucracy and the help of the law enforcement agencies. That the mafias have given "employment" to a large number of young people, gives them considerable strength.

The cancerous growth of corruption is mercilessly eating into the vitals of the state. It has assumed such vast proportions that it now acts as the most serious impediment to growth and development. It hits, above all, the producer and the consumer both. The doings of the people at the top provide a continuing impetus to corruption at the lower levels and seem to "justify" and entrench small scale corruption at the expense of the common man and woman.

If you wish to start an industrial undertaking you must literally pave your way with bribes from industrial licence, import permit, raw material and metal quotas, land and buildings to water and electricity. The vultures must be paid first. As soon as the factory goes up, you will have a visit from an inspector of the electricity board. In a silken, insinuating voice he would say, "look, your monthly power bill will, I guess, come to Rs. 5,000/-. But we can get it scaled down to Rs. 2,000/-, provided you pay Rs. 1,000/- to oil the machinery". The temptation is irresistible. Besides, you can save yourselves from further harassment. Then there are the labour inspectors, health inspectors and so on. If you have a factory you are bound to fall foul of some law or regulation or the other. So why not pay a monthly sum to this army of inspectors and buy peace? The cost of course is passed on to the ultimate consumer.

Excise is a veritable goldmine. You can make fantastic sums by just looking the other way when goods are being loaded on the trucks and shipped out of the factory. Sales tax? Do you want a receipt? Then you will have to pay an additional xx percentage as sales tax. Shall I pay, you ask yourself. But can you be sure that if you pay, the tax will go into the state's coffers? No, because there is a system of duplicate receipt books. Sales tax inspectors know the ropes. So they get their regular monthly cuts.

Customs again is big money. It is the same agonising tale. The government inspectors grow rich. Private persons become millionaires. The state loses all along the line. Under-invoicing and over-invoicing is big business. People say why pay taxes? Does not the entire revenue go towards paying the salaries, allowances and perks of officers and employees? And do these gentlemen do any work? Honourable exceptions only highlight the general state of things.

Then there is the fantastic hen that lays an endless stream of golden eggs; the Urban Land Ceiling Act and the vast discretionary powers it vests in the government authorities. In all metropolitan centres, land scandals stink to high heaven and generate mind-boggling amounts of money running into tens of thousand crores of rupees by the simple device of manipulating the Act.

VIII

The most alarming symptom of political sickness from which the country is suffering is the growing criminalisation of public life. Formerly, politicians depended on industrialists and traders for political and election funds. Source of this money at least lay in the necessary and useful productive and economic activity. Later, politicians began to obtain funds from mafias and criminals. The armed retinues they maintained were gradually used as musclemen during the elections to capture the booths, stamp the ballots, beat up the political opponents, and intimidate the genuine voters. Some of them have proudly owned that they were professional murderers and could bump off anybody for money or "political motive". Political parties and groups, openly

appealing to linguistic chauvinism and communalism, with the backing of criminals and history sheeters, entered the electoral field. With every election, self-confidence of smugglers, bootleggers, and mafias increased to such an extent that they decided to enter the electoral field themselves. Over large parts of the country, the ordered state has broken down, caste warfare among armed groups threatens to become endemic, and the whole institutional structure created by the Constitution is becoming irrelevant.

The so-called leaders today, whether men with ample resources amassed by doubtful means, leaders using media's image-building machines, well oiled by lavish hospitality and allotment of building sites, leaders with blind caste following or silver screen charisma are devoid of all sensitiveness and finer sense of values. As soon as a leader is in the ascendent, gangs of careerists, middlemen, liaison agents, goondas, and history sheeters rally around him, as if from nowhere, bringing with them streams of cars, jeeps, matadors, and motor cycles. These elements have forced their way even in committed parties like the CPI-M. May be that stray individuals drawn from criminal elements have been reformed in the process, but it cannot be denied that on the whole the cadres of these parties have been contaminated.

As ideals and values underwent a change, as public support to dedicated political activists gradually dwindled, as sacrifice and simple living became objects of derision, a large number of political activists degenerated into hangers-on of leaders with ample means or, what was worse, allies of criminals and mafias. The decline of parties was characterised by the end of proper selection of workers, training of activists, political pamphleteering, membership enrolment, collection of funds from people engaged in lawful and respectable occupations and businesses, delegates' conferences and discussions, publication of conference reports and audited accounts, and election of party committees.

As far as the mainstream and regional parties are concerned, regular party functioning, as we knew in the days of the freedom struggle or in the first two and half decades after Independence, has become a thing of the past. After the Emergency watershed, political parties have become one-man/woman institutions. At a meeting of intellectuals called by N.T. Rama Rao on electoral reforms, I was amazed to find some academicians and intellectuals waxing eloquent over this development. Parties are nothing, it is the leader for whom people vote, they exultantly said. To them it was a matter to be welcomed, not a development to be deplored. No man in India enjoyed such personal ascendency as Mahatma Gandhi did in the years 1919 to 1947. Yet he never used that ascendency to establish his authoritarian rule over the Congress. Jawaharlal Nehru would never have risen to power and the Congress Socialist leaders would not have achieved the prominence they did, without his active encouragement. Gandhi supported a form of proportional voting system to enable a minority like the Socialists to enter the AICC in good numbers and actively promoted them to the membership of the Working Committee.

An extension of one man/woman rule is nepotism. It is a close nexus of self, family, and caste. We used to say: Look at Tilak, he did not try to make his sons political heirs. Look at Gandhi. He did not nominate his sons as successors. And Vallabhbhai, did he promote the prospects of his son Dahyabhai? No, not even his enemies accused him of nepotism. Motilal, of course, single-mindedly pursued the aim of making his son, Jawaharlal, the Congress President. But Gandhi resisted him for two years although the son had 10 years' apprenticeship to his credit. Only after he proved his abilities in 1928 and 1929 that Gandhi accepted him as the President. Jawaharlal continued to work and suffer in the nation's cause.

But we severely criticised Nehru when he began pushing his daughter to the forefront in 1958-59. We castigated Indira Gandhi's efforts to ensure first Sanjay Gandhi's and next Rajiv Gandhi's succession. We detested attempts to treat the state as a piece of private property bequeathable by a mother to her son.

And then we had Morarji Desai, letting his son develop into an extra-constitutional authority and a major fund collector for the Party. We had Jagjivan Ram allowing his son to insult respected political colleagues who had great sacrifice to

their credit. We saw Charan Singh ignoring the Party activists and giving ticket to his daughter and not actively preventing his son's succeeding him. Like most of us Devilal was also opposed to these family successions. Only two or three years ago, he was criticising the efforts of some members of the Uttar Pradesh Legislative Assembly to promote Ajit Singh as the successor of Charan Singh. "What merit does he possess except that he is Chaudhary Charan Singh's son", he used to ask. But, recently, he declared: "I am not against family succession. Does not a bania's son become a bania, a lohar's son a lohar? Why then should not Minister-politician's son become a Minister-politician?" At one point, his three sons were in governmental positions and the office of Party President. R.K. Hegde allegedly abused his power in the interest of his son and son-in-law. N.T. Rama Rao's army of sons and sons-in-law is quite large. And so the sad tale goes on.

The opposition talked of open Government and insistently demanded laying on the table of Parliament unpublished parts of the Thakkar Report. They raised a storm over the failure of the Government to lay the Report of Comptroller and Accountant General's Report on the Bofor's deal[3]. These were all legitimate demands. But did not the Bommai Government in Kamataka refuse to publish the entire Report on the Housing Society's Scandals? Only a summary of the G.V.K. Rao Report was placed before the Legislature. Virendra Patil charged in the Lok Sabha during the Kamataka debate in 1989 that the current market price of the lands, nearly gifted away to these Societies, was in the range of the astronomical sum of Rs 11,000 crore. Allegedly, relatives and cronies of the former Chief Minister were among the beneficiaries. Nothing changes because the Opposition is in no way different from the Congress, except that they are more quarrelsome and prone to fission.

IX

The newly formed Janata Dal faced great difficulty in creating a party structure. It was barely able to create apex bodies at the Centre and in the States. The Party's National Committee which consisted of more than 140 members did not meet even once. No State Committees could be formed. It created the ridiculous office of Secretary General and, in addition, appointed innumerable General Secretaries. No grass-roots organization was built up. Everything was ad hoc. This system was duplicated at the State level as well. It was the Central Parliamentary Board (CPB), headed by Devilal, which distributed Party tickets and the Political Affairs Committee, chaired by the Party's President V. P. Singh, virtually functioned as the real decision making organ.

Chandra Shekhar was excluded in the beginning from the Political Affairs Committee (PAC) and his protege, Raghunath Jha, who had been appointed President of the Bihar State Janata Dal, was sacked under pressure of factional politics and this caused resentment in the Chandra Shekhar camp. Ultimately, Chandra Shekhar was inducted into the PAC and Raghunath Jha appointed Chairman of the State Parliamentary Committee on the initiative of Devilal, who had played a prominent role in creating the Janata Dal. This compromise helped tide over the organizational difficulties and the Congress-I hope that the Janata Dal would fall apart after the announcement of the poll in October 1989 was belied.

The Janata Dal also forged a National Front comprising, besides itself, the Telugu Desam, Assam Gana Parishad and DMK. The National Front too had a plethora of office bearers. The Front issued a manifesto making promises about Media Autonomy, inclusion of the Right to Work as a Fundamental Right, conferring constitutional status on the Planning Commission and making it an executive arm of the National Development Council, and so on.

The Janata Dal and the Front worked out electoral arrangements with the Left Parties as well as the BJP. Despite these agreements, there were some triangular contests between the Janata Dal and the BJP in UP and Bihar. In a majority of these contests, the BJP was worsted. In Maharashtra, the Janata Dal refused to have any truck with the Shiv Sena-BJP alliance.

The present author wrote in *The Times of India* on 9 November 1989: "In peninsular India, the Congress will end up, as of today, with a slight edge.... In the Indo-Gangetic Plain where the Congress will face its toughest challenge, the Opposition is likely to gain a very considerable

lead". As the poll drew nearer, in a series of articles in *Maharashtra Times* dated 15, 21 and 22 November 1989, he expressed the opinion that the Opposition breeze was turning into a gale in Uttar Pradesh and Bihar and that it would sweep the Congress-I away. Nobody anticipated the rout of the Left Front in Kerala and Telugu Desam in Andhra Pradesh. That a mere two per cent decline in the vote of Telugu Desam brought about this debacle is no explanation. Similarly, in Madhya Pradesh and Maharashtra, the BJP and the BJP-Shiv Sena alliance exceeded the expectations of all, including the BJP itself. Nevertheless, the forecast that the Congress-I would have an upper hand in peninsular India was not belied.

It would not be out of place to discuss here the role of communal appeal in the electoral campaign. The use of what is called the Hindu Card was expected. In 1984 itself, the RSS and its daughter organization, the Vishwa Hindu Parishad (VHP) had launched a programme of "liberating the old Hindu temples" destroyed by the Muslim rulers by demolishing the mosques allegedly erected in their place and resolved to remove the mosques at Ayodhya, Mathura and Banaras, the places associated with the Hindu dieties Rama, Krishna and Shiva. The VHP was aided in this by the local court order - inspired, it is widely believed, by Veer Bahadur Singh, the then Congress Chief Minister of Uttar Pradesh - to remove the lock on the front gate of the Babri Masjid (Mosque) which the RSS-VHP claimed was the birth place of Rama. The lock had been put on the gate way back in 1949. The first phase of the programme was to demolish the Babri Masjid and construct a Rama temple on the site. Walter K. Andersen and Shridhar D. Damle write: "The VHP celebrated the court's decision as a major victory for Hinduism. It established a trust to rebuild the temple and pledged to raise 250 million rupees for the project. Encouraged by this development, the VHP has demanded the conversion of two other historic sites in Uttar Pradesh: Krishnajanmabhoomi, birthplace of Krishna at Mathura; and the Kashivishwanath Temple at Banaras. In addition, the VHP has identified 25 other mosques to be converted". [Andersen et al, 1987, Pp. 135-36] The authors said that while this programme was clearly popular it would exacerbate Hindu - Muslim tension.

Yet, it cannot be said that the BJP's successes were chiefly due to the Ramjanmabhoomi agitation. The impetus to the victory of non-Congress Parties was provided chiefly by V. P. Singh. His popularity was the major factor. Ramjanmabhoomi and BJP's efficient organizational structure were contributory factors. The voters punished all the ruling groups, whether Congress or non-Congress, who in their view had misbehaved. The voters' wrath was directed against Rajiv and the incumbent Congress State Chief Ministers. In the South, the people voted against N. T. Rama Rao, R.K. Hegde and Karunanidhi. Their misdeeds loomed larger than Rajiv Gandhi's. For Rajiv was remote; the Southern non-Congress leaders were closer and their actions influenced the Southern electorate more than the Bofor's scandal[3]. Jyoti Basu was the sole exception; his performance in office won the voters' endorsement. The strength of the main parties in the new Lok Sabha and their percentage share of the popular vote are shown in Table 1.

TABLE 1. LOK SABHA ELECTION 1989

Name of Party	Seats	Percentage share of Popular Vote
Congress-I	193	40.62
Janata Dal	141	18.24
BJP	88	11.87
CPI-M	32	6.62
CPI	11	2.68

It would not be out of place to refer to the manner in which the leader of the Janata Dal was elected on December 1, 1989. It was almost certain that V. P. Singh would have definitely won in a contest. Nevertheless, instead of insisting on a democratic election of the party leader, he chose a rather devious route. In the Party meeting, V. P. Singh proposed Devilal's name for that post and then Devilal declined the honour and proposed V.P. Singh's name instead. So, V. P. Singh was elected the leader of the Janata Dal.

Since the Congress-I (and its supporters) did not command a majority in the Lok Sabha, it wisely decided not to stake its claim to the office. Thereupon, V. P. Singh, as the leader of the second largest party in the Lok Sabha, was invited to form the Government and, at the President's House, along with V. P. Singh as the Prime Minister, Devilal was sworn in as the Deputy Prime Minister. Same day, at a meeting of the Haryana legislators at the Haryana Bhavan in

Delhi, Devilal's son, Om Prakash Chautala, was sworn in as the Chief Minister of Haryana. It was widely perceived that an understanding had been reached between V.P. Singh and Devilal.

V.P. Singh set up a National Front administration without inviting the Left and the BJP to join the Ministry. The Left had decided to stay out and had insisted that the BJP also be kept out of the Government. V.P. Singh instituted a system of informal consultation with the allied parties, but he did not propose the creation of a formal Coordination Committee. This caused avoidable public controversies and confusion, such as on the issue of the appointment of Jagmohan as Governor of Jammu & Kashmir, his decision to dissolve the State Assembly, his eventual recall, and nomination to the Rajya Sabha, and Chautala's induction as the Chief Minister of Haryana.

The National Front Government secured repeal of the Fifty Ninth Constitution Amendment and introduced the Lok Pal and Media Autonomy Bills. There has been a lot of public debate on the latter Bill, but it is not known whether it will ultimately go to Joint Parliamentary Committee or will be passed without its being processed by the JPC.

The Rules Committee has in principle resolved to set up Standing Committees of Parliament attached to several new Ministries. Yet, to begin with, only three Committees on Agriculture, Science and Technology, and Environment, which were created in August 1989, would start working. The Speaker and the Government would watch their functioning for some time and then go ahead with the rest. When the whole scheme is implemented, it would break new ground in the matter of enforcing the doctrine of the Government's accountability to Parliament [First Report of the Rules Committee of the Ninth Lok Sabha].

The policy adopted by the National Front Government regarding the office of the Governor has been deplorable. The wholesale dismissal of the incumbents is an undiluted abuse of the Constitutional clause about Governors holding office during the President's pleasure (read the Cabinet's pleasure). The evil practice was initiated by Indira Gandhi when she sacked two appointees of the Morarji Government in the early eighties. The NF Government has further devalued the important constitutional office of the head of State and reduced it to a 'spoil' of electoral victory. With the next change at the Centre, the Governors appointed by the V.P. Singh Government would be sacked. It is regrettable that the V. P. Singh administration, actuated by partisan considerations, has ignored the recommendations of the Sarkaria Commission both in the matter of dismissals and appointments. While the Commission was not in favour of adopting the same procedure for the removal of the Governor as had been adopted in the case of Supreme Court judges, it nevertheless observed that some safeguards were necessary. It said:

"The intention of the Constitution makers in prescribing a five year term for this office appears to be that the President's pleasure, on which the Governor's tenure is dependent, will not be withdrawn without cause shown. Any other inference would render clause (3) of Article 156 largely otiose. It will be but fair that the Governor's removal is based on procedure which affords him an opportunity of explaining his conduct in question and ensures fair consideration of his explanation, if any. Save where the President is satisfied that, in the interest of the security of the state, it is not expedient to do so, as a matter of healthy practice, whenever it is proposed to terminate the tenure of a Governor before the expiry of the normal term of five years, he should be informally apprised of the grounds of the proposed action and afforded a reasonable opportunity for showing cause against it. It is desirable that the President (which, in effect, means the Union Council of Ministers) should get the explanation, if any, submitted by the Governor against his proposed removal from office, examined by an Advisory Group consisting of the Vice-President of India and the Speaker of the Lok Sabha or a retired Chief Justice of India. After receiving the recommendations of this Group, the President may pass such orders in the case as he may deem fit. We recommend that when a Governor, before the expiry of the normal term of five years, resigns or is appointed Governor in another State, or his tenure is terminated, the Union Government may lay a statement before both

Houses of Parliament explaining the circumstances leading to the ending of his tenure. Where a Governor has been given an opportunity to show cause against the premature termination of his tenure, the statement may also include the explanation given by him in reply. This procedure would strengthen the control of Parliament and the Union Executive's accountability to it" [Sarkaria, 1988 Part, I Pp.126-127].

The Sarkaria Commission had also laid down the following four criteria which they wanted the appointees to satisfy: (i) He should be eminent in some walk of life; (ii) He should be a person from outside the State; (iii) He should be a detached figure and not too intimately connected with the local politics of the State; and (iv) He should be a person who has not taken too great a part in politics generally and particularly in the recent past. Clearly, many Rajiv and V. P. Singh appointees did not meet these criteria.

The new Government postponed the presentation of the Annual Budget in view of the Assembly elections. These elections produced Janata Dal governments in Orissa, and Bihar; (elections to the Uttar Pradesh Assembly were held along with the Lok Sabha poll and had produced a JD government under Mulayam Singh Yadav); BJP governments in Madhya Pradesh and Himachal Pradesh with stable majorities; and coalition governments in Gujarat and Rajasthan under Janata Dal's Chimanbhai Patel and BJP's Bhairon Singh Shekhawat respectively. Table 2 gives the relative strength of Congress-I, JD and the BJP in the new Legislative Assemblies of major States:

TABLE 2. STRENGTH OF MAIN PARTIES IN STATE ASSEMBLIES OF MAJOR STATES (1989-1990)

state	Total seats which went to poll	Congress		Janata Dal		BJP	
		Percent Vote	Seats	Percent Vote	Seats	Percent Vote	Seats
Uttar Pradesh	424	28.01	94	29.59	211	11.68	57
Bihar	323	24.65	71	25.37	120	11.43	38
Orissa	147	29.78	10	53.68	123	3.58	2
Gujarat	181	30.85	33	29.53	70	26.70	67
Madhya Pradesh	319	33.53	56	7.73	28	39.04	219
Himachal Pradesh	65	37.01	8	11.20	11	41.26	44
Rajasthan	199	33.58	50	21.46	54	25.13	85
Maharashtra	288	38.17	141	12.81	24	10.71	42
Karnataka	221	43.78	175	27.38	24	4.12	4
Andhra Pradesh	294	47.22	181	0.37	1	1.78	5

Andhra Pradesh: TDP:37.10(74)
Maharashtra: Shiv Sena: 15.94(52)

X

Political disunion has been endemic in India's history, political unity has been only episodic. I consider excessive centralisation of the Indian polity to be dangerous. But that does not mean that extreme forms of regionalism are a blessing. Inter-State and inter-regional migrations are not a new thing in India. With the expansion of the modern means of communication, growing industrialisation and even more rapid urbanisation, mixed populations would be the rule, and the recrudescence of regional or linguistic chauvinism would damage peaceful relations among polyglot citizen groups. What we have to achieve is the mating of national unity and local autonomy. It cannot be denied that power is being usurped by the Centre continuously at the expense of the States; the States in turn have reduced the local bodies to paper institutions, without powers and without resources. For years no election to the Panchayat Raj institutions takes place; these bodies are superseded at will. Only recently has the Maharashtra State Government amended the Bombay Municipal Act to whittle down the powers of the most venerable of the local self-governing institutions in the country, an institution fostered by no less a person than Pherozeshah Mehta, the great Congress leader. But Rajiv Gandhi's speeches on Panchayat Raj were ominous in the extreme. They presaged establishment of direct or indirect control of the Centre over the local bodies. This cannot help build a balanced polity. It will cause the anti-Centre feeling to

spread further. National parties will be harmed. Regionalism will assume quite virulent and disruptive forms. The fabric of national unity will be weakened.

The Panchayat Raj Bill introduced by the Rajiv Government, however, was not bad. It had some good features such as (a) periodic elections, (b) reservation of seats for Scheduled Castes, Scheduled Tribes, and women, (c) supervision of elections by the Election Commission, (d) and checking of the local bodies' accounts by the Comptroller and Auditor General (CAG). The defects were obvious. One of the most objectionable features was allowing MPs and MLAs to sit on the local bodies. The Bill did not provide that no seats would be filled by nomination. It did not propose any real transfer of powers and resources from the Centre to the States and from the States to the local bodies. Nor did it suggest a new method of appointing the Election Commission in order to ensure its autonomy. Fear was expressed by the non-Congress parties that the CAG, too, would be under pressure by the Central Executive. Nevertheless, the Opposition would have been well advised to support the Bill. But the CPI-M stoutly opposed it and the other parties fell in line. The charges of poll rigging in the Calcutta Municipal Corporation elections show that a strong Election Commission's presence in local elections would be a good thing. The new Bill which the NF Government hopes to introduce should retain this clause.

If in the next election, regional parties like Telugu Desam, AGP, DMK, and Akali Dal win more seats than the Janata Dal and the Communist Parties put together or the Janata Dal and the BJP jointly, it will have grave consequences for national unity. Without a strong nucleus of a national party or parties, a mere confederation of regional parties, with narrow perspectives and parochial interests, will not be able to provide a purposeful Government at the Centre. The numerical strength of the Telugu Desam in the Eighth Lok Sabha, therefore, constituted a significant benchmark in national politics.

In Table 3, are given the numerical strength of the dominant national party and the largest Opposition parties respectively in the eight Lok Sabhas. They should prove to be not only interesting, but the implications of the emergence of a regional party as the main representative of the Opposition in 1984 should give all thinking citizens food for thought.

TABLE 3. NUMERICAL STRENGTH OF DOMINANT NATIONAL PARTY AND MAIN OPPOSITION PARTIES IN EIGHT LOK SABHAS

Year	Total Seats	Dominant Party	Seats Won	Main Opposition Party	Seats won by the Party
1952-57	494	Congress	364	Communist Party of India	16*
1957-62	494	Congress	371	Communist Party of India	27
1962-67	494	Congress	361	Communist Party of India; from 1964 on, Swatantra Party	29
1967-70	520	Congress	283	Swatantra Party; in 1969-70 Congress(O)	44**
1971-77	520	Congress	352	Communist Party of India-(M)	25
1977-79	544	Janata Party	305	Congress, Congress-I and Congress (O)	154
1980-85	544	Congress-I	353	Lok Dal	42
1985-89	544	Congress-I	421	Telugu Desam	32***

The figures of the Ninth Lok Sabha are not given because an entirely new pattern has emerged: the main opposition party is the Congress and is also the largest single party in the House. The main ruling party is the Janata Dal but it is by no means dominant. In fact, its strength is less than that of the Congress. It rules with the support of the BJP and the Left and its National Front allies.

* It should be noted that the real CPI strength in the First Lok Sabha was not less than its strength in the Second and Third Lok Sabhas, because many Communists in 1951-52 had contested and won elections on united fronts tickets.

** Towards the end of 1969 the Congress Party split and over 60 members formed themselves into a separate party. Because its strength was more than 10 per cent its leader Dr. Ram Subhag Singh was given the status of the Leader of the Opposition. However in 1971 Lok Sabha poll the Congress-O was badly mauled and could return only 16 members.

*** It is also noteworthy that not one among the largest non-Congress Opposition parties in the various Lok Sabhas has ever secured 10 per cent of the total strength of the Lok Sabha, no, not even the magic and impressive number of 50 seats.

XI

The experience of the last four decades has abundantly proved that the system of single member constituencies and simple plurality invariably favours the dominant party. If that Party crosses the 40 per cent mark, it gains seats disproportionately to its share of popular vote. The Congress has been in this dominant position in seven out of eight Lok Sabha elections. The vote - seat disproportion shown in Table 4 shows the advantage the Congress has reaped in the Lok Sabha elections. But the exception of the Janata Party in 1977 shows that the system does not help only one party and that there is nothing in it that must always favour the Congress(I). Once a party crosses the 40 per cent vote barrier, the system begins to favour this dominant party. The disproportion has tended to produce stable majorities, though not necessarily stable governments. The centralised methods of party management, cupidity of politicians, and factional conflicts can, not unoften, make the governments of parties enjoying large majorities unstable.

TABLE 4. FIRST-PAST-THE-POST-SYSTEM
DISPROPORTION OF VOTES AND SEATS IN LOK SABHA ELECTIONS

Year of election	Winning Party	Percentage Votes	Percentage Seats
1952	Congress	45.00	74.40
1957	Congress	47.80	75.10
1962	Congress	44.70	73.10
1967	Congress	40.73	54.60
1971	Congress	43.06	67.50
1977	Janata	43.06	54.80
1980	Congress-(I)	42.56	66.86
1984	Congress-(I)	49.10	78.00

While the existing system has generally favoured the Congress, particularly in the elections to the Lok Sabha with its large constituencies, in States where the national and regional parties who, by themselves or through a system of alliance and vote consolidation, crossed the 40 per cent mark have also harvested a rich crop of seats. DMK (1967 and 1989), AIADMK (1980 and 1985) in Tamil Nadu, Janata Party in Karnataka (1985), CPI-M in West Bengal (1977, 1982 and 1987), CPI-M-led Front in Kerala (1980 and 1987), Lok Dal in Haryana (1987), Telugu Desam in Andhra Pradesh (1982 and 1985), Akalis in Punjab (1977 and 1985), AGP in Assam (1985) have done well under the existing system. Even the Congress-I profited by this voting system, when it was out of power at the Centre and in a large number of States; for instance, in the elections held to the Karnataka and Andhra Pradesh Assemblies in early 1978.

But the minority parties have always strongly protested against this "unjust system". It is well known that the BJP has been the loudest in demanding proportional representation (PR). In a system of PR, in Uttar Pradesh Assembly elections in 1989, the Congress would have got 118 seats (but actually got 94), the JD only 125 seats (but got 211) and the BJP 49 (but got 57). In other States, the position under PR would have been as shown in Table 5, the figures in brackets representing the seats actually secured under the present first-past-the -post- system.

TABLE 5. HYPOTHETICAL ASSEMBLY RESULTS
UNDER PROPORTIONAL REPRESENTATION: 1989-90

State	Congress	JD	BJP
Uttar Pradesh	118(94)	125(211)	49(57)
Bihar	79(71)	81(120)	36(38)
Gujarat	55(53)	53(70)	48(67)
Madhya Pradesh	106(56)	24(28)	124(219)
Himachal Pradesh	24(8)	,7(11)	26(44)
Rajasthan	66(50)	42(54)	50(85)
Maharashtra	109(181)	36(24)	30(42)

The Table shows that Congress would have fared better everywhere except in Maharashtra, and JD and BJP would not have fared so well under PR. In Madhya Pradesh and Himachal, under PR, the BJP would not have been able to

form a government on its own. Even with JD's support, they would not have secured an absolute majority in Madhya Pradesh and would have secured a majority of only one in Himachal Pradesh. Political leaders' views are not based on principles but on short term advantage.

In the 1989 Lok Sabha Elections, the BJP which polled about 12 per cent vote, could have secured only about 65 seats under a system of proportional representation; in fact it got 88 seats, 19 more than its proportionate share. With about 18 per cent vote, the Janata Dal would have received less than a hundred seats; it got 141 seats. The CPI-M might have secured 3 seats more on a proportionate basis with its 6.62 per cent popular vote. The Congress which could this time poll only 40.62 per cent vote and which had to face a one-to-one contest in many constituencies was at a disadvantage under the present first-past-the-post system. In a proportional system it could have secured more than 18 additional seats. Actually, it won 194 seats. The Opposition charge, repeated for four decades, that the present system is grossly unfair to them is not justified. The Opposition parties get an unfair deal only when they are divided and their support is scattered and not concentrated in defined areas[4].

XII

The Budget for 1990-91 was a mixed bag and, although it did not trigger an adverse reaction from industry and commerce, it has given a push to the prices of essential articles such as edible oil, tea, sugar and cement. This, not unsurprisingly, has caused widespread dissatisfaction among the people. The debt burden and the depletion of foreign exchange reserves are matters for deep anxiety. On top of this, the non-development expenditure is mounting and no effort has been made to cut down wasteful expenditure. Security has become a status symbol and waste of resources on the job of protecting the VIPs has become a scandal.

Major sources of worry are the grave situation in Jammu and Kashmir, the noticeable increase in violence in Punjab, the United Liberation Front of Assam (ULFA) outbreak in Assam, with a secessionist overtone, the extension of activities of the Liberation Tigers of Tamil Eelam (LTTE) of Shri Lanka in Tamil Nadu, their gospel of hate against the Indian Army - thanks to Rajiv Gandhi's unwise intervention in Sri Lanka - their talk of "Eelam as a first step to sovereign Greater Tamil Nadu", and the overall rise in communal tension. V.P. Singh indeed secured postponement by the VHP of its decision to demolish the Babri Masjid and construct the Ramjanmabhoomi temple in Ayodhya. But this was at best a temporary four months' respite.

The temper of the VHP can be gauged correctly by the public speeches and interviews its leaders have given in the month of April 1990. Ashoka Singhal, its General Secretary, said that it was impossible for people to imagine the magnitude of the movement which they intended to launch after 24 June 1990. He claimed that now the police and the Army, too, have been infected by the idea of Hindutva, implying that these agencies would refuse to take action against the agitators. This was, in fact, a hint about the success they had achieved in subverting the loyalty of the armed forces of the Indian State. Although the Constitution itself describes the Republic of India as "secular", Singhal said that all those who talk of secularism would be "wiped out". The co-organiser of the Virat Hindu Sammelan organised by the VHP at Mathura, Gopeshwar Chaturvedi, pointing his finger at the mosque in Mathura, said that "it was not a mosque but a symbol of our slavery erected on the sacrifice of our ancestors. So long as we have not brought it down we shall not rest in peace." In Hindi press interviews, Ashoka Singhal described the Government of V.P. Singh as "a Government of jackals". "The present Government is not only pursuing a policy of appeasement, it has surrendered before the Muslim communalists". Asoka Singhal laid stress on the organization of Hindus and the transcending of internal divisions in the Hindu society. He charged that V. P. Singh's administration did not want to see the Hindus organised because that would make the Muslim power in India subordinate and, the moment the Muslim power became weak, the Government of V. P. Singh would collapse. When asked as to why the BJP was extending support to this Government, Singhal said that "if differences increase, the support would certainly be withdrawn". He

demanded that the Muslims should give up not only the Ayodhya mosque but also the mosques at Mathura and Banaras for "these towns are places of incarnation of Godhead". In fact these three places are only illustrative. The VHP leaders talk vaguely of liberating other important sacred places also. "There are hundred districts where Muslims have made life impossible for Hindus. And there are another hundred districts where Christians have created similar conditions", Singhal claims [*Sunday Observer* (Hindi), April 22, 1990; and *Sunday Mail* (Hindi), April 29, 1990].

Even as the VHP-RSS were intensifying their campaign of hate and intimidation, Shankaracharya of Dwarakapeeth declared that the *Shilanyas* (foundation ceremony) performed by the VHP on 9 November 1989 had not been according to the accepted norms, that the day was not auspicious, that the spot chosen was wrong, and that they would go to Ayodhya and perform a new and proper *Shilanyas*. To the JD Government headed by Mulayam Singh this was a challenge. The Government's stand was that the question of title to the land was pending in the High Court and that the parties should await its verdict. Mulayam Singh declared that no body however high his status would be allowed to violate the law and start a chain of riots. The religious personality was arrested and remanded to custody in Chunar Fort where a temporary prison was created. After his release, the Dwarakapeeth Shankaracharya said that he has deferred his decision about the construction of the temple to the next Uttarayana (summer solstice). He has criticised the credentials of the VHP which he says is not a Hindu organization because it consists of Jains and Buddhists (non-Vedic sects) and Arya Samajists, who are opposed to idol worship [*The Times of India, Sunday Review*, May 20, 1990].

The action of the Uttar Pradesh Government was widely appreciated and the VHP was put in an embarrassing situation. It now knew that this was a dress rehearsal and that should they attempt any forcible construction of the temple, the attempt would be foiled. A BJP spokesman at this point declared that, even if the JD Government refused to allow the construction of temple at Ayodhya they would continue to support that Government. The UP Chief Minister has declared that he would enforce his policy no matter whether his Chief Ministership is threatened. The JD Government's policy provided a welcome contrast to the dithering and ultimate double dealing of Rajiv Gandhi, the then Home Minister Buta Singh, and the then Chief Minister of UP, Narayan Dutt Tiwari. It is believed that Mulayam Singh will deal sternly with communalists of all varieties [The Telegraph, May 9, 1990; The Hindu, May 11, 1990; Indian Express, May 14, 1990].

In the month of May 1990, the Janata dal Government was trying to cope with several pressing problems such as the rising prices; the menace of terrorism in Punjab which showed no signs of abating; and the assassination of Mirwaiz Farooq, Sheikh Abdullah's rival in the Kashmir Valley and the firing on the crowd during the vast funeral procession in which a large number of lives were lost.

The Government was hit by two crises in the summer of 1990, and both had their origin in Haryana. On February 27, there was large scale electoral violence in the Mehem Assembly constituency during a by-election in which Om Prakash Chautala, the Chief Minister of Haryana, was a candidate. There were charges of extensive stealing of ballots. On the day of counting, there was further violence. Loud protests forced the Election Commission to order a fresh poll.

On 17 May, when the campaign for the fresh poll was on, the dummy Janata Dal candidate was shot dead. His brother filed a First Information Report against Chautala's main rival, an independent candidate. There was further violence by the police in the effort to arrest the accused. An uproar in Parliament and outside led the Central Home Minister to announce a probe by the Central Bureau of Investigation (CBI), and, in addition, an inquiry by a sitting judge of the Supreme Court. But the uproar did not subside and the Janata Dal ultimately compelled Chautala to resign. A new Chief Minister was sworn in Haryana. For a while, V. P. Singh's authority was reinforced.

But, within two months, on July 12, the new Haryana Chief Minister resigned. A meeting of the Haryana Janata Dal legislators was hurriedly

summoned at Haryana Bhavan in Delhi and, in the evening of the same day, Chautala was re-elected the Chief Minister of Haryana A terrific clamour was raised by the Press. The supporting parties -- the BJP and the Left -- also protested. V. P. Singh's three Ministerial colleagues resigned. Thereupon, V. P. Singh conveyed, to the Party President, his intention to resign as the Prime Minister. More Ministers resigned. The Party and the Government were in deep crisis. The Janata Dal leadership, aided by its National Front allies, the BJP and the Left, persuaded Chautala to resign and the crisis was, at least for the moment, resolved. But, in the process, the Government's credibility and V. P. Singh's own reputation suffered a blow. It is unlikely that all is or will be well.

The system of family rule ultimately brings a nemesis in a democratic order. For thousands of years, the intermediate castes and backward classes have been kept out of power. In consequence, they have not developed any democratic culture. When they get power, they tend to be arbitrary. They observe no moral code. They make no distinction between the interests of their family and those of the state. But did not Indira Gandhi also treat the state as a private property to be passed on to her sons ? Other leaders from upper castes have shown the same arbitrariness and lack of moral sense. But when kisan and backward class leaders indulge in these things, the upper caste urban-dominated newspapers come down heavily on them. Their treatment of Devilal's high-handedness on the one hand, and of Hegde's corruption and telephone tapping two years ago and now even after Virendra Patil's devastating reply, on the other, illustrates the difference in approach. With the passing away of old leaders and the rapid decline of the values of the freedom movement, political leaders have become increasingly inured to misbehavior and waywardness. The first generation of leaders from kisan communities, intermediate castes, and backward classes like Y.B. Chavan, Nijalingappa, Sanjiva Reddy, and Kamaraj were free from the taint of naked lust for power, arbitrariness, and corruption. The younger generation must emulate their virtues. On younger men like Mulayam Singh (UP) and Lalu Yadav (Bihar), coming from these classes, devolves the great political and moral responsibility of imbibing, reviving, and upholding the democratic values in our country.

XIII

The Indian polity delineated above cannot but cause deep anxiety about the future of the state. Without an ordered state, the ideals of liberty, equality and elimination of poverty cannot be realised. A determined action, on a wide front, is, therefore, called for to remove the distortions that have developed in the working of the political system rather than any rash and ill-advised experiment in the nature of systemic change.

First, we must put new life into our decaying Legislatures. The original length of their sessions should be restored. Holidaying should be curbed. Joint Select Committee procedure should be revived. Parliament should be made a real forum of debate. The Business Advisory Committee must meet frequently and fix the priority for discussions. There should be a more open government, and a fuller disclosure of information. No attempt should be made to suppress discussion on sensitive but important subjects like Presidential powers and the President's right to know, as was done under Rajiv Gandhi.

The ministerial control over their departments ought to be made more effective. Junior Ministers in the confidence of the Prime Minister should not be allowed to lord it over the Cabinet Ministers. No instructions should be sent to the department directly by the Prime Minister's Office (PMO). The size of the PMO should be severely curtailed. Things have not changed under the new dispensation. The paper on economic policy prepared by the Prime Minister's Office and discussed by Secretaries of economic Ministries has led to a controversy. A Janata Dal leader has accused the PMO of functioning as the super-cabinet, of overriding the Cabinet, and the Party [*Indian Express*, June 29, 1990]. Apart from this controversy, it is known that the Cabinet Secretary and the PMO function in the same old way. Without bypassing the Cabinet and the Departmental Ministers, the Cabinet Secretariat must effectively exercise the coordination function under general prime ministerial direction. Above all, the accountability of the departments to the Legislatures should be strengthened by

expeditiously implementing the system of parliamentary committees attached to the departments.

To pass laws which cannot be enforced is not an act of wisdom. To enact constitutional amendments which are a dead letter from the start or are bound to be abused is the height of unwisdom. Such futile essays in legislation or in amending the Constitution do not make people more law abiding. In fact they tend to breed contempt for law and disrespect for the Constitution. It is therefore necessary to review the whole gamut of legislation in the light of past experience. Small parliamentary committees should be set up to examine these laws, take into account the reports of the Law Commission and other bodies concerned, and hold public hearings.

Secondly, must come the redefining of the Centre-State relations. The Governor's action in Karnataka should make all thinking men and women acutely aware of the damage the chain reaction based on "you also did the same thing to us when we were in power" is causing to our political structure. The recommendations of the Sarkaria Commission are very modest and a consensus should be built up on their basis both in the matter of the exercise of Governor's powers or the application of Article 356.

The reform of the judicial system has been a subject of discussion for over three decades. There have been recommendations of the Law Commission. There have been suggestion by legal scholars. But the Bench and the Bar refuse to move. The strong and entrenched vested interests are coming in the way of reform.

The collapse of the legal system is the most deplorable feature of the present Indian political condition. New laws and more stringent punishments are daily being devised by the executive and legislative arms of the state under pressure from different lobbies and single issue organizations. These movements lack a national outlook; they are incapable of taking an overall view. The obsolete judicial structure is unable to cope with the new burdens. The High Courts and the Supreme Court operate with a nineteenth century technique. The decisions are often erratic and contradictory. The procedures are dilatory, tailor-made to feather the nests of counsel and fleece the litigants. Long oral arguments indeed help lawyers mint money, but deny citizens expeditious justice. Non-filling of vacancies in the higher courts adds to the grimness of the tale of woes. The tempting prospects of appointment to the Commissions of Inquiry and the fear of supersession make the judges docile. The recent elevation of Chief Justice Pathak to the International Court and his continuing in his post both before and after his election, shows that all traces of high standards and judicial independence are fast vanishing. Mikhail Gorbachev is daily issuing calls for the creation of a 'socialist-rule-of-law state'; here we had inherited a rule-of-law state. But instead of preserving and further transforming it into a social democratic law-and-order state, we have allowed it to go into decay.

The Supreme Court and the High Courts must change their antiquated mode of transacting business. The Registrar's office must use computers to group together petitions that come up for admission as also cases for final hearing subjectwise and list them together before the same bench for disposal. Thus Rent Act cases, for example, under a certain Section, should be grouped and taken up together. This would not only lighten the load, but prevent contradictory decisions being made in respect of these matters. Recently two petitions had been filed by hatcheries (chicken farms) involving the same point. One petition was dismissed by one Bench; the second was admitted by another Bench. The conduct of the judges is unpredictable and erratic, making it impossible for senior counsel to give correct advice [*The Hindustan Times*, May 19, 1989].

There is another glaring instance of judicial anarchy. In deciding some cases, involving the interpretation of the word "retrenchment" in the Industrial Disputes Act, 1947, the then Supreme Court Justice, Krishna Iyer, completely ignored the two decisions of two five-judge Constitution Benches on the same subject. The Benches on whose behalf Iyer handed down the decisions consisted of only two or three judges. The judgements of the Constitutional Benches are binding on the smaller Benches and yet Justice Iyer defied these opinions. The Constitution Bench of the Supreme Court, with Sabyasachi Mukherjee CJ presiding, could not ignore this fact in the Civil Appeal No. 885 of 1980 and other connected appeals decided on 4 May 1990, and reiterated the earlier decisions of the Constitutional Benches. [1957 SCR 121; 1963 Suppl. 1 SCR 730; 1976(3) SCR 160; 1980(3) SCR 884;

1977(1) SCR 586; 1980(3) SCR 884; 1984(10) SCR 783].

Oral arguments should be drastically curtailed. Oral arguments, no matter how important the case, should not be allowed to be dragged on beyond two working days. The Court must rely a great deal more on written arguments. Prolixity in judgements should be cut out. There should be a computerised classification of judgements/decisions/ratios for ready reference. This will help reduce contradictory decisions by various Benches. These computer services should be made available also to counsel.

Malpractices in the Registrar's Office, influence-peddling with a view to securing a particular Bench, should be severely put down. The Chief Justice, in allocating business, should protect clients from the subtle but ever present regional bias of the judges and the regional nexus between the judges and counsel. Frequent adjournments are the bane of the Courts. There is invariably active connivance of the judges with senior counsel. The litigants suffer. If the clients are commercial undertakings, public sector or private sector, the heavy costs are inevitably passed on to the ultimate consumer. The number of vacancies in the posts of judges is simply scandalous. This adds to the woes of the litigants. They groan, but the Government is indifferent. The delay in filling vacancies should therefore be eliminated.

The Anti-Defection Constitution Amendment, passed in January 1985, soon after the stunning electoral victory of the Congress-I, had been challenged in the various High Courts by several persons, among them a member of the Rajya Sabha, Satyapal Malik, and a member of the Lok Sabha, Ram Dhan. In view of the importance of the constitutional issues involved, the petitions were transferred to the Supreme Court, which is the highest tribunal of the land, under its own order. A Bench of the Supreme Court, by its order dated 27 September 1988 (in transfer Petition No. 461/87), had even directed that the matter be heard as early as possible and possibly before the Winter Session of Parliament in 1988. But the Supreme Court did not take up the matter for final hearing in the stipulated time. Meanwhile Malik's plea that an interim restraining order be issued staying the proceedings against him by a Committee of the Rajya Sabha was rejected by the Court. The result was that, Malik, now a Minister in the National Front Government, was unseated. In protest, he and his colleague, Ram Dhan, withdrew their petition. The Supreme Court, instead of doing justice, indirectly helped perpetuate injustice by refusing to act expeditiously.

XIV

The original Anti-Defection Bill of Rajiv Gandhi contained three grounds on which a member's membership could be terminated: (i) by his or her quitting the party voluntarily; (ii) by his or her voting contrary to the party's whip or abstaining from voting; (iii) by his or her attracting exclusion from the party for any act of indiscipline. The last ground was dropped "with a view to accommodating the views of quite a large number of opposition parties" - although N.T. Rama Rao's Telugu Desam was in favour of retaining this ground.

Rajiv Gandhi's massive electoral victory had so unhinged the Opposition that they put their critical faculties in deep freeze and applauded the measure in superlative terms. No fundamental opposition was expressed nor a single vote recorded against the Bill in either House of Parliament. It was a rare case of collective suicide. Congressmen, of course, were "wholeheartedly" in favour of the Bill. It was a "bold step" designed to cleanse public life, a fulfilment of the promise made by Prime Minister Rajiv Gandhi. They also said that to clothe the Speaker with final authority in the matter of deciding questions of disqualification was very "appropriate". They opposed giving this power to the Court or the Election Commission. Opposition members were even more eloquent in their praise of the Bill. Madhu Dandavate, veteran Oppositionist, pointed out in the Lok Sabha that the Bill was being passed on January 30, the date of the assassination of the Father of our Nation. There could be no "better tribute" to the memory of Mahatma Gandhi. He forgot that, Mahatma Gandhi, in his *Hind Swaraj*, had denounced the members of the House of Commons who blindly accepted the Party Whip. The member was happy that the provisions of the Bill were based on "consensus" among the parties represented in Parliament. It would, he believed,

inaugurate an era of "clean politics". The Oppositionists were not unaware of the "distinction between dissent and defection". Yet they voted enthusiastically for the whip clause which completely destroyed all dissent: Members of the National Conference from Jammu and Kashmir extolled the "comprehensive" character of the Bill and said that it was a great improvement on the law passed by the Jammu and Kashmir Legislature in 1979 on the initiative of Sheikh Abdullah. They hoped that the new law would be extended to Jammu and Kashmir.

Rajiv Gandhi claimed that the Bill had shown that the Government possessed the necessary "political will", implying that his Government was better than the Indira Gandhi and Morarji Desai administrations which had failed to secure passage of a Bill of this kind. He even said that anybody who opposed the Bill should have "his own integrity examined". One Oppositionist felt elated that there was not a single dissenting vote against the Bill. In his reply to the debate Asoke Sen, the then Law Minister, called it a "hallowed day" and one opposition member (Madhu Dandavate) was so carried away that he thought, now that the Anti-Defection Bill was passed, an "obituary reference" to the defectors was in order!

We have given extensive summary of the Lok Sabha debate because it would help us understand how subjectivity, shortsightedness and momentary passions controlled the process of law making, including vital amendments to the Constitution. The question is, has the Anti-Defection Law prevented defections? Has it ensured political stability? The happening in Punjab and Tamil Nadu give a lie to the claims made on behalf of the law. Particularly, the law has played havoc in small States like Mizoram, Nagaland, Goa, and Meghalaya. The law provided to Speakers and Governors new areas for wilful and arbitrary exercise of power.

We may take a couple of examples from the period *before* the Lok Sabha poll of 1989 and a few cases *after* this election. After Mizoram became a State, Laldenga, leader of the Mizoram National Front, won a majority in the elections held in the new State and formed a Government. In September 1988, a breakaway group, consisting allegedly of nine members of the ruling group, defected, reducing the latter to a minority. The Speaker, upon *verifying* that one member who had gone abroad and had not really defected, held that the defection was not a split within the meaning of para 3 of the Tenth Schedule, as the requisite one-third members had not left the Party, and suspended eight members pending a final decision in the proceedings for their disqualification. Governer Hiteshwar Saikia, obviously acting under instructions from the Central Home Ministry, dismissed Laldenga; President's Rule was proclaimed on September 7, 1988, and the Assembly was simultaneously dissolved. In the elections held later, the Congress and the breakaway group formed an alliance and after winning a majority assumed office on January 24, 1989.

The next case is that of Nagaland. Here, it was the ruling Congress led by Hokishe Sema which suffered a split. In August 1988, 13 MLAs broke away from the Congress, formed a new party, and merged with the other opposition groups. The Speaker recognised the split under the Anti-Defection Law and the defeat of the Government became certain. But the Governor, a pliant military officer, K.V. Krishna Rao, refused to consider formation of an alternative Government on the ground that the new grouping was (a) devoid of any ideology, (b) did not have any object of service, and (c) members of the group had connections with the Naga Underground. Instead, he recommended President's rule and dissolution of the Assembly. Even the High Court was constrained to criticise the Governor's action, saying that the grounds advanced by the Governor were not relevant, although it did not revive the Assembly as was done in Baluchistan. The new election produced a government led by the Congress Party's S.C. Jamir. In both the States the Opposition felt cheated as a result of the abuse of power by the Governors.

We ask: If the expedient of a fresh appeal to the poll is to be used in the event of every major defection and loss of majority, where is the need for an anti-defection law? A fresh poll will act as an effective deterrent provided this became a settled convention.

Now we come to the new regime. The test case was of Goa. Here the Congress Government headed by Pratap Singh Rane suffered a set back

when a group of seven legislators, including the Speaker, defected. The Speaker, Dr. Luis Proto Barbosa, became the Chief Minister of the newly-formed Progressive Democratic Front (PDF). Since the Speaker himself had changed sides, the Congress plea that the defectors be disqualified could not be disposed of immediately. The matter has gone to the Supreme Court. The Speaker and the Government of Goa has asserted that the Court had no jurisdiction under the Tenth Schedule and that it was only in the interests of harmony between the two organs of the state that the new Speaker, Surendra Sirsat, had voluntarily decided not to adjudicate the issue till July 1990. The newly formed PDF has affiliated itself to the National Front and the critics are questioning the morality of the value-based Government blessing defections born out of lust for power.

The second case is that of Meghalaya where the same power game was merrily indulged in by the habitual defectors. B.B. Lyngdoh played the key role in this game first in 1988, and again in 1990. It was he who secured defections, made and unmade majorities, and helped topple and form governments.

The third case is that of Nagaland. The Government headed by Jamir had a strength of 36 in a House of 60. Out of this, one-third members, that is, 12 defected and claimed that there was a split in the Party. The group decided to combine with other groups to form the United Legislature Front (ULF). K.L. Chisi was elected the leader. A Congress General Secretary announced "in the nick of time" that two members had been expelled from the Party and therefore they could not be counted as members of the Congress. The number of the Congress defectors was 10, and this being less than one third of the effective Congress strength of 34, it constituted not a split but a defection! The Speaker, T.N. Ngullie, agreed and quickly disqualified the 10 members. At this point, in an unprecedented move, Governor M.M. Thomas, a N. F. Government appointee, asked the Speaker to review his decision! When he refused to do so, the Governor dismissed the Jamir Ministry and asked K.L. Chisi to form the new Government and prove his majority in the House in 30 days! What principles were followed in the aforesaid cases, it is difficult to see. That the Chisi Government did not long survive is another matter. If the 1988 precedents were to be adopted, the proper course would have been to dissolve the Houses and let the electorate pass its verdict on the doings of the legislators. All that the law has done is to breed a new conflict between the Speaker and the Government!

Clearly, the Fifty-Second Amendment is a useless piece of constitutional furniture and the amendment suggested by the Committee on Electoral Reforms will not have the slightest effect on the real and concrete problems the political system is facing. In the absence of public opinion and a commonly shared sense of fair play and justice, any law will prove to be ineffective. You cannot legislate politicians into morality.

The role of the Supreme Court has, to say the least, been far from praiseworthy; its processes are dilatory; and it has been reluctant to decide constitutional issues expeditiously.The total failure of the Anti-Defection law is due to the fact that the remedy it proposed is based on an entirely wrong diagnosis of the disease. Defection should not be confused with voting or a genuine split. It is born out of lust for power. In almost all the cases, defectors always hoped to be rewarded with Ministerships. The present author had therefore proposed a simple remedy in the Committee on Defection in 1967-68: debar a defector from holding any Ministership or any office involving material benefit *whatever* during the term, and derecognise parties which admit defectors as members or associate members. We do not claim this is a sovereign remedy, for the capacity of the Indian mind to find legal loopholes is limitless. But, the suggested remedy at least addresses itself to the root of the problem and at the same time does not encroach on the right of free expression and the exercise of free vote by members of Parliament.

The National Front Government, after assuming office, appointed a Committee to make recommendations on electoral reforms. It has since submitted its report which is not yet published. However, we understand that the Committee, among other things, has recommended an amendment of the Anti-Defection law, namely, that the defiance of the Whip, except in the case

of budgetary demands or no-confidence motions vote, should *not* entail disqualification. Obviously, it is necessary to examine the merits of the Anti-Defection law (Fifty-Second Amendment) in the light of the experience of the past five and half years.

XV

Now I must turn to Party reform. The solidity of parties in a vast country like India would depend on (a) their capacity to forge a broad coalition of interests; (b) equitable power sharing; (c) their skill in evolving and implementing practical programmes; (d) democratic functioning, and, finally, (e) their having strong leaders able to inspire loyalty and zeal in their followers but who will not turn into despots. In a country like India, given the deeply entrenched feudal loyalties and tendency towards hero worship such leaders tend to become authoritarian and nullify internal democracy and dissent. We have neither approached the British two-party system nor did we have pairs of rival leaders such as the British produced. What we have had is authoritarian propensity in the ruling party and a number of quarrelling leaders in the opposition.

There has been endless debate about electoral reform in this country. Two years ago a conference of intellectuals was called by N.T. Rama Rao to discuss this question. Next day a meeting of the representatives of political parties was also held. It adopted an eighteen-point charter of electoral reform. Many of the suggestions made therein are useful. But, personally, I am not in favour of any system of state funding of election in the present state of our political parties. Unless the feudal and authoritarian Party structures are democratised, boss rule curbed, and constituency organizations given a voice in the selection of candidates under a comprehensive law on political parties, the state funding of elections, far from bringing down election expenditure, would increase its scale and at the same time produce great harm by strengthening despotic tendencies within each political party.

Reform of the parties is as necessary as electoral reforms. Without internal democracy in the parties, the democratic state cannot be preserved. The Congress must first set its house in order as it is still the largest national party in the country. It can begin by letting its State legislature parties elect leaders of their choice, free from all central interference, whether it is in power at the Centre or is sitting in Opposition. It must also hold party elections. The non-Congress parties, too, must introduce internal democracy not only in their paper constitutions, but in their actual working. What the country needs is protection from both central authoritarianism and provincial warlordism.

It is often said that heavy election expenditure fuels corruption and a parallel/shadow economy. This is partly true. The only way to curb election expenditure and also make booth capturing somewhat difficult is to hold simultaneous elections to all the representative bodies every five years. A beginning can be made in 1995. If there is a mid-term poll to any Assembly or local body that should be ignored. In the alternative, these bodies should have fixed five-year terms. A provision in the West German Constitution requires that no motion expressing want of confidence in the incumbent Government can be moved unless an alternative Chancellor (Prime Minister) is first agreed upon. Such devices can be created which will induce a culture of coalitionism as has been done in many European countries.

Meanwhile a Panchayat Raj Constitution Amendment should be adopted providing for direct elections to the Zila Parishads and Municipalities/Panchayats. In 1995, elections to the Lok Sabha, State Assemblies, and local bodies should be held on the basis of a common electoral role and voters' identity cards. This would drastically curtail election expenditure and help the parties build and train cadres for different levels of representative institutions. It is necessary to secure the continuing supervisory role of the Election Commission over *all* elections. To ensure that the Election Commission is non-partisan, it should be appointed by the President, (that is the Union Cabinet), with the consent of a panel consisting of the Chief Justice of the Supreme Court, and the leaders of the largest Opposition Parties in the Lok Sabha and Rajya Sabha. The charges of rigging in the Amethi Lok Sabha election, Meham by-election, and Calcutta Municipal Corporation elections, makes this reform imperative.

All these suggestions - many others can be listed

- would be of no avail, if there is absence of public awareness, or a groundswell of popular upsurge in favour of renewal and change. It is amazing the way ordinary citizens have been reduced in the last decade or more to a state of utter helplessness. All power has come to be concentrated at the top and the citizens have become a huge inert mass. These are signs of a moribund society. If it is to survive as a nation, India will have to call forth from its depths the forces of renewal as many nations in crisis have done, like, for example, France in 1914-18, Britain in 1939-45, Germany and Japan in 1945-50 and the Soviet Union today.

INDEX OF NAMES

Abdullah, Farooq (1937-): Son of Sheikh Abdullah; was Chief Minister of Jammu and Kashmir.

Advani, L.K. (1927-): President BJP; Member of Parliament and Minister in Morarji Government (1977-79).

Aggarwal, Vasudev Sharan (1904-1986): Profound Scholar of Indian Art and Culture; author of many books on the subject.

Aiyar, Alladi Krishnaswami (1883-1953): Lawyer; Member of the Drafting Committee of the Indian Constitution.

Ambedkar, B.R. (1890-1956): Law Minister in the Government of India; Chairman of the Drafting Committee of India's Constitution.

Anjiah, T.: Was Chief Minister in Andhra Pradesh; Minister in the Central Government.

Annadurai, C.N. (1910-1969): Member Rajya Sabha; Chief Minister of Tamil Nadu and Leader of the DMK

Azad, Maulana Abul Kalam (1889-1958): Nationalist Muslim; Congress President in 1923 and 1940-46; Minister of Education in Central Government (1947-56).

Badal, Prakash Singh (1927-): Akali Leader; was Chief Minister of Punjab 1970-71 and 1977-80 and Minister in the Central Government.

Bahuguna, H.N. (1919-1989): Chief Minister of UP; Minister in the Centre and Leader of the Lok Dal.

Bakshi, Ghulam Mohammad (1907-1972): Was Chief Minister of Jammu and Kashmir; Member Lok Sabha.

Bannerjee, S.N. (1848-1925): Leader of the Indian National Congress; Presided over its Ahmedabad Session in 1902; Minister in the Bengal Government.

Barbosa, Dr L.P.: Chief Minister of Goa.

Bamala, S.S. (1925-): Akali Leader; was Minister in the Central Government and Chief Minister of Punjab; now Governor of Tamil Nadu.

Barooah, Dev Kant (1914-): Poet; Was Minister in Assam Government and the Government of India and President, Indian National Congress.

Bhagat H.K.L. (1921-): Congressman of Delhi; was Minister in the Central Government; now General Secretary of the Congress-I.

Bhandari, Sunder Singh (1921-): R.S.S. Pracharak; Member BJP; Member Rajya Sabha.

Bhave, Vinoba (1895-1982): Follower of Gandhi; started Bhoodan - Gramdan movements.

Chandrachud, Y.B.: Former Chief Justice of the Supreme Court.

Chandrashekhar (1927-): Was associated with the Socialist movement; Member Rajya Sabha and now Lok Sabha; was President Janata Party; now prominent leader of Janata Dal.

Chautala, Om Prakash (1935-): Member Haryana Assembly; was Member, Rajya Sabha and Chief Minister, Haryana.

Chavan, S.B. (1920-): Was Chief Minister of Maharashtra; Minister in the Central Government.

Chavan, Y.B. (1913-1984): Chief Minister of Bombay and Minister in the Government of India.

Chisi, K.L.: Naga National Party Leader; joined Congress; was Chief Minister Nagaland.

Dandavate, Madhu (1924-): Associated with the Socialist Movement; Member Maharashtra Legislative Council 1970-71; Member of Lok Sabha from 1971; Minister of Railways (1977-79), Minister of Finance (1989-).

Das, C.R. (1876-1925): Leading Barrister of Calcutta; Presided over the Gaya Session of the Indian National Congress; one of the founders of the Swaraj Party.

Deo, Shankerrao (1895-1974): Member; Congress Working Committee; General Secretary of the Congress.

Deoras, Balasaheb (1915-): Sarsanghchalak (Chief) of the R.S.S. since 1973.

Desai, Morarji (1896-): Member Indian National Congress; Chief Minister of Bombay (1952-56); Minister in Central Government (1956-69); Prime Minister (1977-79).

Deva, Acharya Narendra (1889-1956): Socialist Leader; one of the founders of CSP; Principal Kashi Vidyapith; Vice-Chancellor Lucknow and Banaras Hindu University; Member U.P. Assembly and Rajya Sabha.

Dhan, Ram (1921-): Member Socialist Party; joined Congress; Member Fourth, Fifth, Sixth, Eight and Ninth Lok Sabha.

Dhawan, R.K. (1937-): Stenographer raised to the position of Joint Secretary in the Prime Minister's Office during Indira-Rajiv period; now Member Rajya Sabha.

Faridi, A.J.: Was Leader of Muslim Mushawarat in UP; made electoral alliance with Charan Singh; Member UP Assembly.

Farooq, Mirwaiz: Son of a rival of Sheikh Abdullah; religious leader of Kashmir; assassinated in 1990.

Gandhi, Indira (1917-1984): Leader of the Congress Party and the Prime Minister of India (1966-77 and 1980-84); assassinated in 1984 by her bodyguards.

Gandhi, M.K. (1969-1948): The Leader of the Indian National Movement; Champion of Truth and Non-violence; assassinated by a Hindu fanatic.

Gandhi, Rajiv (1944-): An ex-Pilot, Prime Minister of India (1984-89); President of the Indian National Congress-I.

Gandhi, Sanjay (1946-1980): Son of Indira Gandhi; Became prominent during the Emergency (1975-77); Was elected to Parliament in 1980; died in helicopter crash.

Ghafoor, Abdul (1918-): Was Chief Minister of Bihar and Minister in the Central Government.

Ghosh, Atulya (1904-1986): Congressman from Bengal; Member Lok Sabha.

Gokhale, G.K. (1966-1915): Disciple of M.G. Ranade; Belonged to Moderate Group in the Indian National Congress; Presided over the Banaras Session of the Congress in 1905; outstanding parliamentarian.

Gupta, Chandra Bhanu (1902-1980): Chief Minister of U.P.; prominent Congress Leader; later Leader of the Janata Party.

Haksar, P.N. (1913-): Lawyer, Ambassador, Minister, Principal Private Secretary of Premier Indira Gandhi 1967-73; Deputy Chairman, Planning Commission.

Hegde, Ramakrishna (1926-): Was Chief Minister of Karnataka; Deputy Chairman of the Planning Commission till recently.

Hokishe, Sema (1921-): Was Chief Minister of Nagaland; Governor of Himachal Pradesh; Member Rajya Sabha.

Iyer, V.R. Krishna (1915-): Was Member Madras Assembly; Minister in Kerala; Judge, Kerala High Court and of the Supreme Court.

Jailalitha (1942-): Leader of AIADMK; was member Rajya Sabha; now MLA, Tamil Nadu.

Jamir, S.C. (1931-): Was Minister of State in the Government of India and Chief Minister of Nagaland.

Jha, L.K.: Was Principal Private Secretary of Prime Minister and Economic Adviser to Mrs. Gandhi; Ambassador to U.S.A.; Governor, J & K.

Jha, Raghunath (1941-): Member Bihar Assembly; now Minister of the Bihar Government.

Jinnah, M.A. (1879-1948): Started his political career as Indian Nationalist; Leader of the Muslim League and Founder of Pakistan and its first Governor General.

Joshi, Kailash Chandra (1929-): Was Chief Minister of Madhya Pradesh; Currently BJP Member of Madhya Pradesh Assembly.

Kamaraj, K. (1903-1975): Congressman from South; Chief Minister of Madras; Member of Parliament; President of the Congress.

Kamath, H.V. (1907-1982): Member Constituent Assembly; and of Parliament.

Karunanidhi, M. (1924-): Leader of the DMK; at present Chief Minister of Tamil Nadu.

Khan, Khan Abdul Ghaffar (1890-1988): Popularly known as "Frontier Gandhi"; fought for India's freedom and devoted follower of Gandhiji; jailed many a time in India and Pakistan; awarded "Bharat Ratna" posthumously.

Kidwai, Rafi Ahmad (1894-1954): Congressman; Minister in the U.P. Government and the Central Government.

Kripalani, J.B. (1888-1942): General Secretary of the Congress (1934-46); its President, 1946; Member of Paliament; interpreter of Gandhi's thoughts.

Lal, Devi (1914-): Was Member Punjab Assembly; Chief Minister Haryana; at present Deputy Prime Minister of India.

Lal, Ram (1929-): Was Chief Minister of Himachal Pradesh and Governor of Andhra Pradesh; now Janata Dal member.

Lal Bhajan: Former Chief Minister of Haryana.

Laldenga, (1927-1990): Was Chief Minister of Mizoram; Leader of Mizo National Front.

Lohia, Dr Rammanohar (1910-1967): Leader of the Socialist movement in India; M.P. (1963-67); thinker and activist; was responsible for the defeat of the Congress in many States in 1967.

Longowal, Sant Harcharan Singh (1932-1985): Akali Leader; entered into a Pact with Rajiv Gandhi in 1985 to solve the Punjab Problem but was soon assassinated by the terrorists.

Lyngdoh, B.B.: Leader Khasi Tribe; Currently Chief Minister Meghalaya.

Malik, Satya Pal (1946-): Member UP Assembly; Member Rajya Sabha; now Minister of State in the Central Government.

Mandloi, B.A.: Was Member Constituent Assembly from Madhya Pradesh; was Chief Minister in 1962; resigned under Kamaraj Plan, 1963.

Mathai, M.O. (1909-1982): Special Assistant to Jawaharlal Nehru.

Mehta, Ashok (1911-1984): Socialist Leader; Joined Congress; Deputy Chairman Planning Commission; Minister Central Government; left Congress; A founder of the Janata Party.

Mehta, Om (1927-): Was Member Legislative Council Jammu and Kashmir; Minister of State in the Central Government.

Mehta, Pherozeshah (1845-1917): Prominent Moderate Leader from Bombay; President of the Congress; Mayor of Bombay.

Mishra, Jagannath (1937-): Was Chief Minister of Bihar and Member Rajya Sabha; is leader of the opposition in Bihar Assembly.

Mody, Pilloo (1926-83): Was General Secretary of Lok Dal; Member of Lok Sabha and Member of Rajya Sabha.

Mukerjée, Ajoy (1901-1986): Congress Leader in Bengal; Chief Minister of Bengal, 1967-68.

Mukherjee, Sabyasachi, Chief Justice of the Supreme Court of India.

Mukherji, Shyama Prasad (1901-1953): Hindu Mahasabha Leader; Minister in Central Government; founder of Jana Sangh; died in detention in Srinagar.

Munshi, K.M. (1887-1971): Minister in the Bombay Government and in the Government of India; prominent writer in Gujarat; member of the Drafting Committee of the Indian Constitution.

Naicker, Periyar Ramaswami (1879-1973): Leader of the D.K. Movement in Tamil Nadu.

Naik, V.P. (1913-1979): Was Chief Minister of Maharashtra; and Member, Lok Sabha.

Namboodiripad, E.M.S. (1909-): Communist Leader; Chief Minister of Kerala; now General Secretary of the CPI(M).

Naoroji, Dadabhai (1825-1917): Leader of the Congress; its President three times; elected to the House of Commons.

Narain, Raj (1917-1986): Associated with the Socialist Movement; Member UP Assembly; Minister of Health in the Government of India.

Narayan, Jayaprakash (1902-1979): Socialist Leader; one of the founders of the C.S.P.; joined Bhoodan Movement of Vinoba Bhave; launched mass movement against corruption in 1974-75 which led to formation of the first non-Congress Government at the Centre (1977-79).

Nataraj, Justice: Previously a Judge of the Tamil Nadu High Court; Presently a Judge of the Supreme Court.

Natarajan, Justice S.: Judge of Supreme Court.

Nehru, Arun (1944-): Minister in the Government of India.

Nehru, Jawaharlal (1889-1964): Prime Minister of India (1947-1964).

Nehru, Motilal (1861-1931): Congress Leader; Congress President twice; Member Central Assembly; President of the All-Parties Committee (1928).

Ngullie, T.N. (1939-): President Lotha Hoho; now Minister in Nagaland.

Nijalingappa, S. (1902-): Was Chief Minister of Karnataka and President of Congress.

Pai, Nath (1922-1917): Socialist Member of the Lok Sabha.
Pandey, Kedar (1920-): Was Chief Minister of Bihar and Minister in the Central Government.
Pant, G.B. (1887-1961): Chief Minister of U.P.; Minister Home Affairs in the Central Government.
Patel, Chimanbhai (1929-): Currently Chief Minister of Gujarat; Member of Janata Dal.
Patel, Dahyabhai (1905-1973): Was Mayor of Bombay and Member Rajya Sabha.
Patel, Sardar Vallabhbhai (1875-1950): Congressman from Gujarat, President of the Congress; Home Minister and Deputy Prime Minister of the Government of India.
Pathak, R.S. (1924-): Was Chief Justice of Supreme Court; Member, International Court of Hague at present.
Patil, S.K. (1900-1981): Congressman from Bombay, controlled B.P.C.C. for a long time; Minister in the Government of India.
Patil, Vasant Dada (1917-1989): Was Chief Minister of Maharashtra and Governor of Rajasthan.
Patil, Veerendra (1924-): Currently Chief Minister Mysore; Was Minister in the Central Government.
Patnaik, Biju (1916-): Was Member of Parliament; Currently Chief Minister of Orissa.
Patwa, Sunderlal: BJP Leader and currently Chief Minister Madhya Pradesh.
Rajagopalachari, C. (1878-1972): Congressman; Chief Minister of Madras; Governor General of India; Governor of Bengal and Minister in the Central Government; translated the *Ramayana* and the *Mahabharata*.
Ram, Jagjivan (1908-1986): Congressman from Bihar; Parliamentary Secretary; Bihar Governor and Minister in the Central Government.
Ramachandran, Janaki: Wife of M.G. Ramachandran; Was Chief Minister of Tamil Nadu for a brief period; now retired from public life.
Ramachandran, M.G., (1917-88): Was a film star and Leader of the AIADMK; Chief Minister of Tamil Nadu 1977-1988.
Ranade, M.G. (1842-1901): Reformer and Scholar; judge; member of Prarthana Samaj; Guide of the Social Reform Movement.
Randive, B.T. (1904-1990): Communist, Leader of the C.P.I.(M).
Rane, Pratap Singh Raoji (1939-): Was Chief Minister of Goa.
Rao, C. Rajeswar (1914-): Andhra C.P.I. Leader; was General Secretary, C.P.I.
Rao, Gundu (1937-): Fomerly Chief Minister of Karnataka.
Rao, K.V. Krishna (1923-): Was Chief of the Army Staff; Governor of Manipur, Nagaland, Tripura and then of Jammu & Kashmir.
Rao, N. Bhaskara (1935-): Was Minister in Andhra Pradesh and also its Chief Minister for a month.
Rao, N.T. Rama (1923-): Filmstar; Was Chief Minister of Andhra Pradesh; now President of the National Front.
Rao, P.V. Narasimha (1921-): Was Chief Minister of Andhra Pradesh and Minister in the Central Government; now Member, Lok Sabha.
Ray, Rabi (1926-): Member Lok Sabha and Rajya Sabha; Minister in the Central Government; now Speaker of the Lok Sabha.
Reddy, Brahmananda (1909-): Was Chief Minister of Andhra Pradesh, Minister in the Central Government and Governor of Maharashtra.
Reddy, N. Sanjiva (1913-): Was Chief Minister of Andhra; Speaker of Lok Sabha and President of India.
Saikia, Hiteshwar (1934-): Was Chief Minister of Assam; Governor of Mizoram.
Saikia, Justice J.: Assam lawyer; Judge of Assam High Court; now Judge of the Supreme Court.
Saklecha, Virendra Kumar (1930-): Was Chief Minister of Madhya Pradesh and Member Rajya Sabha.
Sampurnananda (1889-1969): Presided over the Founding C.S.P. Conference at Bombay in 1934; Chief Minister of U.P. and Governor of Rajasthan.
Sapru, T.B. (1875-1948): Moderate Leader and Lawyer; Member of the Viceroy's Executive Council.
Sastri, Srinivasa (1869-1946): Moderate Leader from the South; President of the Servants of India Society; Member of the Central Assembly.
Sen, Asoke Kumar (1913-): Was Minister in the Central Government; Member, Rajya Sabha at present.
Sethi, P.C. (1920-): Was Chief Minister Madhya Pradesh; Minister in the Central Government.
Sharma, S.D. (1918-): Was Minister in Madhya Pradesh; President of the Congress; Governor; Minister in the Central Cabinet; now Vice-President of India.
Shastri, Lal Bahadur (1904-1965): Congressman; Prime Minister of India after Nehru.
Shekhawat, Bhairon Singh (1923-): Currently Chief Minister of Rajasthan; Member Rajya Sabha.
Shukla, Shyamacharan (1925-): Was Chief Minister of Madhya Pradesh; Currently leader of the Opposition in Madhya Pradesh Assembly.
Singh, Ajit; Currently Minister of Industries in the Central Government.
Singh, Bir Bahadur (1935-89): Was Chief Minister of UP and Minister in the Central Government.
Singh, Buta: Home Minister, Central Government (1986-89).
Singh, Chaudhury Charan (1902-1987): Chief Minister UP; Prime Minister of India; founder Bharatiya Kranti Dal; was leader of Lok Dal and Janata Party.
Singh, Natwar (1931-): Was Ambassador, and Minister of State in the Central Government.
Singh, Ram Subhag (1917-1980): Was Minister in the Central Government and Leader of the Opposition in the Lok Sabha.
Singh, Sampat (1949-): Secretary to Devilal Chief Minister of Haryana.
Singh, Swaran (1907-): Was Minister in the Punjab Government and in the Central Government.
Singh, V.P. (1931-): Was Chief Minister of UP; Currently Prime Minister of India.
Singhal, Ashoka: A General Secretary of the Vishwa Hindu Parishad.
Sinha, Mahamaya Prasad (1910-87): Member of Lok Sabha; Chief Minister of Bihar (1977-78).
Subramaniam, C. (1910-): Was Minister in Madras and in the Central Government; Governor of Maharashtra.
Sukhadia, Mohanlal (1916-1982): Was Chief Minister of Rajasthan, Governor of Karnataka, Andhra Pradesh and Tamil Nadu; Member Lok Sabha.
Telang, K.T. (1850-1892): Judge of the Bombay High Court and Vice-Chancellor, Bombay University.
Thakker, Justice: Previously a Judge of the Gujarat High Court; Presently a Judge of the Supreme Court.

Thakore, Kushabhao: He has been an RSS worker; presently leader of the BJP in Madhya Pradesh.

Thakur, Karpoori (1921-1988): Was Chief Minister of Bihar; associated with the Socialist movement.

Thomas, M.M., President, World Council of Churches; Academician; Governor of Nagaland.

Tilak, B.G. (1856-1920): Radical Nationalist Leader from Pune; suffered six years imprisonment in Mandaley; author of *Gita Rahasaya*.

Tiwari, K.K. (1942-): Was Minister of State in the Government of India.

Tiwari, N.D. (1925-): Was Minister in the Central Government; Chief Minister of UP.

Tripathi, Kamalapati (1905-): Congressman; was Chief Minister of UP and Minister in the Central Government.

Urs, Devraj: Was Member, Mysore Legislative Assembly; Chief Minister of Kamataka.

Vajpayee, Atal Behari (1926-): Was President Bharatiya Jana Sangh and the BJP; Minister of External Affairs in the Central Government (1977-79).

Yadav, Lalu: Joined J.P. Movement; Member, Lok Sabha and now Chief Minister of Bihar.

Yadav, Mulayam Singh (1939-): Currently Chief Minister of UP.

NOTES

1. The Lok Sabha Secretariat has published a book in 1986 in which are included the synopses of the Constitution Amendment Acts that have been passed and assented to by the President under Article 368 of the Constitution. It gives brief legislative history of each Act as also the Constitution Amendment Bills which had been introduced but either lapsed or were withdrawn or removed or defeated subsequent to their introduction. It contains the texts of all these Acts and Bills. The text includes the Statements of Object and Reasons. It is a very useful reference book.

2. A Commission under Supreme Court Justice Thakkar was appointed to investigate the circumstances that led to Indira Gandhi's assassination and also the functioning of the intelligence agencies. After the receipt of the Thakkar Commission Report it was decided at the Prime Ministerial level that the Report should be kept secret and should not be laid on the Table of the Lok Sabha. The Cabinet acquiesced in this suppression. To enable the Government to do this, the Commission of Inquiry Act was amended. The Political Affairs Committee, of which Vishwanath Pratap Singh (VP) was a member, agreed to this amendment although the Committee was not shown the Report. No member demanded that the PAC should be allowed to have a look at the Report in order to enable them to understand the *raison d'etre* of the amendment. The conclusions of the Report got into the Press and the main Report was placed on the Table of Parliament by Home Minister Buta Singh. However, the Congress-I Government refused to publish the volumes of evidence, etc. During the debate on the Privilege Motion relating to the alleged violation by the Home Minister of the assurance that the whole Report would be placed before Parliament, Buta Singh averred that the secret Report was not with him in the North Block. It was in the hands of Minister of State for Internal Security Arun Nehru, implying that the Report had been leaked by the latter. (*Lok Sabha Debates* 3rd April 1989, Columns 380-90. Also see *Hindustan Times*, 19th March 1989).

There was another Thakkar Report on Fairfax Detective Agency. V.P. Singh as Finance Minister had ordered the employment of this foreign detective agency to ferret out the truth about foreign accounts of Indians. The Congress-I leaders became hysterical and appointed a Commission under Justice Thakkar and Justice Natarajan. The Report proved to be a damp squib. It could not bring out any evidence to support its speculation about the conspiracy to destabilise the country.

3. With a view to increasing the fire power of the Indian Army, the Government of India decided to go in for a modern gun. The choice ultimately boiled down to two guns: the Swedish howitzer and the French gun. The Government took a "decision" not to allow middlemen to have any role in arms purchase. Prime Minister Rajiv Gandhi showed keen interest in the Swedish gun and the matter was settled in early 1986 at the highest level between the then Prime Minister of Sweden, Olaf Palme, and India's Premier Rajiv Gandhi. Rajiv claimed that he had made it clear to the Swedish Company that no middlemen would be permitted to come in. Subsequently, some enterprising news hounds in Sweden published investigative reports making allegations about payment of commissions and kick-backs. Gradually, more details came out and the Swedish Audit Bureau Report established the fact of payment of commissions to middlemen. Very subtle and confusing tactics had been adopted by the Company to cover up the tracks. The Government of India's policy also was to deny everything and stonewall on the issue of investigation. Neither the Government intelligence agencies nor the Joint Parliamentary Committee made any honest effort to ferret out the truth. It was widely suspected that people close to Rajiv were involved, and this perception profoundly affected the electorate in the vast Indo-Gangetic plain. The electorate held Rajiv Gandhi guilty of wrong doing. The inquiry todate has unearthed several accounts in Swiss Banks, with the needle of suspicion pointing towards the Hindujas, a business group whose main base of operations is Britain, although they have interests in India as well. By the time of the elections, Bofors had become a synonym for corruption and kickbacks. There were also reports from India's Ambassador in West Germany that seven per cent commission had been paid on the purchase of German submarines. This further damaged Rajiv Government's reputation.

4. As long as politics in Britain was dominated by the ascendency of two major parties, the first-past-the-post system, based on single-member constituencies, worked splendidly. But with the emergence of the Liberal - Social Democratic Party Alliance and the slippage in the Labour Party's vote, the disproportion of seats and votes has sharpened and has become a subject of an interesting debate. The Labour Party under Neil Kinnock, however, is hopeful that, before long, the tide will turn in its favour. Margaret Thatcher is having a bad patch at present. The following Table which focuses on the three major parties, namely, Conservative, Labour, and Socialist-Liberal, brings out the problem of disproportions vividly. The three major parties together polled 94.6, 95.2 and 95.1 per cent votes in the three elections from 1979 to 1987; hence the smaller parties are ignored.

PROPORTIONALITY OF SEATS AND VOTES IN BRITISH PARLIAMENTS 1979-87

	1979		1983		1987	
	Votes %	Seats %	Votes %	Seats %	Votes %	Seats %
Conservative	43.9	53.4	42.2	61.1	42.0	58.3
Labour	36.9	42.4	27.6	32.2	30.7	34.8
Liberal/SDP	13.8	1.7	25.4	3.5	22.7	3.4

REFERENCES

1. Agarwal, Vasudevsharan; *Paninikaleen Bharatvarsha*
2. Andersen, Walter K. and Shridhar D. Damle, 1987; *The Brotherhood of Saffron - The Rashtriya Swayamsevak Sangh and Hindu Revivalism*, Vistaar Publications, New Delhi.
3. Bhandarkar Oriental Institute; *Shantiparvam*, Part I, Critical Edition of Mahabharata, Pune.
4. Bharatiya Jana Sangh; *Party Documents:* 1951-72, Volume 4.
5. Constituent Assembly (India) Debates; Volumes VII and IX.
6. Davids, Rhys T.W. and Carpenter J. Estlin (Eds), 1947; *The Digha Nikaya* Vol II, London - Colombo.
7. Ghosh, Atulya, 1970; *The Split in the INC*.
8. The *Hindu*, Madras; May 11, and 16, 1990.
9. *Hindustan Times*, March 19, and May 19, 1989.
10. Iyer, Raghavan, 1986; *The Moral and Political Writings of Mahatma Gandhi*, Oxford University Press, Delhi.
11. *Indian Express* May 14, and June 29, 1990.
12. Jayaswal, P. 1955; *Hindu Polity*, Third and Enlarged Edition, Bangalore.
13. Lok Sabha, 1989-90; First Report of the Rules Committee of the Ninth Lok Sabha.
14. Lok Sabha Debates, January 30, 1985 and April 3, 1989.
15. *Maharashtra Times*, Bombay, November 15, 21, 22, 1989.
16. Maine Henry, 1913; *Village Community in the East and West*, 7th Edition, John Murray, Albemarle Street, London.
17. Metcalfe, Thomas P. 1979; *Land, Landlords and the British Raj*, Oxford University Press, Delhi.
18. Ministry of Information and Broadcasting; *The Collected Works of Mahatma Gandhi*, Vol.I to Lxxxviii, The Publications Division, Ministry of Information and Broadcasting, Government of India, New Delhi.
19. Powell, Baden, 1983; 'The Indian Village Community' in *District Administration and Rural Development*, B.B. Misra, Oxford University Press, Delhi.
20. Sarkaria R.S., 1988; Report of the Commission on Centre - State Relations, Government of India, Ministry of Home Affairs, New Delhi.
21. *Sunday Observer* (Hindi) April 22, 1990.
22. *Sunday Mail* (Hindi) April 29, 1990.
23. The *Telegraph*, May 9, 1990.
24. The *Times of India*, November 9, 1989.
25. The *Times of India*, Sunday Review, May 20, 1990.

DEVELOPMENT OF INDIAN RAILWAYS, 1850 - 1974

F. K. Wadia

Railway construction began in India in the 1850s; the first line to be opened to traffic was in 1853 between Bombay (VT) and Thane. By 1924 over 60,000 kilometers of railway tracks had been completed. During the Second World War, some tracts were dismantled and railway workshops were utilised for the War effort. In the first decade after Independence, the Railways concentrated on the rehabilitation of the depleted assets. Development efforts were accelerated thereafter. The establishment of the Railway Board, the Railway Convention Committees, payment by the Railways to the General Revenues and the Depreciation Reserve Fund, all policy measures taken in the 1920s, continue even today. In this paper we bring the narrative up to the end of the Fourth Five Year Plan (1974).

Historical Background

The beginning of development of railways in India may be traced to 1832 when a railway line was contemplated between Bangalore and Madras, and surveyed by a Government engineer in 1836. In 1842, the Steam Navigation Company, an English company, submitted a report to the East India Company on the possibility of constructing railways in India. Later, on behalf of the cotton textile industry of Manchester, two engineers from the British railways came out to India to investigate the feasibility of construction of railways from the interior to the coast for carrying cotton more cheaply to England. Between 1844 and 1849 a number of companies in England applied to the Government of Great Britain for construction of railways in India. In 1846, an Expert Committee, headed by a railway engineer, F. W. Simms, appointed by the British Government, concluded that in India "railways were not only a great desideratum, but with proper attention, could be constructed and maintained as cheaply as in any part of Europe" [Mehta, 1927, Pp 15-16].

The first contracts to be signed in August 1949 were with two British companies, formed in 1845, namely the East India Railway Company and the Great India Peninsula Railway Company. Between 1849 and 1869 contracts were signed, under a system which came to be called the Old Guaranteed System, with a number of other railway companies set up in England for the purpose. According to these contracts, the companies were to raise the requisite capital in England, and the Secretary of State for India agreed to provide land free of cost and to guarantee interest on the capital raised, at the market rates prevailing at the time of the contracts. Half of the surplus profit, above 5 per cent, earned was to be used to return to the Government the expenditure incurred by it to make good the guarantee of interest; the remainder was to belong to the shareholders. The railways had to carry free, the mails and postal servants; troops and military stores were to be carried at reduced fares and rates. In practically all matters of importance, the companies were placed under the supervision and control of the Government. The Government also had the option to purchase the lines after 25 or 50 years on terms calculated to be the equivalent of companies' interest therein.

From 1849 to 1869, railway track of 6,846.30 kms was constructed. The first railway line was opened for traffic on April 16, 1853 between Bombay (V.T.) and Thane, a distance of 33.79 kms. By 1871 the railways were carrying over 19 million passengers and nearly 360 million tonnes of goods annually. However, between 1858-59 and 1869-70, Government had incurred a loss of nearly 14 million pounds in the payment of guaranteed interest and, in 1869, the Government decided to directly undertake construction of railways. For several years after 1869, the main capital expenditure of railways was directly incurred by the State by raising capital by direct borrowing. No fresh guarantee contracts were made except for small extensions. For the first few years, the policy entailed heavy expenditure, and the Secretary of State for India had to stipulate that on productive works, that is, other than the protective works necessitated by famine relief, a

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minimum return of 4 per cent on the capital outlay, including interest on arrears, must be paid. Between 1869 and 1880, an additional 19,547.74 kms of railway lines were constructed, largely through State construction. The capital-at-charge rose from Rs 89 crore to Rs 213.67 crore and the length opened to travel increased from 6,846.30 kms in 1869 to 26,394.04 kms by 1880.

After the great famine of 1878, the Famine Commissioners estimated that an additional 8,045 kms of railway lines were necessary for protecting the country from famine. At the same time, the pace of construction had slowed down on account of rigid restrictions on Government borrowing. Therefore, though construction by the State continued, it had also to be entrusted again to private companies but under a new guarantee system. The main features of the new system were: (a) the railways were to be the property of the State, only the capital was supplied by the companies; (b) Government had the right to terminate the contract at the end of 20 to 25 years or subsequent interval of 10 years, in which case the capital provided by the companies had to be repaid at par; (c) interest was guaranteed on the capital raised by the companies at 3 to 3-1/2 per cent; and (d) the equal apportionment of surplus profit above 5 per cent was changed to 3/5 and 2/5 between the Government and the company respectively. Company-managed railways operated side by side with State managed lines. Government exercised considerable control over both the types. From 1896 onwards, a company was forbidden to borrow in India and all finances were raised by the State.

There was a rapid increase in railway construction. By March 1924, 61,204.75 kms were open to rail traffic as compared to 26,394.04 kms in 1890. However, under a multiple system of ownership and control, of state-owned and state-managed, state-owned and company-managed, and company-owned and company-managed railways, along with lines run by Indian States directly or through companies, the railways were divided into a large number of big or small units, not conducive to efficiency or economy. Besides, there were different gauges on the railway tracks requiring transshipment of goods and passengers. In Table 1, we give the distribution of the route length between the three gauges as in March 1924.

TABLE 1. ROUTE LENGTH OF INDIAN RAILWAYS, 1924

Gauge	Length (kms)
Broad (5'6")	29,991.76
Metro (3'3")	25,196.94
Narrow (2' and 2'6")	6,016.05

In 1925, Government decided to take over the management of railways from the companies as and when their contracts expired. As a result, between 1925 and 1944, major trunk lines were acquired by the State. These included the East Indian Railway (1925), Great Indian Peninsular Railway (1925), Bombay, Baroda and Central Indian Railway (1942), Assam Bengal Railway (1942), Tirhut Railway (1943), Lucknow Bareilly Railway (1943), Madras and Southern Mahratta Railway (1944), South India Railway (1944) and Bengal Nagpur Railway (1944). By the time of Independence in 1947, except for the railways managed by the princely states and a few subsidiary lines, the State had taken over the management of all the railways throughout the country. The excepted lines came under State management by April 1950.

MANAGEMENT OF RAILWAYS DURING THE PRE-INDEPENDENCE PERIOD

Before the Government took over their management, the company railways were all managed by Boards of Directors in England representing the shareholders with a Government Director appointed by the Secretary of State for India and an officer called the 'Agent' who represented the company in India. For the State-managed Railways, policy making was by the Government of India in place of the Board of Directors and the management was entrusted to a manager with extensive powers under the direct control and supervision of the Government of India. Annual inspection of maintenance and investigation of accidents, on both the company and Government railways, was done by a Government Inspector, who was independent of the Railway management.

In 1874, a State Railway Directorate was

established to which was transferred all the work connected with the control over the Railway administration owned by the State. A Director was made in charge who enjoyed the status of a Head of the Department under the Government of India. A Consulting Engineer was also associated with him, but all important matters had to be referred to the Public Works Department (PWD) where a Special Deputy Secretary was in charge of the Railway Branch. In 1877, in the place of the Director of State Railways, three Directors on territorial basis and one Director for Railway Stores were appointed. By 1880, two of the three territorial Directors were abolished and work allotted to them was transferred to the Consulting Engineers of the neighbouring company railways. The Deputy Secretary in charge of the Railway Branch was called the Director-General of Railways. In this revised organisation, the Consulting Engineers were associated with the Director-General purely in an advisory capacity in matters relating to Civil Engineering. The Director (Stores) acted as an advisor on matters of stores and rolling-stock. In 1879, by an enactment, all types of Railway Administrations, whether of the State or companies, were brought under one control. This was followed by the Indian Railways Act, 1890, which applied to the railways in British India as also to the railways belonging wholly or partly to Indian States or those passing through their territory. This Act was more regulatory in its connotation and is in force till now with only a few amendments. In 1897, the post of the Director-General of Railways was abolished and the post of a Secretary to the Government of India in the Public Works Department was created in its place. The post of Consulting Engineer for Railways was abolished and his duties transferred to the two Directors. The Accountant-General, PWD, who was attending to the supervision of accounts of the railways was also designated as the ex-officio Deputy Secretary to the Government of India.

Robertson's Report, 1903

In August 1901, the Government of India appointed Mr. Thomas Robertson to enquire into and report upon the administration and working of Indian Railways and related matters. Mr. Robertson submitted his report in March 1903. He opined that the Government need not and should not exercise any greater control over the company-managed railways than it did over the State-managed railways and hence recommended that the Government should adopt the same system of control in the two cases and that, in particular, (i) the office of the Consulting Engineer should be discontinued, (ii) the Government Examiners of Accounts should be withdrawn; and (iii) the Board of Directors and their representatives in India should be permitted to administer and work the railways entrusted to their care both as to management and revenue expenditure, under such general rules as the Government may deem it necessary to lay down. He further recommended that the control of railways should be entrusted to a small Board composed of specially qualified railway men and that the Board should be allowed to manage the railways entirely on commercial lines. The Board should consist of a President or Chief Commissioner who should be a member of the Viceroy's Council for railway matters; and two other Commissioners. The Board should have a Secretary who should have the ex-officio rank of Secretary to the Government of India, a Chief Inspector of Railways together with the necessary number of ordinary Inspectors and also Government Auditors for inspection of the accounts of the several railways. The authority vested in and exercised by the Government of India, as regards railways, should be transferred to the Board, and, subject to the Governor-General in Council, the Board should have entire control over all railway operations in regard to (i) the administration and working of railways; (ii) the construction of additional lines; and (iii) all financial arrangements connected with railways. A Railway Fund, with a contribution of Rs 15 crore, should be set up for providing improvements on State Railways and towards construction of new lines. As regards branches or feeder lines, he recommended that (i) detached and isolated lines should be connected to the rest of the railways; (ii) existing lines on opposite sides of large tracts now devoid of transport facilities should be connected; and (iii) the main lines should be extended or branch lines

should be constructed in those parts of the country which were cut off from railway communication, but which were known to be fertile, and in which the latent possibilities of an increasing trade were good.

Constitution of the Railway Board, 1905

Following the recommendations of Mr. Robertson, the Government of India constituted the Railway Board by a Resolution dated February 18, 1905. The Railway Branch of the Public Works Department of the Government of India was abolished and the control of the railway system in India was entrusted to a Railway Board consisting of three persons - a Chairman and two Members. By an Act of the same year, known as the Indian Railway Board Act of 1905, all the powers and functions of the Central Government under the Indian Railways Act of 1890 were invested in the Railway Board. It was to be read with and taken as a part of the Indian Railways Act of 1890. However, it was soon found that work was being hampered on account of the Chairman not having sufficient powers and the Commerce and Industries Department intervening between the Railway Board and the Governor-General in Council. Therefore, in May 1907, a Committee was appointed by the Secretary of State presided over by Sir James Mackay to examine the system of working of the Railway Board.

Mackay Committee, 1907

The Committee was to enquire and report on (i) whether the amounts allotted in recent years for railway construction and equipment were sufficient for the needs of the country and for the development of its trade; and, if not, (ii) what additional amounts might properly and advantageously be raised for the purpose; (iii) within what limits of time and by what methods should they be raised; (iv) towards what objects should they be applied; and (v) whether the system under which the Railway Board worked was satisfactory, or could be improved, and to make recommendations. The Committee submitted its report in June 1907.

The Committee recommended that the programme of annual expenditure on railway construction and development in India could be fixed at 12,500,000 pounds equal to 100,000,000 pounds in the next eight years. A portion of this sum could be raised by the issue of ordinary India stock and by the issue of debenture stock and share capital by guaranteed companies.

As regards the Railway Board, the Committee recommended that (i) as a general rule, the Government of India should interfere as little as possible with the action of the Board in technical matters; (ii) the Board should be brought into closer connection with the Government of India by giving the Chairman of the Board the right to submit a memorandum direct to the Member of Council in charge of railway business, as also, the right of access to the Governor-General; (iii) no recommendation of the Board should be overruled, nor any blame imputed to it, without the matter having been previously brought to the notice of the Governor-General; (iv) the Government of India should not, unless in very exceptional circumstances, interfere with the independent exercise by the Railway Board of the powers specially delegated to it; (v) the Railway Board should be allowed to communicate direct with any Department of the Government of India or with any Local Government; (vi) the constitution of the Board should be modified. It should consist of a President and two members, one experienced in railway construction and the other in railway traffic, whose position should be that of assistants and advisers of the President; (vii) the President's decision on questions with which the Board was empowered to deal should be absolute; (viii) the Board should have a thoroughly adequate and efficient office and headquarters staff and (ix) the Board should refrain from occupying itself with matters of detail in connection with the management of individual railways, and should confine itself, as far as possible, to the general supervision and administration of the Railway system. The Committee drew the attention of the Railway Board to the possibility of improving the working of the existing rolling stock on Indian railways. Also when possible, raise funds in excess of immediate

requirements. Trunk lines should, as far as possible, own as well as construct and work all branch lines. The Railway Board was also required to ensure closer correspondence between the estimated and the actual cost of railway construction.

Based on the recommendations of the Mackay Committee (a) The designation of the Chairman of the Railway Board was changed to that of the President, Railway Board and his powers were enhanced; (b) The Board with its staff became collectively the Railway Department, distinct from and independent of the Department of Commerce and Industry, though it continued to be under the administrative charge of the Member for Commerce and Industry Department as the Railway Member; and (c) The President of the Board was given direct access to the Viceroy as if he was a Secretary to the Government of India.

Report of the Indian Industrial Commission, 1916-18

In 1916, the Government of India had set up an Indian Industrial Commission, with Sir T.H. Holland as the President, to indicate whether new openings for the profitable employment of Indian capital in commerce and industry were possible and the steps Government should take to encourage such development. The Commission recommended, as far as railways were concerned, that internal traffic, especially in the case of raw materials conveyed to, or manufactured materials conveyed from, manufacturing centres should be rated as nearly as possible on an equality with traffic of the same class and over similar distances to and from the ports. Rates in traffic to ports should be fixed on the principle of what the export traffic could stand over its whole journeys to the port of foreign destination. The same principle should apply to imports, but the lowest possible rates should be allowed for machinery and stores imported for industrial use in India. The whole distance travelled by a consignment, and not the distance travelled over individual lines, should be taken as the basis, when tapering rates applied. The way in which these rates, as well as 'block' rates and 'terminal charges' were applied in the past, had tended to operate against Indian industries. The total freight charge for a consignment passing over several lines should be calculated on a single sum, which should be shared between the different railways, allowance being made, where necessary, for extra cost incurred by a particular line. The addition of a commercial member to the Railway Board was suggested. Indian industries and commerce should be represented by officers of the Department of Industries and also by members of recognised commercial bodies at the Railway Conference and at the meetings of the Goods Classification Committee. Special rate concessions for a term of years might be given to new industries, where investigation by the Department of Industries was found to be necessary.

Later, in 1920, a Financial Relations Committee set up by the Government of India had suggested an amount of Rs 10 crore of contribution by the Railways to the annual budget of the Government of India (Lord Meston's Committee).

Indian Railway Committee, 1920-21

In the same year (1920), the Government of India appointed the Indian Railway (Acworth) Committee with wide ranging terms of reference as follows : (1) To consider, as regards railways owned by the State, the relative advantages, financial and administrative, in the special circumstances of India, of the following methods of management (a) Direct State Management; (b) Management through a Company domiciled in England and with a Board sitting in London; (c) Management through a Company domiciled in India and with a Board sitting in India; (d) Management through a combination of (b) and (c); and advise as to the policy to be adopted as and when the existing contracts with the several Railway Companies can be determined. In considering the question of the East India Railway, the Committee will take note of the decision to remove the management of that railway to India, which was arrived at when the contract with the present company was extended on the amended terms in 1919. (2) To examine the functions, status and constitution of the Railway Board and the system of control exercised by the Government of India over the Railway Administration, and recommend such modifications, if any, as are

necessary for the adequate disposal of the railway business of Government. (3) To consider arrangements for the financing of railways in India and in particular the feasibility of the greater utilisation of private enterprise and capital in the construction of new lines. (4) To report whether the present system of control by Government of rates and fares and the machinery for deciding disputes between railways and traders are satisfactory, and if not, to advise what modifications are desirable. (5) To make recommendations that may seem germane to the enquiry [Acworth, 1921, p. 1].

The Committee submitted its report in August 1921. The Committee recommended that at the head of the Railway Department there should be a Member of Council in constant touch with railway affairs. With this object in view, a new Department of Communications responsible for railways, ports and inland navigation, road transport and posts and telegraph should be created. The reconstituted Railway Department should delegate considerably increased power of day-to-day management to the local railway administrations and on the other hand should be relieved from control by the India Office and by the Government of India except on large questions of finance and general policy. The Finance Department should cease to control the internal finance of the railways; and the railways should have a separate budget of their own, be responsible for earning and expending their own income, and for providing such net revenue as was required to meet the interest on the debt incurred or to be incurred by the Government for railway purposes; that the railway budget should be presented to the Legislative Assembly, not by the Finance Member of Council, but by the Member in charge of Railways. Subject to independent audit by the Government of India, the Railway Department should employ its own accounting staff, and be responsible for its own accounts.

The Committee recommended that the title of the Railway Board be replaced by the title Railway Commission, and that under the Member of Council for Communications, there should be a technical staff consisting on the railway side of a Chief Commissioner and four Commissioners. Of the four Commissioners, one should be in charge of finance and the organisation and staff of the office, and that the other three should be in charge of three respective geographical divisions, western, eastern and southern.

The Committee recommended the establishment of Central and Local Railway Advisory Councils comprising representatives of the various Departments of the Government, associations of trade and industry, agricultural interests and the travelling public. The establishment of a Rates Tribunal was also recommended consisting of an experienced lawyer as Chairman, and two members representing respectively railway and commercial interests. The Rates Tribunal was to be given jurisdiction over all questions of reasonableness of rates and of facilities and to investigate the conditions attached to owner's and railway's risk notes and to frame new standard forms for use in future. Under certain circumstances, the decisions of the Rates Tribunal could be appealed to the Governor-General in Council. It was also recommended that steps should be taken to reduce the delay in settling claims for loss and damage, and that the utmost possible efforts should be devoted, not only by the local officials, but by the Railway Commission itself, to stamping out the very serious and widespread abuses in connection with allocation of railway wagons.

As regards the railway system, the Committee recommended a thorough investigation, by a Commission of the gauge question as it affected the potential future development of the Indian system as a whole. The system of management by companies of English domicile should not be continued after the termination of their existing contracts. These companies should not be permitted further to increase their share capital. No steps were to be taken towards establishing combined companies, both with English and with Indian domicile.

There were two divergent views in the Committee regarding the management of the railways. The Chairman and four members were of the view that the undertakings of the guaranteed companies, as and when the contracts expired, be entrusted to the direct management of the State; the capital for future development of the Indian railways be raised directly by the State; the

moneys required to put the existing railways into proper shape should be raised by the State, but the immediate raising of capital for the extension of existing system was not recommended. The other five members suggested Indianisation of the English companies.

The Committee supported the recommendation of the Mackay Committee that in periods of easy money, funds should be raised in excess of immediate requirements so that it may not be necessary to have recourse to the market at a time of stringency.

Report of the Railway Finance Committee, December 1921

The Railway Finance Committee was appointed to consider the following questions which arose from the Acworth Committee's Report, namely, (a) the separation of railway from general finance; and (b) the requirements of railways in regard to capital expenditure during the next ten years. On the first question, the Committee opined that separation of the entire railway budget from the general budget of the Central Government involved the surrender by the Central Government of railways as a source of revenue. In the state of Indian finances then existing, it was impracticable to replace this source of revenue, if surrendered for railway purposes. When the new financial arrangements necessitated by the Reforms were under consideration, it was assured that the Central Government would derive a substantial net revenue (after paying interest charges) from railways in deciding upon the amount of the central deficit which would have to be made good initially by contribution from the provinces. Lord Meston's Committee assumed that the Central Government would derive a net revenue of no less than Rs 10 crore from this source. Separation of railway finance in the sense understood by the Railway (Acworth) Committee was not a practical proposition. When conditions became more normal and financial equilibrium was re-established, the question could be re-examined.

On the second question, the Railway Finance Committee appreciated the gravity of the position delineated by the Acworth Committee. They said: "It has been strongly represented to us that the present incapacity of the railways to meet the needs of the country seriously hampers the development of Indian industries. It was not merely a question of buying more wagons and locomotives. Lines must be doubled, bridges strengthened, yards remodeled and the railways generally fitted to handle more traffic. We are greatly impressed by the wastage in the use of existing rolling-stock due to the incapacity of bridges to carry the increased axle loads involved in the use of the newer and heavier types of engines and wagons. Finally, the need for a radical increase in the provision of facilities of all kinds for third class passengers is so potent and the demand of the public on this point is so insistent that the matter requires no further emphasis on our part". The Committee concluded that "funds to the extent of Rs 150 crores should be devoted to railway capital purposes during the next five years (1922-27) to be spent exclusively on rehabilitation and the completion of lines already under construction" [Nateson, 1946, Pp. 21-24]. The Government of India and the Secretary of State agreed and Agents were instructed to prepare their quinquennial programmes.

As regards the Acworth Committee's recommendations for the reconstitution of the Railway Board, a Chief Commissioner was appointed in November 1922 and his status was raised as suggested by the Committee. The first duty assigned to the Chief Commissioner, however, was to work out detailed proposals for the reorganisation of the Board. In his report the Chief Commissioner proposed inter-alia that the new organisation should consist of the Chief Commissioner, the Financial Commissioner and two Railway Commissioners, that the work should be divided between the two Commissioners by subjects instead of by territorial areas as recommended by the Acworth Committee and that to free the Commissioners from routine work and enable them to give time to touring and study the wider problems of railway policy, the technical staff of Directors recommended by the Acworth Committee should have direct charge of the works of the various branches and deal with all matters of minor importance. Government accepted these recommendations.

As mentioned earlier, the Acworth Committee had recommended the setting up of a new Department of Communications responsible for railways, ports and inland navigation, road transport and posts and telegraphs under a Member of Council in charge of Communications. The Government of India did not accept this recommendation.

Indian Retrenchment Committee, 1923

In 1923, the Indian Retrenchment Committee which had been appointed to indicate economies in Government expenditure recommended the following measures for railways: (1) the working expenses should be controlled to ensure an average return of at least 5-1/2 per cent on the capital invested by the State in Railways; (2) the system of programming revenue expenditure be abolished. Instead adequate financial provision be made annually by each railway for the maintenance and renewal of permanent way and rolling stock; (3) the agents of railways be designated as General Managers and made responsible for the administration, working and financial results of their railways; (4) a Financial Adviser be appointed for railways; (5) the preparation of a scheme of grouping the railways be taken up forthwith; and (6) the budget provision for working expenses, including surplus profits, in 1923-24 be limited to Rs 64 crore. The Committee excluded, from its scope of enquiry, the expenditure on working railway lines and recommended the setting up of another Committee to investigate the matter.

Legislative Assembly (Convention) Resolution September, 1924

The recommendations of the Retrenchment Committee were accepted by the Government. The whole question of the separation of railway finances from the general finances was however reopened. The Legislative Assembly passed a (Convention) Resolution on September 20, 1924 recommending that, in order to relieve the general budget from the violent fluctuations caused by the incorporation of the railway estimates and to enable railways to carry out a continuous railway policy based on the necessity of making a definite return to general revenues on the money expended by the State on Railways, the railway finances should be separated from the general finances. Instead a definite annual contribution from railways should be the first charge on the net receipt of railways. The contribution should be based on the capital-at-charge and working results of commercial lines and be a sum equal to one per cent on the capital-at-charge of commercial lines (excluding capital contributed by companies and Indian States) at the end of the penultimate financial year, plus one-fifth of any surplus profits remaining after payment of this fixed return, subject to the condition that, if in any year railway revenues were insufficient to provide the percentage of one per cent on the capital-at-charge, surplus profits in the next or subsequent years would not be deemed to have accrued for purposes of division until such deficiency had been made good. The interest on the capital-at-charge of, and the loss in working, strategic lines should be borne by general revenues. The surplus remaining after this payment to general revenues was to be transferred to a railway reserve upto a limit of Rs 3 crore. Two-thirds of the amount in excess of Rs 3 crore was to be transferred to the railway reserve and the remainder to the general revenues. The railway reserve was to be used to secure payment of the annual contribution to general revenues; to provide for arrears of depreciation and for writing down and writing off capital; and to strengthen the financial position of railways in order that the services rendered to the public may be improved and the rates reduced.

A Standing Finance Committee for Railways was to be constituted consisting of one nominated official member of the Legislative Assembly who should be Chairman and eleven members elected by the Legislative Assembly from their body. The members of the Standing Finance Committee for Railways would be ex-officio members of the Central Advisory Council. The railway budget was to be presented to the Legislative Assembly, if possible in advance of the general budget, and a separate day was to be allotted for its discussion, and the Member-in-charge of railways would then make a general statement on railway accounts and working. The expenditure proposed

in the railway budget including expenditure from the depreciation fund and the railway reserve, should be placed before the Legislative Assembly in the form of demands for grants. This procedure, with minor variations, continues to be followed even today.

The Legislative Assembly also proposed the rapid Indianisation of the railway services. Indians should also be appointed as Members of the Railway Board. The purchase of stores for the State railways should be undertaken through the organisation of the Stores Purchase Department of the Government of India. The Assembly's Resolution was accepted by the Government and the separation of the railway budget from the general budget was undertaken during 1924-25. A Railway Finance Committee was also constituted as recommended in the Resolution. The Acworth Committee's recommendations for the setting up of Central and Local Railway Advisory Councils were accepted by the Government. The Central Railway Advisory Council was constituted in 1921-22 itself and the formation of the Local Committees on the more important railways was taken up in 1922-23.

Indian Fiscal Commission, July 1922

In July 1922, the Indian Fiscal Commission recommended the reduction of, and uniformity in railway rates for consignments travelling over different lines and grant of special rates for a term of years to new industries. The Commission endorsed the recommendation of the Acworth Committee for the setting up of a Rates Tribunal.

Depreciation Fund Committee, 1922-23

The Depreciation Fund Committee was set up to enquire into the question of the provision necessary on each railway to make good annual depreciation of wasting capital assets. The Committee was also asked to suggest methods to be adopted for the formation and working of a 'Depreciation Fund' on each railway to be maintained from the proceeds of the amounts of depreciation arrived at. The Committee estimated that the provision for annual depreciation in respect of the wasting capital assets as they stood on March 31, 1922 would be about Rs 12.26 crore, calculated on the estimated economic or functional life of each class of assets and of replacement prices on the assumption that an equal part of the economic life of an asset expired each year. It suggested that the bases of calculation of the annual normal depreciation on the capital outlay invested should be arrived at separately for new and existing lines. The depreciation amount so arrived at was to go into a fund for each railway and take the form of a suspense account in the deposit section of the accounts.

Railway Industries Committee, 1923

The Railway Industries Committee dealt only with industries pertaining to railways. It distinguished between those industries which involved fabrication and the employment of large bodies of skilled labour such as wagons and locomotives and other industries of a less complex kind like fencing, wire, permanent-way material and structural steel. As regards the latter class, the Committee applied the principle existing in the Stores Purchase Rules, i.e. f.o.b. price of the imported article plus import duty, at which the local products could be purchased. For the former industries, the Committee felt that a considerable time would elapse between the inception of the undertaking and the beginning of actual manufacture and that therefore these industries should get some form of protection or assistance from Government.

Railway Retrenchment Sub-Committee, October 1931

The depression in 1929-30 caused the Central Legislature appointing a Retrenchment Advisory Committee to look into the expenditure pattern in different departments of the Government of India. That Committee set up a Railway Retrenchment Sub-Committee to examine the measures taken by the Railways to effect economies in expenditure. The Sub-Committee submitted its Report in October 1931. It recommended reduction in the number of officers and staff in the Railway Board, in the inspection and engineering departments of the different railways, and in the railway audit and

accounts departments. The Sub-Committee further recommended that (a) the Railway Rates Advisory Committee should be abolished and ad-hoc Committees set up when necessary to investigate complaints; (b) the Central Publicity Bureau be abolished and replaced by a small establishment of two officers and staff under the Railway Board; (c) the staff in the Dehra Doon Staff College be reduced; and (d) expenditure on surveys and investigation brought to the minimum.

Federal Finance Committee, March 1932

In 1932, the Federal Finance Committee recommended a contribution of Rs 5 crore by the Railways to the Central (Federal) Budget as an annual feature. According to the Committee, "having regard to all the relevant factors, it seems clear that, unless the Railways contribute a sum of the order of five crore to federal revenues, they would be receiving what would in effect be a subsidy from those revenues and, from our examination of the material submitted to us, we believe that the Railways should be able in fact, to provide a contribution of this magnitude" [Percy, 1932, p.38].

Mitchell Kirkness Report, 1933

During the thirties, the Railways started facing competition from roadways in the transport of goods and services. Representations were made by various railway managements to the Government to restrict road traffic on certain lines. So, a Committee was set up to examine the state of road and railway competition and the possibilities of their future coordination and development, in the Governors' Provinces (i.e. British India), and cognate matters. The Committee concluded that while Class I railways were losing about Rs 190 lakh per annum from the loss of passenger traffic to motor transport, the carriage of merchandise by motor transport in competition with railways had not developed to any great extent. A system of zoning of motor transport on parallel competitive routes within a range of about 50 miles was suggested. In the face of a possible increase of competition from motor transport, three courses were open to railways, namely, (i) Inaction within the zone allotted to motor transport, (ii) Counter-competition, and (iii) the operation of motor transport by railways. The solution for the railways would be best if they themselves operated motor transport on parallel lines. Railways would have to be protected from uneconomic competition from other concerns.

Pope Committee, 1933-34

The Pope Committee was appointed in 1932 to investigate the working of Indian railways and suggest measures for retrenchment and economy. The Committee submitted two reports, in 1933 and 1934. It recommended that job analysis on certain well defined principles should be undertaken and that the locomotive power should be utilised more intensively. The Railway Board should arrange for the distribution of technical information on an organised basis for the standardisation of engines and rolling stocks. Coordinated efforts should be made, through the Railway Conference Association, for reduction of manpower and efficient utilisation and maintenance of plant and equipment. In its second report, the Committee emphasised the importance of amalgamation of railways.

Indian Financial Enquiry, 1936

The problem of railway expenditure continued to beset the Government. In 1936, Sir Otto Niemeyer, in his Report (of the Indian Financial Enquiry) had commented upon the contribution of Railways to the Central Budget in the following manner: "The position of the Railways is frankly disquieting. It is not enough to contemplate that in five years' time the Railways may merely cease to be in deficit. Such a result would also tend to prejudice or delay the relief which the Provinces are entitled to expect. I believe that both the early establishment of effective coordination between the various modes of transport and the thorough-going overhaul of Railway expenditure in itself are vital elements in the whole provincial problem" [Niemeyer, 1936, p. 18].

Indian Railway Enquiry Committee, 1937

The Government therefore appointed in 1936 another Committee to examine the position of Indian State-owned railways. The Committee submitted its report in June 1937. It made a broad financial and statistical survey of the administration of the Indian State-owned railways since 1924 and concluded that the financial results were better than those of other comparable railway systems. Their operating statistics indicated that there had been a substantial advance in efficiency and economy of management since the economic depression began in 1930. However, a number of economies in the Engineering, Mechanical, Traffic (Transportation) and Accounts Departments as also in regard to running maintenance and workshops were recommended. Other measures included the closure of the New York office of the Central Publicity Bureau of the Railways; reduction in upper class accommodation, and combination of first and second class accommodation; closing unremunerative branch lines or withdrawing unremunerative services; etc.

On the other hand, the Committee felt that the reduction of administrative posts had been carried too far, seriously impairing the personal intercourse essential between the Railway Board, railways and the trading community. It suggested that the appointment of Traffic Member of the Railway Board should be made permanent. In the Accounts Department, the Accounts Officers of the State-managed railways should be held responsible to the Agents and the accounts staff should be from the railways.

The Committee recommended the formation of a commercial department in the railways with a Commercial Manager having under him a Rates and Fares branch, a Traffic Department branch and a Research branch with advertising and publicity arrangement.

The Committee examined the matter of coordination of rail and road transport. It found that the regulation of road transport was inadequate and chaotic. Until road and rail transport could be regulated as public services, coordination of transport was unattainable. The Committee considered that no restrictions should be imposed on road transport which would unfairly hamper its development. At the same time as the railways were facing a loss of over Rs 4.5 crore per annum due to road competition, measures were suggested to meet competition for passenger traffic through (i) faster passenger trains, (ii) better connections, (iii) more intensive services, and (iv) improved amenities for lower class passengers. Measures recommended to meet competition for goods traffic included (i) faster goods trains, (ii) more expeditious handling of goods at sending, trans-ship and receiving stations, (iii) simplification of clerical formalities, (iv) development of collection and delivery services, (v) introduction of special service similar to the registered transit service in Great Britain, (vi) the use of containers, and (vii) the use of railway-owned refrigerator trucks.

World War II, 1939-45

The Government of India Act, 1935 had provided for the setting up of a Statutory Railway Authority. However, the commencement of the Second World War in September 1939, put a stop to the implementation of the provisions of the Government of India Act, 1935 in so far as the establishment of the Federal Railway Authority was concerned. By 1940-41, three large railway workshops were handed over complete for munitions production and, by the end of 1941, the greater part of the spare capacity of other railway workshops was being utilised for the production of numerous war requirements, including shells, grenades, and articles used in clothing, feeding, arming, transporting, and housing the fighting forces. The Railways had to supply a considerable mileage of track for shipment overseas for defence purposes and although the major portion came from railways' stocks and reserves, a number of branch lines were dismantled. Railway staff and officers were also supplied for the war effort. By 1943-44, the strain on railways was so great that it had to take in hand projects for increasing the capacity of certain lines and to make arrangements to utilise indigenous productive capacity for rolling stock to the utmost. To meet the growing military demands, it became necessary to make arrangements for import of locomotives and wagons from UK and USA.

Inglis-Appleton Mission, 1944

In 1944, the Inglis-Appleton Mission, at the invitation of the Government of India, reported that increased supervision by experienced staff was necessary if the traffic was to be moved quickly and suggested the return, to the railways, of officers and supervisory staff from the army and other services. They stated that extra power and rolling stock was urgently needed, and agreed with the request of the Railway Board for additional engines, wagons, and components for wagons in the 1944 and 1945 programmes and stressed the necessity for an acceleration in delivery from the UK and USA. They also considered improvement in and additions to control circuits, telephone, telegraph, and teletype communications very necessary.

Other recommendations covered measures to accelerate speed by amendment of restrictive rules, by full utilisation of the tractive effort of engines, by acceleration of schedules, and by the elimination of waste time at meeting points; remodeling of some engine shed layouts and the provision of cranes for coaling to improve turn round; the more general use of water softening plants to reduce the lay off time of engines; increased water and coal capacity on engine tenders; the establishment of schools for the training of control staff; increased facilities for traffic operation by construction of additional passing loops to shorten the distance between block stations, lengthening of existing loops to accommodate longer trains and the conversion of dead end to double end passing sidings; reduction in the number of train inspectors and elimination of overlapping inspections.

Post-War Problems, 1946-50

In 1946-47, there was a marked decline in military traffic, both in coaching and goods. This was made up by the increase in civilian passengers, but the quantum of goods traffic showed a very considerable decline. There was also a decline in coaching earnings other than passenger earnings, chiefly due to decline in military parcel traffic. While the earnings from passengers on all Indian railways increased by a little over 3 per cent, the earnings from goods traffic recorded a decrease of 10.6 per cent. The gross traffic receipts of Indian Government railways declined from Rs 225.74 crore in 1945-46 to Rs 203.35 crore in 1946-47. The railways worked under serious difficulties due to non-availability of rolling stock whose maintenance and repairs were severely hampered for want of spare parts. Over-worked locomotives badly in need of replacement coupled with inferior quality of coal supplied to railways, resulted in deterioration of train services.

Standing Advisory Committee on Railway Rates

In 1946-47, the Railway Board appointed a Standing Advisory Committee of experienced rates officers from railways to expedite the progress of the investigation into the revision of the rating structure on the basis of (i) the application of telescopic 'class' rates on continuous mileage; (ii) acceptance of the shortest route principle for routing of interchange traffic, subject to all the relevant facts; and (iii) necessary adjustments in the relationship between Railway Risk and Owner's Risk rates. Revised classification of commodities for fixing rates, division of freight between carrying railways on a mileage basis, standardising terminal charges and revision of conference and goods tariff rules were some of the other terms of reference of the Committee.

In accordance with the recommendations of the Rates Committee, a telescopic class rate on a continuous mileage basis was introduced from February, 1947 as an experimental measure for a small number of commodities. Several station-to-station rates, which were uneconomical or unnecessary, were withdrawn. With effect from 1st March 1947, all passenger fares above eight annas, including season ticket fares, were increased by 6-1/4 per cent on the total fare inclusive of the increased charges. Several concessions granted for the duration of the war in respect of military traffic were withdrawn. Changes in the railway rates structure were again made in 1948. During 1948-49, there were further changes, namely, the introduction of rationalised coal scales as from September 1, 1948, and the practically complete revision of the rates structure as from October 1948. In the case of passenger traffic too, the basis of passenger fares were standardised and enhanced upward for all classes and types of trains from January 1948. However,

public demand for reduction in rates resulted in a revision in the number of classes of passenger accommodation and rates from January 1949. The number of classes of passenger accommodation was reduced from First, Second, Inter, and Third to Classes I, II and III. It was hoped that with the new First Class fare, approximately half of the former Second Class passengers would travel by the First Class. However the middle class public accustomed to the comforts of the old Second Class was not generally able to afford even the reduced First Class fares. Sleeping accommodation had again to be provided to a limited extent in Second Class compartments. This inevitably affected the estimates of revenue from the new classes and, although a surcharge was imposed for the Second Class sleeping accommodation, this was insufficient to bridge the gap between the estimated and actual receipts from Upper Class passengers. The experiment with the three class system and the improvised arrangements for the provision of sleeping accommodation in the Second Class on payment of surcharge was found neither popular nor financially remunerative. A new class between First Class and Second Class, designated Second Class Special, providing sleeping accommodation and other amenities of a standard conforming to the former Second Class was introduced in December 1949 on all important trains, thus virtually restoring the old four class system. The former nomenclature, namely, First Class, Second Class, Inter, and Third Class was restored from July 1950.

Problems of Staff

With the close of the second World War, the All-India Railwaymen's Federation pressed for certain concessions relating to higher scales of pay, increased dearness allowance, and war bonus equal to three months pay and in the conditions of service generally and suggested that, in the event of the Government's failure to accept their demands, these questions should be referred to an arbitrator. Thereupon, the Government of India set up a non-official Central Pay Commission in May 1946, to enquire into and report on the conditions of Central Services with particular reference to the structure of pay scales and standards of remuneration and the machinery for negotiating and setting questions relating to conditions of service, not only for the railway but for all Central Government employees. The Government also appointed an Adjudicator in April 1946, to consider the Federation's demands regarding hours of work, weekly rest, leave reserve, and leave rules. The Federation was, however, not satisfied with the steps taken by the Government and continued preparations for a strike as from the midnight of June 27-28, 1946.

Standing Finance Committee for Railways, 1946

As the acceptance of the Federation's demands would have involved additional expenditure far beyond the capacity of the railway finances, the Government placed the demands before the Standing Finance Committee for Railways on June 10, 1946. The Committee, noted the apprehensions of railwaymen of large scale retrenchments and suggested the appointment of a small high power committee to ascertain the extent of staff surplus to requirement and suggest practical methods of absorbing them and a general economy committee to suggest ways and means of effecting economy in all branches of the Railway Administration.

Accordingly, on November, 26, 1946, the Government appointed the Indian Railway Enquiry Committee to (i) suggest ways and means of securing improvement in net earnings by economies in all branches of railway administration, and any other means and (ii) ascertain the extent of staff surplus to requirements and suggest practical methods of absorbing them in railway service.

INDEPENDENCE AND AFTER

With Independence and the partition of the country, the Railways faced severe staff shortages. A majority of the running staff and workshop staff had to be relieved on opting for Pakistan. The staff who came over to India from the Pakistan areas, were but few in these categories, the majority being clerical staff. The resultant shortages in running staff, especially engine crews, proved serious to the Government railways. The overall shortage of engine crews was about 18 per cent of the pre-partition strength, while on certain railways, like the East Indian Railway, the shortages, were over 45 per cent. The

situation in the workshops was no less serious. Certain emergency measures were taken to overcome the shortages. These included (i) direct recruitment of suitable experienced staff; (ii) intensive training of engineering crew in sheds and training schools; (iii) re-employment of superannuated men; (iv) putting back to footplate duty loco-running staff who were working on other jobs; (v) upgrading of staff as a stop-gap arrangement; and (vi) considerable relaxation in the rules of promotion. As a result, by the end of 1947, the overall shortage in staff was reduced to 9 per cent, or half of that in September 1947. Further, in July 1948, the Government of India issued a press communique that the Railway Board was not contemplating any retrenchment on the railways.

Partition also introduced other problems. The old North Western Railway with a total route length of 11,071 kms had to be broken up; 8,075 kms went to Western Pakistan and the balance of 2,996 kms was formed into the Eastern Punjab Railway. The division of the Bengal-Assam Railway was more complicated as the formation of the new Pakistan province of East Bengal had divided the railway into four sections. One with 2,624 kms formed the Eastern Bengal (Pakistan) Railway. The other three sections were in India but did not connect with each other at any point. One section with 634 kms was transferred to the East Indian Railway; another with 483 kms was transferred to the Oudh Tirhat Railway; and the third with 1,981 kms formed the Assam Railway.

At Independence, the approximate route length of railways with the Government of India was 42,162 kms, comprising 24,124 kms of broad guage, 15,749 kms of metre guage, and 2,289 kms of narrow guage tract. In addition, there were certain railway lengths with the princely states and short feeder lines run by private companies. The responsibility for the administration and management of Government railways vested with the Railway Board under the overall supervision of the Member, Legislative Council. The railway finances remained separated from the general revenues since 1924-25 and the railway budget was presented separately to the Legislative Assembly. The railway's contribution to the general revenues consisted of a dividend on the capital invested, the quantum of contribution being revised from time to time by a Convention Committee set up by the Legislative Assembly. A Depreciation Reserve fund was set up in 1922-23, with a provision of annual contribution from the railway budget. These aspects of railway administration and management continue even today.

Indian Railway Enquiry Committee, 1948

The Indian Railway Enquiry Committee reporting in November 1948, found that the financial results of the railways were most unsatisfactory. There was evidence of a substantial fall in the standard of efficiency and performance since 1938-39. During the war years, the standard had improved but this was not maintained. There had been considerable deterioration in the operation of goods traffic due to inadequacy of facilities at terminals, inordinate delays in marshalling yards, sectoral delays, delays at break of gauge transshipment, particularly at interchange points, and the restricted capacity on certain sections. The increase in passenger traffic was accompanied by serious over crowding, because of shortage of passenger rolling stock. The Committee recommended that the provision of steel for carriage under-frames and body construction should receive the highest priority even at the expense of wagon construction. The punctuality of trains had suffered largely because of a serious shortfall in the energy and application shown by staff of all ranks, including supervisory and superior.

Turning to the revenue accounts of the railways, the period 1924-25 to 1948-49 could be divided into five well defined periods (i) 1924-25 to 1929-30 a period of surpluses, (ii) 1930-31 to 1935-36 a period of deficits, (iii) 1936-37 to 1939-40 a period of gradual recovery, (iv) 1940-41 to 1945-46 a period of phenomenal increase in earnings, and (v) 1946-47 to 1948-49 immediate post-war period of uncertainties. The Committee recommended the setting up of a separate unit in the Finance Branch of the Railway Board to constantly explore means for improving the earnings of railways. The Budget work in the Railway Board's office should be transferred

from the control of the Director of Accounts to the Director of Finance. The Committee referred to the Separation Convention (of 1924 and the revision of 1943), and suggested continuation of the *ad-hoc* contribution to the General Revenues until the position of the railways could be definitely estimated. The Committee felt that the capital-at-charge, which was Rs 702.44 crore in March 1949, did not correctly represent the actual capital assets as it included intangible assets. However, the capital-at-charge fixed the interest charges and, until 31st March 1943, determined the contribution to the General Revenues. The capital-at-charge also regulated the contribution from current earnings to the Depreciation Fund. The Committee suggested that a beginning should be made to write down the cost of the intangible assets by contributing one per cent of the gross earnings every year to an Amortisation Fund. This should be a charge against the gross traffic receipts. For the Depreciation Fund of the Railways, the Committee recommended that an annual contribution of Rs 22 crore per annum be made to the Fund for the next five years.

In the opinion of the Committee, the organisation of the Railway Board as part of the Secretariat of the Government was not satisfactory. Instead, the Committee recommended that the control and management of the Union Railways should be vested in a Statutory Authority. In the mean time, the policy of decentralisation of the work in the Railway Board should be pursued.

The Committee did not make any general recommendation regarding regrouping or amalgamation of railways. There was the possibility of integration of a number of small Indian State Railways in the near future. The Committee also recommended the continuation, as separate entities, of the East Punjab and the East Indian Railways.

Convention Resolution of 1949

In April 1949, the Constituent Assembly (Legislative) set up a new Railway Convention Committee to review the working of the convention adopted under the Central Legislative Assembly's Resolution, dated 20th September 1924, for the separation of Railway from General Finances and to examine the constitution and administration of the Railway Depreciation Reserve Fund, the Railway Betterment Fund, and the Railway Reserve Fund, as well as other ancillary matters. Following the Committee's report, the Assembly adopted a Resolution on 21st December 1949 asking that (i) the railway finance remained separated from general finance; (ii) on the capital invested out of general revenues, as computed annually, general revenues should receive only a fixed annual dividend; (iii) for a period of five years, commencing from 1950-51, the annual dividend should be a sum calculated at the rate of 4 per cent of the capital invested, provided that no dividend should be payable on the capital invested out of general revenues in unremunerative strategic lines; (iv) the existing railway reserve should be renamed the Revenue Reserve Fund and utilised for maintaining the agreed payments to general revenues and for making up any deficit in the working of the railways; (v) a Development Fund should be constituted for financing expenditure for passenger amenities, labour welfare, and unremunerative but necessary railway projects; (vi) to meet the cost of replacement and renewal of assets, the Depreciation Reserve Fund should receive, for the next five years, a minimum contribution of Rs 15 crore per annum chargeable to the working expenses of the undertaking; (vii) a Standing Finance Committee for Railways and a Central Advisory Council for Railways should be constituted; (viii) the annual estimates of railway expenditure should be placed before the Standing Finance Committee for Railways on some date prior to the date for the discussion of the demands for grants for railways by the Assembly; and that the Railway Budget should be presented to the House, if possible, in advance of the general budget with separate days for its discussion. (ix) the expenditure proposed in the Railway Budget, including the appropriation to the Depreciation Reserve Fund, the Development Fund, and the Revenue Reserve Fund should be placed before the House in the form of demands for grants. The Resolution came into force from April 1, 1950.

The integration of the princely states' Railways with the Indian Government Railways on April

1, 1950, called for the regrouping of railways, both administrative and financial. A sub-committee consisting of the Financial Commissioner and two members of the Railway Board was set up to make detailed examination. Based on the sub-committee's recommendations, the integrated railway system was reorganised from April 1, 1952, and grouped into six administrative Zones which were later split into nine Zones (Table 2).

TABLE 2. ZONAL ARRANGEMENT OF RAILWAYS

(As on March 31, 1967)

Zone	Date of Creation	Head-quarters	Route Kilometrage
1. Southern	April 14, 1951	Madras	9,755
	October 2, 1966*		7,216
2. Central	November 5, 1951	Bombay	9,065
	October 2, 1966*		5,841
3. Western	November 5, 1951	Bombay	9,967
4. Northern	April 14, 1952	Delhi	10,439
5. Eastern	April 14, 1952	Calcutta	9,118
	August 1, 1955*		4,092
6. North-Eastern	April 14, 1952	Gorakhpur	7,733
	January 15, 1958*		4,953
7. South-Eastern	August 1, 1955*	Calcutta	6,245
8. North-East Frontier	January 15, 1958*	Pandu later Malegaon (Gauhati)	3,625
9. South Central	October 2, 1966*	Secunderabad	6,088
Total			58,467

* Revised zones

FIRST FIVE YEAR PLAN : 1951-56

The First Plan document referred to the problems of rehabilitation in the railways. In all, 2,092 locomotives, 8,535 coaches and 47,533 wagons needed renewal by March 1951. The condition of the track had deteriorated in the decades 1931-51, during which renewals were carried out only to the minimum extent required for safety in operation. In the meanwhile, there was an unprecedented increase in the volume of traffic. The passenger length on Class I railways had increased from 38,608 million kms in 1938-39 to 63,909 million kms in 1950-51 and the freight carried increased from 35,054 million ton kms to 42,769 million ton kms. The rehabilitation programme of the railways had thus to take into account two separate problems; rehabilitation of deteriorated assets and the needs of the increased traffic.

Apart from the question of finance required for the procurement of rolling stock, there was also the question of manufacturing capacity both in this country and abroad. With a view to reducing dependence on external sources of supply, the Central Government had set up a workshop for the construction of locomotives at Chittaranjan at an estimated cost of about Rs 15 crore. The eventual production targets at this workshop was 120 locomotives and 50 spare boilers per annum. During the First Plan, it was expected that 268 locomotives would be manufactured. Government had also extended financial assistance to the Tata Locomotive Engineering Company by participating in its capital structure to the extent of Rs 2 crore. About 170 locomotives were expected to be supplied by the firm during the period of the Plan. As regards coaching stock, the estimated output of indigenous production during the Plan period was placed at 4,380. Besides, a coach building factory was being set up at Perambur at a cost of Rs 4 crore with an annual single-shift production capacity of 300 to 350 all-steel integral type coaches. The estimate of indigenous production of wagons during the Plan period was 30,000 wagons. The output from indigenous sources for the manufacture of railway coaches and wagons fell substantially short of requirements of rehabilitation. In order to make good the deficiency, an import programme of 641 locomotives, 1,294 coaching vehicles and 19,143 goods wagons was planned. The programme also

included requirements of spare boilers, cranes, and marine stock at an estimated cost of Rs 1.7 crore per annum. Limitation of funds prohibited larger imports to meet the actual requirements of new locomotives.

It was proposed to rehabilitate around 800 kms of track every year, and the speed restrictions on the main trunk routes would be removed within the period of the Plan. As far as track renewals were concerned, the maximum use of indigenous capacity for the production of track materials was to be made. The Railway Plan provided for the creation of two new depots for creosoting of timber at Clutterbuckganj and Coimbatore in addition to those already in existence at Dhilwar in the Punjab and Narkatia in Assam.

The Railway Plan for the Five Year period provided for an average expenditure of not less than Rs 80 crore a year or Rs 400 crore in the aggregate; of this, the contribution from the Central revenues was to be Rs 80 crore and the balance of Rs 320 crore was to be raised by the railways from their own resources (Table 3).

TABLE 3. RAILWAY PLAN, 1951-56

Rehabilitation and additions	Rs crore
Track	64.87
Bridges	5.60
Other Structural and Engineering Works	43.41
Collieries	1.45
Ports	1.04
Rolling Stock and Machinery	207.96
Labour welfare - staff quarters and welfare works	24.09
Restorations	
New Lines, Special Projects, Major Bridges, Electrification of Track, Conversion of Narrow Guage to Metre or Broad Guage	28.52
Passenger Amenities	15.00
Miscellaneous Items including Probable Savings	2.40
Total	400.00

Railway Stores Enquiry Committee, 1950-51

In September 1950, the Ministry of Railways, set up the Railway Stores Enquiry Committee to review the working of the Stores Organisation on Indian Railways and to suggest improvements and the policy to be followed in developing indigenous production to meet railway requirements. The Committee submitted its report in April 1951, and recommended that (i) the responsibility for obtaining supplies of items peculiar to railways, and of essential common use for railway operation and workshop production, should be placed on the railways themselves. Other common user items could continue to be obtained from existing Government agencies working under other Ministries; (ii) a Central Stores Organisation be set up, charged with functional responsibility for general superintendence and control over stores transactions on all railways under a high level officer, preferably of the status of a Member, Railway Board; (iii) a fuller investigation be undertaken of the heavy stocks carried by railways, for the better utilization of items in short supply; (iv) the results of Railway's research be made available to industry for further development. No decision was taken by Government regarding changes in the arrangements for procurement of railway stores. Instead, a Stores Purchase Committee was appointed to examine the scope and functions of a Central Purchasing Organisation in India. The Stores Purchase Committee recommended, in 1954, that: (i) purchase of specialised stores should be progressively transferred to the Central Purchase Organisation, Directorate General of Supplies and Disposals; and (ii) the Railways should be authorised to make direct purchases up to the enhanced value of Rs 10,000 in each case. Thus the Railways were precluded from assuming full responsibility for obtaining supplies of items peculiar to them and common user items essential for railway operation and workshop production as had been recommended by the Railway Stores Enquiry Committee.

Railway Corruption Enquiry Committee, 1953-55

A Committee of Members of Parliament was constituted in October 1953 to enquire into the prevalence of corruption on Indian Railways. The Committee submitted its Report in July 1955. The extent of corruption in the Railways had made them sad. Remedial measures suggested included preventive, punitive, as also legal measures. In matters of policy, the Committee recommended reorganisation of the administrative zones. In their view, in the regrouping of railways into

zones, due consideration had not been paid to the size of the units and the workload involved. The geographical size of the new zones created after regrouping was too big for effective and efficient supervision. Like most large organisations, the rearranged zones suffered from the defects of over-centralisation, indecision, red-tape and inertia. One great disadvantage of big units was the distance that centralisation puts between the man who was empowered to take decisions and the man who was familiar with the facts of a particular situation. This led to delay in taking decisions on important and sometimes even urgent questions. Many Railwaymen had complained to the Committee about the amount of 'desk work' which they had to do and pleaded their inability to do the work of supervision effectively. The Committee, recommended that the question of the existing size of the zones be reviewed by a small high power technical committee. In considering the question of readjusting the units, the question of Divisional and District systems should be examined thoroughly. In case it was decided to retain the District system, provision should be made to effect proper coordination at the District level.

The Railway Board

After 1947, the Railway Board has had a dual function; as the highest executive for the technical supervision and direction of the railways and as a department of the Central Government. As a department, the Railway Board exercised full powers of the Government of India including control of the railway budget and finances, subject to overall superintendence by the Minister for Railways. The Railway Board consists of a Chairman, and three other Members, who hold three out of the four portfolios of Staff, Civil Engineering, Transportation and Mechanical Engineering. The Chairman holds one of the portfolios depending upon the department from which he is drawn. The financial powers of the Board are exercised by the Financial Commissioner subject to the general control of the Minister for Railways and the Minister of Finance. The Financial Commissioner of Railways is not only a direct representative of the Ministry of Finance on the Railway Board but is also a member of the Railway Board. The Railway Board is responsible for the control and coordination of maintenance and operation of the railways and also for planning the development of the system and future construction. It has a full-fledged Directorate of Planning which guides studies in planning on the zonal railways in coordination with other Ministries of the Union Government.

Organisational Pattern of Railways

The Indian Railway had inherited a multiplicity of organisational patterns on which the company as well as the princely state railways were fashioned. Their organisation into a uniform pattern was a slow process. The system of working of the company railways was the district or departmental system. The districts were generally small, from 400 to 800 kilometres. The limitation on the use of locomotives within geographical boundaries of districts and the extension of the jurisdiction of officers of certain departments to more than one district posed problems of coordination and also resulted in delays. Commencing 1955-56, therefore, the divisional system of organisation was introduced in the different railway zones. Two or more districts, depending upon the concentration of traffic, were combined to form a division which was headed by a Divisional Superintendent and his complement of technical, accounting and administrative staff. The first zone to introduce the system was the Central Railways where two full fledged Divisions at Secunderabad and Bombay were inaugurated during 1955-56. These were followed in 1956-57 with Divisions on the Southern and Western Railways. Some variations, however, remained.

Following the suggestions of the Railway Corruption Enquiry Committee, one more Zone was created in August 1955 by breaking up the Eastern Zone into the Eastern and South Eastern zones. In 1958, the North East Frontier Railway zone was created with the bifurcation of the North Eastern Railway. Still later, in October 1966, a ninth zone was formed by taking away portions of the Central and Southern Railways to form the

South Central Railway zone. Minor adjustments were also made from time to time to make the working of the zones more homogeneous. Each zone is headed by a General Manager, who is responsible to the Railway Board for the operation, maintenance, and financial viability of his line. The General Managers are also delegated fairly wide powers in matters relating to engineering works, purchase of stores, establishment, public claims for compensation, and refund. They are assisted by functional heads of departments at the headquarters and by Divisional Superintendents on the lines.

A number of other Committees also gave their views on various matters pertaining to railways. Thus, the Railway Fuel Economy Enquiry Committee, 1953, made recommendations for economy in the use of coal as fuel by the railway. A Dearness Allowance Committee, in 1953, advised on the exact amount of dearness allowance which should be treated as pay. In 1954, a Committee examined all aspects of catering services on Indian Railways. In the same year, another Committee studied the various enquiry reports on train accidents and made recommendations for reducing incidence of accidents.

Changes in Accounting and Financial Structure of Railways

With the completion of integration of Indian Railways into a unified financial undertaking, certain changes in the accounting and financial structure of Railways were introduced with effect from the accounts for 1952-53 which were again revised in April 1954, when apportionment of earnings in respect of inter-zonal traffic was reintroduced for determining the earnings attributable to each Zone. The process was simplified by apportioning the earnings for each railway without segregating terminal, transshipment or short distance charges in the case of Goods and Parcels traffic, and by apportioning the earnings for each Class in the case of Passenger traffic. Inter-railway adjustments were made in respect of other transactions as well. Freight charges for the carriage of railway stores were also to be reflected in the accounts.

Abolition of First Class Accommodation

During the Budget debate of 1952, the Minister announced the decision to abolish First Class accommodation on railways. By April 1955, First Class accommodation was entirely withdrawn on all Indian Railways and of the remaining classes, the Second and Inter were redesignated First and Second, respectively. The Third Class continued as hitherto.

Convention Committee, 1954 and the Convention Resolution of 1954

The Convention Resolution of 1949 was due to expire in 1956. A Committee representing both the Houses of Parliament was constituted by the Lok Sabha in May 1954 to review the rate of dividend which was payable by the Railway undertaking to the General Revenues as well as other ancillary matters in connection with the separation of railways from general finances. The Committee submitted its Report on November 30, 1954. It suggested no changes in the method of contribution by the railways to the General Revenues at a fixed rate of dividend in terms of percentage on the capital-at-charge. However, it recommended that the dividend on the capital-at-charge of new lines should be computed at a lower rate, that is, at the average borrowing rate charged to the commercial departments, and that a moratorium should be granted in respect of the dividend payable on the capital invested on the new lines during the period of construction and up to the end of the fifth year of their opening for traffic, the deferred amount being repaid from the sixth year onwards in addition to the current dividend out of the net income of the new lines. The Committee also recommended that the cost of construction of all new lines might be debited to the capital account of the railways from the very beginning and not to the Development Fund, since the Fund was intended to advance finances for new lines only for temporary periods and ultimately the whole or a substantial portion of

the cost was in any case to be transferred to capital. The rate of dividend was to remain unaltered for another period of five years at 4 per cent on the capital-at-charge.

The Committee also recommended that the annual contribution to the Depreciation Reserve Fund should be raised from Rs 30 crore to Rs 35 crore during the quinquennium 1956-61. The Convention Resolution of 1949 had laid down that the cost of passenger amenity and labour welfare works, unremunerative operating improvements and new lines, should be debited to the Development Fund. The Committee recognised that the appropriation to Development Fund and the solvency of the Fund depended on the availability and the size of the surplus, while the provision for depreciation was based on the life of the assets, and their replacement on the actual conditions, which could not be deferred, if their earning potential was to be maintained. They, therefore, felt that the replacement of these assets should bear no relationship with the ultimate loss or gain of the undertaking but should be met out of the Depreciation Reserve Fund.

The Lok Sabha and the Rajya Sabha approved the Committee's recommendations in December 1954. Thus, the annual rate of dividend (namely 4 per cent) paid to the general revenues on the capital invested remained unaltered for a further period of five years commencing April 1, 1955. However, on the element of over-capitalisation of the loan capital, the rate of dividend was made equal to the average rate of interest charged to the commercial departments. A moratorium was granted in respect of the dividend payable on the capital invested on new lines during the period of construction and up to the end of the fifth year of their opening for traffic. The deferred dividend in respect of the period of moratorium was to be calculated at the average rate of interest charged to the commercial departments and this would be paid from the sixth year onwards, in addition to the current dividend out of the net income of the new lines. The annual contribution to the Depreciation Reserve Fund was widened to include amenity for all 'users of railway transport' instead of 'railway passengers' only. However, the Government found the recommendation of Rs 35 crore for the depreciation fund inadequate, and with the approval of Parliament increased the contribution to Rs 45 crore from the year 1954-55.

Progress in the First Plan Period

Against a total outlay of Rs 400 crore (including contribution of Rs 150 crore from the Railway Depreciation Fund) the actual expenditure during the First Plan period was over Rs 432 crore (Table 4).

The excess of outlay over the plan provision was because of increased procurement of rolling stock. The Plan had contemplated procurement of 1,038 locomotives, 49,143 wagons, and 5,674 coaches. In fact, 1,586 locomotives, 61,257 wagons and 4,758 coaches were procured. In spite of the larger procurement, a fairly large proportion of over-age stock had still to be retained in service to meet the increased demands of traffic. The percentage of over-age stock at the end of the Plan period had in fact increased for Broad gauge and Narrow gauge locomotives and wagons.

Between 1951-52 and 1955-56, indigenous production of locomotives increased from 27 to 129 per annum, of wagons from 3,707 to 14,317, and of coaches from 673 to 1,221. Against the Plan target of 268 locomotives, the Chittaranjan Locomotive Works, which were completed in 1953 at a cost of about Rs 15 crore, produced 341 and TELCO raised the production of metre gauge locomotives from 10 at the beginning of the Plan to 50 in the closing year. The Integral Coach Factory at Perambur whose construction commenced in 1952 went into production in 1955. Machinery of the value of Rs 16.45 crore was obtained for modernising and replacing over-aged machinery in the railway workshops. An expert committee had gone into the possibilities of developing indigenous manufacturing capacity. Works undertaken for the renewal of obsolete tracks reduced the length under speed restrictions from 4,827 kms to 2,870 kms. The construction of a rail-cum-road bridge over the Ganga river near Mokameh in Bihar was also taken up in the First Plan.

TABLE 4. PROGRESS OF RAILWAY PLAN 1951-56

(Rs crore)

Categories of Expenditure	First Plan Target	Actual Expenditure
1. Rolling Stock, Plant and Machinery	207.96	253.44
2. Tracks and Bridges	70.47	64.41
3. Other Structural and Engineering Works including Integral Coach Factory, Chittaranjan Loco Works, and Ganga Bridge Project, Collieries and Ports	45.90	49.96
4. Restoration of dismantled lines, New Lines and Electrification	34.18	33.20
5. Passenger Amenities	15.00	13.29
6. Staff Quarters and Staff Welfare	24.09	20.52
7. Miscellaneous Items	2.40	(-)2.75
Total	400.00	432.07

Source : The Progress of the First Five Year Plan on Indian Railways, p.10.

New lines of 611 kms were completed and opened to traffic, and 703 kms were under construction. 692 kms of lines, dismantled during the war, were restored. 74 kms narrow gauge lines were converted into metre gauge and 84 kms were being converted into broad guage. Attention was also given to improvement in operational efficiency, especially on the broad guage system which accounted for 80 per cent of the total goods traffic. As a result, between 1951-52 and 1955-56, the volume of goods traffic on the broad and metre gauge increased by 19.4 per cent, though the number of available wagons had increased by only 11.4 per cent. Several measures such as lengthening of loops, provision of additional crossing stations, signalling improvements, and remodelling of marshalling yards were taken to develop capacity for meeting traffic demand on several sectors. Transshipment facilities were also increased. The electrification of the Howrah-Burdwan main-line and the Tarakeshwar branch as also the electrification of suburban services in the Calcutta area were begun.

Apart from provision of new coaches equipped with fans and modern conveniences, 784 stations were provided with electricity, 1,120 with improved platforms, 398 with new waiting halls, and 160 with new foot over-bridges. About 40,000 quarters were constructed for the housing of railway workers.

SECOND FIVE YEAR PLAN: 1956-61

The objectives of the Second Five Year Plan for Railways were (a) to carry the increased production of heavy industries like coal, steel, cement, and other commodities; (b) to continue the rehabilitation of track, bridges and rolling-stock, to achieve a satisfactory standard of their maintenance and to carry without restrictions the traffic that would be offered; and (c) to take further steps to make the Indian Railways self-sufficient in respect of their requirements of stores and equipment by increased manufacture in the country.

It was assessed that, by the end of the Second Plan, the railways would carry an additional originating traffic of 61.78 million tonnes, taking the total traffic to be handled by 1960-61 to 183.70 million tonnes. With the resources allocated for railway development, the railways would not meet these demands; the capacity would fall short by about 10 per cent in rolling stock and by about 5 per cent in line capacity. In regard to passenger services, the Plan provided for an increase of 3 per cent per annum or of 15 per cent over five years. This also was not expected to relieve overcrowding. Owing to the limited funds available, the Plan did not provide for the construction of new lines to open up parts of the country unserved by railways. The provision in the Plan for new lines was confined to lines required for operational purposes and for the new industrial projects.

Allocations for railway development in the Second Plan amounted to Rs 900 crore in addition to contributions to the Railway Depreciation Fund amounting to about Rs 225 crore. The railways were expected to provide Rs 150 crore from their own revenues towards the planned outlay and it was proposed that the remaining Rs 750 crore would be made available from the general revenues. On the basis of these allocations, the Railway Plan of Rs 1,125 crore covered (a) construction of about 1,355 kms of new railway lines mainly to serve the requirements of coal and steel industries; (b) renewal of about

12,872 kms of existing track; (c) doubling of about 2,586 kms of single line track; (d) conversion of about 426 kms of metre gauge lines into broad gauge; (e) electrification of about 1,329 route kms of existing railway lines; and (f) procurement of 2,364 locomotives, 11,575 units of coaching stock, and 107,247 wagons (in terms of 4-wheelers). The allocation of Rs 1,125 crore over the items included in the Railway Plan are shown in Table 5.

The provision of Rs 380 crore for rolling stock included Rs 138 crore for development and Rs 197 crore for rehabilitation. To cope with the increase in rolling stock, several of the existing workshops and running sheds were to be remodelled and expanded, and new workshops established. The plan provided for six new workshops, a new metre-gauge coach building factory, and a furnishing unit for the Integral Coach Factory. The overall expected increase in the annual capacity of rolling stock is shown in Table 6.

TABLE 5. RAILWAYS PLAN 1956-61

Particulars	(Rs Crore)
1. Rolling Stock	380
2. Workshops, plant and machinery	65
3. Track renewals	100
4. Bridge Works	33
Rehabilitation	18
Ganga Bridge	9
New Bridges	6
5. Line capacity works including expansion of goods sheds	186
6. Signalling and safety works	25
7. Electrification	80
8. New constructions	66
9. Staff Welfare and staff quarters	50
10. Stores Depots	7
11. Training Schools	3
12. Railway users' amenities	15
13. Other projects including Vizagapatnam Port	15
14. Railways' share in road transport undertakings	10
15. Stores suspense	50
16. Extra for imported steel	40
Total	1,125

TABLE 6. OUT-TURN OF ROLLING STOCK

	Out-turn in 1955-56	Anticipated Out-turn after the completion of proposed works	Percentage increase
1. *Locomotives*			
Broad Guage	1,823	2,347	29
Metre and Narrow Guage	1,237	2,052	66
2. *Coaches*			
Broad Guage	12,514	22,390	79
Metre and Narrow Guage	7,373	18,443	150
3. *Wagons*			
Broad Guage	48,014	90,311	88
Metre and Narrow Guage	14,077	34,372	144

The capacity for repair and overhaul of tank-wagons and electric locomotives and coaches was also to be stepped up. The production capacity of Chittaranjan Locomotive Works was to be increased to 300 average sized locomotives a year. The capacity of the Integral Coach Factory, Perambur was likely to reach 200 coaches per year, early in the Plan period.

Railway Freight Structure Enquiry Committee, 1955-57

In August 1955, a Committee was appointed to undertake a review of the freight structure of the railways in view of the changes that had taken place in economic activity in the country since the introduction of the revised rating structure in 1948, the changes envisaged in the Second Plan, and the development of railway facilities at considerable expenditure. The Committee submitted an interim report in early 1956 where it referred to the anomalies in the classification of goods for the application of tariff rates and recommended the setting up of a small Committee to undertake a detailed scrutiny of anomalies in classification, and to collect all the basic and statistical data necessary for the purpose. Government, however, decided to await the final report of the Railway Freight Structure Enquiry Committee before setting up another Committee.

The Committee submitted its final report in April 1957. It referred to the criticism advanced

against some of the features of the 1948 revised freight structure, particularly those concerning the structure of the class rates and wagon-load scales, the legs of the telescope, ancillary charges like terminal, short-distance and transshipment charges, and the rigidity in the railway freight policy that was associated with the new freight structure. The Committee recommended that "it must, therefore, be the deliberate policy of the authorities to discourage as far as possible short distance traffic by rail and to encourage alternative modes of transportation over such distances. ... "a common pattern of legs for traffic moving both in 'smalls' and in wagon loads was suggested in such a manner that the distance to be travelled in the first leg (1 -40 kms.) for movement of goods could be undertaken "either by motor lorries or, where good roads" did "not exist, by other means of transport." Similarly, for the next leg of 40 - 120 kms, the Committee felt that "in many parts of the country, movement by motor lorries over this distance" was possible. "In other parts of the country" too, "a definite effort should be made by the authorities concerned to provide roads for movement by road motors" [Mudaliar, 1957 p 25]. The remaining legs of kilometreage could be given the benefit of telescopic decrease in freight rates for different commodities.

Taking into consideration the adjustments in the expenditure due to increase in coal prices and rise in costs on account of inflationary trends, the Committee estimated that the gap between revenue and expenditure during the Plan period would be over Rs 300 crore. Hence, it was essential to revise upwards the existing scale of rates. The Committee considered that a uniform surcharge on freight rates was not a satisfactory method of raising revenue and recommended that, if additional revenue was required, it should be acquired by a suitable revision of the scale and taper of telescopic rates. The Committee evolved a scale of freight rates for different commodities to be applied to the legs of distance recommended. A regular and progressive increase through a percentage system of rates from the lowest class to the highest class to form an integrated scale of rates covering both class rates and wagon-load scales was suggested. A norm or a standard rate, to be called the Class 100 rate equal to the prevalent Class 9 rate was taken as the most convenient norm. All other classes above and below Class 9 and also the wagon-load scales were expressed as percentages of the new Class 100.

Government accepted the Committee's recommendations and a revised rate structure was introduced with effect from October 1958.

Rail-Sea-Coordination Committee, 1957

In June 1955, the Government appointed a Committee to examine (a) the reasonableness of freight charged by coastal shipping with reference to its costs of operation; (b) the existing pattern of trade movements within the country of commodities which could suitably move by sea and suggest measures to ensure effective coordination between Railways and Coastal Shipping. The Committee was asked to advise whether any standing machinery should be set up for considering all problems concerning rail-shipping coordination or allocation of traffic between the two forms of transport. The Committee submitted its report in April 1957.

The Committee found that in regard to most commodities, the sea freight was, to varying extents, more favourable than the rail freight and it was only in the case of coal that the freight advantage was with railways. Railways had a telescopic system under which the rates were lower for the second and third slabs. In the case of coal hauled over long distances, railways, as a matter of policy, had specially low rates. The shipping rates were, however, fixed at flat rates between different ports, mainly based on the traffic moved and what it could bear. Further, the rail charge represented the total cost of the movement, with the addition only of extra expenses for transport between the senders' station to consignees' warehouse. In the case of shipping, however, even assuming that cargo was delivered by the shipper at the transit shed, over and above the amount paid to shipping companies as freight, the cargo had to bear handling charges, lighterage or boat charges, wharfage, landing and shipping fees and insurance charges. In addition, at major ports, the Chamber of Commerce measuring fee, and handling and clearing agents'

charges had to be paid. If cargo originated from the interior, an addition had to be made of railway freight rates to the ports. Port demurrage charges were also payable at destination. Thus, while the freight advantage was with the shipping route, for many items of cargo, this was offset to a greater or less extent by other factors. The Committee recommended the appointment of a sub-committee to review the tonnage and cargo availability position and decide on the nature and volume of cargo which should move by sea or rail-cum-sea route, so as to ensure adequate employment of available shipping tonnage on the one hand and give maximum relief to the railways on the other.

Report of the Expert Committee on Coal Consumption on Railways, 1958

In November 1957, an Expert Committee on Coal Consumption on Railways was appointed to examine and report on the factors responsible for the increase in railway expenditure on coal. The Committee submitted its report in April 1958.

Analysing the consumption trends of coal by the railways during the period 1952-53 to 1956-57, the Committee concluded that coal consumption had increased by 19.5 per cent while traffic had increased by 27.0 per cent showing improvement in fuel utilisation. Expenditure had increased by 37.7 per cent due to the progressive rise in the pit head prices and freight on coal. Trials had shown that coal consumption increased by 2.0-2.5 per cent in steam locomotives for every 1 per cent increase in ash. The coal supplied to Railways did not conform to the grades specified. Effective check on the quality of coal loaded was not possible as a large number of collieries supplied coal to the Railways. The Committee recommended that the Railways should have freedom to select collieries from which they obtained supplies and an Inspection Organisation be set up to prevent loading of inferior coal by collieries. There was also scope for reducing coal consumption by exercising effective control on losses and wastage. In view of the pilferage of coal in transit as also in the handling of coal where contract labour was employed, the Committee recommended the replacement of contract labour by departmental handling.

The Committee estimated that the railway requirements of coal would go up to 16.5 million tonnes by 1960-61 and 26 million tonnes by 1965-66. A real shortage of coal of requisite grades might arise by the end of the Second Plan and the position would deteriorate further during the Third Plan. To meet the shortages of high grade coals, it was necessary to wash the inferior coals. The Central Fuel Research Institute had put up proposals for five washeries for Railways. Of these, three washeries had shown some net gain. The Committee suggested that the planning of these washeries should be taken up immediately and brought into commission by 1960-61.

The Committee also came to the conclusion that the Railway's requirement of coal must be kept at about the level forecast for 1965-66. This could be achieved by progressively replacing steam by diesel and electric traction. While the rate at which the railways could be electrified and dieselised would depend upon the availability of funds, of foreign exchange, of indigenous resources of equipment, and fuel (especially diesel fuel), a target of 30 per cent electrification and 20 per cent dieselisation should be aimed at so that no more than 50 per cent of railway transport was worked by steam power by the end of 1975. High priority should be given to the indigenous design and manufacture of diesel plant and equipment, and to the increased production of diesel fuel and lubricants. Similarly, the development of adequate capacity for manufacture of heavy electrical machinery and traction equipment was imperative. Coordination in the planning of power development, transmission lines, and service stations was essentials to ensure supply of power to railways and other industries.

Preliminary Report of the Committee on Transport Policy and Coordination, February 1961

In July 1959, the Planning Commission set up a Committee to recommend (a) the long-term transport policy for the country; (b) the role of the various means of transport in the country during the next 5 to 10 years; and (c) the mechanism for the regulation and coordination of the various means of transport. The Committee submitted a preliminary report in February 1961. It was reconstituted in February 1964 and submitted its final report in January 1966.

Convention Resolution of 1959

The Convention Resolution of December 1954 governed the arrangement between Railway-Finance and General Finance for five years commencing April 1, 1955. By a resolution adopted in April 1959, this arrangement was extended by one year up to March 31, 1961 to synchronise with the Five Year Plan periods.

Convention Resolution of 1960

In April 1960, a Committee representing both the Houses of Parliament was constituted to review the arrangements between Railway Finance and General Finance for the ensuing five year period commencing April 1, 1961. The Committee submitted its report on November 25, 1960. The Committee's recommendations were approved by both the Houses of Parliament in separate resolutions adopted in December 1960. Accordingly (i) the contribution of a fixed rate of dividend by the Railways to General Revenues was continued; (ii) the rate of dividend to be paid by the Railways to General Revenue was fixed at 4.25 per cent for the five years 1961-66; (iii) the annual loss in the working of strategic lines should be met from the General Revenues; (iv) the capital-at-charge of the North-East Frontier Railway, other than the clearly strategic portion thereof, be regarded as unproductive and till such time as the line became productive or the next Convention Committee reviewed the position, whichever was earlier, the rate of dividend payable on the capital-at-charge should be at the average borrowing rate of Government; (v) the total contribution to the Depreciation Reserve Fund should be Rs 350 crore during the quinquennium; (vi) the rules of allocation of Railway expenditure between Capital, Revenue, Depreciation Reserve Fund, and Development Fund be retained without any modification during the next five years; (vii) the facility of providing temporary loans from General Revenues to finance the Railway Development Fund during the next five years, unless the net surplus was able to meet in full the requirements of the Fund, be continued; the outstanding liability of the Development Fund to the General Finance as on 31-3-1961 should be liquidated as indicated; (viii) the Railway Development Fund, besides meeting the cost of labour welfare works, etc., should include a minimum allocation of Rs 3 crore per annum for users' amenities as hitherto; (ix) in lieu of the passenger tax payable to states, a fixed amount may be paid by the Railways amounting to Rs 12.50 crore per year during the quinquennium 1961-66 representing the average of the actual collections for the years 1958-59 and 1959-60; (x) the creation of an Amortisation Fund should not be lost sight of; and (xi) deferred dividend on new lines should be paid from the sixth year onwards only if the net income of the new lines left a surplus after payment of the current dividend.

Progress of Railways during the Second Plan

In September 1958, after a reappraisal of the Second Five Year Plan, some projects in the Railway's Second Plan had to be deferred. These included certain electrification schemes, the metre gauge coach factory, and furnishing unit of the Integral Coach Factory.

The railways were to develop necessary capacity for handling 164.6 million tonnes of originating traffic by 1960-61. This capacity was reached. However, the originating traffic in 1960-61 amounted to only 156.0 million tonnes, because of a shortfall in steel production and in the corresponding transport requirements, and also because of the loss of about 3.05 million tonnes of freight traffic as a result of the partial

strike of Central Government employees in July 1960. Table 7 gives the year-wise growth in traffic since the end of the First Five Year Plan.

TABLE 7. FREIGHT AND PASSENGER TRAFFIC, 1955-56 TO 1960-61

Year	Originating freight traffic (million tonnes)	Originating Passengers (millions)
1955-56	115.9	1,275
1956-57	126.1	1,360
1957-58	134.6	1,410
1958-59	137.4	1,422
1959-60	146.6	1,510
1960-61	156.0	1,596

Against the Plan provision of 15 per cent increase in passenger traffic during the Second Plan period, the railways had anticipated an increase of about 25 per cent; and that turned out to be more accurate.

One of the major tasks of the railways during the Second Plan was to further overtake the arrears of replacements of their assets. The programme for wagon procurement in the Second Plan had however fallen behind the schedule mainly owing to lack of timely supplies of steel (Table 8) and, despite the increase in rolling stock, the percentage of over-aged stock to total stock on line continued to be higher than anticipated (Table 9).

TABLE 8. ROLLING STOCK ON LINE

Rolling Stock	1951	1956	1961 (Estimated)
Locomotives	8,461	9,172	10,554
Coaches	20,502	23,155	28,171
Wagons (in terms of 4 wheelers)	222,441	268,493	341,041

TABLE 9. OVER-AGED ROLLING STOCK TO TOTAL STOCK

(Percentage)

Year	Broad Gauge			Metre Gauge		
	Locomotives	Coaches	Wagons	Locomotives	Coaches	Wagons
1950-51	23.0	29.5	13.3	31.0	45.0	29.4
1055-56	33.2	32.3	18.0	25.8	32.7	21.0
1960-61	26.7	34.4	10.2	17.9	28.1	11.7

Abolition of Second Class from Railways

In the Budget Speech for the year 1956-57, the Minister for Railways had announced that only two classes, in addition to air-conditioned class, would remain on the Railways, by abolishing the Second Class and re-naming Third Class as Second Class with sleeping accommodation in some coaches. Accordingly, Second Class was withdrawn from July 1, 1956, from all branch lines other than important branches and links between main lines. A year later, Second Class was also abolished from suburban sections of Bombay, Calcutta, and Madras. There was, however, considerable public demand for continuance of the Second Class. Therefore, in 1962, on a review, it was decided not to withdraw Second Class accommodation from sections where it was still provided. In June 1963, on a further review, it was decided to permit augmentation of the then existing Second Class accommodation wherever feasible and justified but not to extend it to those services or sections from where it had already been withdrawn.

THIRD FIVE YEAR PLAN : 1961-66

It was recognised that, during the Third Plan, the railways would have to continue to carry the bulk of the traffic (over 80 per cent) in heavy goods like coal, iron ore, and other materials for the steel plants, etc. Therefore, heavy investment in the railways was unavoidable. Most of the new lines to be opened in the Third Plan were either to meet the operational needs of the railways or for the movement of basic commodities like coal and mineral ores. The question of the railways' obligations towards the general exchequer had assumed importance with the capital-at-charge of the railways having increased from Rs 834 crore

in 1950-51 to Rs 1,559 crore in 1960-61 and expected to rise to Rs 2,313 crore by 1965-66.

The railway programme in the Third Five Year Plan was formulated on the basis of the originating traffic reaching a figure of about 245 million tonnes, in the last year of the Third Plan (Table 10).

TABLE 10. ESTIMATE OF ORIGINATING GOODS TRAFFIC ON RAILWAYS

(million tonnes)

Commodity	1960-61	1965-66	Increase in 1965-66 over 1960-61
Steel and Raw Materials other than Coal for Steel Plants	13.0	34.0	21.0
Coal (including coal moved on Railways own account)	49.5	90.0	40.5
Cement	6.5	12.0	5.5
General goods including Railway materials, excluding coal	18.0	22.5	4.5
Iron Ore for export	3.0	11.0	8.0
All other goods	64.0	75.5	11.5
Total for 'General Goods'	85.0	109.0	24.0
Total	154.0	245.0	91.0

An increase of 3 per cent per annum in the non-suburban passenger traffic and a much higher increase in suburban traffic was expected. Provision of maximum possible frequency of train services in peak periods with such marginal increases in line capacity as may be called for were to be made. Doubling of over 2,575 kms of single track and other line capacity works like remodelling of yards, opening of crossing stations, and provision of crossing loops, etc. was to be taken up. The main consideration in formulating the line capacity works was to strengthen the trunk routes and the lines on which traffic in heavy commodities like coal and iron ore was required to be moved in increased quantities in future. Provision was made for track renewal over about 8,045 kms, rail renewals over about 4,020 kms, and renewal of sleepers over about 3,620 kms. It was also proposed to undertake welding of track joints on an extensive scale during the Third Plan period. Provision was also made for the construction of about 1,900 kms of new lines and for electrification of about 1,770 kms.

The programme for rolling stock provided for the acquisition of stock needed to cater for the anticipated increase in traffic and also for the replacement of over-aged stock (Table 11). The programme for workshops provided for additional facilities for workshops, sick lines, sheds, and for the manufacture of diesel locomotives. It was also proposed to establish the production of electric locomotives at Chittaranjan in collaboration with the Heavy Electricals Ltd., Bhopal.

TABLE 11. ROLLING STOCK PROGRAMME, 1961-66

Programme	Locomotives	Coaching Vehicles	Wagons (In terms of 4 Wheelers)
Addition	1,150	5,025	90,447
Replacement	614	2,854	26,697
Total	1,714	7,899	117,144

The railway programme was estimated to cost Rs 1,325 crore. Its break-up is given in Table 12.

TABLE 12. ESTIMATED COST OF RAILWAY DEVELOPMENT PROGRAMME, 1961-66

Programme	(Rs Crore)
Rolling Stock	510
Workshops, Machinery and Plant	62
Track renewal	170
New Lines	147
Electrification	70
Signalling and Safety Works	25
Traffic facilities (line capacity works)	183
Bridge works	25
Other Electrical works	8
Other Structural works	15
Staff Quarters and Staff welfare	50
Users' Amenities	15
Road Services	10
Stores Suspense	35
Total	1,325

Railway Accidents Committee, 1962 (Part I), 1963 (Part II)

Following three major accidents on the railways in October-November 1961, the Ministry of Railways appointed, in January 1962, the Railway Accidents Enquiry Committee to (i) consider the question of train accidents on Indian Railways, and (ii) suggest measures by which they could be further minimised. The Committee submitted an interim report in December 1962, and a final report in November 1963. The Committee recommended evolution of new track and rolling stock standards, mechanised maintenance of permanent way and electrical signalling with the adoption or extension of modern signalling devices, like Multiple Aspect Upper Quadrant signalling, colour light signals, track circuiting, route-relay interlocking, automatic signalling and automatic train control.

Final Report of the Committee on Transport Policy and Coordination, January 1966

The Committee on Transport Policy and Coordination which had submitted its interim report in February 1961 was reconstituted in February 1964, following the resignation of its Chairman, Shri K.C. Neogy. The reconstituted Committee, with Shri Tarlok Singh as Chairman submitted the final report in January 1966. The Committee examined the various means of transport in the country including railways, road transport, coastal shipping, inland water transport, ropeways and pipe lines, and air transport, and gave its recommendations on each one of these systems and also in the matter of coordination of transport programmes. For railways, the Committee opined that the railways were specially suited for long distance bulk traffic and should adopt themselves more and more to the requirements of such traffic. At the same time, steps should be taken to increase their competitive capacity to carry other traffic. With diversification of production and expansion of consumption goods industries, considerable expansion in road transport facilities would also be needed. It was therefore necessary both for rail and road transport, to conduct over a period, a series of investigations into costs both, total and marginal, for specific sections and specific streams of traffic. From its own study, the Committee was of the view that most of the new investment on the railways would have to be devoted to building up an increasingly efficient rail transport system rather than to the expansion of the network itself.

The Committee referred to the construction of unremunerative railway lines. Generally the railways should provide for only those lines which were expected to yield, over a period of time, normal return on the investment involved in their construction. The lines which were expected to be unremunerative, even after a few years of their opening, should be taken up only in exceptional circumstances and in all such cases provision should be made to compensate the railways for the losses involved. Unremunerative branch lines, should be viewed both as entities in themselves and as part of a wider railway network, and should be ascertained whether on either ground, their retention was necessary. The justification for the continuance of these lines should be considered taking into account the overall transport requirements of the areas in question and the extent to which these could be met more economically by alternative means of transport. In the case of narrow gauge light railways, the general approach was to consider each case on merits and to take over such lines as would justify conversion to broad gauge or metre gauge on the basis of the traffic handled by them and the prospects of traffic growth. In other cases, the lines could be dismantled and the services provided by them allowed to be replaced by road transport.

The railway suburban passenger services, which carried large numbers daily in the metropolitan cities, were generally unremunerative. In the Committee's views, the problem of suburban rail transport had to be dealt with in any long term solution as part of the problem of metropolitan transport, involving a coordinated approach to rail and road transport, development of roads, and urban and regional development around major cities such as Calcutta, Bombay, Madras and Delhi.

The construction of new railway lines called for

large investments. The Committee commented that the railways were inherently better suited for long distance and bulk traffic and the extension of the railway system in future should be directed principally towards meeting the needs of basic and heavy industries and of traffic in minerals like coal and iron ore. The programme for construction of new railway lines should be conceived mainly in this context. New lines built in future should ordinarily be expected to yield, over a period of time, a reasonable return on the investment. In the planning of transport in future, the need for ensuring the financial solvency of the railways must be kept in view. The railways should be expected to earn a reasonable return on capital.

The Committee felt that concessions in railway fares and rates, should be considered on merits. When obligations for uneconomic services arose from executive decisions taken by the Government, the economic justification for each such decision should be critically scrutinised. There were limits to the railways' ability to adjust rates on the basis of costs fully in all cases. These limits stemmed (a) from the wide variations in costs of the railways, and (b) their obligation, as a national undertaking, to have uniform rates all over the railway system.

The Committee examined the machinery that would be necessary for coordination of the transport programmes and policies. Three main agencies were responsible for providing transport services - the Ministry of Railways, the Ministry of Transport, and the Ministry of Civil Aviation. For purposes of coordination of the activities of the three Ministries, the Joint Technical Group for Transport Planning should be strengthened and equipped adequately for undertaking studies and collection of data required for coordinating development programmes and rating policies in respect of different modes of transport. The Planning Committee on Transport, which guided the work of the Joint Technical Group for Transport Planning, should be reconstituted and should function as the Transport Planning and Coordination Committee. The Committee should meet at regular intervals and consider reports and studies prepared by the Joint Technical Group and research organisations in the Ministries of Railways, Transport, and Civil Aviation, as well as in the States. To facilitate consideration of important questions of policy, and to provide guidance from time to time to the Transport, Planning and Coordination Committee and to the Ministries, the Prime Minister may constitute a Committee of Ministers, consisting of the Ministers-in-charge of Railways, Transport, and Civil Aviation, Industry, Planning, and Finance, and the Member of the Planning Commission in-charge of Transport. The Prime Minister may appoint a member of the Committee to serve as Chairman. To secure an adequate measure of coordinated action by way of implementation, a Council for Transport Coordination should be set up.

Progress in the Third Plan

The programme for line capacity and rolling stock originally planned to cater for an originating traffic of 245 million tonnes in 1965-66, was subsequently revised to 264 million tonnes. In 1963, at the time of the mid-term appraisal of the Third Five Year Plan, the target was brought down to 245 million tonnes, in keeping with the revised targets of production of coal and steel plants. The actual achievements were only 203 million tonnes (Table 13). The shortfall was due to non-materialisation of the production targets in the major industries like coal, steel, cement and iron ore for export.

At the time of the mid-term appraisal of the Third Plan, however, it was decided to increase the outlays in the Railways programmes, in view, partly, of the requirements in the north-eastern region, following the 1962 Indo-Chinese War. The revised targets of the Third Plan and actual expenditure are indicated in Table 14. Of the expenditure of Rs 1,766.58 crore, the Railways' own contribution was Rs 625.81 crore. The shortfall in expenditure for electrification was mainly on account of electric locomotives which were ordered but for which payments were to be made on delivery.

TABLE 13. ORIGINATING FREIGHT TRAFFIC ON RAILWAYS, 1965-66

(million tonnes)

	Original plan estimates	Estimates of Traffic for which line capacity provided	Revised forecast of traffic by 1965-66	Actual achievements in 1965-66
1. Steel and raw materials (excluding coal)	34.55	34.55	27.94	23.70
2. Coal	91.44	95.52	89.01	66.70
3. Cement	12.19	12.19	10.46	8.60
4. General Goods:				
(a) Iron ore for export	11.18	11.18	8.03	5.20
(b) Railways own stores	22.86	22.86	22.86	20.70
(c) All other goods	76.71	86.87	86.87	78.20
	248.93	264.17	245.17	203.10

Source: *The Third Plan Mid-term Appraisal*, Planning Commission, Nov. 1963, page 140.

TABLE 14. RAILWAY DEVELOPMENT PROGRAMME, 1961-66

(Rs Crore)

Programme	Original targets	Revised targets	Actual expenditure
Rolling stock	510	576	542.40
Line capacity	183	281	na
Electrification	70	98	80.70
New Lines	147	206	212.10
Track renewals and other works	415	420	na
Total	1,325	1,581	1,766.58

Source: Cols. (2) & (3), *Mid-term Appraisal of the Third Plan*, page 141, Col. (4), *Indian Railways*, 1965-66.

Following the revision of Plan outlays, the physical programmes of works were also revised. The original and revised targets and the actual achievements by the end of the Third Plan are given in Table 15.

TABLE 15. ACHIEVEMENT OF RAILWAY PROGRAMMES, 1961-66

Programme (1)	Unit (2)	III Plan Target		Actual
		Original (3)	Revised (4)	Achievements (5)
Locomotives	Numbers	1,764	2,070	1,864
Coaching Vehicles	Numbers	7,879	8,601	8,019
Wagons (in terms of 4 Wheelers)	Numbers	117,144	157,133	144,789
Doubling of single line track	Route kms	2,560	3,548	3,228
Electrification of track	Route kms	1,760	2,400	1,746
New lines	Route kms	1,931	2,400	1,801
Track renewal	Route kms	8,045	-	9,671
Rail renewal (primary)	Route kms	4,823	-	2,798
Renewal of Sleepers (primary)	Route kms	3,620	-	3,852
Rail renewal (secondary)	Route kms	3,882	-	3,605
Renewal of sleepers (secondary)	Route kms	1,585	-	2,597

According to Section 27 of the Indian Railways Act, 1890, the railways had the obligation to provide reasonable facilities for receiving and forwarding the traffic offered to them without any undue preference as defined in Section 28 of the Act. Until January 1962, the responsibility of the Indian Railways as carriers was limited to that of a 'bailee' only. The Act was amended in 1961 and from 1st January 1962, the railways had assumed greater responsibility for the loss, destruction, damage, deterioration, etc., of animals or goods delivered to them for carriage. Section 27(a) was amended to provide that the Central Government could direct any railway administration, in the public interest, to give preference to the transport of such goods or class of goods as may be specified. Such directions were generally given in respect of low rated commodities like coal, mineral ores for export, raw materials for iron and steel industry, manure, foodgrains, etc. The railways were expected to meet their operating expenses as well as overhead charges from their total earnings. In addition, they were expected to earn a surplus. The commitments of the railways in 1961-66 were as follows:

(a) *Annual Dividend:* (i) The railways had to pay to the General Revenues an annual dividend at a rate fixed as a percentage of the capital-at-charge, which included a small element of contribution over and above interest charges. The rate of dividend, which was increased in 1961-62 from 4 to 4.25 per cent on the recommendation of the Railway Convention Committee, 1960, was further increased to 4.5 per cent from 1963-64. From 1964-65, the railways were required to pay dividend at 4.5 per cent on capital provided up to the end of 1963-64 and at a rate of 5.75 per cent on capital provided after March 1964. (ii) In addition, an annual payment of Rs 12.5 crore was made to the General Revenues for distribution to State Governments in lieu of the tax on passenger fares. (iii) In terms of the Railway Convention Committee, 1965, the rate of dividend was to be revised from April 1966 to 5.5 per cent on capital invested up to March 1964, and 6 per cent on capital invested thereafter. Of the additional 1 per cent dividend on capital invested up to March 1964, Rs 16.25 crore per annum was to be in lieu of the tax on passenger fares (against Rs 12.50 crore per annum paid on this account during the Third Plan period) and the balance was to be utilised to assist the States in providing their portion of the resources required for financing safety works, such as manned level crossings, over-bridges and under bridges.

(b) *Depreciation Reserve Fund:* The Railways had to contribute to the Depreciation Reserve Fund at rates determined from time to time on the basis of the recommendations of Railway Convention Committees. The contribution to the Depreciation Reserve Fund increased from Rs 45 crore per annum during the period of the Second Plan to an average of Rs 76 crore per annum during the Third Plan period, rising from Rs 65 crore in 1961-62 to Rs 85 crore in 1965-66. For the quinquennium 1966-71, the contribution to the Depreciation Reserve Fund was to be increased to an average of Rs 130 crore per year, or as close thereto as possible, taking account of the financial position in terms of the recommendations of the Railway Convention Committee, 1965.

(c) *Development Fund:* The net annual surpluses of the Railways after payment of dividend and contribution to the Depreciation Reserve Fund were to be credited to the Development Fund.

(d) *Pension Fund:* In the Railway Budget 1964-65, it was provided that a Pension Fund should be set up on the same lines as the Depreciation Reserve Fund to cover liabilities on account of ordinary, invalid, and family pensions. Accordingly, a fund for this purpose was constituted. Contribution to this Fund was estimated at Rs 12.0 crore in 1964-65 and Rs 12.5 crore in 1965-66.

ANNUAL PLANS: 1966-67 - 1968-69

The Railways' development programme for the three years 1966-69 based, as in earlier plans, on the estimated freight traffic, and actual achievements are given in Table 16.

TABLE 16. RAILWAY DEVELOPMENT PROGRAMME, 1966-69

Year	Estimated freight traffic (million tonnes)		Development programme Outlay (Rs Crore)	
	Target	Actual	Target	Actual
1965-66	204	203.0		354.80
1966-67	216	201.6	325.00	298.59
1967-68	211	196.6	305.00	286.05
1968-69	204	204.0	272.00	

Study Team Appointed by the Administrative Reforms Commission on Railways, November, 1968

The Study Team on Railways was constituted by the Administrative Reforms Commission (ARC) in September 1967 to examine the administrative and financial arrangements for the working of the Indian Railways, locate the principal problem areas, and make recommendations with a view to building an administratively efficient and financially sound system that would provide adequate and economical transport to the country. The Study Team submitted its report in November 1968. Its recommendations covered the organizational and operational fields on the Railways as also their financial position, working expenses, research and development, and other allied themes. On the organizational side, the Team suggested measures for strengthening the Railway Board and streamlining its procedures. These included that (a) The Chairman, Railway Board, should have no specific responsibility and should be free to coordinate the activities of the Board. Instead, an additional post of a Member in the Railway Board be created to look after the department concerned; (b) An officer-oriented pattern with a greater delegation of powers and decentralization of work was recommended. The functioning of the Railway Board as the Secretariat to the Minister of Railways should continue.

On the Zonal railways, organizational improvements to reduce the burden on the General Managers were recommended. A greater delegation of powers to the Heads of Departments and Divisional Superintendents was also suggested. This was likely to lead to reduction in the number of officers and staff required on the zonal railways. Further, steps necessary for improving personnel administration on the railways and career prospects of officers and staff were recommended. The divisional system should replace the district system on the North-Eastern and North-East Frontier Railways to improve efficiency.

The Study Team laid emphasis on effecting economies on the various spheres of railway working, namely, operation, maintenance, and staff input. In the case of railways incurring losses, there was need for periodical review of the financial results of their working by the Railway Board.

Some of the more important recommendations by the Study Team were (a) Political interference with the day-to-day working of the railways was having a serious impact on the workload at all levels of the management. (b) The cost of operation per tonne km on the metre gauge was 5.42 paise as against 3.30 paise on the broad gauge. An annual investment of about Rs 10 crore should be set apart so that about 200 kms could be converted annually. (c) The metre guage railway system should be improved in those areas where it was needed for development of industries. The strategic value of the system for national security should also be taken into account as the entire Himalayan border, the Rajasthan border with Pakistan, and the coastal belt in the South were served by the metre gauge. (d) The procedure whereby the Railways procured their requirements through the Directorate General, Supplies and Disposals, led to delay in the supply of even essential items required for maintenance which held up at times operations in the workshops and in the fields. All items of stores, which were purchased only by the Railways, and not by other Government Departments, should be taken over from the Central procurement agency by the Ministry of Railways. As far as possible, the additional purchase work should be passed on to the zonal railways, the Railway Board only

bringing about the necessary coordination. (e) The energy of the Finance and Accounts Officers of the Railways should be concentrated on items like performance budgeting, effecting economy and overall efficiency, and detailed examination of major schemes. (f) There was urgent need for the Railway Board to set up a Committee of expert Railway Officers to review the various provisions contained in the Accounts, General and Engineering Codes and to modify them to suit efficient functioning of the Railways. (g) Expenditure on unremunerative lines should be avoided unless the State Government or the organisation, which sponsors such works, was prepared to meet the deficit. Unremunerative branch lines were causing an annual loss of about Rs 6.6 crore to the Railways. (h) The problem of new lines or removal of unremunerative existing lines should be viewed from the angle of overall economic cost to the country in rendering the required service. (i) In the metropolitan areas, underground or elevated railways should be constructed to avoid pressure on existing facilities.

Railway Accidents Inquiry Committee, 1968-69

Following two Railway accidents at Talvigi and Bharwari on the Southern and Northern Railways respectively in March 1968, Government of India constituted, in April 1968, the Railway Accidents Inquiry Committee, (i) To review the position of accidents on the Indian Railways since the appointment of Railway Accidents Committee, 1962, in the light of the recommendations made by it and the implementation thereof and (ii) To suggest measures for further minimising the accidents. The Committee covered the first term of reference in Part I of their Report submitted in November 1968. The second term of reference was covered in another report submitted in August 1969.

Surveying the incidence of accidents, the Committee concluded that there was a significant decrease in the number of accidents in each of the four categories, namely, collisions, derailments, accidents at level crossings, and fires in trains during the five years from 1963-64 to 1967-68 as compared to the six years from 1957-58 to 1962-63. However, there was no cause for complacency. With increased axle loads, speeds and more intensive operations, the need for attention to the maintenance of track and rolling stock would be greater. The Committee emphasised the human factor in this matter and recommended welfare measures, employment, promotion, salary, etc., prospects, recognition of trade unions, housing for essential staff, and training facilities for the staff so as to instil safety consciousness among them. Recommendations were made for (a) the improvement, modernisation, and maintenance of the permanent way, signalling and inter-locking, motive power, goods and coaching stock, and level crossings; (b) the reorganisation of the Research Designs and Standards Organisation of the Railways and its future role; and (c) the functioning of the Commission on Railway Safety, etc.

The Railway Property (Unlawful Possession) Act, 1966, was passed by Parliament in September 1966, empowering the Railway Protection Force to investigate and prosecute, in Courts of Law, cases relating to offences against railway property. In October 1966, a new Railway Zone, the South Central Railway with headquarters at Secunderabad was formed.

Progress during 1951-56 to 1968-69

We might summarise the progress during the past two decades. The First Five Year Plan for the Railways concentrated mainly on the rehabilitation of depleted assets. During the Second Plan, development was accelerated but, at times, the demand still outstripped rail transport capacity. It was the objective of the Third Plan that capacity should be marginally ahead of the demand. This continued to be the objective during the years 1966-67, 1967-68 and 1968-69. The progress of capacity during the three plan periods and in the three annual plans is shown in Table 17.

TABLE 17. PROGRESS OF RAILWAY CAPACITY, 1951-69

	First Plan	Second Plan	Third Plan	1966-67	1967-68	1968-69
1. New lines (kms)	1,304	1,311	1,801	52	269	740
2. Doubling of Track (kms)	370	1,512	3,228	476	532	260
3. Electrification of Railway Lines (Route kms)	--	362	1,746	404	150	351
4. Manufacture/Procurement of Rolling Stock:						
(a) Locomotives	1,586	2,216	1,864	294	308	275
(b) Coaching stock	4,758	7,718	8,019	1,264	1,258	1,273
(c) Wagons (In terms of 4 wheelers)	61,254	97,959	144,789	21,207	17,634	16,476

Source: *Indian Railways*, 1966-67, 1967-68 and 1968-69

The originating freight traffic and passenger traffic are shown in Table 18.

TABLE 18. ORIGINATING FREIGHT TRAFFIC AND PASSENGER TRAFFIC

	1955-56	1960-61	1965-66	1966-67	1967-68	1968-69
1. Total Route Kilometres	55,011	56,247	58,399	58,465	58,87	59,553
2. Passenger Originating (millions)	1,275	1,594	2,082	2,191	2,257	2,213
3. Passenger Kilometres (millions)	62,400	77,665	96,294	102,135	107,163	106,940
4. Freight tonnes Originating (millions)	115.9	156.2	203.0	201.6	196.6	204.0
5. Tonnes Kilometres (millions)	59,576	87,680	116,936	116,607	118,860	125,140

Source: *Indian Railways* 1966-67, 1967-68 and 1968-69.

The decline in the freight and passenger traffic, together with an increase in the working expenses, resulted in a net loss to the Government in the working of railways in the three annual plan years (Table 19). For comparison, the position in 1955-56, 1960-61, and 1965-66 is also shown side by side.

TABLE 19. FINANCIAL RETURNS ON RAILWAYS

	Unit	1955-56	1960-61	1965-66	1966-67	1967-68	1968-69
1. Capital-at-charge	Rs crore	969.0	1,520.9	2,680.3	2,841.6	2,978.0	3,101.3
2. Gross Receipts	Rs crore	316.33	460.42	733.76	769.00	818.36	897.07
3. Working Expenses	Rs crore	265.99	372.55	598.92	654.88	708.36	756.26
4. Net Revenue Receipts	Rs crore	50.34	87.87	134.84	114.12	110.00	142.81
5. Percentage of Net Revenue Receipts to capital-at-charge	Per cent	5.20	5.77	5.03	4.02	3.69	4.60
6. Dividend to General Revenues	Rs crore	36.12	55.86	103.75 +12.50	132.39	141.53	150.67
7. Net gain (+) or loss (-) to Government	Rs crore	(+)14.22	(+)32.01	(+)18.56	(-)18.27	(-)31.53	(-)7.86

Source: *Indian Railways*, 1966-67, 1967-68 and 1968-69.

The four Railway Funds, namely, the Depreciation Reserve Fund, the Development Fund, the Revenue Reserve Fund, and the Railway Pension Fund were affected by the losses during the three annual plan years. According to the recommendations of the Railway Convention Committee 1965, the Depreciation Reserve Fund was to be credited with Rs 130 crore per annum on an average or as close thereto as possible, keeping in view the financial position of the railways for the quinquennium 1966-71. The contribution to this Fund was Rs 100 crore in 1966-67, and Rs 95 crore each in 1967-68 and 1968-69.

The Development Fund was built up out of the Railway's surplus earnings for financing expenditure on amenities for railway users, labour welfare, and works which were necessary but unremunerative. The Development Fund did not receive any contribution during 1966-69. In fact, Rs 27.95 crore were withdrawn in 1966-67, Rs 19.39 crore in 1967-68, and Rs 17.39 crore in 1968-69 to meet the expenditure chargeable to this Fund. By 1969, only Rs 1.26 crore remained in the Development Fund and the Railways were forced to take loans totalling Rs 25.30 crore from the General Revenues to meet expenditure on amenities for railway users and Railway staff, and on unremunerative operating improvements and Safety Works chargeable to the Development Fund.

The Revenue Reserve Fund was meant for maintaining the agreed payments to General Revenues and for meeting deficits, if any, in the working of the railways. Since 1956-57, the Fund had not received any fresh accretion except interest. As envisaged in the Convention Resolution of 1965, amortisation of unproductive capital commenced in 1966-67, and interest earned on the balance in this Fund on 31st March 1966 was taken in reduction of the element of over-capitalisation. Amortisation was continued in 1967-68 and 1968-69. As the annual plan years closed with deficits, an amount of Rs 18.27 crore was withdrawn from this Fund in 1966-67, Rs 33.69 crores in 1967-68, and Rs 9.04 crore in 1968-69 to cover the deficits. At the beginning of 1969-70, the balance in the Fund was only Rs 3.49 crore.

The Railway Pension Fund, which was created with effect from April 1964 for meeting the pension liability of railway staff, was credited with Rs 14.00 crore in 1966-67, and Rs 10.30 crore each in 1967-68 and 1968-69. At the beginning of 1969-70, the balance in this Fund stood at Rs 67.90 crore.

FOURTH FIVE YEAR PLAN : 1969-74

The basic objectives of Railways' Fourth Five Year Plan were to (i) provide capacity for freight and coaching traffic anticipated during the plan period; and (ii) modernise equipment and practices to the maximum extent possible with the available resources, in order to improve efficiency and reduce costs. The Fourth Plan document referred to the trend in growth and the relative share of goods and passenger traffic to rail and road since 1960-61 and the targets for 1973-74 (Table 20).

Goods traffic carried by rail increased by 42 per cent between 1960-61 and 1968-69 and by road, 135 per cent. The share of roads in the total goods traffic carried by rail and road together increased from 16 per cent in 1960-61 to 24 per cent in 1968-69. Passenger traffic by rail increased between 1960-61 and 1968-69 by 37 per cent and that by road, 72 per cent. The share of roads in passenger traffic increased from 42 per cent in 1960-61 to about 48 per cent in 1968-69. It was estimated that these trends would continue, and the share of roads in the total traffic carried by road and rail might increase to about 35 per cent in respect of goods traffic and 51 per cent in respect of passenger traffic.

The originating freight traffic on the railways increased from 156.2 million tonnes in 1960-61 to 203.0 million tonnes in 1965-66. The traffic declined to 201.6 million tonnes in 1966-67 and further to 196.6 million tonnes in 1967-68. The traffic picked up in 1968-69 and the total originating freight traffic in that year amounted to 204.0 million tonnes. It was estimated that originating freight traffic on the railways in 1973-74 would be about 280 to 290 million tonnes. As in the past, the bulk commodities were expected to account for a large part of the increase in traffic. With the programmes already completed and those included in the Fourth Plan, adequate line capacity was expected to be available to meet the requirements of likely

growth of traffic. The provision for rolling stock made in the Fourth Plan was expected to be adequate for about 265 million tonnes of originating freight traffic. The requirements of additional traffic would be met by more intensive utilisation of rolling stock and to the extent necessary by acquisition of additional stock.

TABLE 20. RELATIVE SHARE OF RAIL AND ROAD IN GOODS AND PASSENGER TRAFFIC

Year	Railways	Road Transport	Percentage share	
			Railways	Road Transport
	I. Goods Traffic (billion tonne-kilometres)			
1960-61	88	17	83.8	16.2
1965-66	117	34	77.5	22.5
1968-69	125	40	75.8	24.2
1973-74 (Target)	159	84	65.4	34.6
	II. Passenger Traffic (billion passenger-kilometres)			
1960-61	78	57	57.8	42.2
1965-66	96	82	53.9	46.1
1968-69	107	98	52.2	47.8
1973-74 (Target)	135	140	49.1	50.9

The Fourth Plan provided for an increase of about 20 per cent in passenger vehicle kilometres for non-suburban services, as against an increase of 17 per cent achieved during the Third Plan period. As regards suburban traffic, provision was made for an increase of 31 per cent in (EMU) Electrical Multiple Units services over the period of the Fourth Plan. A specific provision of Rs 50 crore was made for schemes for mass transit facilities in the metropolitan cities of Bombay, Calcutta, Madras, and Delhi.

An outlay of Rs 1,000 crore, excluding an expenditure of Rs 525 crore to be met by the Railways from their Depreciation Reserve Fund, was provided for the railway development programme,. In addition, a provision of Rs 50 crore was made for metropolitan transport. The main components of the outlay are given in table 21.

TABLE 21. OUTLAY FOR RAILWAYS, 1969-74

(Rs Crore)

Item	Plan Outlay	From Depreciation Reserve Fund	Total
(1)	(2)	(3)	(4)
1. Rolling Stock	397	223	620
2. Workshop	28	2	30
3. Machinery and plant	7	8	15
4. Track Renewal	-	200	200
5. Bridge work	8	20	28
6. Line Capacity Works	275	40	315
7. Signalling and Safety	27	13	40
8. Electrification	81	1	82
9. Other Electrical works	4	8	12
10. New Lines	83	-	83
11. Staff welfare	13	2	15
12. Staff quarters	27	3	30
13. Users Amenities	20	-	20
14. Other specified works	5	5	10
15. Road Services	10	-	10
16. Inventories	15	-	15
17. Total	1,000	525	1,525
18. Metropolitan Transport	50	-	50
19. Grand Total	1,050	525	1,575

The programme for acquisition of rolling stock was based entirely on indigenous production. The additions and replacements in the rolling stock programme are shown in Table 22.

TABLE 22. ADDITIONS AND REPLACEMENT OF ROLLING STOCK

(numbers)

Item	Rolling Stock on line at the end of 1969	Programme for the Fourth Plan		
		Addition	Replacement	Total
Locomotives	11,555	652	607	1,259
(i) Steam	10,046	..	161	161
(ii) Diesel	996	369	389*	758
(iii) Electric	513	283	57	340
Wagons (in terms of 4-wheelers)	484,985	76,192	25,340	101,532
Coaching Stock				
Coaches } Rail Cars }	32,729	3,250	3,168	6,418
Electric Multiple Units	1,562	596	172	768

* for replacement of steam locomotives

Electric traction was to be extended from 2,900 route kilometres to about 4,600 route kilometres in 1973-74. It was proposed to electrify or dieselise fully the high density routes which were under mixed traction. Dieselisation was to be extended to other sections in an order of priority determined by relative densities of traffic and continuity of diesel traction, preference being given to those sections which were far removed from the coalfields so as to reduce the burden on the transport system. The programme of conversion of metre gauge lines into broad gauge was intended to eliminate delay and damage, particularly at the transshipment points, and improve the economics of railway operation. A programme of converting 1,500 kilometres of metre gauge lines into broad gauge lines was proposed of which about half would be completed during the Fourth Plan period. Doubling of track was proposed on 1,800 kilometres. This included about 550 kilometres on which work was in progress at the beginning of the Fourth Plan. Work was in progress on construction of new lines over a length of 1,022 kms.

The Administrative Reforms Commission on Railways, January 1970

The Administrative Reforms Commission (ARC) submitted its Report on the Railways on January 30, 1970. The ARC recommended that the Railways should be enabled to function on sound business and commercial principles within the framework of the policy laid down by Parliament and within the confines of public accountability, but without any interference in its day-to-day working by political or other external authorities. The relationship of the Railway Board vis-a-vis the Minister of Railways should in practice be patterned on the lines of the relationship between a Ministry and a Public Sector Undertaking Corporation. The Minister should confine himself to matters of overall supervision and vigilance, the larger issues involving improved efficiency of the Railway system, and planning and budgeting. He should be able effectively to intervene when matters of public policy are involved or in matters which affect the Government as a whole or relationship between the Board and other Departments.

Some of the other recommendations of the ARC were (a) the setting up of a Standing Committee of Parliament for ensuring proper and purposeful scrutiny over the working of the transport sector including the Railways. The Committee should not, in any way, affect the functioning of the existing Informal Consultative Committees for the Zonal Railways. (b) The Transport Development Council, constituted under the Chairmanship of the Minister for Transport and Shipping, should function more effectively. (c) The existing forums like the National Railway Users' Consultative Committees, and the

Regional/Divisional Railway Users' Consultative Committees, etc., should be utilised in a more purposeful manner. (d) The Railway Board should be compact in size, the number of Members of the Board including the Chairman and the Member-Finance (Financial Commissioner) should not normally exceed six. The Chairman should have a tenure of at least three years and the Members should normally have a tenure of five years. The total period of tenure both as a Chairman and as a Member should be at least seven years. The ARC agreed with the recommendations of their Study Team on Railways (November 1968) with regard to the broad functions of the Railway Board, the delegation of more financial and administrative powers to the Zonal Railways, the adoption of an officer-oriented pattern of working on the Railway and the staffing of the Railway Board with experienced and competent officers. (e) The question of continuing unremunerative lines should be constantly reviewed by the Railway Board so as to ensure that Railway finances were utilised for the running of commercially acceptable or potentially profitable lines. (f) Rationalisation of train schedules for short-distance traffic be undertaken in consultation with the State Transport Authorities. (g) Early attention be given to achieving single gauge system, as far as practicable, throughout the country. (h) Adequate administrative measures be taken to study the pattern of consumption of fuel and ensure economical and proper utilisation. (i) Greater decentralisation be done of the purchase of stores in favour of the Zonal Railways. The Railways should be permitted to procure the stores, special to them, through their own organisations. Modern techniques of inventory control should be introduced. (j) Responsibility for loss of or damage to goods in transit must rest with the Railway Administration. (k) Government should devise ways and means for providing Railways with funds for their development; Depreciation and other reserve funds of the Railways to be a prior charge on Railway revenues; the rate of dividend could vary according to the balance available. (l) There should be a moratorium on payment of dividends for a period of 5 years for works such as major remodellings, rail capacity works, etc. costing more than Rs 1 crore.

Railway Convention Committee, 1971

The 1965 Convention was to be co-extensive with the then envisaged Fourth Plan period 1966-71. However, as the date of commencement of the Fourth Plan was later shifted to 1969-70 - the inter-Plan period of 1966-69 was covered by annual Plans - it was thought appropriate that a new Convention should be framed for the revised Fourth Plan 1969-74. Accordingly, in November-December, 1968, Resolutions were passed by both Houses of Parliament constituting the Railway Convention Committee, 1968. However, before this Committee could complete its deliberations, the Lok Sabha was dissolved in December 1970 and the Committee, therefore, ceased to exist. The 1965 Convention in effect covered the inter-Plan period 1966-69.

In August, 1971, the Railway Convention Committee, 1971 was constituted 'to review the rate of dividend payable by the Railway undertaking to the General Revenues as well as other matters to cover the Fourth Plan period 1969-74. The Committee submitted seven reports between November 1971 and April 1973. An Interim Report submitted in November 1971, made certain recommendations covering the period 1971-72 and 1972-73 only. The First Report dealt with Accounting Matters (December 1972), the Second Report with Suburban Services (February 1973), the Third and Fourth Reports with Commercial and Allied Matters (February-March 1973), the Fifth Report with Requirements and Availability of Wagons (April 1973), and the Sixth Report with the Rate of Dividend for 1969-70 and 1970-71 and other ancillary matters. A summary of the recommendations in these reports are given in the ensuing paragraphs.

I. *Interim Report, November*, 1971

In its Interim Report, the Committee agreed that there was a distinct advantage in assuring to General Revenues a definite, regular, and predictable contribution from the Railways annually

year after year, and leaving the Railways a degree of flexibility in the internal administration of their finances. The mode of payment of a fixed dividend on the capital invested as computed annually in lieu of the interest charges plus a small element of contribution to General Revenues, did not call for any change. The arrangement of fixing different rates of dividend on capital invested in the Railways upto 31st March 1964 and that invested thereafter should also continue. The Committee suggested that the rate of dividend at 4-1/2 per cent on the capital invested in the Railways upto 1963-64 with an addition of 1 per cent in lieu of passenger fare tax, and at 6 per cent of the capital invested after 31st March, 1964 should continue to be paid by the Railways to the General Revenues during the period, 1971-72 and 1972-73, subject to certain concessions and exemptions. The Committee referred to the demands of the States for increase in revenue from the railways in lieu of passenger tax. Keeping in view the services borne by the Railways for the States in the form of suburban services, unremunerative lines, Railway Protection Force, etc., the Committee saw no scope for increasing the payment in lieu of passenger fare tax in proportion to the growth of passenger traffic or earnings. The existing arrangements, whereby additional 1 per cent of the capital invested upto 31st March 1964 paid to the General Revenues for payment to States of a fixed amount of Rs 16.25 crore in lieu of passenger fare tax and utilisation of the balance to assist the States (in the same proportion as their shares of the passenger fare tax) to provide their portion of the resources required for financing safety works such as manned level crossings, over-bridges, and under-bridges, may be continued.

Exemptions granted to the Railways from dividend liability of the capital invested on strategic lines as also the Kiriburu-Bimalgarh and Sambalpur-Titlagarh ore lines and the Kathua-Jammu line should continue. In the same manner, the capital-at-charge of the non-strategic portion of the North East Frontier Railway and the unremunerative branch lines, as also the element of over capitalisation may be exempted from payment of dividend. Also, the arrangements of (a) deferring the payment of dividend on capital-at-charge of new lines chargeable at the average borrowing rate of interest during the period of their construction as well as for the first five years after their opening; and (b) closing the account of deferred dividend of new lines after a period of 20 years from the date of their opening, extinguishing any liability for deferred dividend not liquidated within that period, may be continued. Further, having regard to the long period of construction/gestation of railway investment in general and the time taken by such investments to reach full earning potential, 25 per cent of the outlay in a year on works-in-progress (which would otherwise be liable to pay dividend) may be exempted from payment of dividend for a period of three years.

The Central Government held as part of their cash balances the Railway Reserves, namely, the Depreciation Reserve Fund, the Revenue Reserve Fund and the Pension Fund as well as certain other amounts under deposits in the Public Account not carrying interest. On the balances of these Funds, the Railways received the average rate of interest on Government borrowings but, on the miscellaneous deposits in the Public Account, no interest was paid to them. On the other hand the Railways had to pay full dividend on funds obtained from Government except for a few exemptions and concessions. The Committee thought that this was somewhat anomalous. Consistent with the commercial practice of utilising reserves as internal resources, the Railways should be given the benefit of interest at the current dividend rate on the fund balances by being permitted to take credit for the difference between the dividend rate and the average borrowing rate at which interest accrued to the Funds as a set off in the dividend payable from the Railways to the General Revenues.

The Committee agreed with the Railway Board that a total contribution of Rs 525 crore be made to the Depreciation Reserve Fund in the quinquennium period 1969-74 as follows: Rs 95 crore in 1969-70, Rs 100 crore in 1970-71, Rs 105 crores in 1971-72, Rs 110 crore in 1972-73, and Rs 115 crore in 1973-74.

The provision for temporary borrowing from General Revenues when the balance in the Development Fund was inadequate to meet the

Railways' obligations, should countinue. Railways could also be permitted to take temporary loans from the General Revenues to meet the dividend liability in case the Railways' net revenue was not adequate to pay in full the dividend to the General Revenues and the Revenue Reserve Fund had no or insufficient balance to make good the shortfall.

The Interim Report of the Railway Convention Committee, 1971, was adopted by the two Houses of Parliament on the 16th and 20th December 1971 respectively.

First Report, December 1972

In their First Report, the Committee recommended that the provisions of its Interim Report should be taken to cover the financial year 1973-74 also. It noted that contributions to the Depreciation Reserve Fund were related not to the amount of depreciation calculated as accruing on the wasting capital assets of the Railways, but to the amounts that were expected to be withdrawn from the Fund during each Five Year period. In the absence of any detailed record as to the prescribed lives of various assets, 'rough' estimates of accrued depreciation were made based on an *ad hoc* assessment. The Committee suggested that further refinement of the technique of assessing the depreciation requirements, particularly for the assets created during the Fourth Plan period, was necessary.

Out of 2,654 steam locomotives requiring replacement in the Fourth Five Year Plan, as many as 1,544 would have to be continued in service at the end of the Plan. Their continuation would result in (i) excessive expenditure on their annual maintenance; (ii) continued dispersal of maintenance, (iii) continuance of antiquated skill in labour force; (iv) lower output potential of steam locos compared to diesel and electric locos; (v) continued blocking up and under- utilisation of much needed line capacity. The Committee suggested that the Ministry of Railways should examine the matter and ascertain the precise effect of using overaged steam locomotives on the various types of services and the economics thereof.

The arrangement whereby loans taken from General Revenues to finance the expenditure from Revenue Reserve Fund (including further loans for repayment of the principal or interest charged thereon) are charged at the current borrowing rate, should continue. The capital-at-charge of the Railways included a large element of over-capitalisation amounting to Rs 118.25 crore which should be amortised.

The Government should undertake a comprehensive review of the form and content of the Railway Budget and the number of Demands for Grants as well as the various documents accompanying it, with a view to rationalising and simplifying their contents in the interest of proper accountability to Parliament and the public.

Second Report, Suburban Services, February 1973

During the 20 years from 1950-51 to 1970-71, while the suburban traffic increased by 292 per cent at Bombay, 333 per cent at Calcutta, and 246 per cent at Madras, the number of trains had increased only by 167 per cent at Bombay, 220 per cent at Calcutta, and 124 per cent at Madras, resulting in the deterioration of travel conditions of suburban passengers in these cities. The Committee felt that the problems of suburban traffic should have received attention from the very First Plan so that an integrated development of these essential transport services could have been drawn up and implemented by Government.

In October, 1965, the Planning Commission had constituted a Study Team to carry out comprehensive traffic and transport studies in the four metropolitan cities of Bombay, Calcutta, Madras, and Delhi. Only the scheme for Rapid Transit System for Calcutta Underground Railway was finalised and approved by Government. The schemes of Rapid Transit Systems for Bombay, Delhi, and Madras were not yet finalised despite a lapse of over seven years. Pending the introduction of Rapid Transit Systems in these metropolitan cities, the Railways should take crash measures to bring about improvements in the existing suburban facilities in these cities. Concerted efforts should also be made by Railways to reduce losses in suburban services.

The Committee further recommended that a

survey of the transport facilities at all the metropolitan cities for meeting the requirements of suburban traffic having a population of 10 lakh and above, should be undertaken by the Railways and integrated perspective plans for their development be prepared in consultation with the Planning Commission, State Governments, and local authorities. Scientific cost studies of suburban railway fairs should also be undertaken. Season ticket fares for the suburban passengers in the three cities of Bombay, Calcutta, and Madras were not uniform. The season tickets were also lower than those charged from non-suburban season ticket holders in other cities. The Committee recommended that the differences in the third class suburban season ticket fares should be removed and uniform fares should be prescribed in the three cities. Suburban travel which is for short duration, and utilised mostly by third class passengers, should be mass-oriented and should provide one class of travel only.

The terminal facilities at Bombay, Calcutta, and Madras were not adequate to cater to the needs of the passenger traffic and it was only in February, 1971, that the Railway Board instructed the Zonal Railways to conduct necessary studies to optimise these facilities. The Committee regretted the delay.

Third Report, Commercial and Allied Matters (Part I), February 1973

In this Report, the Committee dealt with problems affecting the functioning of the Railways, namely, thefts, pilferages, compensation claims, ticket-less travel, etc. The Committee recommended that (a) the Claims Organisation should be reorganised and rationalised in the interest of speedy settlement of claims particularly those costing less than Rs 1,000 which constituted about 80 per cent of the total claims; (b) the Railway Protection force should be reorganised; (c) incidence of ticketless travel should be minimised; and (d) effective measures should be taken for ensuring quick and safe measures for the transport of goods.

Fourth Report, Commercial and Allied Matters (Part II), March 1973

The Report dealt with matters pertaining to over-crowding on Indian Railways, the various classes of travel, and free pass facilities to Railway staff, and Railway users' amenities. During the decade ending 1969-70, while the growth of passenger kms was about 40 per cent, the growth in vehicle kms had been only about 26 per cent, resulting in increased over-crowding. The Committee observed that the provision of transport facilities for passengers had not received as close an attention of the Railways as it should have, despite the dependence of large numbers on rail transport, particularly for long distances. If careful planning had been done right from the beginning of the First Plan, the Railways would not have faced such an acute problem of congestion on trunk routes as well as rail transport for metropolitan and other capital cities. The working groups constituted by the Planning Commission to go into the requirements of Passenger Traffic for the Fifth Plan should examine the matter in all its aspects, with special reference to the backlog which accumulated particularly on trunk routes.

The Committee noted that the Indian Railways provided five classes of accommodation, namely, air-conditioned, air-conditioned chair car, First Class, Second Class, and Third Class. The Railway Board had taken a decision to abolish Second Class within eighteen months. The Committee pointed to the acute and chronic over-crowding in the third class accommodation on most of the routes. So long as the Railways were unable to assure a seat to a third class passenger on any train and for any distance at a reasonable short notice, the provision of facilities for the more affluent sections of society by way of air-conditioned trains/coaches was out of tune with the declared objective of establishment of a socialistic society. Immediate relief could be given to third class passengers by rationalising the classes of travel on the Indian Railways. Further, the cost of operations of various types of passengers services should be undertaken and any losses on operation of higher classes should be borne by those travelling in them and not by the Railways.

Fifth Report, Requirement and Availability of Wagons, April 1973

Wagon requirements in the Plan periods was estimated on the basis of the anticipated freight traffic in each Plan period which failed to materialise. There had been shortfalls in the movement of traffic of major commodity groups like steel plants traffic, coal, general goods, etc., both during the third and the fourth Plan periods. There was no reason why the estimates continued to be grossly inflated. In the Fourth Plan Mid-term Appraisal, it was admitted that 'inaccurate forecasting led to inadequate facilities in some areas and under- utilisation of capacity in others. During the Fourth Plan, while the originating freight traffic turned out to be about 215 million tonnes compared to an estimated 265 million tonnes, the Plan provision for the Railways was reduced from Rs 1,525 crore to Rs 1,400 crore only. Scarce resources were spent by the Railways in over-capitalisation.

The Railways had procured a total of 1,44,789 wagons during the Third Plan. In the Fourth Plan, against the original provision of 1,01,532 wagons (in terms of 4-wheelers), both on additional and replacement account, the Railways reduced their requirements to 71,776 wagons at the time of Mid-term Appraisal. But provision was made for 15,000 additional wagons to be adjusted against the Fifth Plan. The Railways had admitted that they had surplus rail capacity at the end of the Third Plan. Nevertheless, substantial accretion were made to the wagon fleet while the freight traffic declined. The Committee stressed that while assessing the requirements of wagons for the Fifth Plan, the surplus capacity available with Railways, the capacity to move additional freight traffic with the increased introduction of electric and diesel traction, better and more efficient utilisation of wagons, and the reduction in the detention of wagons by trade, should be taken into account.

More than six types of wagons were available on the Railways for public traffic but no norms were laid down to determine type-wise requirements of wagons. The Railways should assess their requirements of all types of wagons with reference to the demand for each type of wagon and should also fix norms for each type. Railways could meet all their wagon requirements for the Fifth Plan from the existing manufacturing units in the country with capacity of production of about 35,000 wagons per year.

The capacity for manufacture of wheel and axle sets was about 3,000 sets per year with TISCO and 45,000 sets per year at the Durgapur Steel Plant. The latter plant were proposing to expand their capacity to about 72,000 sets per year. However, actual production at both the plants was steadily declining. The Committee noted that the Railways were setting up a Wheel and Axle Plant costing about Rs 17 crore with a foreign exchange component of Rs 5 crore and involving foreign collaboration when the above mentioned capacities were available in the country to fulfil Plan requirements. The Committee suggested that a high-powered technical committee should go into the production capacity of wheel sets at the Durgapur Steel Plant and examine whether the same could not be geared to reach the maximum capacity to meet the full Railway requirements.

The Committee recommended the setting up of Goods Traffic Consultative Committees at the station, divisional, zonal, and national levels representing all sections of users particularly the trading and business community and public sector undertakings to sort out problems of goods movement.

Sixth Report, April 1973

This was the final Report of the Committee. It dealt with the rate of dividend in the first two years of the Fourth Plan which was not covered in its earlier Reports, and certain other ancillary matters. The Committee recommended the arrangements proposed by them for the period 1971-72 to 1973-74 may be given retrospective effect to cover the first two years of the Fourth Plan, i.e. 1969-70 and 1970-71 as well.

Mid-Term Appraisal of The Fourth Plan, Dec. 1971

The Fourth Plan had expected that the originating freight traffic on the railways would increase from 204 million tonnes in 1968-69 to 265 million tonnes in 1973-74; but, in 1969-70,

it had increased to only 208 million tonnes and, in 1970- 71, it actually fell to 199 million tonnes which was less than what it was in 1968-69. Therefore, after a reappraisal, the freight traffic forecast for 1973-74 was reduced to 240 million tonnes. On the other hand, the passenger traffic was expected to increase, over the Plan period, by about 20 per cent in passenger vehicle kilometres for non-suburban services and of 31 per cent in electric multiple unit of the suburban services. In fact, in 1969-70, the originating passenger traffic had increased by 5.7 per cent and in 1970-71 by about 6.0 per cent. Consequently, despite provision of more trains in some sectors and some speeding up of trains, over-crowding continued on many routes. But, because of overall resource constraints, and beyond a point, limitations in production capacity of railway coaching factories and on line capacity near the metropolitan cities, not much improvement seemed possible within the Plan period.

The Plan had provided Rs 1,000 crore for railway development programmes, excluding an expenditure of Rs 525 crore to be met by Railways from their Depreciation Reserve Fund and Rs 50 crore for metropolitan transport. The total expenditure during the first three years was expected to be about Rs 451.46 crore or 45 per cent of the original provision. In view of the revised estimates of freight traffic, the provision (excluding for metropolitan transport) was reduced by Rs 150 crore, from Rs 1,000 crore to Rs 850 crore. The expenditure from the Depreciation Reserve Fund, was however, stepped up from Rs 525 crore to Rs 550 crore.

The original outlays and the revised outlays proposed in the Mid-Term Appraisal are shown in Table 23.

TABLE 23. OUTLAY FOR RAILWAY DEVELOPMENT PROGRAMME, 1969-74.

(Rs Crore)

Item	Original	Revised
1. Rolling stock	630	568
2. Workshop and Sheds	30	30
3. Machinery and Plant	15	25
4. Track Renewals	200	180
5. Bridge Works	28	29
6. Line Capacity Works	315	234
7. Signalling and Safety	40	49
8. Electrification	82	73
9. Other Electrical Works	12	15
10. New Lines	83	86
11. Staff Welfare	15	20
12. Staff Quarters	30	36
13. Users Amenities	20	20
14. Other Specified Works	10	10
15. Road Services	10	10
16. Inventories	15	15
17. *Sub Total*	*1,525*	*1400*
18. Subtract Depreciation Expenditure	525	550
19. *Plan Expenditure (17 - 18)*	*1,000*	*850*
20. Metropolitan Transport	50	20
21. Total Plan Expenditure	1,050	870

The changes in the rolling stock programme in the revised Railway Plan are shown in Table 24.

TABLE 24. ROLLING STOCK PROGRAMME, 1969-74

(Number)

Item	Addition		Replacement		Total	
	As in the Fourth Plan	Revised	As in the Fourth Plan	Revised	As in the Fourth Plan	Revised
Locomotives:						
1. Steam	--	--	161	124	161	124
2. Diesel (Main line)	269	166	379	379	648	545
3. Diesel Shunters	100	100	--	33	133	133
4. Diesel (N.G.)	--	--	10	30	10	30
5. Total Diesel	369	266	389	442	758	708
6. Electric	283	247	57	53	340	300
7. Wagons (in terms of 4-Wheelers)	76,192	33,148	25,340	35,628	101,532	68,776
Coaching Stock:						
8. Coaches	3,250	3,250	3,200	3,168	6,418	6,450
9. Rail Cars	50	12	--	20	50	32
10. Electric Multiple Units	596	541	172	300	768	841

Report of the Uneconomic Branch Lines Committee, 1969

The Uneconomic Branch Lines Committee was appointed in 1969 to review procedures and policies concerning unremunerative branch lines. The Committee found that the State Governments were strongly opposed to their closure, because railway communications were necessary for the economic development of an area and there wold be public agitation if facilities once provided were withdrawn. The Committee recommended that (a) in the estimates of loss, the interest element should not be taken into account, as laid down in para 846 of the Railway General Code; (b) the formula adopted by certain railways in estimating mainline earnings, were not right and fair; (c) in the division of goods earnings between main line and a branch line, the procedure should allow for a credit for terminals to the end railways; (d) in arriving at the expenses of a branch line, by pro-rata calculations, expenditure not relevant to branch lines, should be excluded, as far as possible; (e) in estimating the share of joint expenditure to be attributed to a branch line, a percentage only of the expenditure should be taken; (f) no part of expenditure falling under General Administration should be apportioned to a branch, unless the "branch" is an extensive system; (g) trained Cost Accountants should be attached to the Costing Cell of the Railway Board; (h) branch lines should not be looked at in isolation but as part of an integrated railway system; (i) the economic purpose a losing line is serving should be examined; (j) proper maintenance and replacement of stock could improve service; (k) the directive that Railways should encourage development of road transport service on routes parallel to unremunerative lines should be cancelled; (l) the charges for goods traffic on narrow gauge lines could be appropriately enhanced; etc.

Policy Changes during 1969-74

Following the recommendation of the Study Team of ARC, the Divisional system of working was introduced on the North Eastern and the North East Frontier Railways, beginning from May 1, 1969. In June 1972, the question of abolition of Second Class was again reviewed by the Railway Board and it was decided to give up this class of accommodation. To start with, second class coaches on unimportant trains and where their utilisation was poor, were to be withdrawn as and when second class coaches completed their useful life. No more second class coaches were to be constructed. The position regarding other classes remained unchanged. In November 1972, a decision was taken to abolish second class accommodation on passenger trains and convert the second class coaches into third class to provide more space for third class passengers. The question of changing the nomenclature of the existing Third Class accommodation provided on the trains, was also under consideration during the Plan period. A decision was taken around 1971 to discontinue the manufacture of steam locomotives and let this class die out gradually on expiry of their service life. Production of broad gauge steam locomotives actually ceased in July, 1970, while metre gauge manufacture tapered off in January, 1972. The oil crisis revived interest in steam traction as a possible alternative to dieselisation but, on an overall assessment, reversion to steam traction was not found to be economical.

Progress of Railways during the Fourth Plan

Near stagnation in industrial expansion in 1973-74 affected the performance of the railways. With the exception of petroleum products, production of the bulk commodities like coal, iron ore for export, raw materials for steel plants, iron and steel, cement and fertilizers either declined or registered only a modest increase. Inadequate availability of power and fuel as well as labour troubles hit production badly in important segments of mineral and basic industrial sectors. Consequently, the actual freight traffic in 1973-74 was only 184.9 million tonnes, that is, even below what it was at the beginning the Plan in 1968-69. Moreover, there were difficulties in the movement of certain bulk commodities. While capacity on the Indian Railways had been built in the form of modernised traction, newer and bigger wagons, etc., lack of supporting or ancillary facilities, created loading and unloading difficulties, detention of wagons, and other problems.

The physical targets and achievements during the Fourth Plan period are shown in Table 25.

TABLE 25. TARGETS AND ACHIEVEMENTS IN THE FOURTH PLAN

Item	Target	Achievement
New Lines (Route Kms)	1,022	790
Doubling and Gauge Conversion (Kms)	2,183	1,778
Electrification (Route Kms)	1,200	932
Primary Rail Renewals (Track Kms.)	8,544	5,885
Primary Sleeper Renewals (Track Kms.)	10,339	7,004
Acquisition of Rolling Stock (Numbers):		
Steam Locomotives	124	131
Diesel Locomotives	545	466
Diesel Locomotives - Main Line	133	131
Diesel Locomotives - Shunters	300	206
Electric Locomotives	6,450	6,099
Electric Multiple Unit Coaches	841	486
Wagons (in terms of 4-wheelers)	68,776	57,608

Source: *Indian Railway Year Book*, 1973-74 p. 17.

The route length on the railways had reached 60,234 kms by 1973-74. Of this, 50.15 per cent was broad gauge, 42.41 per cent metre gauge and 7.44 per cent narrow gauge. 79.6 per cent of the railway net work of 60,234 route kms. was single line. The broad gauge, which constituted about half of the route kilometrage, accounted for about 75 per cent of the passenger kilometres and 85 per cent of the tonne-kilometres (Table 26).

TABLE 26. PERCENTAGE TRAFFIC ON DIFFERENT GUAGE LENGTHS IN 1973-74

	Broad Gauge	Metre Gauge	Narrow Gauge	TOTAL
Routh Length	50.15	42.41	7.44	100
No of Passengers Originating				
(a) Suburban	92.77	7.23	..	100
(b) Non-Suburban	59.59	36.75	3.66	100
Passenger Kilometres	74.84	24.23	0.93	100
Tonnes Originating	83.83	15.26	0.91	100
Tonne-Kilometers	84.53	15.27	0.20	100

Source: *Indian Railway Year Book*, 1973-74 p. 23.

With the fall in freight traffic, the financial position of the Railways was extremely unsatisfactory by the last year of the Fourth Plan as will be seen from the Table 27.

TABLE 27. FINANCES OF INDIAN RAILWAYS, 1969-74.

Item	Unit	1969-70	1970-71	1971-72	1972-73	1973-74
1. Capital-at-Charge	Rs Crores	3,195.5	3,330.3	3,519.4	3,726.0	3,890.0
2. Gross Receipts	"	951.60	1,006.95	1,096.97	1,162.77	1,138.19
3. Working Expenses	"	805.04	862.2	927.89	998.34	1,082.78
4. Net Revenue Receipts	"	146.56	144.73	169.08	164.43	55.41
5. Percentage of net Revenue Receipts to Capital-at-Charge	%	4.59	4.35	4.80	4.41	1.42
6. Dividend to General Revenue	Rs Crores	156.39	164.57	151.24	161.51	170.92
7. Net Gain (+)/Loss(-) to Govt.	"	(-)9.83	(-)19.84	(+)17.84	(+)2.92	(-)115.51

The surplus in revenue in 1971-72 was due to the Railway Convention Committee 1971's recommendations of exemptions from payment of dividend for strategic lines and also for the lines of the North East Frontier Railway, which allowed some extra revenue accruing to the Railways in that year.

STABILIZING THE SUGAR ECONOMY

S.K. Ray

To a large extent, instability in the sugar economy is policy-induced, and can be moderated considerably through a well-formulated stabilization scheme. The paper outlines the details for working out such a scheme, and advocates continuance of the present system of partial decontrol with a statistically determined size of the buffer stock level.

The production of sugar in India records sharp year-to-year fluctuations. Over the last three and a half decades ending in 1984-85, positive and negative deviations in sugar production from the preceding year's level averaged at around 25 and 16 per cent respectively, with mean absolute deviation at over 20% (Tables 1 and 2). Several years also recorded very marked changes. Of the 35 years, 9 recorded variations above ± 20 per cent, 5 above ± 30 per cent, and 3 even recorded variations as high as 60 per cent.

The primary reason for this instability in sugar production is the uncertainty in the supply of sugarcane ,the production of which itself records wide fluctuations. During the above mentioned period, positive and negative deviations in sugar production from the preceding year's level averaged at around 11 per cent, with some years recording deviations above ± 25 per cent. Also, unlike foodgrain crops, the instability in cane production was induced more through fluctuations in area under cane than through fluctuations in its yield level. Mean absolute deviation in the year-to-year changes in area under cane was over 9 per cent, while the corresponding magnitude for yield was around 5 per cent.

The consequences of this instability in production were reflected on prices and on the level of consumption. Due to controls and regulations, sugar prices recorded relatively less variations, but in the unregulated gur and khandsari markets prices changed sharply, and sometimes doubled or more than halved in a single year (Table 3). Domestic consumption of sugar also followed similar pattern, and while quantity exported often failed to meet the international commitment, import in a single year crossed 16 lakh tonnes mark in 1985-86. The industry frequently faced stock management problems, which sometimes dipped below 5 lakh tonnes and sometimes shot above 30 lakh tonnes. Minimum price of cane improved, but with three-fifth of the cane normally sold in the unregulated gur and khandsari sector cane growers experienced sharp fluctuations in their incomes.

Evidently, the economic consequences of these instabilities, both in the short run and long run affect the interests of cane growers, sugar mill owners and the consumers, and impede overall development of the sugar economy. If growers are to improve cane production through modern techniques of cultivation then incentive price for their produce, which includes stability as well as an adequate level, is a necessary prerequisite for achieving a steady growth in cane production. The same also applies for the sugar industry if it has to modernise and function with maximum efficiency. Clearly then, a long-term solution to the problem of the sugar industry can be worked out only through a well-formulated strategy that safeguards the interests of cane growers, sugar mill owners and consumers, and recognises the unavoidable fluctuations in production. The details for working out such a strategy, however, are possible only after making a thorough investigation of the nature and causes for instability in the sugar economy.

It will be shown in the next section that the major causes for instability in the sugar economy in the past have been policy-induced, much of which could have been reduced through a well-formulated stabilization scheme. The details for stabilizing the sugar economy through such a scheme are presented in the third section of the paper. Finally, the policy options for stabilizing the sugar economy are discussed in the last section.

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Causes for Instability in Sugar Economy

A number of enquiry commissions have investigated problems of the sugar industry.[1] Based on the findings of these enquiry commissions, an attempt is made to analyse, with the help of appropriate models, the nature and causes for instability in the sugar economy.

Like any other crop, production of sugarcane fluctuates basically due to two reasons: (i) those caused by nature determined uncontrollable climatic factors, and (ii) those caused by controllable man-made factors. For sugarcane, however, year-to-year fluctuations in nature-determined climatic factors do not appear to be the major cause for instability in its production level. The impact of rainfall in inducing instability in cane production is usually less as it is mostly irrigated, its water requirements are less exacting, and it can well withstand the stresses and strains due to floods and droughts. Available crop rainfall studies also suggest that fluctuations in rainfall during the growing period of sugarcane in different parts of the country are not primarily responsible for instability either in area under cane or in its yield level.[2] Thus, while the wide disparity in the soil- climatic conditions in the country might be responsible for significant differences in regional yield levels, the intensity of nature-induced instability in cane production is expected to be low, particularly, if it is compared with those experienced by other crops like rice, jowar, bajra, pulses, etc.

Instability in cane production arises mainly due to cane growers responses to price changes.[3] Growers fix area target for cane production which develops from their past experience in bringing actual area under cane. The area target is adjusted every year in relation with the price of cane relative to its competing crops prices, and the actual change in cane area relative to the target set in the previous year. The relative change in the area target from one year to the next thus depends solely on the price and the discrepancy in realizing the desired area target in the previous year, which might arise due to various reasons. Price enters as an important factor at the area planning stage but its immediate impact gets confounded with the mechanics of adjustment in the area planning programme. Price is expected to have a positive influence on area target fixation since increase in relative price, *ceteris paribus*, presumably would make production of the particular crop more desirable.

The magnitude of the coefficient of adjustment in area target fixation (i.e. a_{13}) determines the nature of the target adjustment mechanism.[4] If the adjustment coefficient is greater than one, the cane growers overadjust to compensate for any discrepancy in target fixation. In such a situation, the area target of each year will tend to overshoot the actual area under cane and thus fluctuate around it over time. The fluctuations will be explosive, constant or damped in amplitude according as the adjustment coefficient is greater than, equal to or less than two. If the adjustment coefficient equals one, the area target is fixed only by adjusting last year's actual area for price changes. If it is positive but less than one, the variations in area target will be free of fluctuations. If the adjustment coefficient equals zero, the area target is adjusted every year by a constant corrected for price changes. Normally, the adjustment coefficient is expected to lie between 0 and 2, though a negative value could also result if there are planned attempts to reduce the area under cane.

The actual change brought about in cane area, however, differs from the desired change because of weather and the discrepancies that may result in realizing the area target due to several reasons, such as difficulties in procuring inputs, etc. Weather is expected to have a positive effect on actual area, but the adjustment coefficient in actual cane area (i.e. a_{22}) can theoretically take any value. When the adjustment coefficient equals 1, the area target fixation is such that, but for weather and other disturbances it would have been exactly implemented. Cane growers under-estimate or over-estimate their actual capabilities in bringing about the desired change in area according as the adjustment coefficient is positive and greater or less than one. A negative value of the adjustment coefficient would suggest that growers fix area target contrary to their capabilities, and a value equal to zero would indicate that year-to-year variations in actual cane area is solely due to weather and some other

random disturbances.

Parameters estimated from the relevant data (Tables 1 and 3) for the period 1950-51 to 1984-85 provided a fairly good explanation for the causes of instability in area under sugarcane.[5] The coefficient of adjustment for area target fixation mechanism was obtained as 1.4011 and that for actual area was 1.0724. As sugarcane cultivation provides the major source for meeting cash requirements of the farmers, cane growers generally over-react at the area planning stage; the cyclical behaviour is induced by their over-ambitious area target plan. However, the area target is generally fixed such that but for weather and other disturbances it is actually realized. Short run elasticity of area with respect to rainfall and price were obtained as 0.2267 and 0.4988; the corresponding long run elasticities were obtained as 0.1618 and 0.4655. Since the cane growers generally over-react at the target fixation stage, the estimated long run elasticities are obtained lower than the corresponding short run elasticities.

A similar model was also used for estimating the impact of price changes on cane yield variations. Price is considered relevant as the changes in it may influence the cane growers to adjust the level of application of variable inputs, and induce thereby variations in cane yield. Again, the estimated equation explained well the variability in cane yield, but neither rainfall nor price appeared to have any significant effect on the yield of sugarcane.[6] A modified equation was, therefore, estimated in which fluctuations around an exponential yield growth curve were assumed to have been induced by rainfall and prices. The modified equation not only explained well the variations in cane yield but also indicated significant positive impact of rainfall and price on cane yield.[7]

Evidently, the instability in cane production would have been lower if the prices, which played a dominant role, had remained constant or recorded a steady change. And, as we will show now, this instability in prices were considerably induced by the system of management operations pursued by the government. The assertion derives support from the following analysis of the operational policies of the government on sugar economy.

Government initiates operations on sugar economy annually immediately after the Commission on Agricultural Costs and Prices (CACP) recommends the minimum price for cane. The CACP announces the minimum price before the crushing season which normally starts in October, and makes recommendation after carefully reviewing the cost of production of sugarcane, return to the growers from alternative crops, general trend in prices of agricultural commodities and sweetening agents, etc. The CACP recommendation provides the first approximation to the Government of India (GOI) in fixing the minimum price of cane. The GOI works upon the CACP recommended price, adjusts it suitably after considering various other factors and then announces the statutory minimum cane price, again before the starting of the crushing season. Since sugar industry is under the purview of GOI controls and regulations, the latter finds it convenient to enforce the statutory minimum cane price on the industry. GOI also links the statutory minimum price of cane with the sugar recovery rate on the assumption that variations in the recovery rate from factory to factory above a specified minimum level are due to extraneous factors. This, in effect, results in different minimum price of cane for different factories. Two specific objectives the GOI desires to achieve through the fixation of statutory minimum cane price. First, it wants to ensure the cane growers with some degree of price-cum-income stability on the minimum so that economic waste from inefficient production, marketing and consumption decisions is minimized. Secondly, although agriculture is a state subject, protecting the interests of consumers is a joint responsibility of the GOI and State Governments. Welfare consideration thus necessitates governmental intervention and makes distribution of sugar an important constituent of the GOI's operational policies on sugar economy. For this purpose, the GOI lifts around half of the industry's production at a price called 'levy price', the computation of which is linked with the minimum price of cane fixed by the Central Government. The GOI allows the industry to sell the residual quantity in the free market, but how much to sell each month by each factory is again decided by the government

determined quotas and movement restrictions.

To be effective, the statutory minimum prices of cane should be fixed at levels at which they have a possibility of becoming operational, and should be set at the beginning of the planting season and maintained for the entire year. In recent years, however, these basic principles too are increasingly violated. In an apparent bid to win the support of cane growers, the State Governments fix the minimum cane prices at levels higher than what is fixed by the GOI and ask the factories to purchase cane at those prices which they find difficult to honour. The consequence of these is accumulation of the payment of cane arrears, and much frustration and unrest among cane growers. Factories faithfully give receipt to pay state-advised prices to all those from whom they purchase cane but refuse to honour them fully unless the governments provide subsidy or the banks give advances with lower interest rates. Growers feel squeezed in an income generating illusion. They require cash incomes for farm development and find that the state-advised prices are attractive to grow cane. They sell cane to the factories with a promise for getting state-advised prices but are not told when those would be honoured. In view of the perishability of the cane crop and the weaker bargaining power of the sugarcane growers, the industry finds it relatively easier to postpone payment. It passes on the problem to the Government by blaming for fixing unrealistic cane prices and asks for more zones as the only solution for the malady. As a consequence of these, the cane growers attempt to curtail the area sown at the first available opportunity which, due to ratooning and varying duration of the crop, gets confounded and generally surfaces with a lag of two to three years. A vicious cycle develops and eventually the cane supply contracts sharply. This sets in motion a speculative price increase of sugar with gur producers wanting to grab as much of the limited cane supplies as possible. The combined policies of the GOI and State Governments thus merely accentuate the instability in the sugar economy.

As mentioned earlier, three-fifth of the cane produced in the country is sold in the unregulated gur and khandsari markets. Cane growers take advantage of the present system of operation, and depending upon the size of the crop and the price of gur relative to the cane price, they regulate supply of cane to the factories. This, in turn, induces instability in the supply of sugar which, besides its own price, is influenced by the size of the cane crop and the gur-cane price ratio.[8] A one per cent increase in cane production induces about one and a half per cent increase in supply of sugar, while a 1 per cent increase in price of sugar raises supply by 0.16 per cent. However, when the gur-cane price ratio increases, a 1 per cent increase in it depresses sugar production by about 0.2 per cent.

The causes for instability in the sugar economy which we have traced from the supply side are nothing new. In fact, those have been visualized and described by several enquiry committees and commissions. These together with the forces which operate from the demand side made sugar economy very unstable. One can summarily describe the mechanics of interaction of these forces of demand and supply on the sugar economy by quoting the following observation from a report prepared by the Bureau of Industrial Costs and Prices (BICP)[9] in 1979:

"A 1 per cent increase in the free market price of sugar leads to a 0.64 per cent reduction in the demand for sugar, i.e. the price elasticity of sugar demand is - 0.64. The own price elasticity of gur and khandsari demand is - 0.216. Consequently, a 1 per cent reduction in the supply of gur will result in a 5 per cent increase in its price. More interestingly, the cross-price elasticity of gur demand with respect to sugar price is 3.01. So that a 1 per cent rise in the price of sugar in the free market leads to 3 per cent increase in the demand for gur. This elasticity is much larger than others, suggesting that the cross effect on gur due to a reduction in sugar output is considerable. The income elasticity of demand for free market sugar is 2.2 while that of gur is -0.92, indicating that gur is considered an inferior food. Also, the estimated demand functions indicate that a 1 rupee increase in the free market price of sugar leads to an increase of 67 paise in the price of gur. This clearly shows that when the supply of cane decreases, sugar and gur production falls. Since gur demand is inelastic and it is not regulated, its price rises and gur is therefore able to obtain a larger quantity

of cane relative to white sugar. The price of white sugar increases and in turn leads to a large increase in the price of gur. The income of cane growers also increases and this leads to an increase in the area sown for cane in the succeeding year. Therefore in the succeeding year, the production of sugar and gur increase. But, again, due to the inelasticity of gur demand, the negative income elasticity and the high cross elasticity of sugar price, the prices of gur crash leading to a decrease in the acreage of cane sown in the year that follows. The cycle then repeats and arises from the interdependence in the consumption of sugar and gur and the relative inelasticity of gur demand to gur price. The existing policies appear to be contributing to the fluctuations in acreage and price".

Stabilization through Stock Operation.

Clearly, if the price of sugar is stabilized in relation with the cane price at a level which could provide adequate returns to the cane growers and mill owners, instability in the sugar economy could be considerably reduced. There are two alternatives for achieving this end. The first is direct market intervention through controls and regulations. This will obviously land the Government in massive management operations. Market imperfections will result and will affect cane growers, mill owners and consumers. Moreover, this approach can provide fruitful results only when controls and regulations are rigorously implemented across the country, which is very difficult to achieve. In any case, this is a short term measure and cannot continue indefinitely.

The other alternative, more practical and appealing, is to encourage a free market backed by a position of strength to influence prices through stock operation. This method will increase the risk of speculation by traders. By holding stock the Government itself speculates on maximizing public welfare against the speculative activities of the traders. Stocks with the Government can thus buffer traders' speculation. Its main function should be to even out supply irregularities, and to dampen fluctuations in prices and incomes. Production fluctuation and trade speculation can cause supply irregularities, and to the extent adequate reserve is maintained to guard against shortfalls, such irregularities can be reduced. To be effective, however, the scheme should be such that the stock regenerates itself over time; it should not expand to impractical proportions nor fall to levels which can generate speculation. This calls for a price at which the total cane production over the period of a cycle is such that the demand for cane is fully met, and the demand for and supply of sugar also is just evenly met, with a carry-over stock which may be enough to even out fluctuations in production. Thus with the desired level of stocks, there would be need for only limited interference with the existing market mechanism. Further, operation of a sugar buffer stock programme will be meaningful and useful only if it explicitly recognizes the inter-dependence and inter-relationships between sugarcane, gur, khandsari and white sugar and establishes these on a stable basis consistent with an assurance of supply of sugar to vulnerable section of the population at a stable price.

It is sometimes argued that the cyclical behaviour of supply of cane for factory production of sugar just cannot be eliminated because of the presence of a large unregulated gur market. Our view is otherwise. Gur prices, and the demand for cane by gur manufacturers have always reacted to the price and availability of sugar in the free market. If the latter can be tamed, the market reaction in respect of gur manufacture and the demand for cane by the gur and khandsari manufacturers can be expected to fall in line with the overall objectives set out by the Government in order to ensure the availability of diverse sweetening agents for the consumer. The important consideration here is the overall level of supply of sugar and other sweetening agents, which must be determined on the basis of the expected level of demand, so that the overall level of sugarcane output (and the use of sugarcane for the production of different sweetening agents) can be induced by appropriate policies.

The objective of a sugar buffer stock programme operated by the Government should, therefore, be not only to stabilize the price around a specified level but also to reduce the variability

in the expected income of cane growers and mill owners. The necessary conditions for operating such a buffer stock programme, however, should be recognised. The stabilization objectives can be attained only if the buffer stock programme along with other policy measures are operated in such a manner that through time (i) the growth in demand and supply are approximately kept in equilibrium, and (ii) the variations in price, consumption and producers' incomes are reduced.

Evidently, success of the buffer stock programme will depend upon the mean price level around which stabilization is desired. In general, this should be close to the price that would obtain in the free market. If the mean price is deliberately fixed at a lower level than what it would have been in the free market, a shortage and/or scarcity situation will develop; on the other hand, if the mean price is supported at a higher level, the country will be burdened with an excessive stockpile. And, whatever else is done during shortage or surplus situation (such as controls and restrictions or relaxations of these), the steps that can bring demand and supply into balance if they tend to grow at different rates, would involve an adjustment in the mean price level around which stabilization is sought. If a shortage situation develops due to slower growth in production, the mean price would need to be fixed at a higher level so as to curb demand and boost production; if the situation is one of plenty due to higher growth in production, the mean price would have to be fixed at a lower level in order to discourage production and encourage consumption.

This is the level defined by the Sugar Enquiry Commission of 1965 as the 'pivot price' around which stabilization is to be attempted. There cannot, by definition, be any conflict between this 'pivot price' for sugar, and the statutory minimum cane price announced by the GOI, which has also to be the price of cane for the country as a whole. Indeed, if there arise wide differences between the statutory minimum cane prices fixed by the GOI and the 'state advised' prices enforced by the State Governments, the entire edifice would break down because the excess supply of cane (assuming 'state advised' prices to be higher) would re-introduce instability in the system.

The sufficient conditions for achieving the desired objectives of stabilization through a buffer stock operation will, however, depend upon the nature of demand and supply curves. If the instability in price, consumption and producers' incomes are entirely due to unstable demand, then a buffer stock programme for complete price stabilization will also completely stabilize producers' incomes but not consumption; the latter will fluctuate to the extent of changes in demand at stabilized price. Buffer stock operation will be appropriate if the fluctuations in supply are more pronounced than demand. Even in this case too, the desired objectives of stabilization can be achieved only if the demand and supply curves are inelastic.

Thus, a buffer stock programme for reducing the variability in price, producers' incomes and consumption will be meaningful only if (i) the basic cause of instability in them is due to fluctuations in production, and (ii) the demand and supply curves are inelastic. When these conditions are satisfied, as they do in respect of the sugar economy, the extent of relative stabilization of price and producers' incomes will depend upon the operational strategy of the buffer stock agency. Evidently, complete stabilization of both the price and producers' incomes is not possible, and therefore, the operational strategy of the buffer stock agency will be to purchase or sell a fraction of the supply such that variability in price and producers' incomes are reduced to a desired level.[10]

The fluctuations in production however, will not follow a time-ordered symmetrical pattern. They will be random. Although it is shown in the previous section that the major cause for instability in the sugar economy is due to the existing system of operation, weather factors do contribute to instability and induce erratic behaviour in the level of production. Under such an uncertain situation, the desired level of stabilization will depend upon the stock holding capacity of the buffer stock agency. But how much stock the agency should carry, and at what costs, and benefits to the society?

It is necessary in this connection to state the stabilization objective by specifying the desirable limits of fluctuation either in the level of consumption or in the price or in the producers'

incomes. In general, the buffer stock agency will have to operate the programme under the limitations of availability of funds and storage capacities. Although operational funds may be made available, storage capacity is something that must be planned in advance. The level of storage capacity to plan for also depends on the predetermined stabilization level. If it is stated, a probabilistic approach can be used to determine the necessary operational funds. Together, the cost will be substantial and can be justified only against the benefits forthcoming.

A two-stage procedure can be adopted for working out the economics of a sugar buffer stock programme. To determine the storage capacity requirement, storage rules aimed at stabilizing consumption within specified limits can be used to examine the consequences of operating with different storage capacities on price and income variations. A simulation approach can then be used for estimating the costs and benefits of operating the buffer stock programme with fixed storage capacities and given storage rules aimed at stabilizing price within specified limits.[11]

The main objective of stabilization through stock operation is to reduce the variability in consumption due to fluctuation in sugar production by restricting consumption in years of good production and augmenting it in lean years. Thus, if the quantity released or withdrawn is considered as a function of the current year's sugar production, then a simple statistical rule for stock operation can be derived as follows: release or withdraw a fraction of the deviation of current year's sugar production from its expected level so that variability in sugar consumption is reduced. Evidently, this fraction is to be chosen at some pre-assigned probability level unless the plan is for complete stabilization or unless the criteria is stated in terms of the permissible variability in consumption. The fraction can be determined if the distribution of sugar production follows some standard probability models.[12]

As already reported, the historical variations in the year-to-year fluctuations in sugar production averaged at over 20 per cent, a considerable part of which was due to the system of operations practiced in the sugar economy. The fluctuations in sugar production induced by the cane output fluctuations are partly due to the erratic behaviour of rainfall and partly due to price changes. However, even if a liberal provision is made for the random effect of various climatic factors on cane output, its corresponding impact on sugar production can exceed no more than an average of 7.5 per cent, which at the current estimated level of sugar production of 100 lakh tonnes imply a plus/minus deviation of 7.5 lakh tonnes.

Table 4 provides the estimates for sugar stock requirements to carry out the stabilization programme over a 5-year period under different storage rules, and their corresponding implications on price and income stability at three different pre-assigned probability levels: 0.80, 0.90 and 0.95. The rules are specified by estimating the magnitude of the fraction of deviation in production from its expected level which should be released or withdrawn at the reduced probability levels: 0.20, 0.10 and 0.05. All calculations are based on the assumptions of stationarity in mean and variance of the normally distributed production with mean and standard deviation at 100 and 7.5 lakh tonnes respectively.[13] The price elasticities of demand and supply are considered at three different levels around their available estimates.

Some interesting results follow from these statistical storage rules. Without the storage programme, the level of consumption will record a variation of 7.5 per cent. With the storage programme, the buying and selling operations during good and bad years of cane harvest (due to weather) to reduce the variability in sugar consumption will also reduce the variability in industry's income. But, higher the magnitudes of the price elasticities of demand and supply, the more rapid will be the convergence of industry's income towards complete stabilization than that of price. In fact, corresponding to price elasticities of demand and supply at (0.50, 0.25), (0.65, 0.30) and (0.80, 0.35), sugar industry's income will be completely stabilized by the storage rule with the magnitude of the fraction at 0.4, 0.2692 and 0.1481 respectively. However, none of the storage rules at the above levels will completely stabilize price and consumption. Any attempt for further reduction in price and consumption variability beyond the complete income stabilization level

can be obtained only at the cost of increasing instability in the industry's income and maintaining huge stocks. Looking at the stock requirements under different storage rules, it seems appropriate to have a maximum stock of 10 lakh tonnes and follow storage rules aimed at stabilizing consumption with about 4 per cent variation. This will stabilize price within a range of 3 to 5 per cent.

Policy Options for Stabilizing the Sugar Economy

The options before the Government in regard to the sugar economy are few. The alternative of total decontrol can be ruled out, after the disastrous experiment of 1978-79. There is, of course, the possibility of decontrol of prices with regulation of monthly releases, in order to bring about an even flow of sugar into the market, and to ensure that prices do not either collapse or sky rocket, as a result of temporary over-supply or because of speculative withholding of supplies. The success of such a policy would hinge on the maintenance of an adequate buffer stock by Government, which can be used to even out free market supplies.

There are, however, some practical difficulties in operating such a system. First, even if the costs for storage, etc. are ignored, the maintenance of an adequate buffer stock requires the rolling over of the stock on something like the 'first in first out' principle. If the Government does not handle any distribution, the rolling over of the buffer stock may present serious difficulties. However, to some extent this problem can be eased by making use of the stock for supplies to agencies like the army or for exports, *et. al.* A more serious difficulty attendant on a policy of decontrol of prices (with controlled releases of sugar) is that weak or sick units, and indeed even many new units may founder if prices are decontrolled, since price would then find a level which may not be remunerative to many sugar producers. While there is no good reason for nursing sick units permanently, the fact is that the cost of production of sugar is a function of not only the conversion cost (which is indicative of the efficiency of a unit) but also the cost of cane (which constitutes around 70 per cent of the cost of production of sugar) which is not wholly within the control of the sugar factories, and where much more effort is required at the State level, for the provision of infrastructure (like better drainage, scientific irrigation, research into cane varieties, extension work to improve farm management, etc.). Factories can also help; but some of them are already in the red and do not have the resources to do so; and in any case, they would need both time and support to bring about the required transformation.

If decontrol of sugar prices (even with control over sugar releases) be ruled out, only two other options remain: full control and partial decontrol as in existence today. The latter policy has several advantages. Most importantly, if supported by a buffer stock scheme it helps the authorities to keep a finger on the pulse of market demand and supply all the time, while at the same time regulating the over-all supply and meeting the requirements of the public distribution system.[14] This is no small advantage. In any case, the policy has succeeded in raising the production of sugar rapidly, even though it has also led to considerable instability and fluctuations in free market prices and output. We believe that these fluctuations could have been considerably moderated through the operation of a buffer stock scheme outlined earlier.

The dual price policy has two facets: first, there is the basic feature of a dual price pertaining to public distribution and market sales; and secondly, there is the additional (though not essential) feature of differential 'levy prices' for different 'zones.' The division of the country into a number of sugar 'zones' can be justified either on the parallel of the infant industry argument or on the more categorical assertion that such a policy may be pursued indefinitely in the interest of development of certain backward areas where no other type of development is easily possible.

Sugarcane is, by and large, an irrigated crop; and to the extent that both water and other scarce resources (like fertilizers) are heavily used for the cane crop, no permanent subsidy for growing sugarcane (vis-a-vis other crops) is admissible. Indeed, there is considerable danger of over production of sugarcane as a result of such a policy (as happened in the recent past.)

A major policy desideratum is, therefore, the system of zoning to be adopted, the period for

which the implied subsidy (as a result of zoning) should be permitted, and the extent to which the system of zoning should be allowed to raise the average price of sugar. These issues deserve careful re-examination. However, suffice it is to mention here that as long as low productivity and high zonal prices are permitted, the average 'levy price' would rise. Thus, there arises the problem of reconciling the interest of the farm economy (in the high cost zones) and the interest of the consumer of sugar.

NOTES

1. For a comprehensive account, see Sen, 1965
2. See, Ray, 1977.
3. The discussion which follows is based on application of a general model developed earlier for analysing variations in crop output. (See Ray, 1981). The model is specified as follows:

$$\log A_t^* - \log A_{t-1}^* = a_{11} + a_{12}\log P_{t-1} + a_{13}\left(\log A_{t-1} - \log A_{t-1}^*\right) + u_{1,t}$$

$$\log A_t - \log A_{t-1} = a_{21}\log W_t + a_{22}\left(\log A_t^* - \log A_{t-1}\right) + u_{2,t}$$

where A^*_t and A_t are the targeted and actual planted area under cane, W_t is a weighted rainfall index measuring the deviation in rainfall from its normal level during the sugarcane production period, and P_t is the price of cane relative to its competing crops prices. In reduced form the above equations provide

$$\log A_t = B_0 + B_1 \log W_t + B_2 \log W_{t-1} + B_3 \log A_{t-1} + B_4 \log A_{t-2} + B_5 \log P_{t-1} + V_t \text{ with the restriction } B_3 + B_4 = 1$$

The coefficient of adjustment in area target plan and that in the planted area are then given by $(B_1+B_2)/B_1$ and $(B_2-B_1B_4)/B_2$. Short run elasticity with respect to rainfall and price are given by (B_1+B_2) and B_5 respectively. The corresponding long run elasticities are given by B_1 and $(B_2B_5)/(B_2-B_1B_4)$ respectively.

4. Follows from the following expressions derived from the model presented in footnote 3:

$$\log A_t^* = \sum_i (1-a_{13})^i (a_{11} + a_{12}\log \quad P_{t-1-i} + u_{1,t-i})$$

$$\log A_t = a_{21}\log W_t + (1-a_{22})\log A_{t-1} + \sum_i a_{22}(1-a_{13})^i (a_{11} + a_{12}\log P_{t-1-i} + a_{13}\log \quad A_{t-1-i} + u_{1,t-i}) + u_{2,t}$$

5. An elaborate weighting diagram with triennium ending in 1969-70 as base is used for computing the rainfall index for sugarcane. Rice, wheat, cotton and groundnut were taken as the competing crops for sugarcane. The weighted price of the competing crops was derived with weights as used in the official index number of wholesale prices. Since three-fifth of the cane is normally sold in the unregulated gur and khandsari sector, index number of wholesale prices for the sub-group sugar, gur and khandsari was used instead of sugarcane price index for estimating the impact of the growers' cane price expectation. The estimated equation was obtained as follows:

$$\log A_t = -1.6132 + \underset{(2.79)}{0.1618}\log W_t + \underset{(3.43)}{0.0649}\log W_{t-1} + \underset{(10.88)}{1.0288}\log A_{t-1} - \underset{(0.30)}{0.0288}\log A_{t-2} + \underset{(8.07)}{0.4988}\log P_{t-1}$$

$(\bar{R}^2 = 0.92)$

(Numbers in parentheses denote 't' values).

6. For yield (Y_t), the estimated equation was as follows:

$$\log Y_t = -0.5641 + \underset{(1.35)}{0.1254}\log W_t - \underset{(0.06)}{0.0056}\log W_{t-1} + \underset{(2.77)}{0.7037}\log Y_{t-1} + \underset{(1.16)}{0.2963}\log Y_{t-2} + \underset{(1.00)}{0.1018}\log P_{t-1}$$

$(\bar{R}^2 = 0.69)$

7. Using a time trend variable (T) for the period covering 1950-51 to 1984-85, the modified equation was obtained as follows:

$$\log Y_t = 3.7578 + \underset{(16.30)}{0.0113}T + \underset{(2.26)}{0.1211}\log W_t + \underset{(3.88)}{0.1653}\log P_{t-1}$$

$(\bar{R}^2 = 0.89)$

(Numbers in parentheses denote 't' values)

8. The model is specified as follows:

$\log CS_t = A_0 + A_1 \log X_t + A_2 \log PR_t$

and $\log S_t = B_0 + B_1 \log X_t + B_2 \log P_t + B_3 \log PR_t$

where CS and S are the cane crushed and sugar produced by the factories, X is the cane output, and P and PR are the price of sugar and gur-cane price ratio. The equations estimated from the data for the period 1952-53 to 1984-85 were obtained as follows:

$$\log CS_t = 2.6004 + \underset{(32.06)}{1.7140}\log X_t - \underset{(2.48)}{0.1309}\log PR_t$$

$(\bar{R}^2 = 0.98)$

$$\log S_t = 0.6290 + \underset{(17.99)}{1.4769}\log X_t + \underset{(2.86)}{0.1639}\log P_t - \underset{(3.59)}{0.1936}\log PR_t$$

$(\bar{R}^2 = 0.98)$

(Numbers in parentheses denote 't' values)

9. See BICP, 1979.

10. For a mathematical exposition of the necessary and sufficient conditions mentioned in the text, see Ray, 1987. It can be shown that for a stable demand function $f(P_t)$ with constant elasticity 'a' and a variable supply function $g(P_t) + B_t$ with a constant elasticity 'b' at its average position, if a fraction 'k' of the supply shift is bought or sold by the buffer stock agency then the variabilities of price (P) and producers' incomes (R) over time are given by

$$V(P) = [\bar{P}(1-k)/\bar{Q} \quad (a+b)]^2 V(B_t)$$

$$V(R) = [\bar{P}(kb+a+k-1)/(a+b)]^2 V(B_t)$$

Thus, if C_v is the coefficient of variation in supply, then the coefficient of variation in quantity consumed, price and producers' incomes are given by $(1-k)C_v$, $[(1-k)/(a+b)]C_v$ and $[(kb+a+k-1)/(a+b)]C_v$ respectively.

11. Details of a simulation approach for estimating the costs and benefits of operating the stabilization programme will be presented in the subsequent issue of this Journal.

12. If the probability distribution of variations in sugar production follows a normal distribution with mean 'm' and variance 'v^2' then

Production = $X_t \sim N(m,v^2)$

Quantity released or withdrawn = $Y_t = k(X_t - m) \sim N(O,k^2v^2)$

and Consumption $S_t = X_t - Y_t \sim N\,[m,(1-k)^2\,v^2]$

For a given percentage deviation in production (say p) from the average, the value of k can then be determined from the normal table as follows:

If Prob. Of $[|\,(X_t - m)/v\,| > p]$ is, say f_1, then choose k, such that Prob. Of $[|\,(S_t - m)/(1-k)v\,| > p]$ is reduced to some preassigned probability level f_2, where $f_2 < f_1$

Y_t can of course become positive or negative and since $\sum_1^T Y_t \sim N[0,T\cdot(kv)^2]$ it follows that the total amount added to storage after operating the rule for T years is $\sum_1^T Y_t$ with mean zero and standard deviation $\sqrt{T}\cdot kv$. Thus, the initial stock requirement (Z) to run a successful stabilization programme over a period of T years, with the probability of success at 'g' can be estimated from the normal probability distribution table where Prob. Of $[Z/\sqrt{T}\cdot kv] = g$. The impact of running the stabilization programme on the coefficient of variation in price, consumption and mill owners' incomes can be calculated from the relations given in footnote no.9.

13. For the sake of simplicity we have imposed these conditions, relaxation of which will involve more elaborate calculations.

14. Since quantity from the public distribution system is functionally related to the difference between the price in the fair price shops and the free market price, the viability of PDS rests basically upon the level at which issue price is fixed relative to the desired price in the free market. For more elaboration of the inter-relationship of PDS operation with the free market, see Ray, 1979.

REFERENCES

1. BICP, 1979; *Report of the High Power Committee on Sugar Industry*, Bureau of Industrial Costs and Prices, 1979 (Chairman : Lav Raj Kumar).
2. Ray, S.K., 1977; *Variations in Crop Output*, Institute of Economic Growth, Delhi.
3. Ray, S.K., 1979; *An Analysis of Food Production and Grain Stock Potential in India*, Iowa State University, International Development Series.
4. Ray, S.K., 1981; 'Weather, Prices and Fluctuations in Agricultural Production', *Indian Economic Review*, Vol. XVI, No. 4.
5. Ray, S.K. 1987; 'Stabilisation through Food Stock Operation', *Journal of Quantitative Economics*, Vol. 3, No. 1, January 1987.
6. Sen, S.R. 1965; *Report of the Sugar Enquiry Commission*, Ministry of Food and Agriculture, Government of India, October, 1965.

TABLE 1. TRENDS IN CANE AND SUGAR PRODUCTION

	Rainfall Index for Sugarcane (Normal = 100)	Index with Triennium Ending 1969-70=100			Cane used for Sugar Production (000 tonnes)	Production of Sugar (000 tonnes)
		Cane prod.	Cane area	Cane yield		
1949-50	117.0	57.2	60.4	84.8	10,024	995
1950-51	93.6	58.1	70.4	82.5	11,348	1,100
1951-52	85.0	62.8	79.9	78.6	15,886	1,474
1952-53	84.6	51.9	71.2	72.9	13,219	1,277
1953-54	107.6	45.8	58.0	79.0	9,778	985
1954-55	96.5	59.3	66.3	89.4	15,759	1,566
1955-56	117.9	61.3	75.6	81.1	18,642	1,834
1956-57	118.0	70.1	84.0	83.5	20,536	1,998
1957-58	85.2	70.6	84.8	83.3	19,438	1,946
1958-59	101.3	72.3	79.8	90.6	19,187	1,889
1959-60	103.2	78.2	87.5	89.4	20,041	2,384
1960-61	109.5	94.1	98.9	95.1	31,021	3,021
1961-62	113.7	88.7	100.5	88.3	27,946	2,729
1962-63	103.3	78.0	91.8	85.0	20,779	2,139
1963-64	104.4	88.2	92.0	95.9	25,716	2,573
1964-65	105.5	102.9	106.5	96.6	33,454	3,232
1965-66	69.8	105.3	116.1	90.7	36,512	3,541
1966-67	87.3	78.3	94.2	83.1	21,637	2,151
1967-68	106.9	80.7	83.8	96.3	22,638	2,248
1968-69	85.9	105.7	103.7	101.9	37,699	3,559
1969-70	107.4	113.6	112.5	100.9	45,701	4,262
1970-71	107.7	106.4	107.1	99.3	38,205	3,740
1971-72	111.5	95.4	97.9	97.4	31,015	3,113
1972-73	97.8	104.7	101.8	102.8	40,407	3,873
1973-74	103.3	118.3	114.3	103.4	42,278	3,948
1974-75	74.4	120.7	120.2	100.4	48,435	4,797
1975-76	113.0	118.2	114.7	103.1	41,880	4,262
1976-77	98.1	130.3	119.0	109.2	48,819	4,840
1977-78	104.0	147.3	130.8	112.6	67,329	6,461
1978-79	108.5	129.0	128.2	100.6	59,717	5,841
1979-80	76.7	107.4	108.3	99.1	39,050	3,858
1980-81	107.8	129.4	110.6	117.0	51,584	5,148
1981-82	99.1	156.3	132.4	118.1	87,342	8,437
1982-83	89.8	158.9	139.2	114.2	82,697	8,229
1983-84	117.5	146.0	128.9	113.3	59,024	5,917
1984-85	96.1	142.8	122.4	116.7	60,090	6,144

Note: Computed rainfall index is a relative departure from the normal of the weighted actual rainfall during the sugarcane production period.

Sources: (i) Area and Production of Principal Crops in India, 1985-86.

(ii) Cooperative Sugar Directory and Year Book, 1986-88.

TABLE 2. INSTABILITY IN CANE AND SUGAR PRODUCTION

Year	Per cent increase (+) or decrease (-) from preceding year in				
	Cane prod.	Cane area	Cane yield	Cane used for Sugar	Production of Sugar
1950-51	+ 1.57	+16.56	- 2.71	+11.32	+10.55
1951-52	+ 8.09	+13.49	- 4.73	+39.99	+34.00
1952-53	-17.36	-10.89	- 7.25	-16.79	13.36
1953-54	-11.75	-18.54	+ 8.36	-26.03	-22.87
1954-55	+29.48	+14.31	+13.16	+61.17	-58.98
1955-56	+ 3.37	+14.03	- 9.28	+18.29	+17.11
1956-57	+14.36	+11.11	+ 2.96	+10.16	+8.94
1957-58	+ 0.71	+ 0.95	- 0.24	- 5.35	- 2.60
1958-59	+ 2.41	- 5.90	+ 8.76	- 1.29	- 2.93
1959-60	+ 8.16	+ 9.65	- 1.32	+25.30	+26.20
1960-61	+20.33	+13.03	+ 6.38	+29.03	+26.72
1961-62	- 5.74	+ 1.62	- 7.15	- 9.91	- 9.66
1962-63	-12.06	- 8.66	- 3.74	-25.64	-21.62
1963-64	+13.08	+ 2.18	+12.82	+23.76	+20.29
1964-65	+16.67	+15.76	+ 0.73	+30.09	+25.61
1965-66	+ 2.33	+ 9.01	- 6.10	+ 9.14	+ 9.56
1966-67	-25.64	-18.86	- 8.38	-40.74	-39.25
1967-68	+ 3.06	-11.04	+15.88	+ 4.63	+ 4.51
1968-69	+30.98	+23.74	+ 5.82	+66.53	+58.32
1969-70	+ 7.47	+ 8.49	- 0.98	+21.23	+19.75
1970-71	- 6.34	- 0.48	- 1.58	-16.40	-12.25
1971-72	-10.34	- 8.59	- 1.91	-18.82	-16.76
1972-73	+ 9.75	+3.98	+ 5.54	+30.28	+24.41
1973-74	+12.99	+12.28	+ 0.58	+4.63	+ 1.94
1974-75	+ 2.03	+ 5.16	- 2.90	+14.56	+21.50
1975-76	- 2.07	- 4.58	+ 2.69	-13.53	-11.15
1976-77	+ 9.98	+ 3.75	+ 5.92	+16.57	+13.56
1977-78	+13.31	+ 9.92	+ 3.11	+37.92	+33.49
1978-79	-12.42	- 1.99	-10.66	-11.30	- 9.60
1979-80	-16.74	-15.52	- 1.49	-34.61	-33.95
1980-81	+20.48	+2.12	+18.06	+32.10	+33.44
1981-82	+20.79	+19.71	+ 0.94	+69.32	+63.89
1982-83	+ 1.66	+ 5.14	- 3.30	- 5.32	- 2.46
1983-84	- 8.12	- 7.40	- 0.79	-28.63	-28.10
1984-85	- 2.19	- 5.04	+ 3.00	+ 1.81	+ 3.84
Mean positive deviation	11.00(23)	9.82(22)	6.75(17)	26.56(21)	24.60(21)
Mean negative deviation	10.90(12)	9.04(13)	4.14(18)	18.17(14)	16.18(14)

Note: Number of years recording positive or negative deviation is indicated within parentheses.

TABLE 3. TRENDS IN SUGAR ECONOMY

Year	Index Number of Wholesale Prices (1970-71 = 100)					Opening Stock of Sugar (Lakh tonnes)	Consumption (Lakh tonnes)	Exports (Lakh tonnes)
	Sugarcane	Sugar	Gur	Sugar, Gur & Khandsari	Weighted Price of Rice, Wheat, Cotton & Groundnut Seed			
1949-50	-	52.6	75.4	61.9	46.1	-	-	-
1950-51	-	50.5	96.7	66.9	48.8	0.91	10.98	-
1951-52	-	52.8	65.9	58.7	48.7	1.84	11.82	0.08
1952-53	57.3	50.7	44.1	48.6	45.8	5.14	16.79	0.07
1953-54	49.4	50.2	62.2	60.9	46.1	2.06	18.36	-
1954-55	52.2	52.9	54.0	56.1	38.1	1.29	17.51	-
1955-56	52.5	47.8	38.1	43.3	36.4	5.74	19.72	-
1956-57	52.1	48.0	44.0	47.6	44.7	5.61	20.18	1.47
1957-58	52.1	55.8	47.4	52.6	45.7	4.70	20.75	0.36
1958-59	52.1	61.2	57.8	61.9	48.2	3.68	21.13	0.30
1959-60	54.9	62.6	71.0	71.5	48.0	1.76	20.53	-
1960-61	58.6	64.4	60.1	64.5	48.2	7.42	20.87	1.94
1961-62	58.6	63.6	51.4	58.1	48.4	14.82	26.01	3.54
1962-63	58.6	89.3	70.4	60.0	49.3	12.56	25.02	5.66
1963-64	62.6	70.6	100.5	84.7	53.6	3.27	23.26	2.43
1964-65	68.0	76.4	95.4	85.1	61.7	3.31	24.37	2.67
1965-66	67.8	77.6	74.6	76.8	66.6	8.59	27.92	3.92
1966-67	70.9	82.8	99.4	90.6	80.5	12.16	25.95	2.35
1967-68	88.7	93.3	214.4	151.5	92.5	5.37	22.11	1.39
1968-69	100.1	100.8	203.3	148.9	89.4	4.35	26.09	0.79
1969-70	100.1	99.9	99.0	100.6	95.5	13.06	32.61	2.17
1970-71	100.0	100.0	100.0	100.0	100.0	20.90	40.25	3.95
1971-72	100.6	121.7	152.4	141.2	100.7	14.10	37.80	1.44
1972-73	110.1	152.7	203.4	188.0	107.3	5.99	35.11	0.97
1973-74	117.0	157.1	206.4	192.4	134.9	8.64	35.29	4.05
1974-75	118.4	169.7	208.4	199.8	179.2	8.78	34.57	9.24
1975-76	124.1	168.9	233.1	213.5	164.9	12.94	36.91	10.21
1976-77	125.8	173.1	237.8	217.5	158.8	8.46	37.53	3.12
1977-78	125.0	159.4	197.8	185.4	167.4	16.24	45.48	2.02
1978-79	136.2	146.6	148.2	146.8	158.2	33.83	62.14	8.63
1979-80	166.0	177.3	259.8	231.3	174.3	21.47	52.08	2.90
1980-81	188.6	250.4	436.9	376.9	196.4	6.87	49.80	0.61
1981-82	189.9	258.5	370.5	335.6	223.4	10.09	57.11	3.83
1982-83	190.6	228.7	274.7	259.1	236.2	33.52	64.79	4.22
1983-84	200.0	230.6	341.1	302.1	260.9	46.80	75.70	7.06
1984-85	208.1	243.8	384.0	335.0	261.0	23.85	80.20	0.20

Sources: (i) *Wholesale Price Statistics* by H.L. Chandhok,
(ii) Index Numbers of Wholesale Prices in India, 1971-1986, Office of the Economic Adviser, Ministry of Industry.
(iii) *Cooperative Sugar Directory and Year Book, 1986-88.*

TABLE 4. IMPLICATIONS OF DIFFERENT STATISTICAL STORAGE RULES
(MEAN AND STANDARD DEVIATION OF SUGAR PRODUCTION ARE ASSUMED AS 100 AND 7.5 LAKH TONNES RESPECTIVELY)

	Without Storage Programme	With Storage Programme. Consumption to record the same percentage deviation from its average as the production of sugar but with probability reduced to the level*		
		0.20	0.10	0.05
1. Storage rule: Fraction of the deviation from mean production level released or withdrawn	-	0.2024	0.4766	0.5915
2. Stock requirement in lakh tonnes for a five year period with the probability of success at				
(i) 0.80	-	2.85	6.71	8.33
(ii) 0.90	-	4.34	10.23	12.70
(iii) 0.95	-	5.57	13.11	16.27
3. Coeff. Of var. in consumption	7.50	5.98	3.92	3.06
4. Coeff. Of var. in price when the price elasticity of demand and supply are respectively				
(i) (0.50, 0.25)	10.00	7.98	5.23	4.08
(ii) (0.65, 0.39)	7.89	6.30	4.13	3.22
(iii) (0.80, 0.35)	6.52	5.20	3.41	2.66
5. Coeff. Of var. in sugar industry's income when the price elasticity of demand and supply are respectively				
(i) (0.50, 0.25)	5.00	2.47	0.96	2.39
(ii) (0.65, 0.30)	2.76	0.68	2.13	3.31
(iii) (0.80, 0.35)	1.30	0.48	2.89	3.90

Note: * Probability of 5 per cent variation in sugar production (assumed normal) is 0.2514.

INCENTIVES FOR OILSEED CULTIVATORS: IMPLICATIONS FOR EFFICIENCY

Ashok Gulati

In recent years the Government has attached high priority to oilseeds and targeted to achieve self-sufficiency in oilseeds within a short period. In its attempt to do so, it has raised the incentives for oilseed cultivators primarily through a steep increase in their prices. Such a policy, which relies more on the price instrument, may run counter to the objective of saving foreign exchange and attaining allocative efficiency in resource use. This is likely to happen through area shifts from foodgrains and cotton to oilseeds induced by higher relative profits in oilseed cultivation. This is what seems to be sought by the Integrated Policy for Oilseeds announced in January 1989. A better course, perhaps, would be to concentrate more on technological aspects of inventing/innovating HYV seeds of oilseeds for dry and resource poor areas. Else, India should produce more of those crops which are internationally more competitive, such as cotton and rice, export them and earn ample foreign exchange to finance imports of edible oils.

INTRODUCTION

During the post green revolution period (1967-68 to 1988-89), growth in oilseeds production was not only lower than that of all crops (Table 1) but was actually below oilseeds' own growth in the pre-green revolution period (1949-50 to 1964-65). Hence, the demand for edible oil, particularly since 1976-77, had to be met by massive imports constituting around 30 per cent of the total supply (Table 2). This has caused increasing concern of the Government during 1980s. The concern stems basically from three considerations. One, that imports of edible oils cost foreign exchange, almost worth Rs 700-800 crore per annum. Second, the imports had gone very high, about 30 per cent of the total availability of edible oils in the country. This was considered undesirable and it was deemed necessary to achieve self-sufficiency (later on changed to self- reliance) in edible oilseeds by 1990. Third, it was felt, in certain circles, that with the introduction of HYV of wheat and rice during late sixties and seventies, oilseeds had been pushed to inferior lands resulting in stagnating yields. On the other hand, the demand for edible oils had increased (e.g. at 5.4 per cent per annum during 1975-76 to 1986-87) creating an imbalance in the cropping pattern and the demand vector. To rectify this, it was felt, oilseeds must be promoted with a much higher priority than perhaps any other crop.

TABLE 1. ALL INDIA COMPOUND GROWTH RATES OF AREA, PRODUCTION AND YIELD OF PRINCIPAL CROPS

(Per cent per annum)

Crop	1949-50 to 1988-89			1949-50 to 1964-65			1967-68 to 1988-89		
	Area	Prod.	Yield	Area	Prod.	Yield	Area	Prod.	Yield
Rice	0.84	2.54	1.68	1.33	3.49	2.13	0.56	2.60	2.06
Wheat	2.58	5.88	3.21	2.68	3.99	1.27	2.02	5.27	3.17
Coarse Cereals	-0.15	1.21	1.23	0.90	2.23	1.29	-0.97	0.42	1.34
Pulses	0.27	0.37	0.26	1.90	1.39	-0.22	0.30	0.74	0.51
Total foodgrains	0.61	2.65	1.72	1.41	2.93	1.43	0.22	2.68	2.10
Groundnut	1.15	1.80	0.65	4.01	4.33	0.31	0.08	1.23	1.14
Rapeseed-Mustard	1.74	3.53	1.76	2.97	3.36	0.37	1.50	4.01	2.48
Total Oilseeds	0.85	2.04	0.82	2.69	3.11	0.20	0.17	1.91	1.42
Total Fibres	0.25	2.00	1.66	2.57	4.45	1.68	-0.29	1.80	1.96
Sugarcane	1.84	2.96	1.10	3.27	4.26	0.95	1.53	2.70	1.15
All Crops	0.69	2.63	1.56	1.61	3.13	1.30	0.26	2.64	1.92

Source: Directorate of Economics and Statistics, Ministry of Agriculture, New Delhi.

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TABLE 2. AVAILABILITY OF EDIBLE OILS FOR HUMAN CONSUMPTION

(Thousand tonnes)

Years	Domestic Production of edible oils	Oils imported	Total Availability	Oils imported as percentage of total Availability
1971-72	2543	86	2629	3.27
1972-73	2126	104	2230	4.66
1973-74	2634	126	2760	4.56
1974-75	2648	26	2674	0.97
1975-76	2922	67	2989	2.24
1976-77	2340	959	3299	29.07
1977-78	2732	1123	3855	29.13
1978-79	2799	821	3620	22.68
1979-80	2411	1149	3560	32.27
1980-81	2560	1074	3634	29.55
1981-82	3219	998	4217	23.67
1982-83	2728	1150	3878	29.65
1983-84	3282	1634	4916	33.24
1984-85	3446	1368	4814	28.42
1985-86	2964	1179	4143	28.46
1986-87	3049	1497	4546	32.93
1987-88	3369	1819	5188	35.06
1988-89(p)	4748	343(a)	5091	6.74

Notes: 1. (a) up to 30th September, 1989; 2. (p) Provisional; 3. Data for 1978-79 to 1988-89 is taken from Shenoy (1989) while that for 1971-72 to 1977-78 is compiled from various sources including Directorate of Economics and Statistics and Directorate of Vanaspati and Edible Oils. The two series are not strictly comparable due to minor changes in coverage. Nevertheless they convey the central point that imports became very significant proportion since 1976-77.

Consequently, a series of measures were initiated to boost production of oilseeds. National Oilseeds Development Project (NODP) was initiated in 1984-85 and launched in 1985-86 by integrating and re-orienting the then existing centrally sponsored schemes for oilseeds development. Initially, four major oilseeds - groundnut, rapeseed-mustard, soyabean, and sunflower - were given priority in potential areas of 12 states. Later, NODP was extended to 180 districts of 17 important oilseeds growing states. The National Agricultural Cooperative Marketing Federation (NAFED) was designated as a nodal agency for undertaking price support operations in respect of oilseeds for a period of five years beginning 1985-86. The Technology Mission on Oilseeds (TMO) was launched in May 1986, with four Micro Missions, aimed to improve various segments of oilseeds/edible oil economy[1]. In 1987-88, a scheme called Oilseeds Production Thrust Project (OPTP) was initiated for three years to accelerate production of the four major oilseeds. The scheme covered 246 districts in 17 states, including 151 NODP districts. On January 5, 1989, the Government announced its Integrated Policy for Oilseeds fixing the wholesale price band for oil between Rs 20-25 per kg. The National Dairy Development Board (NDDB) was entrusted with the task of maintaining the price band by means of buffer stocking operations. The 'price band' policy seeks to fix procurement prices of groundnut and rapeseed-mustard "at least 40 per cent above the present levels recommended by the Prices Commission" [Shenoy, 1989] and may have repercussions on other competing crops raising questions regarding 'efficiency' implications of such policy measures.

It is against the backdrop of these policy measures that the present study attempts to quantify the incentive structure of major oilseeds and their competing crops, in the main oilseeds producing states, as it existed during 1980s (1980-81 to 1986-87). This would enable one to understand better the likely impact of the policies being pursued with regard to the oilseeds since 1986, particularly the 'price band' policy of 1989.

Four oilseeds are selected for the purpose of this study. Groundnut and rapeseed-mustard, the two dominant ones, and soyabean and sunflower, the two fast growing ones. Together, the four oilseeds cover about 85 per cent of oilseed production in India. The study covers major states of the relevant oilseed. For example, groundnut is examined

along with its competing crops in five states - Gujarat, Andhra Pradesh, Tamil Nadu, Karnataka, and Orissa; rapeseed-mustard in Uttar Pradesh, Rajasthan, Haryana and Assam; soyabean in Madhya Pradesh and Uttar Pradesh, and sunflower in Maharashtra and Karnataka.

Profitability of Oilseeds

It seems reasonable to assume that cultivators respond to profits in allocating their resources across crops particularly in relation to commercial crops such as oilseeds. More specifically, it seems that farmers are more concerned with maximising profit over paid out cost (cost A2) than over comprehensive cost (cost C2) because a farmer would consider the imputed cost of his owned inputs such as imputed rent or imputed wage or imputed interest on capital, as returns to his factors of production. From his private angle this seems logical. Therefore, to understand the true structure of crop and region-specific incentives for cultivators in Indian agriculture, one needs to first estimate per hectare profitability of different crops across regions. Profitability from farmer's angle may be defined as excess of gross value of output (GVO) over paid out costs (cost A2) on per hectare basis or its rate of profit, i.e., [(GVO - cost A2)/cost A2]* 100. Hence, in each region, profitability of the principal oilseed crop (P_i) will have to be compared with the profitability of its competing crop (C_i). It is this comparative incentive coefficient (P_i/C_i), which provides signals to individual farmers to cultivate the oilseed or its competing crop.

The estimates of profitability, given in Table 3, show that, of the four oilseeds selected in this study (groundnut, rapeseed-mustard, soyabean and sunflower), groundnut cultivators in Orissa had the highest average profitability (GVO- cost A2) of Rs 3,620 per hectare followed by cultivators of rapeseed-mustard in Uttar Pradesh (Rs 3,419/ha)[2]. Although the profitability of each crop fluctuates every year primarily due to fluctuations in yield and prices, yet their averaging over different years in 1980s does provide some idea of the structure of incentives for oilseed cultivators in different states. If one works out weighted average of oilseed-specific profitability with relative share of different states in the total area of that oilseed (TE 1986-87) acting as weights, one finds that rapeseed- mustard is more profitable an oilseed than others in terms of GVO-cost A2 (Rs 3,070/ha) as well as on rate of profit over cost A2 basis (301 per cent). Within rapeseed-mustard, rate of profit over cost A2 is highest for Rajasthan (354 per cent) followed by Uttar Pradesh (287 per cent). In terms of absolute profit over cost A2, however, Uttar Pradesh tops with Rs 3,419 as profit per hectare. These two states together produce about half of rapeseed-mustard in India. Haryana, which is another important producer of this oilseed, had absolute profit (Rs 3,111/ha) very close to that in Rajasthan, but its rate of profit is lower than that in Rajasthan or even that in Uttar Pradesh. Of the four rapeseed-mustard growing states for which data are available, Assam comes at the bottom both in terms of absolute profits over cost A2 (Rs 1,672/ha) as well as rate of profit (218 per cent).

Performance of groundnut on profitability scale is not very encouraging. In terms of absolute profit over cost A2 (Rs 1,868/ha), it is only 60 per cent of that in rapeseed-mustard. The weighted average rate of profit of five groundnut producing states (accounting for 82 per cent of all India groundnut production) is just 83 per cent compared to 301 per cent for rapeseed-mustard, 183 per cent for soyabean, and 177 per cent for sunflower. Among the groundnut producing states, Andhra Pradesh has the lowest absolute profits (Rs 1,238/ha) as well as rate of profit over cost A2 (60 per cent). It is followed by Gujarat and Karnataka, both of which are important producers of groundnut. It appears that wherever groundnut cultivation is heavily concentrated, its returns are low. Presumably this is because it has gone to poor and marginal lands.

The weighted average profitability of soyabean in Madhya Pradesh and Uttar Pradesh, which together account for 95 per cent of all India soyabean production is Rs 1,874 per hectare, that is about the same as in groundnut. But the rate of profit over cost A2 is much higher (183 per cent) in soyabean than in groundnut (83 per cent). Sunflower appears to have low profitability (Rs 1,099/ha) but still has a sufficiently high rate of profit (177per cent).

TABLE 3. PATTERNS OF DOMESTIC INCENTIVES FOR SELECTED OILSEEDS AND THEIR COMPETING CROPS (FROM PRIVATE FARMERS' VIEWPOINT)

(Rs. per ha, at 1986-87 prices; Average of 1980-81 to 1986-87)

Crops	Andhra Pradesh	Assam	Gujarat	Haryana	Karnataka	Madhya Pradesh	Maharashtra	Orissa	Rajasthan	Tamil Nadu	Uttar Pradesh	Weighted Average
Oilseeds												
Groundnut	1238.77 (59.70)		1844.00 (70.58)		2011.78 (118.68)			3620.36 (181.77)		2243.20 (82.73)		1867.97 (83.49)
		DES										
Rapeseed-mustard		1672.44 (217.74)		3111.11 (261.71)					3135.00 (354.56)		3419.36 (286.97)	3070.49 (301.01)
Soyabean						1892.69 (188.63)					1769.09 (156.50)	1874.27 (183.84)
Sunflower					1082.46 (168.33)		1123.67 (190.36)					1099.23 (177.30)
Cereals												
Paddy	2573.72 (72.35)				4858.38 (196.73)			2024.95 (117.27)		3322.68 (73.23)	1966.73 (101.33)	
		Sa										
Wheat		1123.84 (11.85)		2744.67 (96.89)					3513.41 (154.23)		2519.63 (92.15)	
Jowar	425.86 (44.74)		1517.52 (119.84)		1254.71 (160.43)	921.83 (127.28)	1111.81 (98.58)					
Bajra			1926.58 (105.43)								1547.06 (142.54)	
Barley									2166.49 (139.19)			
Ragi					1840.43 (135.98)					1857.81 (104.22)		
Pulses												
Gram				1519.13 (188.51)					1774.91 (217.72)		2422.29 (171.56)	
Tur					1470.29 (172.24)	1897.16 (215.09)					4443.46 (421.60)	
Moong	744.55 (74.91)					959.09 (170.64)		1095.68 (171.32)				
Urad	1187.23 (124.82)					1120.34 (162.74)		1549.81 (257.81)		1468.38 (129.74)	1600.92 (189.74)	
Cotton			2758.32 (68.63)		4008.56 (173.15)	2514.21 (205.00)	1096.26 (67.25)					
					GN						RM	
Ratio of oilseeds to Simple Average of Competing Crops	1.01 (0.75)	1.49 (18.37)	0.89 (0.72)	1.46 (1.83)	0.83 (0.71) SF 0.66 (1.15)	1.28 (1.07)	1.02 (2.30)	2.32 (1.00)	1.26 (2.08)	1.01 (0.81)	1.38 (2.18) SO 0.74 (0.73)	

Notes: 1) DES: Cost of Cultivation data from Directorate of Economics and Statistics, Ministry of Agriculture Government of India.
2) Sa: From Saikia, 1989
3) GN: Groundnut; 4) SF: Sunflower; 5) RM: Rapeseed-mustard; 6) SO: Soyabean;
7) Figures in parentheses are the rates of profit over paid out costs in percentage terms.

For a fuller assessment of incentive structure for oilseeds, one need examine their competing crops. This requires first identification of truly competing crops to the main oilseed crop in each region. One may think of competitiveness purely from technical viewpoint such as season (kharif or rabi), water, sunshine, and soil requirements. But for our purpose, we must look at the crops which compete for farmer's limited economic resources particularly land. One way to identify competing crops at state level, therefore, would be to examine the changes in area of different crops of the same season during the last decade or so. If the main oilseed crop (x) in a particular state shows positive trend in area and some other crop (y) of the same season exhibits negative trend in area, or vice-versa, the probability is that the two are competing for area. But if both the crops (x and y) reveal positive trends in area, can they still be competing? Yes, this may happen as a result of expansion in gross cropped area under all crops made possible by new irrigation facilities in that state. Under such a situation one should look at the trend of ratios of area under main oilseed crop x to gross cropped area and that of crop y to gross cropped area. Still another way to identify competing crops would be to first look at the districts in each state where the principal oilseed crop area is concentrated and then examine the area trends of other dominating crops in those districts. This district level approach is perhaps better than the state-level examination. In this study, however, we have relied more on the state-level examination especially for groundnut and rapeseed-mustard, while district level examination proved more useful in the case of soyabean and sunflower.

However, there is another problem as one attempts to obtain a combined estimate of profitability for all competing crops. That is of attaching weights to the individual profitability estimates of the competing crops. Theoretically, the weights should be the areas to be lost or gained by competing crops to main oilseed crop depending upon whether area under the latter is increasing or decreasing. But how much area each competing crop will lose or gain is very difficult to know. In fact it will be influenced by a host of factors ranging from relative profitabilities to relative needs for self consumption. Estimating the impact of all these is beyond the scope of this study. Therefore, we shall take a simple average of profitability estimates of competing crops and compare it with the profitability of the main oilseed crop.[3]

The results contained in Table 3 indicate that, in Andhra Pradesh, profitability of groundnut (over cost A2) is higher (Rs 1,239/ha) compared to that of jowar (Rs 426/ha), moong (Rs 745/ha), or urad (Rs 1,187/ha). In case of urad, profitability would be higher (Rs 1,399/ha) than that in groundnut if one excludes 1981-82 when urad yield was low. The impact of relative profitability of groundnut vis-a-vis competing crops, particularly jowar, is seen clearly from their area movements. The area under groundnut registered an increase from 1304,000 ha in 1980-81 to 1572,000 ha in 1986-87, while jowar area declined from 2054,000 to 1615,000 ha over the same period. Moong also lost area from 572,000 to 514,000 ha during 1980-81 to 1986-87, while urad gained from 232,000 to 295,000 ha during this period.

It may, however, be noted that these three crops (jowar, moong and urad) that are deemed to compete with groundnut are primarily unirrigated crops, while groundnut had about 20 per cent of its area under irrigation in 1984-85. On the other hand, paddy is largely an irrigated crop (94 per cent) and is heavily concentrated in the Godavari belt. But, its profitability (Rs 2,574/ha) is much higher than that of groundnut and therefore groundnut cannot compete with it in the irrigated tracts. Of course, paddy cannot compete with groundnut in the unirrigated tracts. These results suggest that in Andhra Pradesh groundnut would be a preferred crop over coarse cereals like jowar and pulses (particularly moong), but not over paddy.

In Gujarat, groundnut competes primarily with bajra and jowar and to some extent with cotton. The average profitability (over cost A2) is higher for bajra (Rs 1,927/ha) compared to that of groundnut (Rs 1,844/ha). The areas under both declined, under bajra from 1380,000 ha in 1980-81 to 1274,000 ha in 1986-87 (7.68 per cent); and that under groundnut much more from 2125,000 to 1825,000 ha over the same period

(14.12 per cent). Area under jowar declined only marginally, from 906,000 to 882,000 ha (2.65 per cent) over the relevant period, despite the fact that profitability per hectare in case of jowar (Rs 1,517) is lower than that in either groundnut or bajra. In the case of cotton, area declined from 1572,000 to 1370,000 ha (12.85 per cent) between 1980-81 and 1986-87 despite its highest absolute profits. An explanation is to be found in the rates of profitability rather than in absolute profits. The rate of profit over cost A2 is highest (119.84 per cent) in jowar, followed by bajra (105.43 per cent), groundnut (70.58 per cent) and lowest in cotton (68.63 per cent) and corresponds well with the respective decline in area. Thus, in Gujarat, any significant change in the relative profitability of groundnut can lead to sizeable shift in its area. Hence, a higher price for groundnut through the 'price band' policy for groundnut oil may result in a large scale shift of area from bajra and cotton to groundnut.

In Karnataka, groundnut competes more closely with low input use crops like jowar, ragi, tur, and sunflower and somewhat distantly with rice and cotton. Although the absolute profit in groundnut cultivation (Rs 2,012/ha) is higher than that in jowar (Rs 1,255/ha), ragi (Rs 1,840/ha), tur (Rs 1,470/ha), and sunflower (Rs 1,082/ha), yet the rate of profit in these crops follows a somewhat reverse order. It is 118.68 per cent in groundnut compared to 160.43 per cent in jowar, 135.98 per cent in ragi, 172.24 per cent in tur, and 168.33 per cent in sunflower. The higher rates of profit of these crops appear to have had positive impact on their area movements. During triennium ending (TE) 1980-81 and TE 1986-87, e.g., jowar gained area by 576,000 ha (31 per cent), sunflower by 437,000 ha (1,214 per cent) and tur by 83,000 ha (24 per cent). Groundnut, which had the lowest profit rate registered marginal increase of 4.51 per cent in area while ragi area almost stagnated during this period. Rice and cotton, which are high input use crops exhibit somewhat perplexing behaviour. Rice has a high absolute profit (Rs 4,858/ha) as also a high rate of profit (196.73 per cent). So is the case with cotton having profit of Rs 4,008/ha and rate of profit of 173.15 per cent. Yet the two crops revealed a very different behaviour in area movements. Rice area increased very marginally by 2.13 per cent, presumably due to irrigation constraint, while cotton area in fact declined substantially from 1045,000 to 697,000 ha (33 per cent) over TE 1980-81 to TE 1986-87. In any case, it appears that higher prices for groundnut would adversely affect area movements in ragi, followed by tur, and jowar, thereby slowing down the growth of foodgrains' output in the state.

In Tamil Nadu, groundnut has relatively higher percentage (30 per cent) of area under irrigation. About 30 per cent of groundnut area is sown during summer/rabi season, while its share in state's groundnut output is about 42 per cent. It competes basically with ragi, coarse cereals (bajra and jowar), cotton and to some extent with paddy, especially where ample water for paddy is not certain. The profitability in groundnut cultivation (Rs 2,243/ha) is higher than in ragi (Rs 1,858/ha) or urad (Rs 1,468/ha). But the rate of profit follows a reverse order - highest for urad (129.74 per cent) followed by ragi (104.22 per cent) and groundnut (82.73 per cent). Paddy, which has the highest profitability (Rs 3,323/ha) has the lowest rate of profit (73.23 per cent). It seems that higher prices for groundnut vis-a-vis other crops, may shift more area from ragi and coarse cereals than from either urad or paddy.

In Orissa, groundnut is showing very promising results. Its profitability (Rs 3,620/ha) is much higher than in any of its competing crops - urad (Rs 1,550/ha), moong (Rs 1,096/ha) and paddy (Rs 2,025/ha). Although it is a relatively new crop, it has caught up very fast increasing its area from 172,000 ha in 1980-81 to 343,000 ha in 1986-87. Orissa has the highest groundnut yields in the country with a high rate of profit of 181.77 per cent. At present, Orissa accounts for about 9 per cent of all India groundnut production, but it can increase significantly given an effective market support. The project 'Oil Orissa' launched by NDDB appears to be an important and right step.

Soyabean cultivation is highly concentrated in Madhya Pradesh that accounts for about 82 per cent of its all India area. Within Madhya Pradesh, soyabean is dominant in western part where it has taken up kharif fallows. But it also competes with jowar and to some extent with cotton and kharif

pulses. The average profitability in soyabean cultivation (Rs 1,893/ha) being more than double of that in jowar (Rs 922/ha), has resulted in rapid expansion of area under soyabean from 455,000 ha in 1980-81 to 1143,000 ha in 1986-87, while jowar area has declined from 2352,000 to 1926,000 ha over the same period. Kharif pulses, such as moong, lost area from 246,000 to 196,000 ha during 1980-81 to 1986-87 because of its lower profitability (Rs 959/ha). Surprisingly, despite its higher relative profitability (Rs 2,514/ha), cotton has also lost some area to soyabean; possibly, as a result of large scale processing units through NDDB giving an assured market to soyabean cultivators.

The other important state producing soyabean is Uttar Pradesh. Its cultivation is concentrated primarily in the hills and the tarai belt. It competes with coarse cereals such as bajra and also with paddy. Its profitability (Rs 1,769/ha) is higher than that of bajra (Rs 1,547/ha) and urad (Rs 1,600/ha), but lower than paddy (Rs 1,967/ha). During 1980s, soyabean area in Uttar Pradesh has increased from 135,000 ha in 1980-81 to 167,000 ha in 1986-87. Area under bajra has declined from 995,000 to 834,000 ha over the same period. Urad and rice areas have remained somewhat unchanged. It appears that, as in Madhya Pradesh, higher soyabean prices would shift area away from coarse cereals.

In Uttar Pradesh, however, the main oilseed crop is rapeseed-mustard, which is largely grown as a mixed crop with wheat. The relative profitability in rapeseed-mustard (Rs 3,419/ha) is much higher than that in wheat (Rs 2,519/ha) or in gram (Rs 2,422/ha). Not only this, the rate of profit over cost A2 is also much higher in rapeseed-mustard (286.97 per cent) compared to 92.15 per cent in wheat and 171.5 per cent in gram. Nevertheless, mustard area declined from 2276,000 ha in 1980-81 to just 1028,000 ha in 1986-87. It is possible that, because rapeseed-mustard is taken as a mixed crop with wheat, its area statistics are not very reliable. If we take into account only pure area under mustard, which is published by State Department of Agriculture, it shows an increase from 295,000 ha in TE 1979-80 to 523,000 ha in TE 1986-87, which is 77 per cent over 7 years. It seems that higher mustard prices would lead to expansion in area of pure mustard displacing wheat and gram.

Sunflower is mainly cultivated in Karnataka and Maharashtra. It competes with any unirrigated crop, particularly in kharif season. In Karnataka, area under sunflower dramatically increased from a meagre 38,000 ha in 1980-81 to 584,000 ha in 1986-87. We have profitability figure for only one year. It shows that, although absolute profit in sunflower (Rs 1,082/ha) is lower, its rate of profit (168 per cent) is higher than in ragi (136 per cent) or even in groundnut (119 per cent). In Maharashtra, profitability in sunflower (Rs 1,124/ha) is very close to that in jowar (Rs 1,112/ha) and cotton (Rs 1,096/ha). But the rate of profit in sunflower (190 per cent) is almost double of that in jowar (98 per cent) and more than double of that in cotton (67 per cent). This has led to an increase in its area from 63,000 ha in 1980-81 to 314,000 ha in 1986-87, while jowar area declined from 6578,000 ha in 1981-82 to 6335,000 ha in 1986-87.

In Rajasthan, rapeseed-mustard cultivation is more profitable (Rs 3,135/ha) than gram (Rs 1,774/ha) or barley (Rs 2,166/ha). The rate of profit too is much higher in mustard (355 per cent) than in gram (218 per cent) or barley (139 per cent). In consequence, mustard area increased from 363,000 ha in 1980-81 to 852,000 ha in 1986-87, while area under barley declined from 410,000 to 283,000 ha and that of gram from 1935,000 ha to 1313,000 ha over the same period.

In Haryana, profitability in mustard (Rs 3,111/ha) is much higher than in gram (Rs 1,519/ha) or even in wheat (Rs 2,745/ha). Rate of profit in mustard (262 per cent) is also higher than in gram (188 per cent) and in wheat (97 per cent). Hence, higher prices for mustard with assured markets would lead to its area expansion at the cost of gram and wheat. Accordingly, the area under rapeseed-mustard increased by 70 per cent from 182,000 to 310,000 ha during TE 1980-81 to TE 1986-87. On the other hand, wheat area increased only by 17 per cent and area under gram declined by 16 per cent over the same period.

In Assam, mustard area has increased from 213,000 ha in 1980-81 to 310,000 ha in 1986-87. Here, mustard is grown in patches of upland

where kharif crops are not raised [Saikia, 1988, p.23]. Hence, the possibility of extension of area under mustard is limited. The majuli sub-division where mustard is most concentrated, it is grown after floods. Its main competing crop is wheat and, although mustard has higher profitability than wheat [Saikia, 1988, p 85], the scope of its expansion is limited.

Society's Return Over Cost

It will be noticed that in working out the profitability of a crop, we have in the above taken the cost of inputs at what in fact it is to a farmer. But the inputs are often subsidised and, though from farmer's point of view it is perfectly rational to take subsidised cost as the relevant cost, from the society's angle it would provide wrong signals. Since subsidies do have an opportunity cost, an economic analyst must try to estimate and adjust these input subsidies and rework region and crop specific profitability ratios from the society's view. It is all the more important in India, where input subsidies form roughly 16-17 per cent of value added in agriculture [Gulati, 1989]. From society's point of view, it is not only that input subsidies play an important role in shaping crop and region-specific incentive structures, but also that the cost concept has to be the more comprehensive (C2) including the imputed value of owned factors of production. Thus, the profitability in society's case would be measured as [GVO - (Cost C2 + IS)] on per hectare basis; where GVO is the gross value of output and IS is the sum of input subsidies per hectare. Thus, it would involve estimation of input subsidies such as on fertilisers, canal irrigation, electricity, and credit, on crop and region-specific basis.

Economic subsidy on fertilisers, as distinct from financial or budget subsidy, can be defined as the difference between farm-gate cost of imported fertilisers and what the cultivator actually pays. This definition appears to be quite appropriate as fertiliser is a tradeable input and, at the margin, opportunity cost of producing it at home would be the price at which imported fertilisers can be made available to cultivators. Economic subsidy on irrigation through major and medium schemes may be defined as the difference between annualised resource cost of creating and maintaining one hectare of canal irrigated land and the revenue received from cultivators for that. Similarly, economic subsidy on electricity is defined as the difference between annualised resource cost of electricity operation (generation plus distribution) and revenue received from agriculture. Credit subsidy is deemed to compose of interest subsidy and default subsidy. Interest subsidy refers to the differential rate charged from agriculture vis-a-vis non-agricultural sector while default subsidy would capture the likely bad debts to be written off.

The input subsidies are then to be allocated across crops. Irrigation and electricity subsidy can be allocated on the basis of relative water requirements of different crops, fertiliser subsidy on the basis of its consumption by different crops and credit subsidy on the basis of their value productivity [Gulati, 1990]. Once input cost per hectare is adjusted for the subsidies on these four inputs (fertilisers, irrigation, electricity and credit) on crop and region-specific basis, comparative profitability ratios can be reworked and these would be the indicators of incentive structures from the society's angle. In Table 5, we present these for selected oilseeds and their competing crops at 1986-87 prices.

The input subsidy estimates for selected oilseeds and their competing crops in different states (Table 4) show that on per hectare basis they are very high for irrigated crops like paddy and wheat compared to pulses, oilseeds or other coarse cereals. This is primarily because irrigation subsidy is much higher relative to other input subsidies. Since irrigation subsidy is allocated across crops on the basis of relative water requirements of different crops in various states, and since paddy is relatively a water intensive crop, this crop takes a larger share of irrigation subsidy.

TABLE 4. INPUT SUBSIDIES ON SELECTED OILSEED AND THEIR COMPETING CROPS IN DIFFERENT STATES

(Rs/ha at 1986-87 prices; Average of 1980-81 to 1986-87)

Crops	Andhra Pradesh	Assam	Gujarat	Haryana	Karnataka	Madhya Pradesh	Maha-rashtra	Orissa	Rajasthan	Tamil Nadu	Uttar Pradesh
Groundnut	375.00		165.09		204.82			505.26		525.83	
Rapeseed-Mustard		19.57		234.03					443.34		174.64
Soyabean						81.92					40.58
Sunflower					105.75		51.36				
Paddy	1622.20				1390.07			743.80		1492.78	791.21
Wheat				1063.87					1487.82		686.17
Jowar	56.50		57.11		56.86	44.59	81.35				
Bajra			84.62								51.55
Barley									1055.07		
Ragi					87.76					150.77	
Gram				100.85					135.76		93.61
Tur					61.95	80.58					
Moong	48.39					38.21		22.76			
Urad	46.26					49.94		28.00		111.10	49.95
Cotton			374.77		306.20	308.30	128.30				

Note: Input subsidies given above include those on fertilisers, canal irrigation, electricity and credit. These averages correspond to those years for which cost data of the relevant crops are available and are used in the calculation of domestic incentives from society's viewpoint in autarkic framework

Crop specific input subsidies are added in comprehensive cost (cost C2) of the crop and this is deducted from the gross value of output of the crop to obtain 'incentive indicators' from the society's angle. We have taken the comprehensive cost (C2) rather than only paid out cost (A2), which was relevant for an individual farmer, because we feel that society must see how its basic resources - land, labour and capital, are being used.

It may be noted that once cost C2 along with input subsidies is taken into consideration, the concept and estimates of profitability change dramatically. Groundnut turns out to be unremunerative (from the society's angle) in Andhra Pradesh and Tamil Nadu with negative profits ranging from Rs 417/ha in Andhra Pradesh to Rs 76/ha in Tamil Nadu. Orissa retains its top position with positive profits of Rs 1,133/ha. Overall, the weighted average estimate of five selected groundnut producing states, shows a positive profit of Rs 158 per ha and a rate of profit of 4.44 per cent.

Soyabean and sunflower exhibit better performance than groundnut. The absolute profits are higher and so are the rates of profit. Although in case of soyabean in Uttar Pradesh the situation seems to have turned unfavourable since 1984-85, yet its average since 1980-81 gives a positive picture. The weighted average profit in soyabean turns out to be Rs 655 and in case of sunflower Rs 452 per ha. The rate of profit, however, is higher in sunflower (36 per cent) than in soyabean (28 per cent).

Rapeseed-mustard, on the other hand, seems to be the most promising (from society's angle) of all the four oilseeds being analysed in this study. Its profit remains the highest (Rs 1,312/ha) as also rate of profit (46 per cent). Uttar Pradesh, Rajasthan, and Haryana, all show very good results. Relatively, Assam is at a lower level and is subjected to greater fluctuation.

Now let us examine the crops competing with oilseeds. In Andhra Pradesh, among the four crops competing with groundnut, namely paddy, moong, urad, and jowar, it is only in urad that profit (over cost C2 + IS) is positive; all others are unremunerative. The negative profit is highest in paddy (-Rs 1,212/ha) mainly due to very high input subsidies (more than Rs 1,200/ha) because of high irrigation subsidy. Paddy is followed by groundnut (-Rs 417/ha), jowar (-Rs 329/ha) and moong (-Rs 62/ha) in that order.

In Gujarat, all the four relevant crops groundnut, bajra, jowar, and cotton have positive profits over cost, with jowar and bajra having profits above Rs 600 per ha, and cotton and groundnut with profits between Rs 350 per ha and Rs 370 per ha. Karnataka also has positive profits in all the relevant crops, the highest being in cotton

TABLE 5. PATTERNS OF DOMESTIC INCENTIVES FOR SELECTED OILSEEDS AND THEIR COMPETING CROPS (FROM SOCIETY'S VIEWPOINT IN AUTARKIC FRAMEWORK)
(Rs/ha, at 1986-87 prices; Average of 1980-81 to 1986-87)

Crops	Andhra Pradesh	Assam	Gujarat	Haryana	Karnataka	Madhya Pradesh	Maharashtra	Orissa	Rajasthan	Tamil Nadu	Uttar Pradesh	Weighted Average
Oilseeds												
Groundnut	-417.35 (-11.29)		368.61 (9.44)		662.23 (21.55)			1133.32 (25.05)		-76.55 (-1.55)		158.31 (4.44)
Rapeseed-mustard		403.43 (20.55)		1268.81 (41.81)					1274.89 (45.14)		1635.39 (55.20)	1311.86 (45.77)
Soyabean						687.09 (30.85)					470.35 (14.20)	654.80 (28.37)
Sunflower					385.79 (28.30)		548.56 (46.99)					452.04 (36.20)
Cereals												
Paddy	-1211.59 (-16.37)				1513.74 (28.59)			-12.89 (-0.67)		-364.53 (-4.42)	-529.92 (-11.85)	
Wheat				-239.78 (-4.13)					164.93 (2.53)		100.61 (1.98)	
Jowar	-329.26 (-19.29)		639.08 (29.80)		462.55 (29.41)	114.09 (7.64)	149.74 (7.67)					
Bajra			622.16 (19.76)								130.74 (5.41)	
Barley									-425.24 (-9.99)			
Ragi					422.03 (14.80)					-150.11 (-3.50)		
Pulses												
Gram				273.80 (11.87)					775.78 (41.93)		769.67 (24.86)	
Tur					690.22 (42.02)	546.99 (22.36)						
Moong	-62.07 (-3.81)					149.98 (11.57)		365.79 (26.00)				
Urad	372.37 (19.38)					249.13 (16.03)		722.09 (50.50)		323.21 (12.64)	225.22 (10.01)	
Cotton			354.85 (5.88)		1925.11 (42.67	875.57 (26.50)	45.36 (2.81)					

Note: Figures in parentheses are the rates of profit over comprehensive cost (cost C2) including input subsidies (IS) in percentage terms.

Rs 1,925/ha) followed by paddy (Rs 1,513/ha), tur (Rs 690/ha), groundnut (Rs 662/ha), ragi (Rs 422/ha), and sunflower (Rs 386/ha) in that order. Tamil Nadu, on the other hand, has positive profit only in case of urad (Rs 323/ha) and negative profits in all other crops : groundnut (-Rs 76/ha), ragi (-Rs 150/ha), and paddy (-Rs 364/ha). In Orissa, except for rice, other three crops have positve profits : groundnut Rs 1,133/ha, urad Rs 722/ha, and moong Rs 366/ha. In Madhya Pradesh, all the relevant crops have positive profits. Soyabean with Rs 687/ha comes next only to cotton (Rs 875/ha). Jowar has quite low profitability at Rs 114 per ha. In Uttar Pradesh, profits in rapeseed-mustard (Rs 1,635/ha) are high compared to in wheat (Rs 100/ha) and gram (Rs 770/ha). Soyabean also seems to be promising with profits of Rs 470 per ha compared to paddy (-Rs 530/ha), bajra (Rs 131/ha), and urad (Rs 225/ha). Sunflower in Maharashtra has profits of Rs 549 per ha which is much higher than either in jowar (Rs 150/ha) or cotton (Rs 45/ha). Similarly, in Rajasthan, the main oilseed crop, namely, rapeseed-mustard has much higher profits (Rs 1,275/ha) compared to Rs 775/ha in gram, Rs 165/ha in wheat, and -Rs 425/ha in barley. Situation in Haryana is similar. Rapeseed-mustard has profits of Rs 1,268 per ha compared to Rs 274 per ha in gram and -Rs 240/ha in wheat. With negative profits, economics of wheat in Haryana in fact has been quite unfavourable during 1980s. Rapeseed-mustard in Assam continues to be more profitable than its competing crop wheat.

The above results clearly indicate that, from society's angle also, incentives are quite high for oilseeds compared to their competing crops in almost all the states considered in this study. This is the situation up to 1986-87 when there was considerable price variation in oilseed prices, intra year and inter year. With the announcement of a relatively high price band for oil in the Integrated Policy for Oilseeds in January 1989, the situation is likely to be even more favourable to oilseeds vis-a-vis their competing crops. Thus, there is every possibility of a sizeable shift of area from cereals to oilseeds.

Degree of Protection

It may, however, be remarked that, although adjustment for input subsidies makes profitability ratio indicator more preferable from society's point of view, yet it cannot be considered as the most desirable one. This is because in this analysis, society is considered in an autarkical framework. It values the tradeable output and many inputs (except fertiliser) at domestic prices, which as a result of several policy interventions, substantially deviate from the prices that would prevail in the absence of such interventions. Thus, in brief, if international trade is considered as a transformation frontier in an open economy framework, true incentives for different crops can be measured by estimating the degree of protection. It attempts to capture the effects of various interventionist policies of the government both in the domestic market as well as on external trade. This is done by analysing the issue of incentives under a counter-factual free trade scenario. Thus, this indicator primarily seeks to answer the question: what would the cultivator have received for his produce under a 'free trade' situation compared to what he is actually getting under the regulated trade scenario ? Three variants of this incentive indicator can be obtained by estimating (i) nominal protection coefficients (NPCs); (ii) effective protection coefficients (EPCs); and (c) effective subsidy coefficients (ESCs). More precisely, NPC is defined as a ratio of domestic price to world reference price of the commodity under consideration; EPC as a ratio of value added at domestic prices to value added at world reference prices; and ESC as a ratio of value added at domestic prices inclusive of net subsidies on non-tradeable inputs to value added at world reference prices. For more precise definitions and their derivations, see Appendix I.

It may be noted that the three variants of protection primarily capture the divergence in domestic and world prices with increasing complexity. NPC measures protection to the commodity, including all the tradeable inputs that go into its production. Therefore, if the weighted nominal protection on tradeable inputs is greater (lower) than the nominal protection of output,

then effective protection on output would be lower (greater) than its nominal protection. Hence, a high NPC of output would provide little incentive if NPC of its tradeable inputs is also high. In distinction, EPC measures protection given to the primary factors (land, labour and capital) and non-tradeable inputs[4]. Value added is in fact the reward to these primary and non-tradeable intermediate inputs. This makes EPC a better measure of protection for a particular commodity. In fact, NPCi and EPCi are inter-related via NPCj. The relation is:

$$\text{If } \sum_{j=1}^{k} a_{ij} NPC_j > NPC_i, \quad \text{then} \quad EPC_i < NPC_i$$

$$= NPC_i, \quad \text{then} \quad EPC_i = NPC_i$$

$$< NPC_i, \quad \text{then} \quad EPC_i > NPC_i \quad \ldots.(1)$$

ESC_i goes a step further and adds net subsidies (subsidies minus taxes) on non-tradeable intermediate inputs in the numerator of EPC_i. Subsidies on non-tradeable inputs such as water, electricity, and credit provide greater incentives to use primary factors of production - land, labour and capital, compared to a situation of without subsidy. That makes ESC a better measure of incentives than EPC.

In Table 6, we present these protection coefficients (NPCs, EPCs, and ESCs) of selected oilseeds in representative states for the period 1980-81 to 1986-87. For the derivation of these results, see [Gulati 1990, Gulati et al. 1990].

The results show that, on an average, protection is quite high on groundnut, rapeseed-mustard and sunflower. It is only in soyabean that protection is relatively small, but here also protection coefficients remain above unity. On the whole, these results indicate that oilseeds in India have been protected by Government controls on trade and other policies. For instance, NPCs range from 1.50 for sunflower in Maharashtra, 1.47 for rapeseed-mustard in Uttar Pradesh closely followed by groundnut in Gujarat (1.43), and finally 1.14 for soyabean in Madhya Pradesh. EPCs turn out to be marginally higher than NPCs in case of all oilseeds except sunflower. This is because weighted NPC of tradeable inputs is smaller than the NPC of the concerned oilseed, which makes its EPC higher than its NPC [Gulati, 1990]. Further, because of positive net subsidies on non-tradeable inputs, ESCs turn out to be higher than EPCs.

The degree of protection on the two dominant oilseeds of India, groundnut and rapeseed-mustard, is quite high with their respective ESCs being 1.59 and 1.61 over the period 1980-81 to 1986-87[5]. Compared to other main cereals, say wheat and rice, this is much higher. For wheat, the weighted average ESCs (of four major wheat producing states) is 0.93 and for rice 0.88 (of six major rice producing states) for the period 1980-81 to 1986-87 [Gulati et. al. 1990]. For

TABLE 6. PROTECTION COEFFICIENTS OF SELECTED OILSEEDS IN REPRESENTATIVE STATES

Oilseeds	Representative State	Protection Coefficient	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	Average (1980-81 to 1986-87)
Groundnut	Gujarat	NPCs	1.06	1.36	1.56	1.51	1.36	1.52	1.65	1.43
		EPCs	1.04	1.39	1.63	1.57	1.41	1.62	1.74	1.49
		ESCs	1.10	1.44	1.73	1.64	1.48	1.87	1.84	1.59
Rapeseed Mustard	Uttar Pradesh	NPCs	1.73	1.72	1.42	1.61	1.22	1.04	1.51	1.47
		EPCs	1.84	1.81	1.46	1.68	1.25	1.05	1.56	1.52
		ESCs	1.93	1.91	1.55	1.78	1.31	1.13	1.66	1.61
Soyabean	Madhya Pradesh	NPCs	1.00	1.07	1.25	1.09	0.90	1.05	1.62	1.14
		EPCs	1.01	1.08	1.27	1.10	0.90	1.07	1.69	1.16
		ESCs	1.03	1.12	1.32	1.13	0.95	1.13	1.76	1.21
Sunflower seed	Maharashtra	NPCs	1.24	1.28	1.56	1.09	1.13	1.77	2.45	1.50
		EPCs	1.23	1.27	1.56	1.08	1.12	1.78	2.48	1.50
		ESCs	1.26	1.30	1.58	1.11	1.14	1.81	2.54	1.53

Note : NPCs : Nominal Protection Coefficients
EPCs : Effective Protection Coefficients
ESCs : Effective Subsidy Coefficients

cotton, the main cash crop that competes with groundnut in some states, it is even lower, 0.75. The implication of these results is quite clear. That higher protection to oilseeds had attracted more resources in this sector than what would have flowed if there was free trade of these oilseeds. From foreign exchange point of view, it appears that the production of oilseeds at the margin, especially if it is at the cost of cereals like wheat and rice or cotton, is not an economically efficient proposition. Government intervention in oilseeds sector, if it is to save foreign exchange, seems somewhat counter productive. Foreign exchange can be saved with greater efficiency in resource allocation, i.e., by diverting resources from oilseeds to crop like cotton, and exporting the surplus cotton to earn foreign exchange which may be used to import oilseeds (or edible oils, which incidentally have even greater protection than oilseeds). This would lead to a net saving of foreign exchange. But if oilseeds are being promoted with higher protection to achieve self-sufficiency, then the resulting economic inefficiency may be taken as a price of self-sufficiency.

Concluding Remarks and Policy Implications

In conclusion, one may sum up the main findings about the structure of incentives in Indian oilseeds sector and its implications for changing cropping pattern and economic efficiency, and saving the foreign exchange. Of the four selected oilseeds - groundnut, rapeseed-mustard, soyabean and sunflower, incentives to farmers in terms of profits over paid out costs (GVO - Cost A2) are highest in rapeseed-mustard. It remains higher even when compared with the profits on its competing crops like wheat, gram and barley. It should result in a rapid expansion of its area. This, it appears to have happened particularly at the cost of barley and gram to start with. But now it seems it is also occasionally eating into wheat area in certain pockets of Rajasthan and Haryana. If strong market support is provided to this crop, it can start replacing wheat in a significant way. The plausible impact of all these area shifts is likely to be adverse on cereals economy, which may require import of wheat or cut in its exports. If it leads to imports of wheat, there would be a net loss of foreign exchange, as well as economic inefficiency in the cropping pattern. This is suggested by the protection coefficient of rapeseed-mustard (ESC = 1.61), which is much higher than that of cereals, say wheat (ESC = 0.93, [Gulati et al. 1990, p. iii].

In case of groundnut, profit signals to farmers (GVO - Cost A2) were not very attractive compared to those on its competing crops in different states. Thus, barring minor area shifts, changes of significant nature in cropping pattern in favour of groundnut did not occur. However, the Integrated Policy for Oilseeds announced in January 1989, keeping the groundnut oil price band at Rs 20-25 per kg, (now raised to Rs 23-28/kg) raises the possibility that relative profit signals of groundnut would become more pronounced and would adversely affect, first jowar and bajra, and later on may affect even paddy or cotton on irrigated tracts. To that extent, like in rapeseed-mustard, groundnut promotion too is likely to be counter-productive from the foreign exchange point of view. This is because its protection coefficient (ESC = 1.59) is also very high compared to either of rice (ESC = 0.88) or cotton (ESC = 0.75) [Gulati et. al. 1990, p. iii].

Similarly, sunflower and soyabean which show a very high rate of profit (despite low absolute profits) may succeed in dry areas with resource poor farmers. Rapid expansion of soyabean in Madhya Pradesh cannot remain confined to kharif fallow land; it has surely displaced coarse cereals. The net impact of such area movements, therefore, is likely to be adverse on cereals' economy. Since the protection coefficients of main cereals wheat and rice, which will ultimately have to bear the implications of pricing of oilseeds, are comparatively lower, it indicates allocative inefficiency in cropping patterns, particularly when it is viewed from foreign exchange point of view.

These implications would have become apparent much earlier if (a) the price band of mustard oil was kept intact at Rs 20-25/kg as was announced in January 1989, with an effective support; and (b) the procurement prices of wheat and paddy were not raised so high. But as things stand now, the price band of mustard oil was

reduced to Rs 17-23/kg for the 1989-90 crop, while wheat procurement price was raised from Rs 183 to Rs 215 per quintal. This eroded the distinct price advantage, which rapeseed-mustard would have otherwise enjoyed over wheat. The price band for groundnut, on the other hand, is raised to Rs 23-28/kg. Although it may not affect paddy area as paddy procurement price is also raised from Rs 160 to Rs 185/quintal, it is likely to hit adversely bajra and jowar, and to some extent pulses. Besides, it has added another dimension of asymmetry in the pricing of oilseeds as a group. Groundnut oil is now made more valuable than mustard oil, which has regional implications in terms of the dispersion of added incentives to oilseeds. This is because rapeseed-mustard cultivation is heavily concentrated in Rajasthan, Uttar Pradesh and Haryana while groundnut is largely grown in Gujarat, Andhra Pradesh and Tamil Nadu.

These policy implications suggest that promotion of oilseeds must be achieved by raising their yields on dry lands through improved seeds. In particular, their promotion through price hikes inducing area shifts from other crops, is likely to encourage economic inefficiency in Indian agriculture. An efficient alternative is for India to enter into a medium term (say 3 to 5 years) contract for edible oil imports with exporting countries such as Malaysia. The c.i.f. price of edible oils, say palm oil, is normally below Rs 6,000 per ton. Allowing for another Rs 6,000 to Rs 8,000 per ton towards domestic marketing of these oils, India can still gain Rs 6,000 to Rs 8,000 per ton, if the oils sell at Rs 20,000 in the domestic market. These gains, which may take the form of import duties, may be reserved for seed development of various oilseeds in dryland areas, or for providing irrigation to these areas, or for the development of potentially exportable crops like cotton and rice. The exports of cotton and rice would not only provide necessary foreign exchange to finance the imports of edible oils but also augment the supply of cotton-seed and rice-bran oils in the economy.

APPENDIX

NPC, EPC, AND ESC

In the following, we give the definitions of Nominal Protection Coefficient (NPC), Effective Protection Coefficient (EPC), and Effective Subsidy Coefficient (ESC). Symbolically,

$$NPC_i = P_i^d / P_i^w \quad \text{.....(1)}$$

$$EPC_i = VA_i^d / VA_i^w \quad \text{.....(2)}$$

$$= \frac{P_i^d - \sum_{j=1}^{k} a_{ij} P_j^d}{P_i^w - \sum_{j=1}^{k} a_{ij} P_j^w} \quad \text{.....(3)}$$

$$= \frac{P_i^d - \sum_{j=1}^{k} a_{ij} P_j^d}{\frac{P_i^d}{NPC_i} - \frac{\sum_{j=1}^{k} a_{ij} P_j^d}{\sum_{j=1}^{k} a_{ij} NPC_j}} \quad \text{.....(4)}$$

$$ESC_i = \frac{VA_i^d + NS}{VA_i^w} \quad \text{.....(5)}$$

$$= \frac{P_i^d - \sum_{j=1}^{k} a_{ij} P_j^d + \sum_{j=k+1}^{J} a_{ij} S_j - \sum_{j=k+1}^{J} a_{ij} T_j}{P_i^w - \sum_{j=1}^{k} a_{ij} P_j^w} \quad \text{.....(6)}$$

where,

NPC_i = nominal protection coefficient of ith output
P_i^d = domestic price of ith output
P^w_i = world reference price of ith output
EPC_i = effective protection coefficient of ith output
VA^d_i = value added in ith output at domestic prices
VA^w_i = value added in ith output at world reference prices
P^d_j = domestic price of jth input
P^w_j = world reference price of jth input

a_{ij} = quantity of jth input going for production of one unit of ith output.

NPC_j = nominal protection coefficient of jth input

ESC_i = effective subsidy coefficient of ith output.

NS = net subsidies (subsidies minus taxes) on non-tradeable inputs

S_j = subsidies on jth input

T_j = taxes on jth input.

j=1,..,k = directly tradeable inputs plus indirectly tradeable inputs obtained after decomposing non-tradeable intermediate inputs into truly non-tradeable (primary) component and tradeable component.

j=k+1,...,J = non-tradeable (primary) inputs plus non-tradeable component of non-tradeable intermediate inputs left after decomposition.

As is clear from the above, to derive NPC of i^{th} output (say groundnut) one requires its domestic price and world reference price. Domestic price, in our study, is deemed to be the wholesale price of the particular oilseed for relevant months, that is, when most of the produce is marketed. World reference price is estimated under the importable hypothesis (as India is a net importer of edible oils) by calculating the c.i.f. price of the relevant oilseed and further adjusting it for the domestic transport and marketing costs (including wholesale trader's margins) from the port city (Bombay) to the main oilseed producing state. Ratio of domestic price to world reference price of the relevant oilseed, so derived, provides its NPC. Similar procedure is adopted for estimating NPC of j^{th} tradeable input that goes to produce i^{th} output. Weighting NPC of j inputs (j = 1, ...k) by their relative shares in the price of i^{th} output, one obtains weighed NPC of these inputs. Along with their domestic prices, which the cultivators pay, these NPCs of i^{th} output and of j inputs are plugged in equation (4) above to obtain EPC of i^{th} output. To obtain ESC_i, one adds in the numerator of equation (4) net subsidies on non-tradeable inputs (j = k+1, ...J) such as canal irrigation, electricity, and credit. It may be noted that fertiliser subsidy is already captured in EPC as fertiliser being a tradeable input is valued at world reference price.

NOTES

1. Micro Mission I of TMO deals with crop production technology. Its primary objective is to evolve profitable crop production and protection technologies for various regions and crop growing situations. To achieve this goal, this Micro Mission plans to (a) scale up yield potential by 20 per cent to 50 per cent; (b) reduce crop duration by 5-25 days; (c) increase oil content by 6 per cent to 25 per cent; (d) breed disease and pest resistant varieties; (e) exploit tissue culture technique in coconut and oil palm and (f) produce nucleus and breeder seeds for subsequent large scale seed multiplication.

Micro Mission II of TMO operates on post harvest technology. It aims at developing modern integrated processing technology for major oilseeds as well as for minor and unconventional oil bearing materials for edible use. It also aims at obtaining more efficient recovery of oils from oil bearing materials by carrying out improvements in *ghanis* and expeller units. Besides these two important objectives, this Micro Mission plans to upgrade oils to edible grade, and also upgrade oilcakes and extractions.

Micro Mission III of TMO seems to be the most crucial link in the entire chain. It operates on production and inputs services, and is responsible for obtaining 18 million tonnes of oilseeds production by 1989-90 and 26 million tonnes by 2000 A.D. This it plans to achieve by strengthening extension system for transfer of new production (and protection) technology to farmers through National Oilseeds Development Programme (NODP), which is operating in 180 districts spread over 17 states. This Micro Mission would also streamline the supply of improved seeds, fertilisers, pesticides, equipment and implements etc., besides arranging for distribution of credit through cooperatives, regional rural banks and commercial banks.

Micro Mission IV of TMO encompasses activities pertaining to oilseeds price support, storage, processing and marketing. It would like that support prices for oilseeds are announced well in advance, they are made effective through NAFED, who would stand ready to purchase any amount if the market prices tend to dip below support price. It would also work to ensure that oilseeds industry expands and modernises its storage facility; the processing facility in the private sector be modernised while the one with NDDB expands; modernise marketing system so that consumer pays a fair price for the oil. (See the Reports of four Micro Missions for greater details, Government of India, 1987).

2. There is lack of symmetry in data for the seven year period, 1980-81 to 1986-87, for various crops across different regions. For some crops in some states data are available for say seven years but in many others it is available for only say three years of 1980s. Under such a situation of temporal gaps in data, it is deemed desirable to bring the profitability estimates first on a common base. This is done by using the wholesale price index of all commodities and thereby bringing the profitability estimates of different years for different crops in various regions at 1986-87 prices. The years for which profitability estimates of a particular crop are missing, it is assumed that average estimate of profitability of the relevant crop in that state (for which data are available) also applies. See Gulati (1990) for greater details.

3. For greater details about the complexities involved in determining the competing crops and the weights to be attached, one may see Dharm Narain (1965; chap. 2).

4. If value added is calculated by deducting only the directly tradeable inputs from the price of output, it is known as the simple Cordon method. If, however, non-tradeable inputs are broken into tradeable components and truly non-tradeable (primary) components, and value added is calculated by deducting directly tradeable and indirectly tradeable (obtained after decomposition of non-tradeable intermediate inputs) intermediate inputs, the method is called sophisticated Cordon method. Balassa method, which is yet another version of EPC, however calculates value added by deducting tradeable and non-tradeable intermediate inputs from the price of output. Thus, under Balassa method, EPC would indicate protection accorded only to primary factors of production land, labour and capital. Conceptually, sophisticated Cordon method is the most appropriate, but due to lack of detailed breakdown of data as required by this method, we have used simple Cordon method in this study (see Pursell and Roger, 1985).

5. It may be noted that in case of groundnut, degree of protection derived in this study (1.59) is a bit lower than that estimated in Gulati, et. al. 1990 (1.70) for Gujarat. This is due to lower freight rates applied in this study (equivalent to that of wheat) to keep symmetry with other oilseeds (see Appendix Tables IV. 3 - IV. 6 in Gulati, 1990).

REFERENCES

Dharm Narain (1965): *Impact of Price Movements on Acreage under Selected Crops in India : 1900-1939*, Cambridge, U.K.

Government of India (1987) : *Technology Mission on Oilseeds*, Deptt. of Agricultural Research and Education, Ministry of Agriculture, January 1987.

Government of India (1987) : Technology Mission on Oilseeds, *Draft-Operational Plan Micro-Mission I, Crop Production Technology*, March 1987.

Government of India (1987) : Technology Mission on Oilseeds, *Operational Plan of Micro-Mission II on Post Harvest Technology*, March 1987.

Government of India (1987) : Technology Mission on Oilseeds, *Draft Operational Plan of Micro-Mission III on Production and Inputs Services.*

Government of India (1987) : Technology Mission on Oilseeds, *Operational Plan of Micro Mission IV on Oilseeds Price Support, Storage, Processing and Marketing*, March 1987.

Government of India (1988) : Technology Mission on Oilseeds - *Towards Self-Reliance*, November, 1988.

Government of India (1989) : *Integrated Policy on Oilseeds*, Press Release dt. January 5, 1989.

Gulati, Ashok (1989): 'Input Subsidies in Indian Agriculture - A Statewise Analysis', *Economic and Political Weekly*, June 24, 1989.

Gulati, Ashok with James Hanson and Garry Pursell (1990) : *Effective Incentives in India's Agriculture : Cotton, Groundnuts, Wheat and Rice*, PPR Working Paper 332, The World Bank, January 1990.

Gulati, Ashok (1990): *Structure of Incentives and Efficiency in Indian Oilseeds Sector*, Mimeo, Institute of Economic Growth, April 1990.

Pursell, Garry and Neil Roger (1985): *Manual for Incentive and Comparative Advantage Studies* (Draft), The World Bank, December 1985.

Saikia, T.N. (1988): *Prospects of Changing Cropping Pattern in Favour of Oilseeds and Pulses Production in Assam*, Agro- Economic Research Centre for North-East India, Assam Agricultural University.

Shenoy, P.V. (1989): *Oilseeds Situation in India*, Ministry of Agriculture (DARE), GOI, December 1989.

GROWTH OF SCHOOL ENROLMENT IN INDIA

Maya Shah

A Directive Principle of State Policy as entered in the Constitution of India is to provide, within a period of ten years from the commencement of the Constitution, for free and compulsory education for all children until they complete the age of fourteen years. The paper reviews the progress in this respect in the past forty years and assesses the prospects in the next decade. On the evidence of official statistics, the State clearly has not been able to provide for free and compulsory education for all children until they complete the age of fourteen years even forty years after the commencement of the Constitution. It seems that the objective of free and compulsory education for all children upto the age of 14 may be achieved in fifty years, that is, by the end of the century. But, even then, in some states, the achievement may be found to be falling much short of the objective.

One of the Directive Principles of State Policy as entered in the Constitution of India relates to the Provision of Free and Compulsory Education of Children. It states : "The State shall endeavour to provide within a period of ten years from the commencement of this Constitution for free and compulsory education for all children until they complete the age of fourteen years." The purpose of this paper is to review the progress in this respect in the past forty years and assess the prospects in the next decade.

The relevant data are the official statistics of school enrolment in the classes I-V and VI-VIII. Unfortunately, these are not uniformly available by age of the child. Hence, the progress of education of children of 6-14 years of age has to be judged indirectly by examining school enrolment in classes I-V which broadly corresponds to the age group 6-11 and in classes VI-VIII which broadly corresponds to the age group 11-14. In fact, the official statistics give Enrolment Ratios in which the enrolment in classes I-V in a given year is related to the estimated number of children in the age group 6-11 in that year and the enrolment in classes VI-VIII to the estimated number of children in the age group 11-14. The present study is based on the enrolment ratios reported over the years. We shall examine them separately for boys and girls. We shall examine the progress for all India and also separately for 17 states. The data at the all India level are available for the 38 years from 1950-51 to 1987-88. But, mainly because of reorganization of states, comparable data for the 17 states are available only for the 22 years from 1966-67 to 1987-88. The analysis by states is therefore confined to this period.

The needed data are taken from the following publications of the Ministry of Human Resource Development, Government of India. (1) *Education in India*, for the years 1950-51 to 1980-81; (2) *Selected Educational Statistics*, for the years 1981-82 to 1987-88.

We shall use some simple statistical regression methods to analyse the trends in the enrolment ratios, the advantage of which will be evident as we proceed. As an enrolment ratio must saturate at 100 per cent, the rate of growth in the enrolment ratio cannot obviously be constant. Hence, a linear function will not be satisfactory; the function must allow a rate of growth which changes over time. The simplest mathematical function which allows this possibility is a second degree polynomial. This functional form allows the possibility of the *rate of growth* to increase or decrease at a constant rate per annum. As we shall presently see, this is not a very satisfactory feature. Nevertheless, we shall try and examine the results. We postulate that the enrolment ratio is a second degree polynomial in time and fit the following regression to the enrolment ratios over the period from 1950-51 to 1987-88 (for all India):

$$\log y_t = a + bt + ct^2 \qquad (1)$$

where y_t is the enrolment ratio (expressed as per cent) in the year t; for computational convenience, we take $t = 0$ for the year 1950-51 so that $t = 1$ for 1951-52 and so on. The results of the regression for the four sets of data, namely, (i) boys in I-V classes; (ii) girls in I-V classes; (iii) boys in VI-VIII classes; and (iv) girls in VI-VIII classes are as under :

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TABLE 1. PARAMETERS OF REGRESSION
$\log y_t = a + bt + ct^2$

	a	b	c	R^2
Boys in I-V :	4.105599	0.034942	-0.00054	0.942476
Girls in I-V :	3.185684	0.065971	-0.00098	0.973405
Boys in VI-VIII :	3.051581	0.052709	-0.00064	0.951596
Girls in VI-VIII :	1.543750	0.096930	-0.00114	0.980935

It will be seen that, as judged by the values of R^2, all the four regressions show excellent fits. The negative values of 'c' mean that, in all cases, the rate of growth of enrolment ratios decline every year. In fact, the value of 'b' gives the rate of growth (relative or compound rate of growth because we are working with log y) of enrolment ratios in the initial year (1950-51) and '2c' gives the change in it per annum. Incidentally, we may note that, both in the case I-V and VI-VIII, the initial rates of growth in enrolment ratios of girls are almost twice as high as those of boys but they also decline faster. Of course, we should not confuse the initial rate of growth in enrolment ratio with the initial value of enrolment ratio. Its logarithm is given by 'a' and it will not make sense to the reader unless we take its inverse or antilog. The values of 'antilog a', that is, the initial enrolment ratios in the four cases are : 60.68, 24.18, 21.15, and 4.68 per cent. To sum up, the initial (1950-51) enrolment ratios in VI-VIII are lower than those in I-V and, in both cases, they are lower for the girls than those for the boys. But, again, the rates of growth in the enrolment ratios in VI-VIII decline faster than those in I-V and, in both cases, those for the girls decline faster than those of the boys. In brief, the lower initial enrolment ratios have higher rates of growth which in turn have higher rates of decline.

But, the fact that rates of growth in enrolment ratios decline steadily at a constant rate has an unsatisfactory consequence. The fact that 'b' gives the initial (1950-51) value of the rate of growth in enrolment ratio and '2c' its annual rate of decline means that in the year corresponding to -b/2c, the rate of growth becomes zero and thereafter turns negative. In other words, in these years, the enrolment ratios reach their maximum and thereafter begin to decline. In the following, we give, for the four cases, the maximum values of the enrolment ratios and the years in which they reach the maximum.

TABLE 2. MAXIMUM ENROLMENT RATIOS
ESTIMATED BY REGRESSION $\log y_t = a + bt + ct^2$

	Year of maximum	Maximum enrolment ratio
Boys I-VI	1982-83	106.19
Girls I-V	1983-84	73.37
Boys V-VIII	1990-91	61.82
Girls V-VIII	1992-93	36.47

Thus the statistical picture which emerges, if we accept the mathematical function (1) to describe the progress of enrolment ratios over the years, is that the enrolment ratio for boys in I-V reaches its maximum in 1982-83 and thereafter declines; the same for girls in I-V reaches its maximum in 1983-84 and thereafter declines; the enrolment ratio for boys in VI-VIII reaches its maximum in 1990-91 and thereafter declines; and the same for girls in VI-VIII reaches its maximum in 1992-93 and declines thereafter. It means that the enrolment ratios of boys in I-V after reaching 100 per cent will decline and the enrolment ratios in the other three cases will never reach 100 per cent. In fact, there is no evidence nor good reason to suppose that the enrolment ratios after reaching certain maxima will decline.

We must therefore conclude that the function (1) which postulates that the growth rates of enrolment ratios decline steadily and, after reaching zero in a certain year, turn negative thereafter, does not describe satisfactorily the progress of enrolment ratios over the years. We should therefore choose a regression which will permit the rates of growth in enrolment ratios to decline for some time and then increase thereafter. The simplest function allowing this is

$$\log y_t = a + bt + ct^2 + dt^3 \qquad (2)$$

TABLE 3. PARAMETERS OF REGRESSION
$\log y_t = a + bt + ct^2 + dt^3$

	a	b	c	d	R^2
Boys in I-V :	4.030681	0.060991	-0.00232	0.000032	0.977459
Girls in I-V :	3.098864	0.096159	-0.00304	0.000037	0.985681
Boys in VI-VIII :	2.937487	0.092379	-0.00336	0.000048	0.974886
Girls in VI-VIII :	1.388533	0.150899	-0.00483	0.000066	0.993337

In Table 3, we give the results of regression (2) for the four sets of data. For the interested,similar results for the several states are given in an Appendix.

As before, 'antilog a' gives the initial (1950-51) enrolment ratios, and 'b' the initial (1950-51) rate of growth in the enrolment ratio.

It may be noted that the regression (1) is a special case of the regression (2) with d = 0. In other words, (2) is more general than (1) and naturally it explains the progress of enrolment ratios better than does (1). This is reflected in higher values of R^2 with the regression (2) than with (1). There is a statistical question whether this improvement is worthwhile considering that (2) is more complicated than (1); it has 4 parameters a, b, c, and d compared to the three parameters of (1) namely a, b, and c. It is worth recalling, even if in non-technical terms, the statistical procedure which answers this question. Consider, for instance, the enrolment ratios for boys in I-V. The data are available for 38 years from 1950-51 to 1985-86. We say that the data or observations have 38 degrees of freedom. As already noted, the regression (1) has three parameters a, b, and c. We say that the regression has 3 degrees of freedom. It explains a certain part of the variation in enrolment ratios over the years. R^2 is a measure of this and gives the proportion of the total variation explained by the regression. Thus $R^2 = 0.942476$ means that 94.2476 per cent of the total variation is explained by the regression (1). The balance $(1 - R^2) = 0.057524$, that is, 5.7524 per cent of the variation remains unexplained. It remains unexplained because the regression (1) has only 3 degrees of freedom while the observations have 36 degrees of freedom. In other words, the unexplained 5.7524 per cent of the variation is due to the (38-3) = 35 degrees of freedom which are still with the observations; it works to 0.16435 per cent per degree of freedom.

When we move to the regression (2), it explains more of the total variation because it has more degrees of freedom, 4 instead of 3. The additional variation it explains is given by the difference between the respective R^2's, namely, (0.977459 - 0.942476) = 0.034983, that is, 3.4983 per cent. This additional variation explained is due to the one additional degree of freedom of the regression (2) and is therefore comparable with per degree of freedom unexplained variation of 0.16435 per cent. Strictly speaking, we should compare it with the per degree of freedom of the variation unexplained by the regression (2). This is given by (1 - 0.977459)/34 = 0.000663, that is, 0.0663 per cent. Thus, the additional variation explained by the additional degree of freedom of the regression (2) is several times, actually 52.76 times the per degree of freedom variation not explained by the regression (2). That is the reason for accepting the regression (2) as a better description of the progress of enrolment ratios compared to the regression (1). For similar reasons, the regression (2) is preferred to the regression (1) as a better description of the other three sets of data as well.

Let us now turn to the results, namely, the trends indicated in the enrolment ratios by the regression (2). In Table 4, are given the actual or reported enrolment ratios for the four groups from 1950-51 to 1987-88. Side by side, are given the enrolment ratios as estimated by the regression (2).

TABLE 4. REPORTED AND ESTIMATED ENROLEMENT RATIOS

	Reported				Estimated			
	I-V		VI-VIII		I-V		VI-VIII	
Year	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
1950-51	59.8	24.6	20.7	4.5	56.30	22.17	18.87	4.01
1951-52	60.6	25.1	21.6	4.9	59.70	24.34	20.63	4.64
1952-53	61.9	26.1	23.7	5.3	63.03	26.56	22.40	5.32
1953-54	64.8	27.9	23.6	5.9	66.26	28.82	24.18	6.05
1954-55	68.1	29.9	24.5	6.4	69.37	31.10	25.95	6.81
1955-56	72.0	32.8	25.4	6.9	72.34	33.39	27.70	7.62
1956-57	73.7	34.5	26.4	7.7	75.17	35.66	29.41	8.45
1957-58	76.1	36.2	29.2	8.8	77.83	37.92	31.07	9.30
1958-59	76.0	37.5	30.9	9.7	80.32	40.13	32.66	10.18
1959-60	81.4	40.5	30.5	10.2	82.63	42.29	34.20	11.06
1960-61	82.6	42.0	36.4	12.4	84.76	44.39	35.65	11.94
1961-62	87.4	47.0	38.7	13.5	86.71	46.41	37.03	12.83
1962-63	90.8	49.8	42.1	15.2	88.47	48.34	38.33	13.70
1963-64	92.6	50.8	40.4	14.9	90.07	50.19	39.55	14.56
1964-65	95.7	54.7	42.3	16.1	91.49	51.93	40.68	15.41
1965-66	96.3	56.5	44.2	17.0	92.75	53.58	41.74	16.24
1966-67	96.3	57.6	45.1	17.9	93.87	55.14	42.73	17.06
1967-68	96.3	59.2	46.5	18.8	94.85	56.59	43.65	17.85
1968-69	95.5	59.6	47.0	19.4	95.71	57.95	44.52	18.63
1969-70	95.1	60.0	47.0	19.6	96.46	59.22	45.33	19.40
1970-71	95.0	60.5	46.3	19.9	97.12	60.40	46.11	20.15
1971-72	96.7	61.7	46.3	20.4	97.71	61.51	46.86	20.90
1972-73	100.4	65.1	48.8	21.4	98.24	62.55	47.60	21.65
1973-74	100.6	65.3	47.3	22.1	98.73	63.53	48.34	22.40
1974-75	101.0	65.9	47.7	23.0	99.20	64.47	49.09	23.17
1975-76	100.4	66.1	48.6	23.9	99.67	65.37	49.86	23.96
1976-77	102.1	67.5	50.3	25.3	100.16	66.25	50.68	24.79
1977-78	97.4	62.6	48.6	24.4	100.69	67.13	51.56	25.67
1978-79	97.9	64.3	49.9	25.5	101.28	68.01	52.52	26.60
1979-80	99.3	65.0	52.0	26.4	101.95	68.92	53.58	27.61
1980-81	99.0	66.2	52.1	27.2	102.71	69.86	54.75	28.72
1981-82	99.4	66.9	54.2	29.1	103.60	70.86	56.07	29.93
1982-83	104.0	69.4	56.3	30.6	104.63	71.93	57.56	31.29
1983-84	110.3	75.5	62.7	34.4	105.84	73.10	59.24	32.80
1984-85	110.7	76.7	64.0	36.3	107.24	74.38	61.15	34.51
1985-86	108.8	77.1	65.0	38.1	108.87	75.80	63.33	36.45
1986-87	111.8	79.2	66.5	39.0	110.75	77.38	65.83	38.67
1987-88	113.1	81.8	68.9	40.6	112.92	79.15	68.68	41.22
1988-89					115.42	81.13	71.95	44.15
1989-90					118.29	83.36	75.72	47.56
1990-91					121.58	85.88	80.06	51.53
1991-92					125.35	88.72	85.08	56.19
1992-93					129.65	91.94	90.89	61.68
1993-94					134.56	95.59	97.64	68.20
1994-95					140.16	99.74	105.52	75.96
1995-96					146.56	104.46	114.74	85.28
1996-97					153.87	109.83	125.57	96.55
1997-98					162.22	115.97	138.37	110.25
1998-99					171.78	122.99	153.55	127.05
1999-2000					182.75	131.03	171.66	147.81
2000-2001					195.34	140.29	193.38	173.67

As the regressions are very good fits, the estimated ratios are not much different from those reported. But, the advantage of the estimated series is that we can project it for a short period beyond 1987-88. We do this upto the year 2000.

It will be noticed that the enrolment ratio for boys in I-V had already reached 100 per cent by the year 1972-73. The trend values exceeding 100 per cent after 1976-77, may be neglected. They arise mainly because even the reported enrolment ratios after 1976-77 exceed 100 per cent presumably due to a possible mismatch between the classes I-V and the age group 6-11.

In contrast to the enrolment ratio for boys in I-V,

the enrolment ratio for girls in I-V had reached only 65.1 per cent in 1972-73 and 81.8 per cent in 1987-88. Projecting beyond that, the ratio is expected to reach 100 per cent in 1994-95. Similarly, the enrolment ratio for boys in VI-VIII is expected to reach 100.0 per cent sometime in 1994-95 and the same for girls in 1997-98. It will be noticed that in the matter of enrolment in I-V, the girls are very much behind, more than two decades behind the boys; but, in the matter of enrolment in VI-VIII, the gap is of just about 3 years.

The reason why we chose the regression (2) was that it permits the rates of growth in enrolment ratios to decline for some time and then increase thereafter. Hence, it may be worthwhile to locate when the growth rate in the enrolment ratio reached its minimum before it began to increase. Now, if the progress of enrolment ratio is described by the function

$$\log y_t = a + bt + ct^2 + dt^3$$

the rate of growth in enrolment ratio is given by

$$\text{Rate of growth} = b + 2ct + 3dt^2$$

which has its maximum or minimum, in the present case minimum, at $t = -c/3d$. The corresponding years for the four sets of data are given in the following. Side by side are also given the enrolment ratios in those years as estimated by the trend.

	Year in which the rate of growth had reached its minimum before it began to increase	Estimated enrolment ratio in that year
Boys I-V	1974-75	99.28
Girls I-V	1977-78	67.37
Boys VI-VIII	1972-73	48.27
Girls VI-VIII	1974-75	23.35

After the above mentioned years, the rate of growth of enrolment ratios will increase and the enrolment ratios will accelerate to 100 per cent and go beyond. As already mentioned, we should neglect the trend beyond the point where the enrolment ratios reach 100 per cent.

PROGRESS OF ENROLMENT RATIOS FOR BOYS IN I-V IN DIFFERENT STATES

We shall now turn to the progress of school enrolment in different states. As already mentioned, we have comparable data for 17 states for 22 years from 1966-67 to 1987-88. We shall first consider the enrolment ratios for boys in I-V. The data are given in Table 5.

It will be noticed that in all the states, the enrolment ratio of boys in I-V had reached 100 per cent sometime during this period. Thereafter, the ratio either fluctuated or kept increasing beyond 100 per cent presumably because of a mismatch between the classes I-V and the age group 6-11 or because of simply reporting errors. We do not propose to examine the phenomenon more closely though we should mention that someone, particularly in the Departments of Education in the states, should do it. For instance, both in Maharashtra and Tamil Nadu, the reported enrolment ratio of boys in I-V was above 140 per cent in 1984-85 and, in Nagaland, it was above 180 per cent from 1976-77 to 1979-80 and it suddenly dropped below 120 per cent in the following year.

In all the states, the enrolment ratio of boys in I-V had already reached 100 per cent before 1987-88. Therefore, we need only to note the years in which this had happened in different states. In 7 out of the 17 states, the enrolment ratio had reached 100 per cent even before 1966-67. These are : Gujarat, Karnataka, Kerala, Maharashtra, Nagaland, Tamil Nadu, and Uttar Pradesh. Surprisingly, in Andhra Pradesh, the ratio reached 100 per cent as late as in 1982-83, that is, almost two decades after it had reached 100 per cent in the other three southern states, namely, Karnataka, Kerala and Tamil Nadu. Similarly, in contrast to Uttar Pradesh, in Bihar, the ratio reached 100 per cent in 1978-79, that is, more than a decade after it had reached 100 per cent in Uttar

TABLE 5. ENROLMENT RATIOS FOR BOYS IN CLASSES I-V IN DIFFERENT STATES

Years	A.P.	Assam*	Bihar	Gujarat	Haryana	J.& K.	Karnataka	Kerala	M.P.	Maha.	Nagaland	Orissa	Punjab	Rajas.	T.N.	U.P.	W.B.
1966-67	90.5	87.6	80.1	102.4	87.6	93.5	99.9	121.8	80.2	106.5	134.3	94.8	79.1	75.1	119.5	107.4	91.1
1967-68	88.9	96.5	81.0	101.2	85.9	89.1	97.2	124.0	79.0	104.6	134.4	91.4	81.8	75.6	120.3	108.7	91.8
1968-69	88.7	84.9	80.8	100.6	86.4	90.9	97.2	125.7	77.8	104.1	126.5	88.2	80.2	71.8	116.9	109.6	92.5
1969-70	86.1	84.4	80.0	99.5	84.3	86.7	97.9	125.9	76.7	103.1	134.7	84.9	79.7	71.2	117.4	110.0	94.0
1970-71	83.8	82.5	80.6	99.4	84.6	85.1	98.2	124.7	76.4	102.2	140.5	87.9	80.9	72.8	117.8	113.1	95.1
1971-72	83.5	83.2	81.8	101.2	84.8	83.6	101.0	124.5	83.3	103.9	145.6	84.8	81.5	69.9	118.4	115.3	95.3
1972-73	83.6	81.8	83.1	102.8	89.2	81.8	102.5	121.1	104.6	105.8	140.5	89.8	90.5	75.5	119.3	119.1	97.8
1973-74	82.8	81.7	83.6	103.4	89.9	79.5	102.2	121.1	98.3	106.8	146.2	93.4	94.0	79.9	119.6	119.6	99.1
1974-75	83.2	89.7	85.3	102.7	90.2	79.8	98.2	114.1	91.6	108.7	145.1	98.5	94.9	90.3	118.6	117.1	102.7
1975-76	81.0	88.1	87.0	101.3	89.0	78.8	97.8	103.9	89.1	106.4	148.5	97.0	96.9	85.9	140.7	117.7	99.7
1976-77	77.1	109.7	101.5	112.7	90.4	77.8	97.4	106.4	83.1	113.6	186.9	99.7	114.2	81.2	109.9	111.0	99.8
1977-78	83.1	101.9	93.7	112.3	89.3	81.6	96.5	108.9	79.9	116.3	188.9	101.2	117.2	80.0	114.8	110.4	103.7
1978-79	88.6	102.2	103.7	115.7	92.3	87.7	100.4	103.3	79.3	120.4	187.1	96.7	115.7	83.5	118.4	90.1	90.2
1979-80	92.4	95.6	103.4	120.0	91.9	95.2	102.3	102.4	83.8	123.8	188.3	95.6	117.8	86.2	121.6	93.6	96.9
1980-81	97.1	97.1	101.9	122.1	99.1	100.9	102.3	100.0	81.9	124.6	119.3	96.6	119.1	89.6	124.6	90.8	93.4
1981-82	98.8	86.9	103.3	124.9	102.0	105.5	102.2	100.7	77.3	128.5	163.2	98.9	115.2	94.3	125.9	92.5	94.6
1982-83	103.4	93.3	105.3	127.2	105.4	110.1	89.3	99.9	96.2	134.3	125.9	98.4	110.0	100.1	132.7	100.9	101.9
1983-84	110.3	94.1	110.3	128.2	107.6	112.8	91.8	96.4	100.9	137.2	123.6	104.8	109.9	106.3	136.4	105.9	108.3
1984-85	117.6	85.7	114.2	132.4	109.8	110.9	95.7	99.3	101.0	141.6	159.8	104.3	112.1	109.7	143.8	109.0	117.7
1985-86	112.9	95.9	107.6	123.1	99.8	94.3	88.6	110.2	116.8	127.8	123.0	110.9	100.5	109.7	137.6	86.4	131.9
1986-87	116.4	98.3	107.5	126.0	98.2	96.1	104.5	108.6	117.3	126.2	118.6	111.7	97.1	109.6	138.6	96.5	134.9
1987-88	118.2	112.2	107.2	128.1	97.6	101.3	113.0	109.1	119.5	130.7	118.8	112.3	97.7	110.0	139.6	93.9	134.9

* Assam including Meghalaya and Mizoram

Sources: For 1966-67 to 1979-80: *Education in India* Department of Education, Ministry of Human Resource Department, Government of India, New Delhi. (Various issues)
For 1980-81 to 1987-88: *Selected Educational Statistics,* Department of Education,Ministry of Human Resource Development,Government of India, New Delhi (Various issues)

Pradesh; though, we should mention, in Uttar Pradesh, the ratio had fallen to 90 per cent for four years from 1978-79 to 1981-82. In Assam, the ratio had reached 100 per cent in 1977-78 but, since then, until 1985-86, it has been fluctuating between 85 and 97; in 1986-87, it seems to have reached 100 per cent. The remaining 7 states may be listed in descending order, with the years in which the ratio reached 100 per cent shown in brackets : West Bengal (1974-75), Punjab (1975-76), Orissa (1977-78), Jammu and Kashmir (1980-81), Haryana (1981-82), Rajasthan (1982-83), and Madhya Pradesh (1984-85).

PROGRESS OF ENROLMENT RATIOS FOR GIRLS IN I-V IN DIFFERENT STATES

The enrolment ratios of girls in I-V in different states are given in Table 6. It will be noticed that it was only in Kerala that the ratio had reached 100 per cent before 1966-67. In Nagaland, it reached 100 per cent in 1968-69. In Punjab, it reached 100 per cent in 1976-77 but, since 1982-83, it has steadily declined to below 92.0 per cent in 1987-88. It reached 100 per cent in Tamil Nadu in 1978-79, in Maharashtra in 1981-82 and in Assam, Gujarat, and West Bengal in 1987-88. In the other states, the ratio had not reached 100 per cent until in 1987-88. To estimate when it may reach 100 per cent, we shall use the regression (2). According to these trend estimates, the ratio is expected to reach 100 per cent in 1988-89 in Madhya Pradesh, in Karnataka and Uttar Pradesh in 1991-92, and in Jammu & Kashmir in 1993-94. However, we should mention that in all the four cases, the projections are based very much on the rapid growth shown in the last few years and that, even in 1987-88, the enrolment ratios, except in Karnataka, were far below 100 per cent. In 1987-88, the last year for which data are available, the enrolment ratio was 96.2 per cent in Karnataka, 78.2 per cent in Madhya Pradesh, 66.9 per cent in Jammu & Kashmir, and 53.3 per cent in Uttar Pradesh.

In the remaining five states, namely, Andhra Pradesh, Bihar, Haryana, Orissa, and Rajasthan, there is no evidence that the enrolment ratio of girls in the classes I-V will reach 100 per cent even in the year 2000-2001. According to the trend, in Rajasthan, the enrolment ratio reaches only 92.53 per cent and may reach 100 per cent in another four or five years; in Andhra Pradesh, the enrolment ratio reaches a maximum of 96.06 per cent in 1991-92 and declines thereafter; in Haryana, it reaches a maximum of 90.82 per cent in 1996-97 and declines thereafter; in Orissa, it reaches a maximum of 81.40 per cent in 1990-91 and declines thereafter; finally, in Bihar, it reaches a maximum of a mere 53.84 per cent in 1986-87 and declines thereafter. Of these, we may discount the projected decline in the enrolment ratios in Andhra Pradesh and Haryana and hope that, with some effort, the enrolment ratios in these states may reach 100 per cent or soon thereafter. But the cases of Orissa and Bihar are really worrisome and call for serious attention from the governments of the states.

PROGRESS OF ENROLMENT RATIOS FOR BOYS IN VI-VIII IN DIFFERENT STATES

The enrolment ratios for boys in VI-VIII in different states are given in Table 7. As was to be expected, the enrolment ratio for boys in VI-VIII had not reached 100 per cent in any state by 1987-88. In Kerala, it was 98.0 per cent; in Tamil Nadu, 97.2 per cent; in Maharashtra, 82.0 per cent; and in Haryana, 81.3 per cent. In the remaining 13 states, it was well below 80.0 per cent. Hence, we should use regression (2) to determine the trend and to project it upto 2000-2001 to find when we may expect the ratio to reach 100 per cent in each state.

Unfortunately, the fit of regression (2) is not very good except in Tamil Nadu where the value of R^2 is more than 0.96. In other states, the value of R^2 lies between 0.45 and 0.85. It means that there is much annual fluctuation around the trend presumably because of reporting errors. Nagaland is an extreme case. The value of R^2 is 0.26 and the reported enrolment ratios are clearly full of reporting errors. For instance, the reported ratio is 56.8 per cent in 1980-81 and 125.2 per cent in 1981-82; or again, 54.0 per cent in 1983-84 and 131.9 per cent 1984-85. Nevertheless, we shall project the trend upto the year 2000-2001 and estimate when the enrolment ratio may be expected to reach 100 per cent in each state if it does before that year. (For convenience of the interested reader, we give in an appendix table, the values of the parameters of regression (2) for all the four sets of data.)

TABLE 6. ENROLMENT RATIOS FOR GIRLS IN CLASSES I-V IN DIFFERENT STATES

Year	A.P.	Assam*	Bihar	Gujarat	Haryana	J & K.	Karnat.	Kerala	M.P.	Maha.	Nagaland	Orissa	Punjab	Rajas.	T.N.	U.P.	W.B.
1966-67	61.6	55.5	27.2	62.6	38.1	36.8	76.4	112.7	31.0	71.0	89.4	48.4	59.8	23.3	87.0	63.6	56.8
1967-68	61.4	59.7	28.7	62.7	37.4	36.7	74.5	113.1	31.8	72.1	93.3	48.2	61.4	24.1	91.6	68.1	58.2
1968-69	61.3	56.3	28.9	63.3	37.5	39.4	74.0	115.9	31.4	72.8	102.9	46.9	61.0	22.9	89.4	70.1	58.9
1969-70	59.7	57.7	29.0	63.2	37.8	37.7	75.8	115.4	31.9	72.4	110.0	45.6	60.0	22.8	91.0	71.3	60.9
1970-71	58.2	58.1	29.1	63.6	38.7	60.3	75.4	114.6	32.0	72.4	115.6	47.3	62.2	22.0	93.4	73.2	61.9
1971-72	57.2	62.6	29.9	65.3	38.9	41.1	76.3	113.7	36.2	74.3	112.5	47.6	62.8	21.5	94.3	75.7	61.4
1972-73	58.3	61.7	30.4	67.2	42.2	42.1	78.5	114.5	55.7	76.8	123.9	51.5	72.8	23.7	96.2	77.4	62.8
1973-74	58.9	59.1	31.7	68.8	43.8	42.1	77.1	114.8	50.6	78.8	131.3	54.9	77.7	26.3	96.4	76.5	61.7
1974-75	58.5	65.0	34.1	68.9	52.4	42.3	76.4	109.2	45.1	80.9	129.7	58.7	79.1	28.0	96.3	75.8	66.2
1975-76	59.0	65.0	35.5	69.5	47.0	42.9	78.0	105.1	44.1	81.5	137.2	59.3	84.0	30.1	94.6	75.9	66.3
1976-77	54.3	69.6	42.9	76.9	47.9	40.8	76.5	101.9	41.4	84.8	141.3	59.4	101.3	28.1	92.4	69.9	62.1
1977-78	59.8	64.9	39.3	77.7	46.9	43.1	76.1	105.2	39.9	88.5	141.5	60.3	104.0	27.4	98.2	70.4	63.3
1978-79	65.0	64.4	45.2	82.9	49.5	46.8	80.8	99.3	39.9	93.1	143.4	63.2	102.7	28.3	102.0	42.3	68.0
1979-80	68.8	63.9	45.3	86.7	50.2	50.4	82.7	101.3	43.2	97.8	150.5	66.1	104.4	29.1	105.2	43.4	66.4
1980-81	71.6	65.6	44.8	87.1	54.7	53.3	84.2	99.5	44.0	99.1	93.4	67.0	105.1	31.0	109.3	45.7	69.5
1981-82	74.4	57.6	46.5	88.6	57.4	55.4	84.0	100.5	41.3	104.4	128.4	68.7	101.4	33.6	112.4	49.0	66.1
1982-83	77.8	61.8	48.7	92.9	64.6	58.4	76.6	99.7	53.4	109.9	100.2	68.4	96.3	37.4	118.2	48.5	70.4
1983-84	83.4	62.0	52.5	94.1	69.1	58.4	81.6	97.1	57.9	113.4	98.2	73.0	97.0	41.3	122.8	52.9	82.8
1984-85	91.1	69.7	57.5	97.7	73.8	61.8	82.8	99.9	62.0	120.1	154.1	72.9	98.7	44.6	129.6	55.1	84.3
1985-86	84.9	83.2	52.5	95.1	71.5	60.8	72.6	107.5	72.6	106.3	122.1	75.0	94.0	45.3	121.3	50.3	95.1
1986-87	86.7	84.73	52.8	98.0	72.1	62.0	85.9	105.8	75.8	108.9	117.7	78.0	91.3	46.7	122.4	53.4	96.5
1987-88	88.5	99.6	53.8	99.9	72.8	66.9	96.2	107.0	78.2	112.2	117.7	83.6	91.8	47.2	123.8	53.3	101.0

* Assam including Meghalaya and Mizoram.

Sources: For 1966-67 to 1979-80: *Education in India* Department of Education, Ministry of Human Resource Department, Government of India, New Delhi. (Various issues)
For 1980-81 to 1987-88: *Selected Educational Statistics*, Department of Education,Ministry of Human Resource Development,Government of India, New Delhi (Various issues)

TABLE 7. ENROLMENT RATIOS FOR BOYS IN CLASSES VI-VIII IN DIFFERENT STATES

Year	A.P.	Assam*	Bihar	Gujarat	Haryana	J & K	Kam.	Kerala	M.P.	Maha.	Nagaland	Orissa	Punjab	Rajas.	T.N.	U.P.	W.B.
1966-67	35.9	42.0	32.0	45.8	55.6	50.2	42.1	70.2	34.8	57.7	72.9	33.4	49.4	35.1	62.0	45.9	42.6
1967-68	36.1	44.1	33.3	48.7	62.0	48.7	44.5	72.3	36.2	59.3	62.5	34.1	54.8	35.9	61.5	47.9	43.6
1968-69	35.3	41.5	33.5	48.0	66.5	49.1	44.3	73.8	36.2	59.3	50.3	36.4	59.8	36.5	59.7	49.3	43.6
1969-70	33.4	42.4	47.6	68.9	48.2	73.4	54.8	35.5	57.3	44.5	33.7	58.8	36.5	57.9	51.5	44.9	48.5
1970-71	32.1	44.2	33.3	47.7	69.5	50.4	41.7	73.4	34.0	54.9	57.9	33.3	61.2	35.9	56.6	52.2	44.1
1971-72	31.4	46.6	34.2	47.5	67.7	51.7	41.4	75.3	33.9	54.2	60.3	30.4	56.8	36.2	57.0	53.4	43.6
1972-73	32.6	45.3	35.7	47.6	64.1	52.6	42.2	76.9	34.0	51.8	52.4	30.5	55.5	36.8	57.6	55.0	44.5
1973-74	33.5	46.1	36.0	47.1	66.4	55.6	41.5	79.8	34.8	52.4	61.9	30.7	58.3	38.7	58.2	54.8	44.1
1974-75	34.1	41.6	36.8	49.4	64.5	54.9	44.5	83.3	34.6	53.6	63.1	31.7	55.7	38.5	57.9	54.7	44.4
1975-76	34.5	40.9	39.9	53.6	60.5	55.8	49.2	91.9	39.1	57.5	81.6	35.0	65.2	40.4	61.1	52.2	43.7
1976-77	34.3	41.1	33.1	53.1	58.3	53.7	45.5	94.0	38.5	56.2	69.5	33.0	59.4	38.4	59.3	50.5	43.7
1977-78	35.5	44.2	37.5	50.6	64.0	54.8	46.2	90.1	35.6	53.8	81.6	32.6	56.3	39.5	57.9	54.7	45.2
1978-79	36.6	45.6	36.4	57.5	63.1	51.5	47.2	94.7	42.3	57.6	77.8	37.3	68.4	42.1	62.1	51.9	36.9
1979-80	37.2	47.1	38.6	57.6	62.7	54.6	47.0	91.6	43.6	59.4	76.1	39.7	67.8	45.1	62.8	58.4	42.4
1980-81	39.2	49.8	38.0	59.5	65.2	56.2	48.3	89.0	43.6	58.0	56.8	42.1	69.7	47.9	64.0	54.5	44.8
1981-82	31.3	55.2	40.5	61.4	70.7	59.9	48.0	89.3	54.3	64.5	125.2	43.7	69.9	50.3	68.5	56.1	41.8
1982-83	34.4	57.9	43.3	64.4	72.8	60.8	56.2	90.4	47.8	70.2	55.5	42.7	70.4	53.6	73.0	60.2	43.2
1983-84	49.4	57.4	45.4	67.5	74.6	67.9	76.4	91.1	49.9	73.8	54.0	46.5	70.9	57.5	76.7	64.7	62.7
1984-85	55.5	58.6	50.7	64.1	81.7	75.5	62.4	90.0	51.3	82.8	131.9	45.2	73.8	53.9	84.5	67.8	60.6
1985-86	39.1	69.5	45.8	70.1	72.5	60.0	83.7	97.2	65.0	76.8	57.5	48.5	65.5	59.7	86.6	56.7	66.2
1986-87	42.1	68.7	47.1	64.8	78.3	63.3	83.7	96.8	66.5	79.9	55.4	49.2	67.1	61.8	91.9	59.9	70.7
1987-88	61.1	60.5	49.7	68.4	81.3	71.2	63.0	98.0	71.1	82.0	60.7	51.4	67.0	63.9	97.2	64.4	72.7

* Assam including Meghalaya and Mizoram.
Sources: For 1966-67 to 1979-80: *Education in India* Department of Education, Ministry of Human Resource Department, Government of India, New Delhi. (Various issues)
For 1980-81 to 1987-88: *Selected Educational Statistics*, Department of Education,Ministry of Human Resource Development,Government of India, New Delhi (Various issues)

According to the trend, in 12 out of the 17 states, the ratio is expected to reach 100 per cent before the year 2000-2001. We list them yearwise : Tamil Nadu (1988-89), West Bengal (1989-90), Haryana, Karnataka, and Madhya Pradesh (1990-91), Jammu & Kashmir, Maharashtra, and Rajasthan (1993-94), Andhra Pradesh and Assam (1994-95), Bihar (1995-96), and Uttar Pradesh (1998-99).

In the remaining 5 states, according to the trend, the enrolment ratio does not reach 100 per cent before the year 2000-2001. Above, we have referred to the case of Kerala. Here, according to the trend, the enrolment ratio of boys in VI-VIII would reach its maximum of 96.53 per cent in 1981-82 and decline thereafter. We may neglect the trend after 1983-84 and hope that the ratio has already reached 100 per cent. In Punjab, the ratio reaches a maximum of 70.49 per cent in 1983-84 and declines thereafter; in Gujarat, the ratio reaches a maximum of 72.57 per cent in 1992-93 and declines thereafter; in Orissa, the ratio reaches a maximum of 71.85 per cent in 1999-2000 and declines thereafter. We might neglect the declining trend; but, in all the three cases, there is not sufficient evidence to say when it would reach 100 per cent. We have already mentioned the case of Nagaland. The reporting is so erroneous that the trend is not worth looking into; for whatever it is worth, we may note that, according to the trend, the ratio had reached its maximum 80.80 per cent in 1981-82.

PROGRESS OF ENROLMENT RATIOS FOR GIRLS IN VI-VIII IN DIFFERENT STATES

Finally, we shall turn to the enrolment of girls in VI-VIII. The data are given in Table 8.

We shall use regression (2) trend and estimate when the ratio of girls in VI-VIII may be expected to reach 100 in different states. Fortunately, here, the fit of the regression (2) is very good in all cases except in Nagaland; in Nagaland, there are clearly large reporting errors.

According to the trend, in ten states, the ratio would reach 100 per cent sometime before the year 2000-2001. We list them yearwise: West Bengal (1989-90), Assam and Tamil Nadu (1991-92), Haryana (1992-93), Jammu & Kashmir, Karnataka, and Maharashtra (1994-95), Madhya Pradesh (1997-98), Andhra Pradesh (1998-99), and Uttar Pradesh (2000-01).

In the remaining seven states, the ratio does not reach 100 per cent before the year 2000-2001; in fact, in most cases, it reaches a certain maximum and declines thereafter. In Kerala, we witness the same phenomenon as we witnessed in the case of enrolment ratio for boys in VI-VIII. According to the trend, the enrolment ratio would reach its maximum of 93.59 per cent in 1988-89 and decline thereafter. As before, we may neglect the decline in the trend and suppose that the ratio would reach 100 per cent before the year 2000-2001. In Nagaland, because of the large reporting errors, the trend is not worth looking into; for whatever it is worth, we may note that, according to the trend, the ratio had reached its maximum 60.25 per cent in 1982-83.

In Gujarat and Punjab according to the trend, the ratio would reach its maximum in 1987-88, 40.60 per cent in Gujarat and 55.88 per cent in Punjab and decline thereafter. In Orissa, the ratio would reach a maximum of 27.96 per cent in 1988-89 and decline thereafter; and in Rajasthan, it would reach a maximum of 18.74 per cent in 1992-93 and decline thereafter. We may neglect the decline in the trend, but, in the absence of positive evidence, it is difficult to say when the ratio would reach 100 per cent. Clearly, the case of Orissa and Rajasthan is particularly difficult.

Thus, on the evidence of official statistics, the State has not been able to provide, within a period of ten years from the commencement of the Constitution, for free and compulsory education for all children until they complete the age of fourteen years. In fact, it has not been able to meet the objective in even forty years after the commencement of the Constitution. It seems that the objective of free and compulsory education for all children upto the age of 14 may be achieved in fifty years, that is, by the end of the century. But, even then, in some states, the achievement may be found to be falling much short of the objective.

TABLE 8. ENROLMENT RATIOS FOR GIRLS IN CLASSES VI-VIII IN DIFFERENT STATES

Year	A.P.	Assam	Bihar	Gujarat	Haryana	J & K	Kam.	Kerala	M.P.	Maha.	Nagaland	Orissa	Punjab	Rajas.	T.N.	U.P.	W.B.
1966-67	13.2	20.6	5.8	23.1	16.4	20.0	20.3	59.4	9.6	24.7	36.9	7.8	25.1	6.9	32.0	9.8	21.5
1967-68	13.4	22.7	6.2	24.6	18.7	20.1	20.7	59.6	10.4	25.9	40.0	8.3	29.4	7.8	32.3	10.9	22.7
1968-69	13.9	22.3	6.6	24.5	19.9	21.9	20.7	60.5	10.8	26.5	34.5	9.0	32.0	8.1	32.0	11.6	22.9
1969-70	13.3	23.3	6.8	24.7	21.1	21.3	21.9	60.8	10.9	26.0	35.5	9.2	33.2	7.7	31.9	12.6	23.3
1970-71	13.6	24.7	6.9	25.6	21.9	22.7	20.5	66.9	10.6	25.7	36.8	9.2	35.5	7.4	31.5	13.6	23.8
1971-72	13.6	27.2	7.1	25.9	21.5	22.1	21.0	65.6	11.2	26.0	40.8	10.0	33.5	7.6	31.8	14.2	23.8
1972-73	14.9	26.7	8.2	26.2	21.8	21.2	22.2	67.8	11.7	26.4	42.1	10.7	33.7	8.3	33.3	15.6	24.3
1973-74	15.6	28.5	9.2	26.8	22.3	21.6	24.4	70.5	12.3	27.8	47.4	11.9	35.2	9.0	35.2	15.5	21.5
1974-75	16.3	25.1	10.5	27.8	23.0	21.7	25.4	76.0	12.5	29.5	49.9	12.7	34.9	9.3	33.9	16.0	25.0
1975-76	17.1	25.4	11.4	29.1	22.6	22.3	27.2	78.6	13.3	30.3	49.9	13.4	36.2	10.2	34.4	16.2	25.4
1976-77	16.3	25.5	8.5	29.6	21.9	22.0	25.5	84.6	14.3	31.0	48.8	14.0	40.7	10.1	35.8	16.2	24.1
1977-78	16.8	26.2	13.4	31.3	21.6	22.8	28.5	83.1	14.3	32.2	60.0	16.0	44.4	10.6	37.7	18.4	21.8
1978-79	18.5	28.3	9.6	35.3	23.8	24.0	28.3	86.2	15.2	32.9	62.0	17.1	48.4	10.8	38.7	15.7	24.0
1979-80	19.0	30.5	10.6	36.0	24.6	25.7	28.6	84.9	15.6	34.5	58.9	19.0	48.1	11.4	40.1	17.3	24.1
1980-81	20.5	32.7	10.4	37.0	26.3	25.5	30.1	84.0	15.4	33.8	40.0	20.9	50.5	12.1	41.4	19.3	24.9
1981-82	17.4	37.5	11.7	38.5	28.0	27.4	29.9	85.6	20.7	38.4	97.5	22.7	51.0	12.9	46.3	21.8	24.2
1982-83	19.8	38.9	13.5	39.9	30.0	27.4	38.1	87.6	18.1	43.2	41.8	22.4	53.6	14.1	49.2	21.6	26.6
1983-84	28.5	40.1	14.5	42.3	33.2	30.2	42.5	89.3	18.9	43.4	40.8	25.9	55.2	14.9	53.2	20.5	46.0
1984-85	32.1	44.7	17.1	40.6	35.6	33.8	45.6	89.7	19.8	52.9	111.7	25.5	55.2	15.2	59.7	22.5	45.8
1985-86	22.5	62.1	14.8	48.6	35.8	32.7	54.1	93.1	24.0	49.8	50.0	26.2	53.1	15.5	60.6	22.4	52.0
1986-87	24.2	60.9	15.5	40.9	40.5	35.8	54.1	94.1	24.8	53.3	48.1	27.0	54.5	16.2	65.4	23.2	54.6
1987-88	34.8	45.9	17.1	44.8	44.1	39.7	45.1	95.7	29.0	55.8	52.4	28.4	56.5	17.0	71.0	24.5	57.6

* Assam including Meghalaya and Mizoram

Sources: For 1966-67 to 1979-80: *Education in India* Department of Education, Ministry of Human Resource Department, Government of India, New Delhi. (Various issues)
For 1980-81 to 1987-88: *Selected Educational Statistics*, Department of Education,Ministry of Human Resource Development,Government of India, New Delhi (Various issues)

APPENDIX

PARAMETERS OF REGRESSION

$\log y_t = a + bt + ct^2 + dt^3$

States	a	b	c	d	R^2	a	b	c	d	R^2
			I-V Boys					I-V Girls		
A.P.	7.170468	-0.30172	0.010263	-0.00010	0.934815	7.364806	-0.37957	0.013601	-0.00014	0.937295
Assam	4.936050	-0.06253	0.002554	-0.00002	0.289383	-0.48240	0.565335	-0.02277	0.00030	0.827196
Bihar	6.588196	-0.29565	0.012458	-0.00015	0.949019	5.921436	-0.36435	0.015894	-0.00020	0.973093
Gujarat	6.978801	-0.30216	0.012154	-0.00015	0.961774	6.090902	-0.26408	0.011097	-0.00013	0.989887
Haryana	6.659999	-0.27983	0.011236	-0.00013	0.849365	4.561380	-0.13725	0.005944	-0.00006	0.950170
J & K	9.944123	-0.65249	0.024626	-0.00029	0.760543	2.996008	0.07352	-0.00280	0.000046	0.756365
Karnataka	2.836354	0.21896	-0.00874	0.000112	0.203426	3.654984	0.081071	-0.00323	0.000044	0.471683
Kerala	2.400587	0.32969	-0.01422	0.000189	0.918373	2.801568	0.258637	-0.01097	0.000145	0.899098
M.P.	0.243367	0.519684	-0.02109	0.000281	0.704054	-3.16344	0.798544	-0.03101	0.000405	0.836859
Maha.	7.444852	-0.35631	0.01433	-0.00017	0.951890	6.825132	-0.33982	0.014155	-0.00017	0.977569
Nagaland	4.984109	-0.07305	0.005716	-0.00010	0.444599	-0.90220	0.608876	-0.02091	0.000232	0.469704
Orissa	4.925852	-0.05348	0.001993	-0.00001	0.795103	4.631096	-0.12325	0.005727	-0.00006	0.966914
Punjab	6.920268	-0.38094	0.017847	-0.00025	0.921668	6.172463	-0.34473	0.017245	-0.00024	0.928927
Rajasthan	5.538239	-0.15862	0.006186	-0.00006	0.911087	4.550813	-0.17628	0.006498	-0.00005	0.949371
T.N.	5.120817	-0.03475	0.000904	-0.00000	0.632706	5.421668	-0.11981	0.004751	-0.00005	0.927106
U.P.	1.621531	0.377306	-0.01457	0.000176	0.566222	-4.24972	1.059387	-0.04194	0.000523	0.735692
W.B.	1.435262	0.395181	-0.01637	0.000223	0.883304	1.856659	0.283448	-0.01193	0.000170	0.956222
			VI-VIII Boys					VI-VIII Girls		
A.P.	4.101300	-0.03630	-0.00028	0.000031	0.639632	2.380563	0.014069	-0.00058	0.000026	0.866400
Assam	4.753477	-0.10630	0.003156	-0.00001	0.859958	2.174599	0.116134	-0.00517	0.000092	0.896348
Bihar	2.555504	0.125169	-0.00530	0.000079	0.660297	-0.71170	0.247106	-0.00730	0.000087	0.903199
Gujarat	5.242701	-0.16627	0.006333	-0.00006	0.668358	5.271205	-0.28744	0.012204	-0.00014	0.972492
Haryana	2.886659	0.150135	-0.00165	0.000087	0.593857	-0.40333	0.407541	-0.01633	0.000227	0.971951
J & K	3.062187	0.113945	-0.00481	0.000070	0.475927	2.210322	0.113651	-0.00540	0.000092	0.973973
Karnataka	4.897348	-0.10891	0.002677	-0.00000	0.748101	3.929909	-0.11898	0.004392	-0.00003	0.941897
Kerala	4.793727	-0.12626	0.006982	-0.00010	0.474693	3.558726	0.020159	0.001013	-0.00002	0.966436
M.P.	3.928196	-0.00621	-0.00160	0.000055	0.767773	1.226956	0.115990	-0.00430	0.000072	0.973788
Maha.	6.703834	-0.30253	0.010323	-0.00010	0.873100	4.094873	-0.10739	0.003758	-0.00002	0.978871
Nagaland	11.15988	-0.93015	0.038802	-0.00051	0.260606	6.002689	-0.36693	0.017383	-0.00024	0.375670
Orissa	6.000800	-0.26537	0.008727	-0.00008	0.538161	4.357127	-0.35459	0.016714	-0.00021	0.995694
Punjab	5.778412	-0.26072	0.011596	-0.00015	0.588448	3.959301	-0.12872	0.007189	-0.00009	0.949822
Rajasthan	4.096094	-0.04570	0.000940	0.000009	0.749575	3.271904	-0.18846	0.008311	-0.00009	0.982378
T.N.	5.242527	-0.11212	0.002661	-0.00000	0.963175	4.202106	0.07653	0.001816	0.000008	0.991959
U.P.	2.878664	0.104865	-0.00351	0.000043	0.725918	-0.86557	0.340005	-0.01090	0.000126	0.963242
W.B.	0.722707	0.422388	-0.01892	0.000275	0.846575	-0.43500	0.493714	-0.02250	0.000339	0.900131

HOUSEHOLD PURCHASES OF TEXTILES : 1972 - 1987

V.V. Divatia

The Market Research Wing of the Textile Committee, Ministry of Textiles, Government of India, has been conducting, since 1969, a sample survey of purchases of textiles by households and publishing its results on a monthly, quarterly, and annual basis. The purpose of this paper is to bring this wealth of data to light and present some analysis, including time trends, of the textile purchases in India. Over the period 1972-1987, the standard of consumption of textiles, all textiles taken together, seems to have improved at an annual rate of 4.06 per cent; the quantity of textiles purchased per capita increased at the rate of 1.18 per cent per annum while there was an improvement in the quality of purchases at the rate of 2.85 per cent per annum. The present paper is confined to the data and the analysis at an all India level. More disaggregated analysis will follow in a subsequent paper.

The present study examines the levels and trends in the purchases of textiles by households over a period of 15 years from 1972 to 1987. The study is based on the results of the annual surveys conducted by the Market Research Wing (MRW) of the Textile Committee, Ministry of Textiles, Government of India, under its All India 'Consumer Panel' project initiated in 1969 with a view to providing the textile industry with market information on the quantum, value, prices, and patterns of textile purchases in the household sector. The intention was to cover 5,450 households but only 3,000 could be covered by 1970 and about 3,400 households by 1972. The original target was reached in 1973. In 1979, the sample was expanded to cover 7,450 households, and is now being enlarged to cover 10,000 household. The sample is selected through a two-stage stratified random sampling design, is spread over the entire country, and seems to permit valid estimates of the various characteristics in which MRW is interested. The details of the sampling scheme and other technical aspects of the survey are described in a Technical Note in Appendix I.

MRW presents the results of the surveys in their monthly, quarterly, and annual publications in great detail. The present study makes use mainly of the annual publications. The estimates are given both for quantities and values, of different types of fabrics : cotton, non-cotton, and mixed or blended. Estimates for some specific varieties and products are also published. The estimates are presented at the levels of All-India, cities, big towns, small towns, villages with further break up of the villages by degree of development, and also separately for urban and rural areas. In this paper, we shall present the data at the All-India level only. We expect to present the disaggregated data in a follow up paper.

The broadest classification for type of fabrics is : cotton, non-cotton, and mixed or blended (mixed, for short). As mentioned above, purchases by households are recorded both in terms of quantities and values. Our primary interest is in quantities. But, by dividing values by quantities, we shall be able to get unit values and examine trends in them over the years. To distinguish them from prices, we shall call them unit values because they relate to composite items with possibly changing composition and changing specifications over the years.

ALL TEXTILES

We shall first examine the growth in the quantities of purchases, separately for cotton, non-cotton, and mixed fabrics, and for the total, for the years from 1972 to 1987. These are given in Table 1 (Cols. 2-5). At the bottom of the Table, are given the compound annual rates of growth. It will be noticed that the quantities of all the fabrics taken together increased almost steadily from 7,760 to 12,792 million metres during the period 1972 to 1987. The annual compound growth rate for the entire period was 3.50 per cent. The growth rates were very different for different types of fabrics. Cotton textiles, which clearly is the most dominant type, increased at a very slow rate of 1.22 per cent while non-cottons grew at

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13.25 per cent and mixed fabrics at 13.62 per cent. Put differently, while cotton textile purchases by households increased by only 20 per cent over the period of 14 years, non-cotton fabrics increased almost five times and mixed fabrics over seven times their respective levels in 1972. Cotton textile purchases also showed more fluctuations and, up to 1984 signs of stagnancy, while the other two types were racing ahead. It is only during 1985 to 1987 that there were some signs of revival in cotton textiles; in 1987, the purchases of cotton textiles were 15 per cent higher than in 1984.

As a consequence of the very different growth rates for the different types of fabrics, the composition of textile purchases has changed much over the years (Table 1, Cols. 6-8). The share of cotton textiles, which was over 90 per cent in 1972, declined to less than 66 per cent in 1987 whereas the share of non-cottons increased from 4.86 per cent to 14.70 per cent and that of mixed fabrics from 4.57 per cent to 19.55 per cent. The shift from cotton to other types of fabrics was more marked beginning with 1979 when the share of cotton fabrics was still 84.02 per cent.

A large part of the growth in the purchases of textiles is of course absorbed by the increase in population. Hence, to judge improvement in living standards, as judged by consumption of textiles, one should examine the purchases of textiles on a per person basis. The relevant data are given in Table 1 (Cols. 9-12). It should be mentioned that, for 1972 and 1973, to derive the per capita purchases, the MRW uses population estimates based on the 1971 Census duly projected; while for the later years, it uses the number of persons in its own sample of households.

Before proceeding further, it will be useful to compare the MRW estimates of per capita household purchases of textiles with the official estimates of per capita availability of cotton cloth and man-made fibre fabrics published in the pre-budget *Economic Survey* of the Government of India. These are given in Cols. 13 and 14 of Table 1. It may be noted that the man-made fibre fabrics in the *Economic Survey* combine the non-cotton and mixed or blended fibre fabrics in the MRW survey. In Cols. 15 and 16 are given the MRW estimates as percentages of the *Economic Survey* estimates.

The two are in broad dimensional agreement and the MRW estimates are generally somewhat lower than the *Economic Survey* estimates. This is as it should be because the MRW estimates are of purchases by households only; they do not cover non-household purchases such as by government, corporations, and other institutions as also for industrial uses of textiles. Nevertheless, there are several instances in which the MRW estimates are nearly equal or even in excess of the *Economic Survey* estimates and, on a closer examination of the MRW series, it seems that, in most such cases, the MRW estimates are likely to be overestimates. For instance, in the last three years, 1985-87, the MRW estimates, of cotton and man-made textile purchases both, are nearly equal or in excess of the *Economic Survey* estimates of availability; in these years, the MRW estimates are out of line showing a sudden jump over the estimates for 1984. Similarly, in the years 1977-79, the MRW estimates of purchases of cotton textiles are in excess of the *Economic Survey* estimates of availability; and, in these years, they are much above the estimates for 1972-76 as also for 1980-82. It seems that in all these cases, the MRW estimates are over-estimates. On the other hand, in the years 1976-80, the MRW estimates of purchases of man-made textiles are less than half of the Economic Survey estimates and it is the Economic Survey estimates which seem to be over-estimates showing a sudden jump over the estimate for 1975 with a further jump over 1976. The MRW estimates are based on a sample survey and are admittedly liable to sampling (and non-sampling) errors. The Economic Survey estimates of availability are based on official estimates of production, exports, and imports. It seems that the latter too are liable to reporting errors. Obviously, there is room for mutual consultation.

Returning to the MRW estimates, it will be seen that purchases of fabrics, all types taken together, by households increased from 13.77 metres per person in 1972 to 16.35 in 1987, the annual growth being only 1.18 per cent. However, this does not reflect fully the improvement in the real living standards because, as already noted, the composition of textile purchases had changed

much between 1972 and 1987. For instance, the per person purchases of cotton textiles actually declined from 12.48 metres in 1972 to 10.75 in 1987, the annual rate of decline being 1.05 per cent. And, the decline was more than made up by increased per person purchases of non-cotton and mixed fabric textiles which are preferred because, among other qualities, these are more durable than the cotton textiles. The per capita quantities of non-cotton fabrics increased at an annual rate of 10.72 per cent and those of the mixed fabrics increased by an annual rate of 11.10 per cent. To make some allowance for the greater durability of non-cotton and mixed fabrics, MRW suggests an equivalent of 3 to 4 for man-made fibre fabrics compared to 1 for cotton fabrics. Adopting the figure of 4 for equivalence, and converting only the purchases in 1972 and 1987 into their cotton equivalents, gives an annual growth of 5.8 per cent in the per capita purchases. Even with the lower equivalence factor of 3, the growth in per person purchases turns out to be 3.5 per cent. Perhaps the durability equivalence factor is even greater than 4.

Another way to take into account the differences in quality and durability between the three types of fabrics is to consider the value of purchases rather than their quantities. In Col. 2 of Table 2 are given the value of the per capita total purchases of textiles from 1972 to 1987. Before proceeding further, we may compare these MRW estimates with the per capita consumer expenditure on textiles given by the National Sample Survey Organization (NSSO). These are available in the various issues of *Sarvekshana*, the journal of the NSSO. These are available for four rounds of the NSS, namely, 1972-73, 1977-78, 1983, and 1986-87. The NSSO estimates are for 30 days and are given for rural and urban areas separately. For purposes of a broad comparison with the MRW All India annual estimates, we have combined the NSSO rural and urban estimates with weights of 80 and 20 respectively to arrive at All India estimates for 30 days and then converted them to an annual estimate. In the following, we set them side by side with the MRW estimates.

ESTIMATES OF EXPENDITURE ON TEXTILES
RS PER PERSON PER ANNUM

Year	MRW	NSSO
1972-73	52.36	38.2
1977-78	101.15	74.8
1983	217.79	124.49
1986-87	315.92	139.11

Clearly, the NSSO estimates are very much below the MRW estimates. Earlier, we had compared the MRW estimates of per capita purchases of textiles with the per capita availability of textiles given by the *Economic Survey* and found them in broad dimensional agreement. Of course, there are differences between the two. But, even if we take the lower of the two estimates, the NSSO estimates would still be found to be much lower. For instance, in 1972, 1973, 1977, 1978, and 1983, the MRW estimates are below the *Economic Survey* estimates and the NSSO estimates are much below the MRW estimates. It is only in 1986 and 1987 that the MRW are above the *Economic Survey* estimates, by 5.27 per cent in 1986 and by 11.22 per cent in 1987. But, even if, for that reason, we reduce the MRW estimates proportionately, the NSSO estimates would still be far below the MRW estimates; in fact, in 1986-87, almost half of the MRW estimates. Hence, it seems that the NSSO estimates of consumer expenditure on textiles are grossly underestimates and that the underestimation has progressively increased over the years.

Returning to the MRW estimates of value of per capita textile purchases, it will be noticed that the value increased from Rs 52.36 in 1972 to Rs 356.56 in 1987, a 6.8 fold increase which means an increase at 13.34 per cent per annum. Of course, much of this increase is due to the increase in prices of all fabrics during this period. To remove the effect of increase in prices, we shall express the value of purchases in successive years at unit values prevailing in 1972; that is to say, we shall value the quantities of each type purchased each year at the unit values obtained by dividing values by quantities in 1972 and add them together to obtain value of total purchases at constant (1972) unit values. The result is given in Col. 3 of Table 2. It will be seen that this increased from Rs 52.36 in 1972 to Rs 92.58 in

1987 giving an annual rate of growth of 4.06 per cent. This is much greater than the rate of growth (1.18 per cent) in the per capita purchases of all textiles. Because, now, we take into account the fact that, though the total quantity increased at an annual rate of 1.18 per cent, there was a shift from cotton to higher valued non-cotton and mixed fabrics. We may therefore say that, at the All-India level, the standard of consumption of textiles improved at an annual rate of 4.06 per cent; while there was an increase in quantity at the rate of 1.18 per cent per annum, there was an improvement in quality at the rate of 2.85 per cent per annum (1.0118 x 1.0285 = 1.0406).

As mentioned above, the prices of textiles, like of all other commodities, increased over the period from 1972 to 1987. We allowed for this fact in judging the real improvement in the standard of consumption of textiles by valuing all purchases by their unit values in 1972. We shall now examine whether the unit values of the different types of textiles increased more or less in parallel or differently. Unit values of different types of textiles over the years as derived from the quantities and values of purchases given in the MRW surveys are given in Cols. 4-7 of Table 2.

It will be seen that the unit values of cotton textiles increased from Rs 3.12 per metre in 1972 to Rs 11.69 per metre in 1987 at an annual rate of 8.68 per cent while the unit values of non-cotton and mixed textiles increased at a rate of 10.08 and 7.42 per cent respectively. Thus, the mixed fabrics, in spite of the fastest growth in their purchases, showed the lowest rate of increase in their unit values. We should of course remind that these are unit values and not prices and that a part of the change in them may be due to changes in the composition of the different types of textiles purchased and more particularly changes in their qualities.

For all fabrics taken together, the unit value increased at an annual rate of 12.01 per cent. This may be compared with the index for 'clothing, bedding, etc.' group in the Consumer Price Index for industrial workers (CPI). This is given in Col. 8 of Table 2. It seems to have increased at the annual rate of 8.04 per cent which is much lower than 12.01 per cent at which the unit value of all textiles increased. The difference may be due to the fact that, while the unit value series is affected by changes in the composition and qualities of textiles consumed, the CPI is not allowed to be affected by such changes and, for that reason, is based on the concept of a fixed-basket of commodities.

As noted above, there has in fact been a shift towards more expensive textiles such as from cotton to non-cotton and mixed fabrics. To remove the effect of such shifts, we may construct an index of unit values with the proportions of cotton, non-cotton, and mixed fabric textiles as they were in a given year, say, 1980 (Laspeyre's index with base 1980). This is given in Col. 9 of Table 2. It shows an increase of 8.59 per cent per annum which is very close to the rate of increase (8.04 per cent per annum) in the CPI index for 'clothing, bedding, etc.' group.

COTTON TEXTILES

We have so far considered only the three broad types of fabrics: cotton, non-cotton, and mixed or blended. We may now examine the purchases with greater disaggregation. First, taking up cotton, MRW distinguishes millmade, powerloom, handloom, khadi, and hosiery types of cloth. While data are available from 1972 onwards, we shall examine data beginning with 1976 because the earlier figures do not appear equally reliable. Moreover, before 1980, the powerloom cloth was not separately shown; it was shown combined with millmade cloth. Quantities of aggregate purchases of the four sub-types and total of cotton fabrics are given in Table 3 for the period from 1976 to 1987 (Cols. 2-7).

The aggregate purchases of all cotton textiles together show an annual increase of 1.59 per cent between 1976 and 1987. The components of course have very different rates of growth : Millmade, powerloom, and handloom taken together increased at an annual rate of 1.54 per cent. Between 1980 and 1987, millmade actually declined at an annual rate of 12.0 per cent and powerloom increased at an annual rate of 34.70 per cent. Again, between 1976 and 1987, handloom increased at an annual rate of 19.07 per cent while khadi declined at an annual rate of 11.60 per cent. Hosiery increased at an annual rate of 6.30 per cent.

Because of these very different rates of growth of different cotton textiles, their shares in the total cotton textiles have changed very much over the period. These are shown in Cols. 8-12 of Table 3. It will be seen that there is a steep fall between 1980 and 1981 in the proportion of the millmade cloth in the total; and a steeper fall between 1981 and 1982. This is compensated by corresponding increases in the proportions of powerloom and handloom cloth. Presumably, the steep fall in the proportion of millmade cloth and steep rise in the powerloom and handloom cloth between 1980 and 1982 is due to classification errors in 1980 and 1981. It is only beginning with 1982 that the classification between millmade, powerloom, and handloom seems to be reliable.

Between 1982 and 1987, the proportion of powerloom cloth in the total purchases has remained more or less steady between 33.3 and 35.7 per cent. In contrast, the handloom cloth which accounted for almost 40 per cent during 1982-84, declined to less than 30 per cent in 1987 with a corresponding increase in the proportion of the millmade cloth. The share of hosiery has steadily increased from under 5 per cent in 1976 to almost 10 per cent in 1987. The share of khadi was never sizeable and has declined over the years; it reached its maximum of 4.49 per cent in 1978 and steadily declined to less than 1 per cent in 1987.

In Cols. 13-17 of Table 3, are given unit values of the different sub-types of cotton cloth. It will be seen that the unit values of powerloom and handloom cloth have been below the millmade cloth, those of handloom cloth mostly above, even if marginally, the powerloom cloth. Unit values of khadi have been generally above those of handloom and have increased faster than those of millmade, powerloom, and handloom cloth. For instance, over the period 1976-87, the unit values of the latter three combined together increased at annual rate of 6.88 per cent while those of khadi increased at an annual rate of 8.51 per cent. The unit value (per metre) of hosiery increased somewhat faster at an annual rate of 11.64 per cent. But, in absolute terms, the unit value of hosiery was way below those of all other sub-types. For instance, in 1987, the unit values per metre were as follows : Millmade (Rs 13.96), powerloom (Rs 11.04), handloom (Rs 11.50), khadi (Rs 14.70), and hosiery (Rs 7.97). Besides, hosiery comes more or less in the form of ready-to-wear garments. Thus, it seems that the per unit values of different sub-types of cotton textiles, and increases in them over the years, explain in a sense the shifts in the purchases of these sub-types.

NON-COTTON TEXTILES

Turning to the non-cotton group, disaggregated data are available for pure silk, art silk, and woollen for 1975-1987; for nylon and polyester for 1976-1987, and for acrylic for 1980-1987. The available data are given in Table 4.

The aggregate quantities of purchases (Cols. 2-8) of all the items, except acrylic, have increased over the years, the maximum increase being in polyester. The annual rates of increase are : polyester (25.15 per cent), pure silk (13.06 per cent), art silk (9.93 per cent), nylon (7.43 per cent), and woollen (12.28 per cent). Acrylic declined at the annual rate of 0.37 per cent.

Because of the different rates of growth of different fibres, their shares in the total non-cotton purchases (Cols. 9-14) have changed over the years. Polyester has always been the most dominant component in this group and it more than doubled its share in aggregate quantity from 29.18 per cent in 1976 to 64.36 per cent in 1986 but then fell to 58.30 per cent in 1987. These changes in the share of polyester are compensated by corresponding changes mainly in the shares of art silk and nylon; the share of art silk declined from 26.46 per cent in 1976 to 10.03 per cent in 1986 but then rose to 12.82 in 1987; and that of nylon declined from 22.65 per cent in 1977 to 6.32 per cent in 1986 but rose to 10.96 per cent in 1987. The share of pure silk declined from 14.01 per cent in 1976 to 8.36 per cent in 1984 but since then has steadily risen to 10.59 per cent in 1987.

The shares of woollen and acrylic both have gone down but much more so of acrylic. For instance, the share of woollen declined from 12.05 per cent in 1983 to 7.07 per cent in 1987 while that of acrylic declined from 0.77 per cent in 1983 to 0.27 per cent in 1987. Clearly, acrylic is not entering into household purchases.

Like of all other commodities, the prices of

non-cotton textiles have increased over the years but no more than those of the cotton textiles. This may be seen from the unit values given in Cols. 15-21 of Table 3. The maximum increase is in the unit values of art silk and the lowest in the unit values of nylon; the annual rates of increase being 11.62 per cent and 4.52 per cent respectively. The rates of increase in the unit values of other non-cotton items are : pure silk (8.92 per cent), polyester (7.14 per cent), woollen (4.88 per cent), and acrylic (6.83 per cent); for all non-cotton textiles put together, the unit value increased at the annual rate of 8.06 per cent compared to 7.95 per cent in the unit values of cotton textiles.

MIXED OR BLENDED TEXTILES

Mixed fibre fabrics comprise polyester-cotton, polyester-woollen, polyester-viscose, and other mixed. In Table 5, we give their aggregate quantities purchased by households (Cols. 2-6), their respective shares in the total of mixed fabrics (Cols. 7-10), and their unit values (Cols. 11-15). Among them, the polyester-cotton is by far the most dominant and its share, among the mixed fabrics, increased from 75.65 per cent in 1975 to 86.53 per cent in 1987. In fact, in terms of aggregate quantities, it is the single largest category in the other-than-cotton fabrics; its purchases by households in 1987 were about twice as much as for polyester which is the dominant category in the non-cotton group; this is in spite of the fact that the unit value of polyester-cotton is somewhat higher than that of pure polyester textiles. Polyester-cotton has clearly high preference over pure polyester. Among other mixed categories, 'other mixed' is the only one of some importance but its share has halved from 23.49 per cent in 1975 to 11.04 per cent in 1987; nevertheless, the quantum of its purchases has doubled from 136 million metres in 1975 to 276 million metres in 1987.

PURCHASES OF SPECIFIC ITEMS

We may now examine purchases of some specific items of textiles. The items for which data are available are: dhotis, 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 together and not separately for each type. In Table 6.1, we give estimates of their aggregate quantities purchased by households (Cols. 2-12) and their unit values (Cols. 13-23), and, in Table 6.2, the value of the purchases (Cols. 2-13) and the shares of different items in the total value (Cols. 14-24).

Dhoti purchases, in spite of increase in population, have declined in terms of quantities from 1,393 million metres in 1979 purchases to 1,205 million metres in 1987. Clearly, dhoti is being replaced by pyjamas and trousers seen in the increase in the quantities of shirting, poplin, and patta cloth and also in coating and suiting. In contrast, quantities of sari purchases have doubled from 1,980 million metres in 1975 to 3,807 million metres in 1987. The same is true of ladies' dress material; their quantities doubled from 645 million metres in 1975 to 1,279 million metres in 1987. We broadly classify dhoti, shirting/poplin/patta cloth, and coating and suiting as men's wear and sari and ladies' dress material as ladies' wear, though a part of poplin and patta cloth may go into ladies' wear. Then, ladies' wear show highest rates of increase exceeding 6 per cent per annum as against a declining rate for dhoties, less than 4 per cent annual increase for shirting, etc. and 5.15 per cent annual increase for coating and suitings in the men's wear. In 1975, the men's wear, in value terms, accounted for 37.07 per cent of total purchases of items considered while the ladies' wear accounted for 35.28 per cent. In 1987, the shares were 31.47 and 40.06 per cent respectively. The share of the two together has remained more or less the same at about 72 per cent.

The share of readymade garments, presumably both for men and ladies, increased from 7.41 per cent in 1975 to 12.08 per cent in 1987. So has increased the share of hosiery goods from 2.95 per cent in 1975 to 4.46 per cent in 1987.

Among the other items, the quantity of long cloth/sheeting/grey cloth declined from 681 million metres in 1975 to 415 million metres in 1987. The quantities of other unclassified items remained more or less the same while those of chaddar/ bed sheet/ bed cover and also of towel/ turkish towel increased considerably. However, in terms of value, only the share of chaddar/ bed

sheet/bed cover increased from 1.81 per cent in 1975 to 2.96 per cent in 1987. The share of all other items declined; of long cloth/sheeting/grey cloth, from 5.05 per cent in 1975 to 1.29 per cent in 1987; of towel/ turkish towel, from 1.20 per cent in 1975 to 0.78 per cent in 1987; and of other unclassified items, from 9.25 per cent in 1975 to 6.90 per cent in 1987.

HOUSEHOLD PURCHASES BY INCOME GROUPS

MRW survey provides data on household purchases of textiles by income groups. In the MRW surveys, the respondent households are asked to indicate the range in which their household incomes lie. Presumably, this improves the response to questions on income because the respondent feels that he is not revealing his specific income. The income groups are 'at current prices' and therefore an income of say less than Rs 1,500 does not mean the same thing say in 1974 and in 1980. Seeing this, MRW changed the income ranges from 1981 onwards. Between 1974 and 1980, the income ranges distinguished were: Rs<1,500, 1,500-, 3,000-, 6,000-, 10,000-, and 20,000+. In 1981, the first two ranges were combined into one, namely, Rs <3,000; and the last range was split into two, namely, Rs 20,000- and 40,000+. This classification continued upto 1986. In 1987, again the first two ranges were combined into one, namely, Rs <6,000 and the last range was split into two, namely, Rs 40,000- and 60,000+. Nevertheless, the fact remains that the income ranges and hence the textile purchases by households in different income ranges are not comparable over the years.

Our interest is to examine whether, in a given year, the per capita quantities of textile purchases and their composition are different in different income groups. In Table 7, we give, for different income groups, the per capita quantities (Cols. 2-8), per capita values (Cols. 9-15), and unit values (Cols. 16-22) of textiles purchased by households in different income groups.

In all the years, the per capita quantities of textile purchases in the highest income group were about double of those in the lowest income group. And the per capita values of textile purchases in the highest income group were about five times or more of those in the lowest income group. It means that the households in the higher income groups purchased larger quantities and higher priced textiles than in the lower income groups. This is evident from the unit values of the purchases in different income groups; the unit values of purchases by households in the highest income group is about three times those in the lowest income group.

In Tables 7.1, 7.2, and 7.3, we give similar data for per capita purchases of cotton, non-cotton, and mixed fabric textiles by households in different income groups. The patterns are more or less the same as for textiles as a whole; namely, the households in the higher income groups purchased larger quantities and higher priced textiles than in the lower income groups. On a closer and comparative examination of these Tables, it seems that, even in the lowest income groups, there has been some shift in recent years in favour of non-cotton and mixed fabrics. Of course, the households in the lower income groups purchase fabrics of lower unit values than do the households in the higher income groups and the shift to higher valued non-cotton and mixed fabrics is more pronounced in the higher income groups.

For the years 1984-1987, the MRW also gives the proportion of total income spent on the textile purchases in different income groups. This is given in Table 8. In all the years, the proportion of income spent on textiles decreases as we move from low income to high income households. Incidentally, in 1987, the decline appears much smaller than in earlier years. In fact, the estimates for 1987 are not in tune with the estimates for the earlier years and appear suspect.

Recently, MRW has been publishing a statement on "distribution of households showing nil purchases of different fabrics". In Table 9, we present these data except that, instead of giving households with nil purchases, we give households with some purchases during the year. These figures show that cotton textile purchases are most common inasmuch as over 95 percent of households purchase some cotton textiles during the year. Next to cotton, the most common purchases are of polyester-cotton; over 60 per cent

of the households have reported some purchase during a year and the proportion has been increasing over the years. Purchases of pure polyester are less common and even less common are purchases of nylon and of art silk. Purchases of woollen are more common than of pure silk. Purchases of other types are much less common. All textiles taken together, almost all the households purchase some textiles of one type or the other, which of course is as it should be; but it also shows that the MRW surveys do not suffer from serious non-response to the questionnaire.

For 1987, these data are available income groupwise in a statement on "Fibre/Income groupwise percentage distribution of nil purchases households in different areas" (Table 10). If one goes by income groups, the pattern that is clearly visible is that for each category of textiles, proportionately, larger numbers effect purchases as incomes increase. For the essential item like cotton textiles, even at the lowest income levels, over 93 per cent make purchases and the increase to over 96 per cent for the largest income group is not as rapid as is the case for the next popular item, namely, polyester-cotton. In this case, while less than 57 per cent make purchases in the lowest income class, the proportion for the highest income class is as much as 97 per cent. Some items like acrylic and polyester-viscose seem highly inelastic to incomes with very low proportions of households reporting purchases. Nylon on the other hand shows fairly good elasticity with about one-fifth of the households purchasing at the lower rung of the income range and three-fourths at the upper end.

From these data, it should be possible to estimate proportions of households reporting purchases of different fibre fabrics, and work out figures of purchases, quantum as well as values, per *purchasing* household, month after month since MRW does publish monthly purchase estimates. Such estimates are likely to enhance the utility of analysis of data. From the monthly data on volume and value of purchases, and proportions purchasing, it should be possible to study the seasonality of purchases for different types of textiles.

TABLE 1. ESTIMATES OF HOUSEHOLD PURCHASES OF DIFFERENT TYPES OF TEXTILES

Year	Aggregate Quantites (million metres)				Per cent Share in Total			Per Capita Quantities (Meters)				Per Capita Availability (metres)*			Col. 9/13 per cent	Col. 10+11 per cent	Col. 12/15 per cent
	Cotton	Non-Cotton	Mixed/ Blended	Total	Cotton	Non-Cotton	Mixed/ Blended	Cotton	Non-Cotton	Mixed/ Blended	Total	Cotton	Man-Made	Total	Cotton	Man-Made	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1972	7028	377	355	7760	90.57	4.86	4.57	12.48	0.67	0.63	13.77	13.20	2.00	15.20	94.55	65.00	90.59
1973	6420	380	408	7208	89.07	5.27	5.66	11.23	0.66	0.71	12.60	12.00	1.90	13.90	93.58	72.11	90.65
1974	6915	449	583	7947	87.01	5.65	7.34	11.85	0.77	1.00	13.62	12.90	1.70	14.60	91.86	104.12	93.29
1975	7010	368	579	7957	88.10	4.62	7.28	11.72	0.62	0.97	13.31	12.60	2.00	14.60	93.02	79.50	91.16
1976	6580	257	462	7299	90.15	3.52	6.33	10.79	0.42	0.76	11.97	11.40	2.40	13.80	94.65	49.17	86.74
1977	7262	446	589	8297	87.53	5.38	7.10	11.60	0.71	0.94	13.25	9.50	4.00	13.50	122.11	41.25	98.15
1978	7358	545	757	8660	84.97	6.29	8.74	11.60	0.84	1.15	13.59	10.20	4.80	15.00	113.73	41.46	90.60
1979	7464	596	824	8884	84.02	6.71	9.28	11.46	0.92	1.27	13.65	10.10	4.60	14.70	113.47	47.61	92.86
1980	7107	822	1118	9047	78.56	9.09	12.36	10.56	1.20	1.66	13.43	11.00	3.70	14.70	96.00	77.30	91.36
1981	6592	697	1189	8478	77.75	8.22	14.02	9.57	1.01	1.73	12.31	10.20	4.20	14.40	93.82	65.24	85.49
1982	7092	857	1599	9548	74.28	8.98	16.75	10.04	1.21	2.26	13.52	9.90	3.70	13.60	101.41	93.78	99.41
1983	7287	1037	1538	9862	73.89	10.52	15.60	10.12	1.44	2.14	13.69	10.80	4.00	14.80	93.70	89.50	92.50
1984	7313	1352	1513	10178	71.85	13.28	14.87	9.94	1.84	2.06	13.83	10.60	3.90	14.50	93.77	100.00	95.38
1985	8109	1670	1836	11615	69.81	14.38	15.81	10.79	2.22	2.44	15.45	10.80	4.00	14.80	99.91	116.50	104.39
1986	8196	1804	2085	12085	67.82	14.93	17.25	10.71	2.36	2.72	15.79	10.60	4.40	15.00	101.04	115.45	105.27
1987	8411	1880	2501	12792	65.75	14.70	19.55	10.75	2.40	3.20	16.35	10.50	4.20	14.70	102.38	133.33	111.22
G.R.	1.22	13.25	13.62	3.50				-1.05	10.72	11.10	1.18						

G.R. = Annual Compound Growth Rate

* *Economic Survey*, 1989, Government of India

TABLE 2. PER CAPITA VALUE OF TEXTILE PURCHASES AND UNIT VALUES

Year	Per capita value at		Unit Values (Rs/metre)				CPI Index	
	current unit values (Rs)	constant (1972) unit values (Rs)	Cotton	Non-Cotton	Mixed/Blended	Total	for Clothing, Bedding and etc.	Lasp. Index
1	2	3	4	5	6	7	8	9
1972	52.36	52.36	3.12	9.16	11.58	3.80	195	38.23
1973	56.98	49.31	3.51	11.38	14.25	4.53	224	45.04
1974	83.42	55.61	4.70	14.63	16.50	6.12	301	57.25
1975	90.23	53.48	5.02	19.60	19.95	6.78	316	66.41
1976	79.31	46.32	4.91	21.11	23.09	6.63	316	69.95
1977	101.15	53.58	5.34	22.76	24.42	7.63	345	75.28
1978	118.45	57.21	6.02	23.94	25.87	8.88	372	81.92
1979	131.03	58.89	6.28	26.40	27.58	9.60	395	87.07
1980	165.60	63.16	7.79	28.27	29.49	12.33	431	100.00
1981	166.70	59.15	8.26	32.85	31.51	13.54	472	108.42
1982	205.24	68.58	8.82	35.52	32.49	15.18	511	114.94
1983	217.99	69.55	9.15	35.95	34.48	15.92	552	119.34
1984	235.57	71.72	9.54	37.12	35.25	17.03	578	123.48
1985	287.26	82.25	10.03	40.64	36.35	18.59	616	130.25
1886	315.92	86.53	10.80	41.65	37.48	20.01	649	137.09
1987	356.56	92.58	11.69	46.82	36.99	21.81	681	146.06
G.R.	13.34	4.06	8.68	10.08	7.42	12.01	8.04	8.59

G.R. = Annual Compound Growth Rate

TABLE 3. HOUSEHOLD PURCHASES OF COTTON TEXTILES BY SECTOR OF MANUFACTURE

	Aggregate Quantities (million metres)						Per cent Share in Total					Unit Values (Rs per Metre)					
Year	Millmade	Power loom	Hand loom	Khadi	Hosiery	Total	Millmade	Power loom	Hand loom	Khadi	Hosiery	Milmade	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)
1976	5444*		667	148	320	6580	82.73*		10.14	2.25	4.87	5.02*		4.37	4.82	2.36	4.91
1977	5877*		705	200	481	7262	80.92*		9.71	2.75	6.62	5.56*		4.55	5.39	2.24	5.34
1978	5919*		661	331	448	7358	80.44*		8.99	4.49	6.08	6.22*	-	5.59	5.63	2.87	6.02
1979	5912*		821	291	440	7464	79.21*		10.99	3.90	5.90	6.53*	-	6.12	6.04	2.96	6.28
1980	5733	187	625	205	355	7107	80.67	2.63	8.80	2.89	4.99	8.10	6.95	7.44	7.53	3.69	7.79
1981	4519	944	607	134	387	6592	68.55	14.33	9.21	2.03	5.88	8.81	7.51	8.18	7.50	4.02	8.26
1982	1355	2361	2787	113	476	7092	19.11	33.30	39.29	1.59	6.71	10.94	8.70	8.61	8.43	4.73	8.82
1983	1278	2568	2862	81	497	7287	17.54	35.24	39.28	1.11	6.82	11.25	9.08	8.98	9.17	5.07	9.15
1984	1302	2433	3040	65	472	7313	17.81	33.28	41.57	0.89	6.45	11.72	9.14	9.57	9.75	5.41	9.54
1985	1622	2700	3087	77	624	8109	20.00	33.29	38.06	0.95	7.69	12.03	9.56	10.18	11.82	5.88	10.03
1986	1730	2924	2770	83	689	8196	21.11	35.68	33.79	1.02	8.40	13.07	10.51	10.75	11.66	6.46	10.80
1987	2253	2833	2426	79	822	8411	26.78	33.68	28.84	0.94	9.77	13.96	11.04	11.50	19.70	7.97	11.69
G.R.	-12.05 (G.R. 1980-1987)	34.70	19.07	-11.65	6.30	1.59						7.08 (G.R. 1980-1987)	6.54	6.06	8.51	11.64	7.95

G.R. = Annual Compound Growth Rate

* Includes powerloom

TABLE 4. HOUSEHOLD PURCHASES OF NON-COTTON TEXTILES

	Aggregate Quantities (million metres)							Per cent Share in Total						Unit Values (Rs per metre)						
Year	Pure Silk	Art Silk	Woollen	Acrylic	Nylon	Polyester	Total	Pure Silk	Art silk	Woollen	Acrylic	Nylon	Polyester	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)
1975	52	86	69	-	161*		368	14.13	23.37	18.75		43.75*		36.21	8.55	26.33		17.25*		19.60
1976	36	68	30	-	48	75	257	14.01	26.46	11.67		18.68	29.18	36.39	10.99	38.33		16.38	19.08	21.11
1977	62	85	40	-	101	158	446	13.90	19.06	8.97		22.65	35.43	47.53	9.2	37.23		13.98	22.29	22.76
1978	62	86	61	-	87	249	545	11.38	15.78	11.19		15.96	45.69	48.1	10.58	36.8		15.43	22.37	23.94
1979	82	91	56	-	94	273	596	13.76	15.27	9.40		15.77	45.81	52.12	12.86	36.91		14.39	25.16	26.40
1980	115	94	81	13	128	391	822	13.99	11.44	9.85	1.58	15.57	47.57	53.6	17.34	34.52	17.62	16.1	26.5	28.27
1981	114	100	77	5	79	322	697	16.36	14.35	11.05	0.72	11.33	46.20	59.3	18.35	23.83	13.4	19.58	28.95	32.85
1982	121	103	97	7	96	433	857	14.12	12.02	11.32	0.82	11.20	50.53	67.12	21.46	43.77	31.57	20.46	31.59	35.52
1983	109	124	125	8	138	533	1037	10.51	11.96	12.05	0.77	13.31	51.40	75.3	19.84	46.97	21.5	18.42	33.83	35.95
1984	113	170	124	15	115	815	1352	8.36	12.57	9.17	1.11	8.51	60.28	78.99	21.25	50.13	19.07	18.99	35.53	37.12
1985	160	199	138	15	115	1043	1670	9.58	11.92	8.26	0.90	6.89	62.46	83.66	23.59	47.49	20.13	20.82	38.88	40.64
1986	181	181	157	10	114	1161	1804	10.03	10.03	8.70	0.55	6.32	64.36	89.64	28.68	49.05	25.9	22.45	37.22	41.65
1987	199	241	133	5	206	1096	1880	10.59	12.82	7.07	0.27	10.96	58.30	104.08	33.95	58.77	30.0	24.56	42.06	46.82
G.R.	13.06	9.93	12.28	-0.37	7.43	25.15	17.07							8.92	11.62	4.88	6.83	4.52	7.14	8.06

G.R. = Annual Compound Growth Rate

* Includes Polyester

TABLE 5. HOUSEHOLD PURCHASES OF MIXED FIBRE FABRICS

	Aggregate Quantity (million Metres)					Per Cent Share in Total				Unit Value in Rs				
Year (1)	Polyester Cotton (2)	Polyester Wool (3)	Polyester Viscose (4)	Other Mixed (5)	Total (6)	Polyester Cotton (7)	Polyester Wool (8)	Polyester Viscose (9)	Other Mixed (10)	Polyester Cotton (11)	Polyester Wool (12)	Polyester Viscose (13)	Other Mixed (14)	Total (15)
1975	438	5	-	136	579	75.65	0.86	-	23.49	22.18	70.80	-	10.88	19.95
1976	376	6	-	80	462	81.39	1.30	-	17.32	24.93	59.83	-	11.68	23.09
1977	464	8	-	117	589	78.78	1.36	-	19.86	27.05	73.50	-	10.64	24.42
1978	592	9	-	156	757	78.20	1.19	-	20.61	28.49	86.44	-	12.41	25.87
1979	642	8	-	174	824	77.91	0.97	-	21.12	30.59	92.50	-	13.45	27.58
1980	916	13	Neg.	189	1118	81.93	1.16	-	16.91	30.89	103.15	-	17.53	29.49
1981	952	13	16	208	1189	80.07	1.09	1.35	17.49	32.93	97.54	40.56	20.23	31.51
1982	1230	15	39	315	1599	76.92	0.94	2.44	19.70	34.20	135.87	34.82	20.59	32.49
1983	1188	13	31	306	1538	77.24	0.85	2.02	19.90	36.44	97.62	39.26	23.70	34.48
1984	1219	13	22	259	1513	80.57	0.86	1.45	17.12	37.23	117.85	35.23	21.75	35.25
1985	1518	16	22	280	1836	82.68	0.87	1.20	15.25	37.28	138.06	36.50	25.46	36.35
1986	1770	15	32	268	2085	84.89	0.72	1.53	12.85	37.91	116.13	35.94	30.40	37.48
1987	2164	17	44	276	2501	86.53	0.68	1.76	11.04	37.08	159.65	41.91	28.02	36.99
G.R.	15.21	9.74	8.55	9.76	14.44					4.33	6.83	0.32	9.75	5.18

G.R. = Annual Compound Growth Rate

Neg. Negligible

TABLE 6.1. HOUSEHOLD PURCHASES OF SPECIFIC ITEMS OF TEXTILES AGGREGATE QUANTITIES AND UNIT VALUES

	Aggregate quantities (million metres)											Unit Value in Rs per metre										
Year	Dhoti	Saree	*	*	*	*	*	*	*	*	Others	Dhoti	Saree	*	*	*	*	*	*	*	*	Others
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1975	1296	1980	681	1007	207	645	124	177	512	422	906	4.39	7.54	4.00	8.75	26.55	6.37	7.88	3.66	7.80	3.77	5.51
1976	1161	1945	547	1009	188	555	86	150	579	335	744	3.98	7.19	4.02	8.76	25.96	6.47	9.12	3.40	6.50	3.57	5.38
1977	1389	2020	549	1212	277	676	187	150	740	479	618	3.81	8.60	4.52	10.23	28.27	7.34	7.83	3.49	6.46	3.42	7.43
1978	1351	1999	551	1347	291	838	205	150	875	481	572	4.52	9.57	5.03	11.47	33.85	8.09	10.01	4.05	6.91	5.02	10.02
1979	1393	2177	493	1355	306	924	138	173	787	475	683	4.74	10.49	5.09	12.44	35.88	8.80	10.18	4.10	7.80	4.96	9.91
1980	1246	2459	498	1401	370	896	229	162	532	404	850	6.15	13.01	6.19	16.06	39.74	11.07	13.88	5.15	13.66	7.27	8.78
1981	1071	2399	418	1275	306	876	226	137	632	439	699	6.40	14.16	6.72	16.64	50.67	12.38	15.49	5.34	14.62	6.94	10.19
1982	1158	2642	452	1363	381	1017	247	170	777	551	790	7.07	15.95	6.86	18.44	54.80	14.89	16.41	5.78	15.46	8.18	11.17
1983	1267	2743	463	1420	338	987	292	162	823	585	882	7.30	16.02	7.42	20.00	62.10	16.02	16.18	5.84	16.78	9.21	11.66
1984	1258	2972	459	1445	335	1004	302	170	865	567	801	7.95	17.10	7.81	21.14	68.04	17.19	18.44	6.42	17.46	10.37	13.30
1985	1275	3398	377	1658	374	1104	334	202	1154	744	995	8.65	19.26	8.55	22.18	71.03	18.25	19.08	6.61	19.89	10.42	14.38
1986	1261	3523	397	1650	390	1210	417	232	1188	812	1005	9.47	20.21	8.80	24.58	77.18	18.77	19.84	7.55	21.62	11.07	17.06
1987	1205	3807	415	1661	380	1279	395	255	1446	951	998	9.86	22.66	8.68	26.18	85.26	19.90	20.93	8.52	23.29	13.07	19.29
G.R.	-0.46	6.05	-3.69	3.92	5.15	6.09	11.56	3.27	6.84	6.98	3.03	8.69	10.27	7.58	10.24	11.40	11.35	9.33	7.88	12.54	12.30	10.00

* Col. (4) & (15) = Long Cloth, Sheeting, Grey Cloth; Col. (5) & (16) = Shirting, Poplin, Patta Cloth; Col. (6) & (17) = Coating, Suiting; Col. (7) & (18) = Ladies' Dress Material; Col. (8) & (19) = Chaddar, Bed Sheet, Bed Cover; Col. (9) & (20) = Towel, Turkish Towel; Col. (10) & (21) = Readymade Garments; Col. (11) & (22) = Hosiery Goods;
G.R. = Annual Compound Growth Rate

TABLE 6.2. HOUSEHOLD PURCHASES OF SPECIFIC ITEMS OF TEXTILES AGGREGATE VALUES AND PER CENT SHARE IN TOTAL VALUES

	Aggregate Values (million Rs)												Percentage Share									
Year	Dhoti	Saree	*	*	*	*	*	*	*	*	Others	Total	Dhoti	Saree	*	*	*	*	*	*	*	*	Others
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1975	5684	14924	2723	8813	5496	4109	977	648	3996	1590	4989	53949	10.54	27.66	5.05	16.34	10.19	7.62	1.81	1.20	7.41	2.95	9.25
1976	4626	13981	2198	8839	4881	3592	784	510	3763	1196	4003	48373	9.56	28.90	4.54	18.27	10.09	7.43	1.62	1.05	7.78	2.47	8.28
1977	5291	17369	2480	12395	7832	4959	1464	523	4778	1636	4593	63320	8.36	27.43	3.92	19.58	12.37	7.83	2.31	0.83	7.55	2.58	7.25
1978	6101	19121	2774	15447	9850	6776	2053	608	6050	2417	5734	76931	7.93	24.85	3.61	20.08	12.80	8.81	2.67	0.79	7.86	3.14	7.45
1979	6603	22840	2510	16855	10978	8134	1405	710	6140	2358	6768	85301	7.74	26.78	2.94	19.76	12.87	9.54	1.65	0.83	7.20	2.76	7.93
1980	7666	31990	3085	22506	14705	9922	3179	835	7268	2937	7459	111552	6.87	28.68	2.77	20.18	13.18	8.89	2.85	0.75	6.52	2.63	6.69
1981	6853	33964	2809	21211	15504	10843	3500	732	9238	3046	7120	114820	5.97	29.58	2.45	18.47	13.50	9.44	3.05	0.64	8.05	2.65	6.20
1982	8186	42136	3100	25129	20878	15143	4054	982	12014	4506	8826	144954	5.65	29.07	2.14	17.34	14.40	10.45	2.80	0.68	8.29	3.11	6.09
1983	9248	43932	3437	28407	20991	15815	4726	946	13812	5389	10280	156983	5.89	27.99	2.19	18.10	13.37	10.07	3.01	0.60	8.80	3.43	6.55
1984	10001	50828	3587	30544	22795	17261	5568	1091	15100	5880	10655	173310	5.77	29.33	2.07	17.62	13.15	9.96	3.21	0.63	8.71	3.39	6.15
1985	11033	65440	3223	36776	26566	20146	6373	1335	22957	7753	14306	215908	5.11	30.31	1.49	17.03	12.30	9.33	2.95	0.62	10.63	3.59	6.63
1986	11941	71187	3492	40556	30102	22714	8273	1751	25683	8991	17141	241831	4.94	29.44	1.44	16.77	12.45	9.39	3.42	0.72	10.62	3.72	7.09
1987	11884	86258	3601	43477	32397	25457	8267	2173	33679	12431	19251	278875	4.26	30.93	1.29	15.59	11.62	9.13	2.96	0.78	12.08	4.46	6.90
G.R.	8.19	16.94	3.60	14.56	17.14	18.13	21.97	11.41	20.24	20.14	13.33	15.82											

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. PER CAPITA PURCHASES OF ALL TEXTILES BY HOUSEHOLDS IN DIFFERENT INCOME GROUPS

	Quantities 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)
1974	7.15	11.10	15.74	17.80	19.78*		13.62	35.46	56.53	92.99	120.89	149.11*		83.42	4.96	5.09	5.91	6.79	7.54*		6.12
1975	6.64	10.08	15.42	17.90	22.22	22.12	13.31	32.48	53.25	99.54	135.63	190.32	274.08	90.23	4.89	5.28	6.46	7.58	8.57	12.39	6.78
1976	7.00	9.49	12.92	18.25	20.18	16.93	11.97	32.69	48.83	82.59	147.36	196.07	210.29	79.31	4.67	5.15	6.39	8.07	9.72	12.42	6.63
1977	9.93	10.31	13.30	15.63	18.21	17.64	13.25	50.35	57.73	98.24	149.22	231.11	341.97	101.15	5.07	5.60	7.39	9.55	12.69	19.39	7.63
1978	9.03	10.17	12.05	14.73	18.61	19.51	13.59	53.11	64.11	97.89	145.86	228.87	315.08	118.45	5.88	6.30	8.12	9.90	12.30	16.15	8.72
1979	9.47	10.18	11.75	14.03	27.56	16.20	13.65	59.27	69.82	101.17	148.94	224.69	280.30	131.03	6.26	6.86	8.61	10.62	8.15	17.30	9.60
1980	9.38	8.94	11.57	14.09	15.83	19.05	13.43	65.52	73.14	114.96	163.67	219.09	346.28	165.60	6.99	8.18	9.94	11.62	13.84	18.18	12.33
	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	8.86	10.36	12.15	15.74	18.03**		12.31	77.64	107.67	157.44	234.20	371.47**	-	166.70	8.76	10.39	12.96	14.88	20.60**	-	13.54
1982	8.42	10.71	14.01	16.79	19.78	18.23	13.52	76.40	124.64	194.23	275.55	383.16	484.56	205.24	9.07	11.64	13.86	16.41	19.37	26.58	15.18
1983	8.87	10.60	13.05	17.76	17.18	21.13	13.69	90.47	129.28	185.79	302.47	348.49	531.70	217.99	10.20	12.20	14.24	17.03	20.28	25.16	15.91
1984	8.80	11.56	13.59	16.01	17.02	19.83	13.83	93.17	146.45	203.04	295.73	395.44	531.70	235.57	10.59	12.67	14.94	18.47	23.23	26.81	17.03
1985	9.86	12.49	14.79	17.88	18.02	24.07	15.45	107.93	164.75	234.82	339.78	428.86	786.83	287.26	10.95	13.19	15.88	19.00	23.80	32.69	18.59
1986	9.85	12.22	14.37	16.25	20.31	25.44	15.79	119.69	169.64	236.42	333.99	489.53	788.15	315.92	12.15	13.88	16.45	20.55	24.10	30.98	20.01
	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	11.70	13.72	16.37	20.93	27.40	31.58	16.35	165.77	229.94	357.56	536.21	886.00	1088.19	356.56	14.17	16.76	21.84	25.62	32.34	34.46	21.81

* for group 10000 & above; ** for group 20000 & above

TABLE 7.1. PER CAPITA PURCHASES OF COTTON TEXTILES BY HOUSEHOLDS IN DIFFERENT INCOME GROUPS

	Quantities 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)
1974	6.56	10.16	13.84	14.96	15.97*		11.85	27.31	43.87	64.26	75.08	85.72*		55.67	4.16	4.32	4.64	5.02	5.37*		4.70
1975	6.27	9.38	13.66	15.19	18.67	16.40	11.72	26.86	42.74	67.99	82.23	100.98	113.50	58.85	4.28	4.56	4.98	5.41	5.41	6.92	5.02
1976	6.73	8.99	11.77	15.73	16.60	12.68	10.79	27.71	39.35	58.06	89.16	104.70	88.60	52.93	4.12	4.38	4.93	5.67	6.31	6.99	4.91
1977	9.31	9.57	11.78	12.93	13.75	11.27	11.60	41.94	45.29	63.46	80.36	98.76	96.09	61.95	4.50	4.73	5.39	6.22	7.18	8.53	5.34
1978	8.35	9.41	10.53	12.17	14.12	13.09	11.60	41.68	50.01	62.14	80.62	101.78	106.02	69.18	4.99	5.31	5.90	6.62	7.21	8.10	6.02
1979	8.95	9.44	10.24	11.39	13.28	10.89	11.46	48.20	54.15	63.17	76.85	98.64	93.33	71.95	5.39	5.74	6.17	6.75	7.43	8.57	6.28
1980	8.77	8.10	9.79	11.08	11.64	12.85	10.57	53.34	52.81	70.19	82.86	96.38	128.16	82.16	6.08	6.52	7.17	7.48	8.28	9.97	7.79
	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	7.86	8.77	9.39	11.54	11.89@	-	9.57	54.12	64.90	75.40	101.20	128.81@	-	79.05	6.89	7.40	8.03	8.77	10.83@	-	8.26
1982	7.42	8.79	10.67	11.69	12.86	10.43	10.04	53.64	70.74	90.88	105.74	133.91	131.29	88.59	7.23	8.05	8.52	9.05	10.41	12.59	8.82
1983	7.67	8.56	9.98	12.42	11.13	13.18	10.12	59.84	70.94	87.45	115.44	118.41	159.90	92.58	7.80	8.29	8.76	9.29	10.64	12.13	9.15
1984	7.47	9.30	10.18	10.81	10.37	11.45	9.94	59.46	80.39	91.63	106.22	120.37	146.89	94.88	7.96	8.64	9.00	9.83	11.61	12.83	9.54
1985	8.41	9.92	10.98	11.77	10.80	12.76	10.79	69.97	88.16	103.29	121.98	126.76	175.08	108.16	8.32	8.89	9.41	10.36	11.74	13.72	10.03
1986	8.16	9.40	10.55	10.72	11.84	14.38	10.71	70.92	87.81	105.05	118.84	134.23	215.04	115.68	8.69	9.34	9.96	11.09	11.34	14.95	10.80
	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	9.16	9.97	10.34	12.43	14.43	17.67	10.75	88.10	102.63	122.29	155.85	217.65	318.70	125.74	9.62	10.29	11.83	12.54	15.08	18.04	11.69

* For group 10000 & above; @ For group 20000 & above

TABLE 7.2 PER CAPITA PURCHASES OF NON-COTTON TEXTILE BY HOUSEHOLDS IN DIFFERENT INCOME GROUPS

	Quantities 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)
1974	0.23	0.38	0.84	1.22	1.39*		0.76	2.84	4.79	10.88	18.49	25.04*		11.26	12.35	12.61	12.95	15.16	18.01*		14.82
1975	0.17	0.25	0.66	1.08	1.44	2.30	0.62	2.25	3.13	11.64	21.02	34.39	72.62	12.06	13.24	12.52	17.64	19.46	23.88	31.57	19.45
1976	0.10	0.16	0.42	0.84	1.31	2.03	0.42	1.48	2.95	7.96	18.66	33.32	55.24	8.89	14.80	18.44	18.95	22.21	25.44	27.31	21.17
1977	0.33	0.29	0.60	1.05	2.07	4.08	0.71	3.56	4.55	12.65	24.95	61.23	159.17	16.22	10.79	15.69	21.08	23.76	29.58	39.01	22.85
1978	0.21	0.29	0.60	1.04	2.20	3.37	0.84	3.91	4.57	13.02	24.92	59.16	102.63	19.83	18.62	15.76	21.70	23.96	26.89	30.45	23.61
1979	0.20	0.26	0.55	1.06	1.98	2.76	0.92	3.42	4.82	12.42	28.15	57.02	97.72	24.17	17.10	18.54	22.58	26.56	28.80	35.41	26.27
1980	0.42	0.35	0.74	1.28	1.65	2.70	1.20	7.51	7.60	17.52	31.63	48.64	99.65	34.50	17.88	21.71	23.68	24.71	29.48	36.91	28.75
	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	0.37	0.54	0.96	1.39	2.67@	-	1.01	8.00	14.03	27.22	46.34	111.46@	-	33.25	21.62	25.98	28.35	33.34	41.75@	-	32.92
1982	0.36	0.60	1.13	1.62	2.21	3.85	1.22	7.34	16.10	35.58	56.71	92.27	177.60	43.10	20.39	26.83	31.49	35.01	41.75	46.13	35.53
1983	0.52	0.86	1.18	2.06	2.64	3.30	1.44	11.95	21.97	36.36	73.85	107.62	177.72	51.77	22.98	25.55	30.81	35.85	40.77	53.85	35.95
1984	0.67	1.14	1.48	2.22	3.37	4.64	1.84	16.01	32.57	47.93	83.12	146.53	223.74	68.21	23.90	28.57	32.39	37.44	43.48	48.22	37.07
1985	0.70	1.24	1.67	2.72	3.26	6.76	2.22	16.85	35.42	58.91	100.29	146.80	389.38	90.31	24.07	28.56	35.28	36.87	45.03	57.60	40.68
1986	0.75	1.32	1.68	2.49	3.83	5.88	2.36	21.50	40.61	57.77	100.57	178.43	315.31	98.16	28.67	30.77	34.39	40.39	46.59	53.62	41.59
	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	0.94	1.50	2.53	3.69	6.96	7.32	2.40	30.50	54.16	109.03	190.11	392.26	437.29	112.53	32.45	36.11	43.09	51.52	56.36	59.74	46.89

* For group 10000 & above; @ For group 20000 & above

TABLE 7.3 PER CAPITA PURCHASES OF MIXED FIBRE FABRICS BY HOUSEHOLDS IN DIFFERENT INCOME GROUPS

	Quantities 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)
1974	0.36	0.56	1.06	1.62	2.42*		1.01	5.31	7.87	17.85	27.32	38.35*		16.49	14.75	14.05	16.84	16.86	15.85*		16.33
1975	0.20	0.45	1.10	1.63	2.11	3.34	0.97	3.37	7.38	19.91	32.38	54.95	87.96	19.32	16.85	16.40	18.10	19.87	26.04	26.34	19.92
1976	0.17	0.34	0.73	1.68	2.27	2.22	0.76	3.50	6.53	16.57	39.54	58.05	66.45	17.49	20.59	19.21	22.70	23.54	25.57	29.93	23.01
1977	0.29	0.45	0.92	1.65	2.39	2.29	0.94	4.85	7.89	22.13	43.91	71.12	86.71	22.98	16.72	17.53	24.05	26.61	29.76	37.86	24.45
1978	0.47	0.47	0.92	1.52	2.29	3.05	1.15	7.52	9.53	22.73	40.32	67.93	106.43	29.44	16.00	20.28	24.71	26.53	29.66	34.90	25.60
1979	0.32	0.48	0.96	1.58	2.30	2.56	1.27	7.65	10.85	25.58	43.95	69.03	89.25	34.91	23.91	22.60	26.65	27.82	30.01	34.86	27.49
1980	0.19	0.49	1.04	1.73	2.54	3.50	1.66	4.67	12.73	27.25	49.18	74.08	118.48	48.94	24.58	25.98	26.20	28.43	29.17	33.85	29.48
	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	0.63	1.05	1.80	2.81	3.47@	-	1.73	15.52	28.74	54.82	86.66	131.20@	-	54.40	24.63	27.37	30.46	30.84	37.81@	-	31.45
1982	0.64	1.32	2.21	3.48	4.71	3.95	2.26	15.42	37.80	67.77	113.10	156.98	175.67	73.55	24.09	28.64	30.67	32.50	33.33	44.47	32.54
1983	0.68	1.18	1.89	3.28	3.41	4.65	2.14	18.68	36.37	61.98	113.18	122.46	194.38	73.64	27.47	30.82	32.79	34.51	35.91	41.80	34.41
1984	0.66	1.12	1.93	2.98	3.28	3.74	2.05	17.70	33.49	63.48	106.39	128.54	161.07	72.48	26.82	29.90	32.89	35.70	39.19	43.07	35.36
1985	0.75	1.33	2.14	3.39	3.96	4.55	2.44	21.11	41.17	72.62	117.51	155.30	222.37	88.79	28.15	30.95	33.93	34.66	39.22	48.87	36.39
1986	0.94	1.50	2.14	3.04	4.64	5.18	2.72	27.27	41.22	73.60	114.58	176.87	257.80	102.08	29.01	27.48	34.39	37.69	38.12	49.77	37.53
	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	1.56	2.23	3.46	4.73	6.74	6.31	3.20	46.66	72.90	125.66	187.89	267.30	321.41	118.29	29.91	32.69	36.32	39.72	39.66	50.94	36.99

* For group 10000 & above; @ For group 20000 & above

TABLE 8. PER CENT OF TOTAL INCOME SPENT ON TEXTILES PURCHASES BY HOUSEHOLDS IN DIFFERENT INCOME GROUPS

YEAR	<6000	6000-9999	10000-19999	20000-39999	40000-59999	60000 & Above	All Groups
1984	18.38	16.09	13.31	9.45	5.47*		11.37
1985	20.36	17.99	15.36	10.26	7.61*		12.92
1986	20.59	18.23	15.04	11.52	7.64*		12.81
1987	16.91	16.54	15.01	12.61	12.30	10.19	13.84

TABLE 9. PERCENTAGE OF HOUSEHOLDS REPORTING PURCHASING OF DIFFERENT FABRICS
Per Cent of Total Households

Year	Cotton	Pure Silk	Art Silk	Woollen	Acrylic	Nylon	Polyester	Cotton Viscose	Polyester Cotton	Polyester Woollen	Polyester Viscose	Other Mixed	All Textiles
1981	96.50	8.86	11.00	15.55	2.92	11.01	24.38	4.42	62.09	4.92	3.98	15.09	97.67
1982	97.76	9.53	10.40	17.69	3.10	11.18	28.50	3.73	67.45	4.31	3.18	20.49	98.93
1983	97.73	6.53	11.24	20.85	2.09	13.85	31.44	1.16	66.23	2.84	2.21	19.64	99.01
1984	97.39	6.02	11.82	18.34	2.30	12.35	37.79	1.46	67.16	1.81	1.55	15.82	99.12
1985	97.37	9.78	13.40	21.41	3.95	13.35	44.56	4.71	71.97	4.09	4.19	19.05	99.21
1986	96.21	9.53	12.79	21.19	2.00	11.73	42.74	4.02	72.60	2.86	3.34	16.71	97.99
1987	95.08	10.08	16.63	21.71	1.11	27.85	42.82	3.21	75.95	2.94	4.39	17.60	97.47

TABLE 10. FIBRE/INCOME GROUPWISE PERCENTAGE DISTRIBUTION OF HOUSEHOLDS PURCHASING DURING 1987

Income Group	Cotton	Pure silk	Art Silk	Woolen	Acrylic	Nylon	Polyester	Cotton-Viscose	Polyester Cotton	Polyester woolen	Polyester viscose	Other Mixed	All Groups
less than 6000	93.41	2.64	8.67	10.80	0.57	15.11	26.28	4.79	56.53	0.58	2.59	9.68	95.41
6000-10,000	95.74	5.05	11.56	18.59	0.47	25.37	37.00	1.54	73.56	0.72	2.56	16.28	97.60
10,000-20,000	94.89	11.24	16.78	25.04	0.62	29.33	47.78	1.58	82.34	3.11	3.67	19.55	97.67
20,000-40,000	95.70	15.57	27.56	28.09	3.07	37.11	54.75	5.13	86.49	5.66	7.38	21.66	98.55
40,000-60,000	96.85	34.97	35.92	40.72	1.30	47.13	65.78	15.66	89.54	13.23	22.35	37.03	99.74
60000 & ABOVE	96.10	40.55	36.26	38.47	4.23	51.08	73.43	4.63	97.07	12.33	4.78	21.89	99.75

* Includes 60000 & above group.

TECHNICAL NOTE

Survey Design: Market Research Wing of the Textile Committee, Ministry of Textiles, Government of India initiated an All India "Consumer Panel" Project in January 1969 for collecting information about the purchases of cloth by households with the following main objectives: (1) to obtain uptodate information about the consumer demand for textiles; (2) to obtain uptodate information about the share of individual manufacturers in the total demand; (3) to estimate the total purchases of textiles on an All India basis; and (4) to determine the future trends in consumer demand for different textile fibres. The data were to be obtained through an on-going annual sample survey. For this purpose, urban centres of habitation, namely, cities, and towns were first classified according to population groups and from each group, a certain number of centres adding to a total of 38 urban centres were selected. Besides, 50 villages, 2 from each of the 25 selected districts, were selected making a total of 88 centres, 38 urban and 50 rural. Next, from each selected centre, a pre-determined number of households were selected. For the purpose of the survey, a 'household' does not include individuals in institutions, armed forces, boarding houses, transient hotels, non-dwelling population, non-permanent income households, and bachelor or one-person households. The sample design may be schematically presented as follows:

SAMPLING SCHEME

Population Group	Number of Centres	Number Selected	Households Selected in each Centre	Total Households
I. Towns & Cities				
> 20 Lakh	3	3	300	900
10 to 20 Lakh	4	2	300	600
5 to 10 Lakh	5	3	150	450
2 to 5 Lakh	32	10	150	1,500
50000 to 2 Lakh	206	10	50	500
< 50000	2,199	10	50	500
II. Villages	5.6 Lakh	50	10	500
Total				4,950

The selection of sample towns in each population group was done on random sampling basis without replacement with probability proportional to the population of the centre concerned. In the case of villages, 25 districts out of the total of 358 in the country were first selected at random and 2 villages from each were selected at random. Within each selected town, at the first stage of sampling, a specific number of blocks/wards was chosen at random and a listing of the entire household population was done in the selected blocks/wards collecting therewith basic information such as name, address, income, occupation, family size, age, and sex. For each such block/ward, distribution of households according to annual income was worked out which was then used for selecting specific number of "willing" households from each income group. The listing information was also used to derive weights required in the estimation of population characteristics. A similar method was also used in the selection of households in the selected villages.

Total size of the sample adds up to 4,950. In 1970, the number of households selected from each selected village was doubled from 10 to 20 bringing the total sample to 5,450 households. Against this target, the actual size attained was about 1,000 in 1969 and 3,000 in 1970. The targeted sample of 5,450 households was fully established in the middle of 1973.

Basically, the design has remained the same but the sample has been expanded from time to time. In 1977, the cities of Bombay, Calcutta, Delhi,

Madras, and Ahmedabad were included among the centres in the first group. In 1978, the panel was expanded by 1,000 households each in urban and rural areas, taking the total to 7,450 covering 58 centres in urban and 100 in rural areas. This size was established at the end of 1979. In the meanwhile, the population groups for urban centres also underwent a change.

In 1985, it was decided to expand the size to about 10,000 and then to 18,000 households in a gradual manner in the next four or five years to enable the Textile Committee to obtain statewise estimates of purchases or consumption which hitherto had not been possible. By December 1987, the sample actually established consisted of 63 urban and 118 rural centres making a total of 181 centres. In terms of households, it comprised 5,860 urban and 2,660 rural households making a total of 8,220 households.

In 1974, it was thought advisable to introduce a correction factor by replacing about 20 per cent of the sample each year. The justification for this may best be quoted from the relevant 1974 Report of the Technical Committee "The weighting diagram which has been evolved pertained to the income distribution as obtained during 1969-72. However, in the subsequent years because of the increase in the money supply with the public, the income distribution underwent considerable change, which needed revaluation. On the assumption that the income of the people in a normal year may increase in a gradual manner, it was thought that if about 20 per cent of the panel is replaced every year so that in 20 per cent of the centres an uptodate income distribution is obtained, it will suffice the purpose of accurate estimation." However, because of financial stringency and other reasons, this change could not be made and hence the changes in the incomes of the panel members were tabulated and the weighting diagram was revised. The 1974 Report goes on to say thus: " The average per capita income as derived from the revised income distribution was then compared with the estimates of per capita income as published by the CSO. A correction factor was then applied to the income distribution at all income levels so that the average per capita income thus calculated would tally with the per capita income derived for the household sector from the national income statistics published by the CSO" [Ministry of Commerce, Government of India, Consumer Purchases of Textiles, 1974, *Report of Textile Committee*, MRW, p 173]. Besides, a special study was done to find the extent of loss of information due to memory-lapse in reporting purchases. It was estimated that on an average, a respondent fails to report 2 out of 10 purchases. A correction factor was therefore also applied on this account. A revision in the estimation was also made by adopting the sample family size instead of the population (Census) family size which was adopted in the earlier reports. Taking into account the several correction factors, the estimates for 1974-1976 were revised.

Some comments on the design may be in order. First, as at present, valid estimates can be made only at All India level, for urban and rural areas and by population groups. Looking to the sample size in each such group, it is doubtful if one can make statements with any reasonable confidence in respect of rural areas and each separate population group. Statewise estimation is simply not possible. MRW publishes estimates at regional levels: northern, eastern, western and southern. These may be read from a pragmatic angle but their statistical validity is in doubt, the stratification and sampling within each stratum being at All India level. Till the sample size is increased, as already envisaged by MRW, and the sampling design suitably reoriented to have estimates at state level and within each state, for urban and rural areas, etc., the current limitations as regards state level and region level estimates will prevail. It also seems that, unless the number of selected villages is increased, estimates may continue to have wide margin of uncertainty making the study of changes over time even more imprecise.

Ultimately, the sample is one of "willing" households and to an extent randomness at the final stage is likely to be affected. However, the replacements of initially selected but unwilling households and of those who drop out during the course of the annual round of the survey, is done from a much larger sample of households selected at the beginning. The actual proportion of such replacements is not published but as long as it is within reasonable limits, one may accept the

sample as statistically sound. Periodic revision of the income groups to account for changes due to inflation and other relevant factors deserves to be noted. However, it is not clear why it is necessary to tally per capita incomes resulting from this exercise with the official estimates of per capita incomes, presumably meaning 'personal incomes' as calculated by the CSO. In fact, as we shall presently show, the aggregate household income for the years 1984-85 to 1987-88 differs greatly from the personal income estimated by the CSO. MRW estimates are much lower and this is the case even for the per capita estimates.

Household as defined for this survey deserves some comment. Exclusion of bachelors or single member households is not quite understandable. So also, exclusion of individuals belonging to the armed forces. These persons do buy textiles for their own use or for their families and there is no reason to exclude them except perhaps for the convenience of field work. It is of course presumed that other members of families of armed forces would be included whether staying jointly or separately; otherwise, this exclusion is still more puzzling. One effect of these exclusions is that the size of the household according to MRW was 6.54 persons in 1971 whereas it was 5.44 according to the 1971 Census.

Method of Analysis : Some points in regard to present paper need to be noted. First, it is confined to an analysis at All India level only. It is proposed to dwell on the urban-rural and similar other disaggregation in a subsequent paper. Further, the focus is on studying changes over the whole period rather than year to year levels and changes. In view of the initial organisational preparations and the small size of the sample, it seems advisable to omit the initial years although data are published in the relevant publications of the Textile Committee. For this reason, results for 1970 and 1971 are not used and only very broad estimates for 1972 are used. MRW gives figures for total textiles and for major categories of cotton, non-cotton and mixed/blended fibre fabrics and for each of these, separate estimates of specified sub-categories have been worked out. In the present study, the time series for 1972-87 have been analysed mainly for the totals and major categories. For the sub-categories, it seems appropriate to consider only the 1975-87 period, though some data for earlier years are available. The results are generally presented in terms of aggregates, and per capita basis, both for quantity and value of purchases. The term 'price' has been avoided for reasons explained in the main text and unit value is preferred. Unit values are worked out on the basis of aggregate value and corresponding quantities, for major as well as sub-categories. Generally, annual compound rates for all the series have been worked out.

Income Distribution : We have already presented the MRW data on the proportion of income spent on textile purchases by households in different income groups for the years 1984-1987 (Table 8). Since the aggregate amounts spent on textiles are available for each income group, it is possible to work out total income in each group and hence the percentage distribution of total income in each group to the overall income. Thus we have both the distributions: (1) percentage of households by income groups and (2) percentage of income to total income, by income groups. As a matter of curiosity, we shall work out these two distributions.

The results are given in Table 11. Cumulative percentages are shown side by side which bring out the skewness of the income distribution. For instance, in 1984, 40.43 per cent of the households had less than Rs 6,000 income but they accounted for only 12.17 per cent of the total income. The high per capita purchases or consumption of textiles, greater quantities of high priced synthetics, and generally substantially higher priced cloth of any given variety by higher income households are features which need to be seen and studied in the light of this highly skewed distribution of incomes. MRW has more detailed frequency classifications and perhaps their use can be of greater value in studying the income distributions.

TABLE 11. PERCENTAGE DISTRIBUTION OF HOUSEHOLDS AND OF INCOMES BY INCOME GROUPS

Percentage of Households to Total Households						Cumulative Percentage of Total Households			
Income Group	<6000-	6000-9999	10000-19999	20000-39999	40000 & above	<6000	<10000	<20000	<40000
1984	40.43	27.64	19.38	7.02	5.53	40.43	68.07	87.45	94.47
1985	38.29	28.26	19.90	7.65	5.90	38.29	66.55	86.45	94.10
1986	30.14	29.50	23.39	10.29	6.68	30.14	59.64	83.03	93.32
1987	25.38	29.60	25.34	13.77	5.90	25.38	54.98	80.32	94.09
	Percentage of Income to Total Income					Cumulative Percentage of Total Income			
Year	<6000	6000-9999	10000-19999	20000-39999	40000 & above	<6000	<10000	<20000	<40000
1984	12.17	17.51	23.01	16.68	30.63	12.17	29.68	52.69	69.37
1985	10.79	16.86	22.26	17.12	32.96	10.79	27.65	49.91	67.03
1986	8.12	15.53	23.10	20.31	32.95	8.12	23.65	46.75	67.06
1987	7.64	15.86	25.45	27.67	23.38	7.64	23.50	48.95	76.62

There are two series of figures against which the overall income estimated from the MRW source may be checked, though they are not exactly comparable with the MRW estimates. One series is the Personal Income (PI) and the other is the Personal Final Consumption Expenditure (PFCE), both published by the Central Statistical Organisation (CSO). Apart from the individual incomes, PI also includes adjustments on certain other scores but to a very small extent. The PFCE includes only final consumption expenditures of the households and non-profit associations serving households and would exclude private non-corporate savings, etc. MRW estimate is presumably gross of direct taxes. Nevertheless, the three sets of figures are compared to ascertain where the MRW figures lie. This is given in Table 12.

TABLE 12. MRW ESTIMATES COMPARED WITH PFCE AND PI ESTIMATES

(Figure in million Rs)

Years	MRW	PFCE	PI
1984-85	1524,479	1616,110	1918,860
1985-86	1671,757	1763,500	2142,030
1986-87	1887,199	1984,920	2388,800
1987-88	2015,444	2210,570	NA

MRW figures are for calendar years 1984, 1985, etc. The data show that they are on the lower side of both the series; about 5 to 8 per cent lower than the PFCE figures and around 20 per cent lower than PI. Nevertheless, the sets may be said to agree in broad dimensions. Of course, MRW's efforts are not principally directed to determining the income structure, total income, or not even total expenditure for that matter. Incomes are required by MRW for classification purposes only and not much time may have been spent on questioning on the income aspect. The emerging distribution of households and of incomes according to income groups is an incidental gain.

The derived figures of proportions of population in different income groups are set out in Table 13. The percentages to total population show that in the initial years of the series, the second and third lowest income groups each accounted for over quarter of the population and as the years progressed, this feature shifted towards next higher groups. By 1986 the percentage of total population in the lowest group had gone down to less than 4 as against over 18 in 1974 and 1975, whereas in the highest group it had increased from less than 3 to over 23 (combining the two highest groups for later years for comparison purposes). Of course, as already pointed out, the income groups are not comparable over the years.

TABLE 13. PER CENT OF POPULATION IN HOUSEHOLD ANNUAL INCOME GROUPS

Year/Rs.	<1500	1500- 2999	3000- 5999	6000- 9999	10000-19000	≥20000
1974	18.11	28.34	29.58	17.51	6.56*	
1975	18.38	28.18	28.33	16.45	5.96	2.70
1976	16.03	30.01	32.85	13.74	5.56	1.80
1977	11.53	25.46	33.23	19.52	7.85	2.42
1978	8.71	23.19	32.04	22.41	9.51	4.14
1979	4.60	18.42	31.00	26.59	13.24	6.15
1980	0.86	11.93	33.74	27.92	13.10	12.46
	<3000	3000-5999	6000-9999	10000-19999	20000-39000	≥40000
1981	14.02	33.59	26.59	13.21	12.58*	
1982	13.11	27.64	28.64	17.22	7.09	6.30
1983	10.99	26.01	29.92	19.15	7.18	6.75
1984	9.20	25.80	28.75	21.46	8.26	6.53
1985	8.76	23.92	28.74	22.38	9.11	7.09
1986	3.96	21.23	29.52	25.64	11.78	7.87
1987	#	19.90	29.13	27.28	16.62	7.07

*: Includes next higher group; #: Includes 3,000 group; For 1987, last group is split into two; 40,000-59,999 [%, 3.48] & 60,000 + [%, 3.59]

Obviously, there has been a great change in the distribution of households by their nominal income. In 1974-76, over 46 per cent of the households had annual incomes of less than Rs 3,000; in 1986, the proportion was less than 4 per cent. On the other hand, in 1975-77, only about 2 per cent of the households had annual incomes of Rs 20,000 or more; in 1986, this proportion was 19.65 per cent and, in 1987, 23.69 per cent. Of course, these are nominal incomes and, because of the large increase in prices over the period, they are not comparable in real terms. The Consumer Price Index (CPI) was 317 in 1974-75 and 736 in 1987-88.

POLITICAL ECONOMY OF GANGA WATERS

Chandrika J. Gulati

During lean season the flow of Ganga at Farakka falls to about 55,000 cusecs. India requires minimum 40,000 cusecs to save Calcutta port from siltation and Bangladesh needs about 50,000 cusecs for her economy. Their needs of water far exceed its supply. Hence the conflict. Short-term arrangements of sharing the scarce Ganga waters are mere gestures of goodwill and, thus, are strongly influenced by the swings in Indo-Bangladesh political relations. A long term solution of the water problem requires augmentation of Ganga waters. Both countries have so far displayed myopic attitude towards the problem. The change of Government in India and its foreign policy towards neighbouring countries, raises hopes for a medium term amicable solution of Ganga waters. But expecting that it will lead to long-term strategy for augmenting water resources in the eastern region, is perhaps being quite optimistic.

For more than a decade and a half, sharing of Ganga waters has troubled Indo-Bangladesh relations[1]. During all these years it has become amply clear that a permanent solution of the problem lies in augmentation of river waters. But as this technical issue got embroiled in political quagmire, only ad-hoc water sharing arrangements were devised from time to time. Entry of Nepal in water talks complicated the issue. However, now the political changes in India and shift in new Government's stance towards smaller neighbours, relative stability in Bangladesh, and a change in her perception of world scenario, especially pertaining to economic aid, auger well for a break-through in this seemingly intractable problem.

Section I of this paper explores the genesis of Ganga Waters' problem in terms of changing river course, reduction in water flow, and attempt by India to meet the economic needs of her eastern hinterland. Section II traces swings in the water sharing agreements between India and Bangladesh, which often synchronised with the twists in political circumstances prevailing in the two countries. Section III examines techno-economic feasibility of various proposals for augmenting the flow of Ganga waters as a long term solution. In section IV we analyse the new dimension in water sharing ushered in as a result of entry of Nepal in the 'troubled' waters of Ganga and examine the likely prospects of an amicable solution of this problem in the light of political changes in India.

THE PROBLEM

The mighty river Ganga rises in Gangotri in Garhwal on the southern slope of the Himalayan range in India. From here it flows in the south-easterly direction through India to the border of Bangladesh. Thirty eight kms south of Farakka, in Murshidabad district of West Bengal, mainstream of Ganga bifurcates into two channels, Bhagirathi-Hooghly and Padma (or Podda). Padma flows along the boundary between India and Bangladesh for about 112 kms and then turns south-east to join Brahmaputra at Gualando. It meets river Meghna before the combined flows of the rivers discharge into the Bay of Bengal. The tributaries of Ganga rise in Nepal.

The natural course of the rivers change with passage of time. Historically, bulk of the river Ganga used to flow through Bhagirathi-Hooghly. But the increased siltation of Bhagirathi diverted a major flow of the river Ganga towards Padma. At present the average discharge of Ganga exceeds a million cusecs, which rises to two million cusecs in monsoons. In crucial dry or lean months, that is, January to May, particularly mid-March to mid-May, the flow of Ganga reduces to a mere 55,000 cusecs. The Ganga waters dispute between India and Bangladesh is centered around sharing of lean season flow of Ganga as well as augmentation of its flow to meet water requirements of the two countries.

The fortunes of Calcutta port are dependent on the flow of river Hooghly. The Indian experts maintain that 40,000 cusecs is the barest minimum required to flush Hooghly to save Calcutta port and maintain its navigability. The crux of the

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problem is that, if India withdraws 40,000 cusecs, Bangladesh receives only 15,000 cusecs, which is insufficient to meet her needs.

India constructed the Farakka barrage during 1962-1971. Its stated objective was "preservation and maintenance of the Calcutta port and the regime and navigability of Bhagirathi-Hooghly river[2]." The barrage is situated across Ganga on the Bengal-Bihar border (near Farakka) about 400 kms. north of Calcutta. A feeder canal of 38.3 kms. links the barrage with Bhagirathi. The Calcutta port is one of the primary ports of India which serves a number of Indian states, namely, West Bengal, Bihar, Orissa, Assam, and partly Uttar Pradesh. Simultaneously, it is vital to the overseas trade of India, Nepal and Bhutan. However, over the years, the pre-eminent position of Calcutta port has declined due to decreased water flow of Bhagirathi-Hooghly. Siltation of the river causes problems of frequent occurrence of tidal bores[3] and leads to overall reduction in navigability. A number of expert studies[4] conducted in India in regard to problems facing Calcutta port came to the identical conclusion that the safety of Calcutta port depended upon increased headwater supply through diversion of water by means of a barrage. The Radcliffe Commission which was set up in 1947 to demarcate Indo-Pakistan boundary awarded district Murshidabad, a Muslim majority area, to India in return for Khulna, a predominantly Hindu area to Pakistan. It is no coincidence that the Commission deflected from the principle that the contiguous Muslim majority areas should form Pakistan. Murshidabad is important to India as the offtake of Bhagirathi-Hooghly and a considerable stretch of its run falls in Murshidabad. With Murshidabad in Pakistan it would have been difficult for India to coordinate the flow of Ganga with Bhagirathi.

Bangladesh's concern with Ganga waters is equally convincing. About one third of her area and population is economically dependent on Ganga basin. With construction of Farakka barrage, Bangladesh had to forego her claim to natural flow of river Ganga and operation of this barrage has reduced the flow of Ganga waters to Bangladesh. Consequently, she faces problems in the field of agriculture which is the main stay of her economy, industry, fisheries, navigation and ecology etc., in the south-western region. The agricultural productivity of this region in dry season is fully dependent on Ganges flow. Agricultural scientists of Dhaka and the United Nations experts working in Dhaka were of the view that a fall in flow of river Ganga was largely responsible for food shortage in Bangladesh in 1982. Rice production had declined by about 150 thousand tons and Sundari forest in the Sundarbans suffered losses to the tune of Taka 40 thousand million because of the withdrawal of Ganga waters by India[5]. Navigation also suffered set backs in Bangladesh. The total waterways for mechanically propelled vessels shrank from 15,000 miles to 3,000 miles. It is also observed "Bangladesh's Ganges-Kobadek project is doomed to failure, more lands are under the influence of salt, crops fail for want of irrigation facilities, navigation hampers, fish population do not have a congenial atmosphere now to grow ... the area has a bleak future[6]."

The problem has persisted for a very long time. Beginning with preliminary planning for Farakka barrage way back in 1950-51, when Pakistan had doubts on the possible effects of Farakka diversion on East Pakistan, Farakka has become an issue of international discord and misunderstanding. Prior to emergence of Bangladesh, in spite of exchange of data and meetings between India and Pakistan, no agreement could be reached in regard to sharing of Ganga waters. Pakistan was pre-occupied with the Kashmir question and India was also reluctant and she was "following a strategy of procrastination during this period, which denied Pakistan any influence in the design or construction of Farakka barrage[7]."

BIRTH OF BANGLADESH AND THE SHARING OF GANGA WATERS

India's moral, material and military support towards birth of Bangladesh created an aura of cordiality and goodwill around Indo-Bangladesh relations. It was therefore rightly expected that the water sharing dispute would also be resolved to mutual advantage of both the neighbours. A break-through was made in the initial years but it offered no permanent solution and the Ganga waters dispute continues to be the most crucial issue nagging Indo-Bangladesh relations.

The first step in the direction of Ganga waters sharing was the Joint Declaration signed by Sheikh Mujib and Indira Gandhi which had agreed to establish a Joint Rivers Commission (JRC) comprising experts of both countries on a permanent basis. It was to carry out comprehensive survey of river systems of the two countries and formulate projects with a view to utilizing water resources on an equitable basis and help in flood control. Accordingly, JRC was set up in 1972. Pakistan had objected to the very construction of the barrage. However, Bangladesh had reconciled herself to the existence of the Farakka barrage and now the important question was of sharing the Ganga waters.

Sheikh Mujib visited India in May 1974. India technically agreed to commission the Farakka barrage only after an accord was reached on sharing of dry season flow of Ganga. The two countries agreed that, during periods of minimum flow of Ganga, waters were not sufficient to meet the needs of both Calcutta port and of Bangladesh. Therefore, augmentation of flow of Ganga was essential. JRC was to study schemes of optimum utilization of water resources of the region. A temporary arrangement for allocation of Ganga waters was made following an agreement signed on April 18, 1975 (Table 1). This agreement was signed for six weeks on a trial basis. Accordingly, India withdrew water in the lean season (of 1975) according to the terms of the agreement and remaining water flew to Bangladesh. Indian share was significantly lower than her stated requirements.

TABLE 1. SHARING OF LEAN SEASON FLOW AT FARAKKA (1975 AGREEMENT)

(Amount of water in cusecs)

	Dependable Supplies at Farakka	Amount agreed upon for Hooghly (India)	Remaining flows for Bangladesh
21 April to 30 April 1975	55,000	11,000	44,000
11 May to 10 May 1975	56,500	12,000	44,500
2 May to 20 May 1975	59,250	15,000	44,250
21 May to 31 May 1975	65,500	16,000	49,500

Source : *Crisis on Ganges*, Government of Bangladesh, p.1.

India's share varied between 20 per cent in first 10 days period and 24.43 per cent in the last ten days period whereas that of Bangladesh ranged between 80 per cent and 75.57 per cent in the same period. It is clear that it was India's gesture of goodwill that had led to a tentative solution of the dispute. However, with the overthrow of the Mujib government in 1975, India's attitude towards Bangladesh hardened.

This experimental agreement expired on May 31, 1975, and until it was replaced by another agreement in 1977, India unilaterally withdrew water (40,000 cusecs) at Farakka. This led to a controversy. Bangladesh desired an equitable sharing of waters and regarded the Indian action as breach of agreement. She believed that India could withdraw only specified quantities during the period as fixed by the agreement, which for all practical purposes had set a precedent for subsequent years. India did not concede to this idea. Bangladesh displayed widespread resentment against withdrawal of water by India both at the national and international level. Bangladesh leader, Maulana Bhashani, sought to mobilise public opinion against India on alleged devastation and desertification caused by reduced flow of Ganga.

To gain sympathy of the world for herself, Bangladesh also raised the issue in international forums. In May 1976, she raised this issue at the Islamic Foreign Ministers Conference at Istanbul. The conference, in turn, in its Joint Communique expressed "deep concern over the problem of equitable distribution of waters of international river Ganga, resulting in aggravation of economic hardships and retardation of the process of national construction in Bangladesh[8]." At the 31st session of the United Nations General Assembly, Bangladesh got the item inscribed on the agenda of the session entitled, "Situation arising out of Unilateral withdrawal of the Ganga waters at

Farakka." M.H. Khan, the leader of Bangladesh delegation to the United Nations, told the Committee on Bangladesh proposal that the issue had not only legal implications but involved a whole gamut of inter-connected issues bearing a wide range of adverse consequences affecting peace and security, economic development, humanitarian and social concern directly affecting welfare of millions of people and seriously impairing friendly relations among parties directly concerned.

India however, always regarded sharing of Ganga waters as a bilateral problem and that any attempt to internationalise could only complicate the situation, delay solution, and worsen relations of the two countries. Moreover, India complained that, in spite of specific provision in 1975 agreement, Government of Bangladesh did not fully cooperate in compiling data and information required to finalise the joint assessment of effects of withdrawal at Farakka. India was of the view that Farakka barrage was the only means of saving Calcutta port and could not be abandoned. However, in a spirit of mutual understanding and cooperation, shortfalls could be made up. In September 1976, India offered to reduce withdrawals from Ganga at Farakka during the lean season, as a short term measure, while suggesting joint studies of augmentation of flow of Ganga waters through a Ganga-Brahmaputra link canal as a permanent solution. But Bangladesh took a different view. She wanted that the flow of Ganga during dry season be restored to Bangladesh till a long term solution was reached. This implied closing down Farakka until augmentation of Ganga waters was accomplished and was unacceptable to India. Bangladesh also rejected link canal idea stating that the augmentation of Ganga water resources should be exclusively from Ganga itself. Raising the Ganga waters issue in the U.N. General Assembly by Bangladesh in November 1976 could not help her much. It led only to a consensus statement which declared that "India and Bangladesh have decided to meet urgently in Dhaka with a view to arriving at a fair and expeditious settlement ... affirm their adherence to the Declaration of Principles of International Law concerning friendly relations and cooperation among states and ... strengthen their bilateral relations by applying these principles in the settlement of disputes[9]."

After protracted negotiations for almost an year, India and Bangladesh formally entered into an agreement on November 5, 1977 devising a formula for sharing dry season flow of water. This agreement was completely bilateral in nature and it laid down that any differences in its interpretation would also be solved bilaterally. It was a landmark in the relations of the neighbouring countries. This was the time when Ziaur Rahman in Bangladesh was striving to provide stability and development to Bangladesh and fostered South Asian Regional Cooperation. Changes in Indian political scenario had their role to play as the Janata Government was striving to give new directions to foreign policy in terms of promoting friendly relations with all, especially neighbours.

This agreement, signed for five years, offered only a partial solution as it decided the sharing of lean period flow only; it fixed quantum of water from flow of Ganga at Farakka for the two sides during five months from January to May every year (Table 2). The share of India was 40.6 per cent during January 1-10 and 37.3 per cent during April 21-30 which was the leanest period. The corresponding share of Bangladesh was 59.4 per cent and 62.7 per cent respectively. Bangladesh was also guaranteed a minimum quantity of water in each 10 day period of lean season irrespective of the discharge available at Farakka. For a long term solution, it referred to augmentation of flow of Ganga waters. It further expressed India's intentions of improving ties with Bangladesh.

The agreement signed in 1977 expired on May 30, 1982. During this period, attempts were made both at signing a renewed agreement on water sharing and acceptance of proposals on augmentation but there was little progress. There were sudden political changes in India as well as Bangladesh. In India, Mrs. Gandhi was back to power as the Prime Minister and in Bangladesh, General Ershad had assumed power as the President in a military coup. The summit meet between General Ershad and Mrs. Gandhi, in October 1982, was hailed as opening of a new horizon in their relationship. The two leaders underlined the need for promotion of friendly relations and cooperation between their two

countries. However, the net effect was an extension of the 1977 agreement, with minor changes, for two more dry seasons (Table 3). It was decided that within 18 months the two sides would reach an agreement on augmentation after conducting pre-feasibility studies.

A Memorandum of Understanding 1982 was signed between the two countries. It recognised that the basic problem of inadequate flow of water in Ganga available at Farakka imposed sacrifices on both countries. It also agreed that long term solution lay in augmentation of flow at Farakka. It was decided that JRC would complete economic and technical pre-feasibility study of schemes of either side after which the two governments would implement augmentation proposals. As a temporary measure, a water sharing schedule was agreed upon. However, the clause in the 1977 agreement giving minimum guarantee of water to Bangladesh was removed. If the actual availability of water during a 10-day period was higher or lower than specified, it would be shared in proportion applicable to that period. It also formed a Joint Committee responsible for joint inspection and monitoring of water sharing arrangement.

TABLE 2. SHARING OF WATERS AT FARAKKA BETWEEN 1ST JANUARY AND 31ST MAY EVERY YEAR (1977 AGREEMENT)

(Amounts to be shared in cusecs)

	Flow reaching Farakka (based on 75% availability from observed data from 1948-73)	Withdrawal by India at Farakka	Release to Bangladesh
January			
1 - 10	98,500	40,000	58,500
11 - 20	89,750	38,500	51,250
21 - 31	82,500	35,000	47,500
February			
1 - 10	79,250	33,000	46,250
11 - 20	74,000	31,500	42,500
21 - 28/29	70,000	30,750	39,250
March			
1 - 10	65,250	26,750	38,500
11 - 20	63,500	25,500	38,000
21 - 31	61,000	25,000	36,000
April			
1 - 10	59,000	24,000	35,000
11 - 20	55,500	20,750	34,750
21 - 30	55,000	20,500	34,500
May			
1 - 10	56,500	21,500	35,000
11 - 20	59,250	24,000	35,250
21 - 30	65,500	26,750	38,750

Source: *The Agreement between the Government of Republic of India and the Government of People's Republic of Bangladesh on sharing of the Ganga waters at Farakka and on Augmentation of its Flows*, Ministry of Energy, Government of India, November 5, 1977.

TABLE 3. SHARING OF WATERS AT FARAKKA BETWEEN 1ST JANUARY AND 31ST MAY EVERY YEAR (1982 AGREEMENT)

(Amount to be shared in cusecs)

	Flow reaching Farakka (based on 75% availability from observed data for 1948-73)	Withdrawal by India at Farakka	Release to Bangladesh
January			
1 - 10	98,500	40,000	58,500
11 - 20	89,750	38,000	51,750
21 - 31	82,500	35,500	47,000
February			
1 - 10	79,250	33,000	46,250
11 - 20	74,000	31,250	42,750
21 - 28/29	70,000	31,000	39,000
March			
1 - 10	65,250	26,500	38,750
11 - 20	63,500	25,500	38,000
21 - 31	61,000	25,250	35,750
April			
1 - 10	59,000	24,000	35,000
11 - 20	55,500	20,750	34,750
21 - 30	55,000	20,500	34,500
May			
1 - 10	56,500	21,500	35,000
11 - 20	59,250	24,250	35,000
21 - 31	65,500	26,500	39,000

Source : Indo-Bangladesh JRC - Report on the *Feasibility Study of Indian and Bangladesh Proposals for Augmentation of the dry Season Flow of the Ganga/Ganges at Farakka*, Dhaka, March 31, 1984.

Neither side is satisfied with the sharing arrangement. In the 1977 agreement, India's share in the Ganga waters almost doubled compared to that in the 1975 agreement. But her minimum requirement of 40,000 cusecs for Calcutta port is not yet met. Bangladesh feels that she is denied her due share. Her water share declined significantly in the 1977 agreement over that in the 1975 agreement. Further, the clause of minimum water supply to Bangladesh (in the 1977 agreement) was removed in the 1982 agreement. But, surprisingly, little progress has been made towards the question of augmentation of the river waters.

AUGMENTATION OF GANGA WATERS

The two sides have proposed two different methods of augmentation of waters. India has suggested diversion of Brahmaputra river waters to the Ganga above Farakka for limited discharge to Bangladesh during dry season. Indian proposal is based on the ground that waters of Ganga basin are insufficient to meet needs of the two countries whereas Brahmaputra-Meghna has surplus. Therefore, augmentation of waters of Ganga should be accomplished by transfer of Brahmaputra waters to Ganga. It involves inter-basin transfer of waters linking Brahmaputra with Ganga by means of a link canal supplemented by storages on the Brahmaputra. The proposal envisages construction of a canal, about 430 kms in length, half a mile wide and 30 feet deep, of which one third will pass through Bangladesh. This will have a capacity to transfer 100,000 cusecs. The link canal will take off from a barrage at Jogighopa across Brahmaputra in Assam and terminate at a point above Farakka. At the same time storage dams would also be built in Assam foothills of Himalayas on Dihang on the mainstream of Brahmaputra river and on Subansiri, a tributary of Brahmaputra river. Apart from storing water and generating energy, these would also mitigate the occurrence of floods in Assam and Bangladesh. Another dam is proposed to be built on the Barak river at Tipaimukh on Manipur-Mizoram border in the Meghna river system. These storages would augment flow of Brahamputrra river substantially and generate about 9,400 megawatt of hydel power. Water can also be released upstream in Ganga for supplying to drought areas outside Ganga basin.

Bangladesh has rejected Indian proposal. It is

regarded as "legally unjustifiable, technically impractical, economically and ecologically disastrous and fraught with far reaching human and sociological consequences. It is untenable and indeed unnecessary, leading to complete disregard of basic human rights of the people and of the area[10]." The link canal will have to be dug across hilly country and carried over numerous rivers. It would cut Bangladesh into half and displace thousands in an already overpopulated country. Moreover, as Bangladesh is already short of arable land, she cannot afford further loss of land due to digging of a mighty canal. At the same time, Bangladesh feels that she does not gain any additional water by Indian proposal as Brahmaputra is already flowing through Bangladesh. Also, Indian proposal is seen not as that of augmentation, but of transference of waters of a river, which also faces shortages in the dry season.

Bangladesh's opposition to Indian proposal becomes understandable in view of the fact that both ends of the proposed link canal would be in India, which can have leverage in water supply in any event of hostility between the two countries. "Bangladesh is reluctant to allow the country's second major river to fall under the physical control of India[11]." Bangladesh is of the view that their requirements can be met by tapping existing resources both surface and underground within the Ganga basin and there is no need for extracting water from another basin. Bangladesh stresses that water available in Brahmaputra is not sufficient to meet the present and potential needs of the basin. Therefore, the question of its export to another basin cannot be considered. In this context, Assam Tribune of May 18, 1982, observed, "There can be no objection to the transfer of any part of the water during flood season. The position is, however, very different during the dry season when the discharge of Brahmaputra falls from the peak flow of twenty six lakh cusecs to only one lakh cusecs. So, without a comprehensive assessment of the basin's present and future requirements, there cannot be any basis for presuming any part of the water as surplus to basin's own needs."

Bangladesh has put up a different scheme of building reservoirs in the upper reaches of the Ganga in India and Nepal as there are no storage sites in Bangladesh. These would store monsoon waters for release during dry season. Bangladesh proposal is based on the observation that Ganga basin has sufficient water to meet the requirements of the countries concerned and Nepal contributes a substantial portion to the Ganga flow. Bangladesh has studied the storage potential in Nepal on the Karnali, the Sapt Gandaki and Sapt Kosi river systems. Table 4 illustrates the requirements of the three countries and the availability of water from the point of view of Bangladesh. Experts like B.G. Verghese also believed that since Ganga Brahmaputra system is the gift of the monsoon, the first important thing is to store monsoon[12].

India is opposed to Bangladesh's proposal. It is India's contention that the flat nature of Gangetic terrain makes construction of dams difficult. Moreover, there will be loss of water through seepage as water course would be too long owing to the fact that storage sites, if available, are far away from Farakka. India believes that Bangladesh's proposal would not realistically provide the extent of augmentation of flows at Farakka to meet needs of the two countries. Moreover construction of storages in Nepal would be tentamount to making the issue complex by including Nepal in it. The very idea of inclusion of any third power, that is, Nepal was averse to India for a long time.

The stands of India and Bangladesh have been guided by narrow political interests rather than the engineering and technical feasibility of the schemes[13]. JRC provides an international forum to reach an amicable understanding and, if Farakka tangle is only a technical issue, it could have been solved technically much earlier. But it is not and politics determines much of the baitings on both sides. In the context of unstable political situation in Bangladesh, India has remained reluctant to find a permanent solution to the dispute. The government of Bangladesh also gets an ideological tool to save itself against popular pressures. Perhaps, Bangladesh thinks that she could procure the 1977 agreement by dragging the issue to international forums. This attitude is resented by India.

TABLE 4. REQUIREMENTS OF WATER OF INDIA, BANGLADESH AND NEPAL, AND AVAILABILITY OF WATER BY STORAGES PROPOSED BY BANGLADESH

A. Requirements		
Bangladesh	...	55,000 mcm
India (including the requirement of 14,700 mcm for Calcutta port)	...	105,700 mcm
Nepal	...	29,000 mcm
		189,700 mcm
B. Availability		
i) Present utilization through completed Surface Water Irrigation Projects as well as from completed storage dams in India	...	66,500 mcm
ii) Natural flows in the Ganga available at Farakka, India in dry season	...	26,000 mcm
iii) Additional availability from 22 planned storage dams in India	...	33,000 mcm
iv) Increased availability from 7 storage dams is Nepal as proposed by Bangladesh	...	70,000 mcm
		195,500 mcm

Source: *Updated Proposals for Augmentation of the Dry Season Flow of Ganges*, Vol.I, Report, Government of People's Republic of Bangladesh, Ministry of Agriculture, Irrigation and Development and Flood Control Division, Dhaka, December 1, 1983.
Note: mcm stands for million cubic metre.

South Asian Association for Regional Cooperation (SAARC) was conceived as a platform to deal with issues common to South Asian region omitting all bilateral disputes from its purview. The Ganga waters dispute is the outstanding example of the nexus between water and politics. Bangladesh has been able to push this bilateral issue to the level of SAARC. Here the issue has been discussed not only between India, Bangladesh, and Nepal but also other countries of the region. Moreover, the wider question now is harnessing of water resources of the entire region. Cooperation between co-basin states could be achieved only through a basic political will and understanding.

NEW DIMENSIONS AND LIKELY PROSPECTS

A new dimension was added to the issue. India had been negotiating bilaterally with Nepal on building of storages and had also entered into an agreement with Nepal on Karnali dam. However, India did not want to include Nepal in Ganga water talks and sharing arrangement fearing that Bangladesh and Nepal could join hands and together could outvote her.

Nepal, being a land locked state is dependent on India to a great extent for her sea-borne international trade. She is having bilateral cooperation with India in this regard since 1956. Therefore, Nepal had to take a cautious step. Nepal had two attractions in joining water talks. First, Nepal has tremendous water wealth but her own requirements of water and electricity are not very large and storages may even submerge parts of her territory. However, Nepal was ready considering the employment opportunities the proposal offered and the possibility of export of surplus hydro-electric power to India and Bangladesh. Second, while, till now land locked Nepal's foreign trade transits through Indian ports, Bangladesh has offered her an alternative navigation route through a Gandak-Kosi-Mahananda feeder-cum-navigation canal. Independently, India and Bangladesh have conducted studies on storage sites in Nepal. Nepal, however, wished that if she was to be associated with water talks, India and Bangladesh should jointly propose to her.

Though India did not want to make it a trilateral issue, the delaying tactics on both sides led to increasing complexities. The issue was discussed for the first time between foreign ministers of India, Bangladesh, and Nepal in Kathmandu on January 17, 1987. Though nothing concrete resulted, hope for a successful settlement of the dispute was expressed. The issue continues to defy solution.

Political changes in India and the setting up of new Government at the Centre raised hopes for an amicable settlement of the long standing rift.

The Indian Government has expressed its intentions to give new direction to its foreign policy by improving bilateral relations with her neighbours. An important step in this direction was Indian Foreign Minister's visit to Bangladesh from 17th to 19th of February, 1990 and his talks with his counterpart there. During the talks, Bangladesh expressed her desire to consider temporary water sharing arrangement as a permanent one. But India, taking care of West Bengal's interests, has suggested revival of JRC which would look into the problem in greater detail and suggest alternatives that may be acceptable to both sides. Hopes for the two countries coming out of the 'troubled' waters of Ganga seem to be improving with economic awareness and changed political climate. But, one should not be over optimistic about an early solution of a problem that has remained elusive for about forty years.

NOTES

1. The Ganga waters dispute dates back to United Pakistan days. However, the problem became acute after Mujib's death in 1975 when Indo-Bangladesh relations deteriorated.

2. See Government of India 1982, p.1.

3. Sudden rise of huge water, about one or two metres high which rushes up a river at tremendous speed and exposes ships to danger of capsizing and twists and uproots jetties.

4. These studies are famous as : Sir Arthur Cotton 1853), Vernon Harcourt (1896), Reak (1913), Stevenson - Moore Committee (1916-1919), Sir William Willcocks (1930), T.M. Oag (1939), A. Webster (1946) and Walter Hensen (1957). For greater details see Government of India 1982.

5. See Ittefaq, Dhaka, May 19, 1982.

6. See Chowdhuri 1982, p.8.

7. See Crow 1980, p.2.

8. See Bangladesh Observer, Dhaka, May 17, 1976.

9. See UN General Assembly, 31st Session, 80th Meeting, 26th November 1976, Agenda Item 121.

10. See Government of People's Republic of Bangladesh (1982), p.89.

11. Zaman 1981, p.103.

12. See Verghese 1977.

13. See Gulati 1988, p.127.

REFERENCES

Abbas, B.M. A.T. 1982 *The Ganges Waters Dispute*, Vikas, Delhi.

Bangladesh Institute of Development Studies, 1981; *Study on Development of Himalayan Resources*, Bangladesh Country Report, July 1981.

Chowdhuri, M.I. 1982; *Topography of Bangladesh*, Bangladesh Quarterly, 2(3), March 1982.

Crow, Ben, 1980; *Politics and Stagnation in the Rivers of South Asia : Why are the Ganges and Brahmaputra undeveloped*, Doctoral Thesis, Edinburgh University, 1980.

Government of India 1977; *The Agreement between Government of Republic of India and Government of People's Republic of Bangladesh on Sharing of Ganga Waters at Farakka and on Augmentation of its Flows*, Ministry of Energy, Nov. 5, 1977.

Government of India 1982; Ministry of Irrigation, Performance Budget, 1981-82.

Government of People's Republic of Bangladesh 1982; *Review of 1977 Agreement Between Bangladesh and India on Sharing of Ganges Waters at Farakka and Augmentation of its Flows*, Part B, Irrigation, Water Development and Flood Control Division, June 1982.

Government of People's Republic of Bangladesh, 1983; *Updated Proposals for Augmentation of Dry Season Flow of the Ganges, Vol.I, Report*, Ministry of Agriculture, Irrigation Water Development and Flood Control, Division Dhaka, December 1, 1983.

Gulati, Chandrika J., 1988; *Bangladesh Liberation to Fundamentalism, A Study of Volatile Indo-Bangladesh Relations*, Commonwealth, Delhi, 1988.

Hussain, Ishtiaq, 1981; 'Bangladesh-India Relations, Issues and Problems', *Asian Survey*, November 1981, Vol.21, No.11.

Indo-Bangladesh Joint Rivers Commission, 1984; *Report on the Feasibility Study of Indian and Bangladesh Proposals for Augmentation of the dry Season Flow of Ganga/Ganges at Farakka*, Dhaka, March 31, 1984.

Souvenir, Farakka Barrage Project, May 21, 1975, Calcutta.

UN Water Conference, 1977; *'International Cooperation : Development of Shared Water Resources*, UN, 1977.

Verghese, B.G., 1977; *Gift of the Greater Ganga, An Approach to Integrated Development of Ganga Brahmaputra Basin*, Coromondal Lecture, New Delhi, December 10, 1977.

Zaman, Munir, 1983; *The Ganges Basin Development, A Long Term Problem and Some Short Term Options:* National Symposium on River Basin Development, Dhaka, 4-10 December, 1981, Chief Editor Zaman, Munir, Tycooly International, Dublin, 1983.

REVIEW ARTICLE*

ISSUES IN IRRIGATION AND WATER MANAGEMENT

Nilakantha Rath

The two most important inputs affecting the production potential of Indian agriculture are seed and water. The isolation and development of improved seeds, with higher productive capacity as well as greater resistance to drought and pests, suitable for different soil-climate regions of India, has a long history. The development of the high-yielding and hybrid varieties of cereal seeds during the last two decades is only the latest and perhaps the most potent phase in this long history. As for irrigation water, its importance was recognised long ago, and a more rational justification for investment in a particular irrigation project was evolved and adopted some 25 years ago. However, what has not received adequate attention is the question of the most economic use of irrigation water in different parts of the country and the management of irrigation projects from that point of view. That is the central problem to which B. D. Dhawan addresses himself in this book.

Dhawan is an indefatigable researcher into the economics of irrigation in India, and has single mindedly pursued the subject for full two decades now. He has written four books and a large number of articles on the subject. The present book is a collection of some of his articles, the central focus of which is maximisation of returns from irrigation or minimisation of the cost of water per unit of output.

The essays, 14 in number, deal with different facets of this central problem, and were published in different journals from time to time. Unavoidably, therefore, certain matters get repeated in different essays, and different sets of data and formulation relating to a single facet are sometimes strewn over a number of articles. Restructuring the essays into a systematically developed book would have greatly improved its readability and conveyed the central message more effectively.

The facets of the central problem of maximisation of returns from irrigation, raised and discussed in the book are: under utilization, equity - both social and geographical, dependability, and wastage in the use of water. Some of these are discussed specifically in several articles with the help of published regional studies.

Underutilization of the irrigation potential created by irrigation schemes - big and small - has often been lamented. But in official procedure it means a smaller actual irrigated area than was planned for with the help of the impounded water, *not* unused surplus water in the reservoir. In fact, Dhawan points out that except when the flow of water into the reservoir is less than stipulated (remember that the reservoir is designed for 75 per cent dependability of the stipulated flow or more), or when there is excess flow into the reservoir in the lean season, or when the distributaries to serve the command area are incomplete, the reservoir gets emptied to the dead storage level by the end of the year. Nor does it make much sense to judge the level of utilisation in terms of the conventional measure of 'intensity of irrigation'. The main reason, he points out, for the irrigation of a smaller area than designed is the irrigation of crops needing much larger quantity of water, on a much greater area than originally stipulated. There is another measure of full or underutilization which he does not specifically mention though it is implicit in his discussions in later chapters. It is in a sense similar to Joan Robinson's definition of underemployment: if irrigation water is producing a smaller net additional product or income than what it can under given circumstances, it is being underutilized.

This aspect is also missing in his discussions of total irrigation water endowment in the country, in chapter 2. While India's total endowment of surface water flow, in its rivers and streams, is very sizeable, only 38 per cent of it, Dhawan reports, is exploitable for irrigation. This is

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because while the rivers emanating from the Himalayas and the rivers in the West Coast together account for three-fourths of the total surface water flow, only a quarter of it is exploitable. If inter basin transfers are possible then the utilizable proportion can rise to 50 per cent.

Dhawan makes an additional suggestion. The exploitable potential is calculated by designing reservoir systems with 75 per cent dependability. Following the Dandekar et al.'s Committee report in Maharashtra, he suggests dam designs with 50 per cent dependability, which will mean that in half the years the reservoir will impound larger quantity of water than with 75 per cent dependability [Dandekar, et al. 1979]. But he suggests that this excess water should be stored for a lean year of river flow, in order to ensure irrigation to an area designed with 75 per cent dependability. This is rather tricky; for, if peak flows occur in consecutive years, the reservoir cannot store the excess water of two or more years. Indeed, what is needed is an examination of the relative cost-benefit of this approach as against another in which a larger command (than implied by 75 per cent dependability) is designed and served fully in half the number of years, and in lower proportions in the other half. Unfortunately, this has not received any attention in the Indian irrigation systems.

Indeed, the uncertainty arising out of 75 per cent dependability, particularly in multipurpose projects where electricity and irrigation make competing demand for water, has rarely been taken into account in working out the most economic use of water. Even where, as in the Bhakra system, the water for irrigation is what passes through the turbines, there arises problem of non-matching seasonal demands, which received very careful analysis by Minhas et al. as late as in 1972 [Minhas, et al., 1972].

Assuming 38 per cent of the flow water to be exploitable, Dhawan reports official agencies estimating 74 million hectares of (gross) crop area to be irrigable. It means an average of 90 cm. depth of water per hectare. This is much more than the 66 cm. depth of water per hectare under ground water irrigation schemes, implicit in the figures presented. The implication is that about 30 per cent of the flow water is assumed to be lost through seepage and evaporation in the canals before the water reaches the field. This assumed percentage loss appears much smaller than what is often found to be the case: Dhawan quotes the figure of 78 percentage loss in transit in the Mula System in the Deccan. Other estimates for Pravara and Neera Systems in the Deccan give a percentage loss not much less than in case of Mula.

Nor is any explanation available for the average of 66 cm. per crop hectare assumed by the official agencies. As Dhawan argues later in the book, lighter irrigated crops (implying thereby less water per hectare) in many parts of the country will maximise the total benefit from irrigation. Both these raise questions about the irrigation potential under the flow system estimated by the official agencies to which Dhawan could have drawn pointed attention.

Dhawan notes the less reliable and rather confusing estimates about ground water resource and the area irrigable . He points out (chapter 3) that while in terms of irrigable area it turns out that almost threefourths of the potential had already been achieved, in terms of estimated volume of water the exploited amount was only about one-fourth. There is no satisfactory explanation about the disparity, even after accounting for the different estimates of the volume of water available.

Dhawan highlights the basic fact that the availability of ground water for irrigation in India is much less (less than 40 per cent of total) than surface water. This is even more acute in the Western, Central and Southern regions where the potential flow water is also inadequate.

Since potential water supply for irrigation is much less than required by the crop lands, and is subject to wide fluctuations from year to year, Dhawan advocates a policy of buffer stocking of irrigation water. He thinks it is preferable to use ground water for the purpose. For this purpose, he advocates a policy of greater use of surface water in normal years, thereby keeping the ground water replenished for some over-exploitation in years of drought. This is a case for wider use of surface water for irrigation, contrary to a body of opinion in the country which is strongly against surface irrigation schemes.

Turning to the question of sustained over-exploitation of ground water, Dhawan shows, from different studies, that while the country as a whole is far from over-exploitation, at least 5 per cent of the 5,000 blocks in the country are already in the "dark" category, in the sense that the ultimate potential of ground water withdrawal has either been reached or exceeded. This is mostly in the hard rock regions of peninsular India and Gujarat and Rajasthan.

He is, however, sceptical about legal and administrative measures to prevent over-exploitation through control of density of wells and their spacing. He also rules out the ideal solution of state monopoly in ground water exploitation : in the Gangetic Valley, where it is possible, it is not necessary, since there is no storage there, and in the rest of the country these are not feasible either in the hard rock region or in the alluvial coastal plains. The only feasible community approaches are to improve ground water recharge through conservation/percolation measures in small watersheds, and extension of flow irrigation that leads to seepage.

In the light of the potential shortage of water for irrigation in many regions, Dhawan examines the question of over-irrigation of crop fields by Indian farmers (chapter 4). Unfortunately for him, the only detailed data on number of waterings of crop as well as the quantum of water applied are available only for Punjab from a sample survey. These data show that the Punjab farmers tend to over-irrigate. For three other States he uses the NCAER's sample survey data on number of waterings per acre (in the absence of any information on volume of water). Comparing these averages with the norms recommended by agronomists, he comes to the conclusion that there was general under-irrigation, from all types of sources. But these are state-wide averages. While these can suggest absence of over-irrigation in most parts, it cannot rule out such a phenomenon in some pockets, under certain conditions. It is alleged, in the Deccan, that farmers with pumpsets on wells in or near canal command area irrigating sugarcane often over-irrigate, since the marginal cost of electricity is zero and there is an impression that sugarcane does not suffer due to some excess water. The State-wide sample surveys, counting only number of irrigations, simply cannot highlight such situations. And these are of interest.

In the light of the limited and unequal water resources for irrigation, Dhawan turns to the controversy regarding big versus small dams or major versus minor irrigation. He regrets that the engineers of the Central Water Commission and the economists in the Planning Commission have helped create a distorted impression through their silence, arising out of negligence, in this debate.

He dismisses the various arguments put forward by environmentalists and others against large reservoirs and canal surface. He counters the argument about loss of forests by quoting the figure of only 5 per cent of the total forest area lost during the last 4 decades being due to submergence under a reservoir. Exceptionally large submergence can be reduced by reducing the height of the dam, he suggests. The same is his reply to the possibility of seismic trouble arising out of a big dam: if the risk is really high, reduce the height of the dam.

He raises the question of the displaced people from the submerged area, which has been an important argument against big dams. While he recognises the seriousness of the problem of calculating the social costs of such displacement and of compensating them properly (if that can be fully done), he suggests reducing the height of the dam where the problem becomes too large and intractable.

The major problem in this is not so much that people are displaced, but that they are never properly resettled. Taking up Dhawan's rhetorical query as to whose benefit and whose cost, this reviewer would think the appropriate method is for those who benefit to compensate those who are displaced. And the most logical approach would be for the beneficiary farmers to surrender part of their cultivated land in the command area on which the oustees can be resettled. This alone can minimize the economic and psychological cost borne by the oustees. Even before one decides to reduce the height of the dam, thereby reducing the command area drastically, this angle of compensation must be explored, and in the reviewer's opinion, enforced.

Indeed, many questions arise in these small *vs*

large debate which cannot be answered satisfactorily in the absence of adequate data. For example, in the context of some large river valley schemes, like Narmada, it has been argued that a large number of small dams and reservoirs in the entire catchment of the system would be less harmful and more beneficial. The engineers in private conversation point out that their exercises, on lines of this alternative, show that not only the total capital cost of a series of small dams will be much larger than for one or two large dams, but also a much larger area, including forest and crop land will be submerged and a much larger number of people displaced. Unfortunately, these exercises and data are never put out for one to examine them. If correct, it can certainly make the advocates of the small have second thought.

Another thought occurs in this context for systems like the Narmada, which involve the riparian rights of a number of States. Once tribunals allot the shares to the States, a series of small dams in the catchment area may not quite meet the needs of the lower riparian State that may have a smaller catchment and not much scope for small dams on the system.

One can reasonably discuss the relative merits of small *vs* large, or lift *vs* flow in areas where both surface and ground water sources are very considerable. But in regions like the rainshadow Deccan Plateau where the only assured water supply is in the rivers emanating from the Western Ghats and where local precipitation is scanty and uncertain, the important word in "minor irrigation" is "minor", not "irrigation".

There are several other advantages attributed to small irrigation projects, including ground water projects, as against large. Dhawan examines one: the relative capital and operation cost of the small and the large. He points out that unlike in the case of the large irrigation schemes, in the case of the small, namely wells/tubewells with electric pumpsets, a part of the capital cost is not taken into account in normal calculation. This is the capital cost of power generation and transmission for operating electric pumpsets. If these are taken into account, he shows that the per hectare capital cost of lift irrigation is much higher than that of major flow irrigation in India. The operational cost of lift is also much higher than that of flow.

In the rough aggregate calculations presented by Dhawan, I suspect there is a significant omission. While tubewells and pumpsets can be set up and operated in less than a year, large dams as well as power generating stations take considerable time. Therefore, the implicit compound interest over the construction period should also be a part of the capital cost. If this is done, the large difference shown by Dhawan may disappear. Nevertheless, the substance of Dhawan's argument, that the small are not less capital intensive, will remain. This is an important argument besides the basic fact that the total exploitable ground water in India is less than 40 per cent of all irrigable water and hence dependence on ground water alone will be suicidal.

An important source of recharge of ground water in canal irrigated areas is through seepage of canal water. Dhawan has advocated this to improve ground water supply, particularly to meet drought year demands. This suggests the proposition to him that the direct benefits from a flow irrigation system should take not only the additional crop output on canal irrigated lands, but also the additional crop output with water from wells in and around the command area, which are able to catch a part of seeped water from the canals. Dhawan attempts exercises in this direction for four different irrigation systems in the country, and comes to the conclusion that there is significant increase in crop output because of recycling of seeped canal water by wells in the command area.

It is necessary to keep a couple of points in mind in this connection. In the first place, how much of the seeped water do the wells catch? In the Mula command, for which Dhawan had more detailed data than the other three, he notes that 78 per cent of the water let into the canals was lost in transit, mainly through seepage. The 22 per cent water reaching the fields irrigated 31 thousand hectares, and produced 66,000 tonnes of rice equivalent, giving 2.13 tonnes per hectare. There were 5,900 wells in the command before canals started, producing 14,000 tonnes of rice equivalent. It increased to 8,600 wells after canal, producing additional 100,000 tonnes rice equivalent a year. Dhawan attributes this to seeped canal water caught by the wells. If we assume the same per

hectare yield from the well irrigated lands as under the canal, then this 100,000 tonnes is produced in 47,000 hectare equivalent of well irrigated land, recycling seeped water. If 31,000 hectares need 22 per cent of total canal water, 47,000 hectares will use 33 per cent of the canal water. This means that of the 78 per cent canal water that seeped only 33 per cent (i.e., only 42 per cent of the seeped water) was caught and recycled by the wells. Possibly this too is an over-estimate; for who knows how many more wells of the pre-canal type would have come up in this command area, in the absence of canal. In any case, the wells were apparently unable to recycle even half the seeped water. How much of the seeped water from the canals can be caught and recycled by wells in and around the command will depend upon the topography of the area, the underground geological structure and of course the number of wells sunk. These are bound to differ from project to project, and are not always easy to assess. But such an exercise is necessary in order to examine the relative economics of lining the canals as against recycling seeped water through wells in unlined canal command.

Secondly, while taking what Dhawan calls this 'indirect' output of canal water into account as a benefit, the Project authority should not forget to take into account the additional capital cost of wells and pumps (with periodic renewals) and their operational cost into account as part of the total Project cost. (Indeed, the cost of electric power generation and transmission, for the wells, should also be taken into account, as Dhawan has argued earlier).

Dhawan strongly supports and advocates conjunctive use of surface and ground water, to promote more economic use of canal water, to prevent water logging, and promote greater productivity and long-run sustainability of surface irrigation. But, he hypothesises that farmers will not go in for ground water where surface water is assured and timely and perennial. This leads him to examine (chapter 7) a situation in western U.P. where farmers in a perennial command gave up canal irrigation altogether and opted for their own tubewells. The author shows that the switch over was mainly due to the greater timeliness and adequacy of tubewell irrigation. Tubewell irrigation, hectare for hectare was, contrary to farmers' opinion, more expensive. But assured and timely water supply resulted in change in crop pattern resulting in a net incremental output of 1.5 tonnes per hectare. A comparison of the value of this benefit plus the indirect benefits from sugarcane crushing, wheat threshing and sale of water, with capital and operating costs shows that only non-small farmers were able to reap a significant benefit from tubewell irrigation. The small were not well placed, except when they could sell a significant part of their water. Electric pumpsets showed high returns only because of the heavy state subsidy. The moral of the story is that uncertainly in canal irrigation (or reduced water supply) alone will lead to conjunctive use of surface and ground water. But the small man's problem will depend upon a growing market for the water from his well.

Two other aspects of the efficiency of irrigation in India have been examined in five of the remaining seven papers. One relates to the pattern of use of irrigation water in relatively water-short regions, and the other to the nature and efficiency of irrigation in the higher rainfall regions.

In the low rainfall regions, with relatively lower potential for irrigation, Dhawan examines the by now familiar hypothesis that crops demanding smaller quantities of irrigation water produce higher additional net output per unit of water. The best set of empirical data at his disposal for this purpose relates to Mula project in Maharashtra, to which he devotes a whole chapter (9). He shows that sugarcane yields the lowest gross produce per ha/cm of water, except summer groundnut. But the difference of sugarcane from some other crops, like wheat and Rabi jowar, is rather marginal. The differences are less glaring since Dhawan compares gross production of the different crops per unit of irrigation water. If he had compared the net value added or net farm business income per unit of water, as I tried out, he would have been able to show that sugarcane is the least economic, less than even summer groundnut, in terms of use of irrigation water.

He tries a similar exercise (chapter 10) for three States with the help of NCAER's survey data, where, however, the water use data crop-wise was

in terms of number of waterings and not volume of water. The data here also show the same phenomenon sharply in the case of Andhra Pradesh, but not for Gujarat. May be the proposition does not hold in all dry regions. But before one comes to this conclusion, the Gujarat data need more careful scrutiny to see if the regional variations in the pattern of cropping under irrigation and the yield differences have not contributed to such a phenomenon. If so, state-wise sample data, not collected for this specific purpose (as Dhawan himself notes) would not be the proper information for such analysis.

A third exercise (chapter 11) relates to ten major flow irrigation command areas in the country. Here, besides the above hypothesis, Dhawan examines the increase in yield under irrigation. The dry region projects show non-foodgrain crops, particularly fibres, oilseeds and pulses giving better returns per unit of water, though the differences are not as sharp as in the case of Mula. Apart from the comparisons being in terms of gross output, one has to remember that some of these projects were in the process of completion and possibly the technologies used for different crops were still in the transition stage. In comparing returns per acre of irrigated land or per unit of water, Dhawan adjusts for the underutilisation of the irrigation potential created. This does not appear relevant. If a project is still incomplete, then the estimated potential may be realised finally. If such is not the case, the "underutilisation" will be for reasons he has already discussed. A more water-intensive crop pattern will be reflected in the per acre or per unit of water yield rate. In any case, the point is relevant in calculating benefit-cost ratio. For the purpose in his hand, the relevance of such adjustment is not clear.

In regard to irrigation in high rainfall regions, Dhawan examines (chapter 8) one flow irrigation scheme in Konkan where he finds a full second crop of paddy in Rabi season, but no use of irrigation water in Kharif season. While the increase in income and employment are substantial, in the absence of proper data on capital cost of the project, he guesses the B/C ratio to be at least one.

Another paper examines the efficiency of tubewell irrigation in the Gangetic plains in Bihar and West Bengal. The tubewells show very significant success. The important point that comes out of this account is the difficulties faced by small and marginal farmers, whose dwindling and fragmented land holdings increase the capital cost of the bores, even when they hire the diesel pumpsets. Naturally, thought turns to the market for irrigation water in such areas, a point made by Dhawan earlier. Dhawan of course mentions that these possibilities can be exploited in the areas usually liable to floods, only if flood can be prevented, something that is yet to take place in the large part of the Gangetic plains.

A final short chapter relates to the National Water Policy announced in 1987. While this document covers wide ground, Dhawan naturally stresses the inadequate formulation about the limited ground water resources and the need to formulate a policy of conjunctive use of the two sources which in turn requires the steady development of surface irrigation. This is in keeping with the thrust of analysis in the present book. However, Dhawan does not mention a glaring omission in this policy statement, which has been analysed at length in various chapters of the book. This refers to the use of canal water in water-short regions of the country. A clear statement of policy to promote such use of canal water as would maximise returns per unit of water is what is called for. But the policy statement mentions transfer of water from one basin to another for the purpose, which at least at present appears as a pipe dream. And it mentions considerations of equity and social justice in water distribution, without making a point about maximising returns per unit of water. If it had, it would have automatically implied greater equity and social justice. And, finally, there is no formulation as to who will compensate the submerged area people - another glaring omission. An irrigation scheme immediately and directly benefits the farmers who receive the water. Therefore, they must pay for the rehabilitation of the oustees from the submerged area, with land in the command area. This, if any thing, is equity and social justice, but it is quietly ignored! The reviewer wishes Dhawan had mentioned some of these formulations that flow from his book.

The book is based on research work of other

scholars, and illustrates effectively the full potential of research studies that scholars can and should exploit. The book in this sense should provide impetus to interested scholars and state agencies to undertake enquiries into the different problems of irrigation efficiency raised here.

REFERENCES

1. Dandekar, V.M., D. Deshmukh, and V.R. Deuskar, 1979; *Interim Report of the Committee to Study the Introduction of Eight Monthly Supply of Water on the Irrigation Projects in Maharashtra* - Government of Maharashtra, Bombay.
2. Minhas B.S., et al., 1972; *Scheduling the Operation of the Bhakra System*, Statistical Publishing House, Calcutta.

BOOK REVIEWS

The Asiatic Mode of Production, Oriental Despotism, Historical Materialism and Indian History, by Brendan O'Leary, Basil Blacket, U.K., 1989, Pp. xiv+394, Royal, Price £ 35.

Philosophy used to be defined, in the old days, as the search for a black cat in the dark which is not there. After reading this heavily scholarly book one experiences some such feeling. The Asiatic Mode of Production (AMP) is one of the most controversial holy cows of Marxian Historiography and so much has been written about it that it is a formidable task to take stock of all of it. An even more formidable task is to read the whole literature with a critical eye and adroitly pick one's way through the net of hopelessly tangled ideas, obscure philosophies, ingenious reconstructions and interpretations in justification of the original scriptures, the absurd emotional fulminations, etc. The author performs this task with admirable skill and honesty in this book. As a piece of scholarship it is super.

The author painstakingly reconstructs the different forms of the hen of AMP from the small feather of Marx-Engel's scriptures and then traces its origins in pre-Marxist literature. He conclusively shows that most of Marx's ideas about AMP were derived from English utilitarian economists like James Mill, J.S. Mill and Richard Jones. Marx and Engels identified the AMP as existing in India in all history before British conquest and O'Leary goes in great detail into the sources from which both of them constructed their vision of pre-British India. A list of books on India that Marx is recorded to have read is compiled. It consists of about forty items. He goes on to show that Marx used these sources arbitrarily, that he ignored information which went against his theoretical preconceptions and that Marx's standards of scholarship as revealed here leave much to be desired. For many like this reviewer this will come as a revelation and shock!

The author then unentangles five contradictions and two basic difficulties about the AMP and shows that these cannot be fitted into the AMP theory. There follows a scathing expose of Wittfogal's 'Hydraulic Civilizations'. The next is perhaps the most important expose of AMP in respect of India with the aid of historical studies carried out by Indian historians in recent years. The new studies of the Mughal or Vijayanagar empires and other pre-British political and social formations show that history does not support Marx's account of AMP in India and that so far as historical evidence is concerned AMP stands totally unproved in the case of India. This conclusion is endorsed by Indian historians but O'Leary remarks that they are too lenient to Marx. They are anxious to wound but afraid to strike. But this is not uncharacteristic of Indian intellectuals who are afraid of being dubbed as anti-people and anti-people is somehow equated in these minds with anti-Marx. O'Leary has no such inhibitions and his judgements are matter of fact and blunt. One will not be surprised if he is accused of harshness by Indian historians!

O'Leary concludes that AMP is a will-o-wisp and that Marxism is damned if it retains it and is damned if it does not. He calls AMP a bastard child of Marxism. It cannot be ignored because Marx does give it an important place in the development stages of history. If retained it gives rise to such tangled problems of deduction and empirical verification that only confusion results.

O'Leary tends to be like a debator who is anxious to win every point in the argument and is not satisfied with only winning the main argument. He leaves nothing to chance and deals with every little problem mentioned or implied and goes into it deeply. At times this leads him into fields which he need not have gone into. For example, after critically reviewing the writings of the Indian Communist Party stalwarts regarding the AMP and their totally mistaken view of the history of pre-British India as a slave economy or feudalistic economy he goes on to speculate whether their policy would have been different from what it actually was if they had a correct group of the AMP in pre-British India. This line of criticism cannot add any more weight to the reputation of AMP that he has already accomplished. Nor is it decisive in the scholastic world. But Homer sometimes nods and one should be lenient to such occasional indulgences of a scholar.

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Enlightenment: East & West Pointers in the Quest for India's Secular Identity, Paolas Mar Gregorios, Indian Institute of Advanced Studies, B.R. Publishing Corporation, Delhi, Distributors: D. K. Publishers, New Delhi, 1989, Pp. x+165, demi, Price Rs 100/-.

This book by the President of the World Council of Churches and the Eastern Orthodox Metropolitan of India is interesting from many points of view. It is by a Christian Church dignitary enthusiastically recommending the revival of the wider tradition of secularism contained in Buddhist and Jain philosophy for the search of India's secular identity. Secondly, it has been commended by writers of Hindu traditional persuasion like Chaturvedi Badrinath, though it is doubtful whether they can commend the argument of the book all the way. Thirdly, though it is a learned book, passionately and skillfully argued, it is not free from confusion of the meanings of concepts that usually characterises most of the Indian writings on secularism.

The author sets out the theme of the discourse at the beginning. "Can critical rationality, the essence of modern European Enlightenment, and the transcendental or mystical experience of 'religious enlightenment', which seems to be universal but is fundamental to the Indian identity, be conceptually reconciled and related, even dialectically? Such is the drive in the present inquiry" (p. viii). The drive is specifically Indian, and for India's quest for an integrated and authentic national identity. "Western civilization has been and still is the single most powerful outside factor in shaping our identity as a nation. ..... We are under pressure to abjure our religious heritage and to pursue, for shaping our national identity, the secular, rational, humanist, socialist, orientation shown by European Enlightenment"..

"The idea and experience of religious enlightenment is taken here as constituting the fundamental source of creativity for Indian culture and the Indian psyche. This is a position which may be questioned by scholars who regard the basic Indian genius to be secular rather than religious. Such questioning should be welcomed, particularly in the India of today" (p. ix).

Next identity is defined and explained. Identity is composed of what is common and what is specific. But these two shift in different situations. India shares much with other nations, which is a part of her identity as a nation. But she also has a core which she does not share with others. The communality and specificity shift and change with the relational context in which the identity is being exercised. Relation is very complex. There is first relation of origin; relation of each to its past - a past which is also full of relations; Third, relation is to the future as a hope and commitment; and fourth, present relations and interactions which are in constant flux. Identity is not defined by self-understanding; yet self-understanding, also constantly in flux, is an integral part of one's identity. In the case of our nation, the commitment to a secular identity is important but is only one of the factors - the future orientation factor (third factor). Such commitment cannot become operative without relation to our origin, our past, our self-understanding and our present relation (p. 9). This is a part of tradition and tradition is a continuity. When we try to break or abandon tradition for the sake of a new future, that break can be only partial.

The idea of a 'clean break with the past' espoused by the Anglicist and our national leaders (especially Nehru) alike, now needs to be re-examined in the context of Indian identity. That identity cannot be based on a history that begins with the freedom movement (p. 115). English education which was the main instrument for making a 'clean break with the past' has suppressed much of our Jain and Buddhist heritage in order to promote a cooked-up vision of India as perennially Hindu in religion and culture. "A more balanced assessment of our past, a more balanced awareness of our cosmopolitan and international contacts, and more direct access to other than Anglo-American cultures seem to be three essential elements in reviving, restoring and restructuring Indian identity. Deliverance from the castration by Enlightenment culture through English education will not come by drumming up a false awareness of our past as exclusively or even predominantly Hindu, especially when the Hindu past is itself interpreted in a distortedly one-sided manner" (p. 116).

The Buddhist path of enlightenment as inunciated by Dingnag and Dharmakirti is based on secular grounds and is recommended for evolving a proper synthesis of the secular and the spiritual rooted in the Eastern tradition of enlightenment. "From the discipline of prayer, meditation, self-control and compassion comes the basic insight, which the logic then works out. But the logic which proceeds by its own syllogistic momentum, has always been in the mind of the sage as he writes, for that is the experience, the vision, the enlightenment that gives him integration and orientation" (p. 146).

The argument, which appears extremely persuasive, is however flawed in many respects. It is not consistent in the use of words, concepts and their meanings. The meaning of words is at times so twisted as to border on the prejudicial. There is not space here to go into each of these cases. I shall concentrate on two words and concepts around which the whole argument relates and spins at different speeds: secularism and religion.

The two words and concepts are usually regarded as antonyms. Secular according to the Oxford Dictionary means "worldly or material, not religious or non spiritual". Religion as per the same source means "belief in the supernatural ruling power, the creator and controller of the universe, who has given to man a spiritual nature which continues to exist after the death of the body"; "One of the various systems of faith and worship based on such belief". Secularism means "the view that morality and education should not be based on religion". These are the ordinary meanings of these words as they are used in the English language.

Let us begin with religion the most misunderstood word in India by Indians. The misunderstanding is historical and of long standing because the word religion has been and is translated by the word "dharma" in most Indian languages. As Dr. S. V Kelkar, the renowned sociologist, pointed out long ago, the correct translation of the word "religion" in Indian languages should have been "Panth or Sampradaya" because "religion" has a much narrower meaning than that of "dharma". Dharma embraces the whole cultural and social complex of a society, all that holds that society together; it is much more than religion. As a result any ordinary Indian when told that secular means non-religious or ni-dharmi (without dharma) takes it as a denial of all his culture, and is naturally alarmed.

In juxtaposition to this word "secular" has been historically understood in India only in the political sense in which it was and is used in the West. All that it means in this context is that the Indian State should not be governed by religion or religious power. Almost all the political leaders of the Indian national movement who advocated secularism passionately were themselves deeply religious persons and would have been surprised to be told that secularism required the abjuring of religion. Even Nehru was concerned mainly with the political aspect though he was more aware of its other aspects than other Indian leaders.

By confusing religion with "dharma" Gregorios is able to say that "we are under pressure to abjure one religious heritage and to pursue, for our national identity, the secular, rational, humanist, socialist orientation shown by European Enlightenment". Secularism does not imply the abjuring of religion. The secular states of Europe have not abjured Christianity and secular India is under no pressure to abjure her religious heritage. The view is often expressed that Hinduism (however it is defined) in contrast to other religions, is a *dharma* a way of life and therefore the secular in that context means the abjuring of all its cultural (religious) heritage. This is simply not true. All religions are by their very nature, ways of life and that is why they have blue prints for the future, which means they want a society that is Christian, Hindu, etc. where they will be able to live the kind of life that permits the true fulfilment of religious faith. Nor is it true that the basic Indian genius is religious and not material. It is neither solely religious nor solely material; it is a mixture of both as all geniuses are. To say that transcendental enlightenment is the only path of progress in India is to assert something which is historically not true.

Like religion the word secular is also misinterpreted. Its ordinary meaning has been set down above. But Gregorios equates secularism (of European Enlightenment) with scientism (p. 53) and in words that are somewhat surprising from a Church dignitary avers that the "claim of science

to be the arbiter of all truth is something which science ought to be as ashamed of as the medieval Catholic Church" (p. 59). This is a distorted view of science. Science has never claimed to be the arbiter of "the truth", whatever it means, but has claimed, with ample justification as the arbiter of "verifiable truth". The two characteristics of verifiable truth, as against transcendental truth, are (1) it is never final, can be challenged any time and has to prove itself at all times, and (2) it has a social as against an individual dimension. It is a truth that can be verified by anybody and the experience can be shared by that anybody. Religious or transcendental truth can be only individual and can be made social or general by faith in the individual to whom it has been revealed. That science is knowledge that is operationally successful in its strength rather than its weakness.

Secularism is misunderstood in India because of an involuted situation. At no time in Indian history, even after independence, was the political state subject to religious power as in Europe. But the Indian state has always used religion for political purposes and the habit is ingrained into Indian polity that it is always mistaken for its dual image (communalism, casteism, etc.) which shows religion using politics for its purposes.

Gregorios speaks of "Indian identity" at times and of "Indian National Identity" at others as if the two have identical meanings. A national identity is associated with a nation and India has attained that status only in name. The process of building up the Indian nation is underway but by no means complete. The process again could not have begun before British conquest which established India's international frontiers for the first time in history. And nationalism is a secular force or it has to cut across religious lines, and it was quite proper for the leaders of the Indian national movement to stress the secular in order to foster the development of nationalism. The problem of forging India's national identity did begin only with the struggle for independence. Gregorios' rhetorical question as to whether Indian history began only with national struggle is quite of the mark. No body is maintaining that India's national identity is to be evolved irrespective of all her history before the beginning of the struggle for independence. But no body can also deny that that struggle has shaped the Indian national identity in whatever form it is today.

Disliking intensely Western Secularism, Gregorios is yet enamoured of an Eastern Secularism (which is to evolve) which will combine critical reason and religious enlightenment. As is obvious this something yet to be evolved is differently defined. One does not know what Eastern secularism means. Gregorios writes, "In some ways Buddhism is closer to secularism in so far as it brackets the question of God and even denies belief in the soul as an eternal entity. But Buddhist secularism is superior to and much more profound than Western secularism, and in fact infinitely close to our own people" (p. 128).

How or why it is or can be superior to Western secularism is not made clear. That is possibly a part of transcendental enlightenment!

All the same, Gregorios is a good debater. The quibble is eloquent but unconvincing.

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Sustainable Development : Economics and Environment in the Third World by David Pearce, Edward Barbier and Anil Markandya, London Environment Economics Centre, Edward Elgar Publishing Ltd., 1990, Pp. 217, Price £ 32.50.

If fifties, sixties and seventies were the decades of development, the eighties and the nineties would be decades of environmental preservation. Development has often been seen as the enemy of environment. In the process the concept of development has itself undergone a change. Development in the true sense of the term, cannot take place by destroying nature's life supporting system. It should rather take place by strengthening it. This new concept of development goes by the term sustainable development. If development was the thesis and environment the antithesis, sustainable development is the new synthesis.

Concern with development gave rise to abundant literature on development economics. We can now look forward, in the years to come, to the

emergence of growing body of literature on the economics of 'sustainable development'. The book under review could be counted amongst the first of such contributions to the subject.

It contains five case studies, two of them relating to countries in Asia, (Nepal and Indonesia), two in Africa (Sudan and Botswana) and one relating to Latin America. The two African studies consider environment in relation to the occurrence of drought while the other three in relation to deforestation. In all these countries, policies of government meant to promote development have led to ecological imbalance and the authors have suggested modifications in policies to restore the balance.

The Sudan, the largest country in Africa, lies in the vast Sahel region in Africa, lies in the vast Sahel region in Africa prone to recurrent drought. It is exposed to desertification due to the southern movement of the creeping Sahara desert, though there is a view that reports on desertification are exaggerated and not based on a scientific approach. The causes of desertification are northwards push of millet production, the clearing of land around settlements for fuel wood, and overgrazing around settlements. Of special significance to Sudan in fighting desertification is the gum Arabic tree. It acts as a buffer against wind erosion, decreases water run off and contains sand dunes. Besides it is of great commercial value. It is also a source of fodder for cattle and of fuel. Planting of gum Arabic trees apart from providing sustainable farm income also confers environmental benefits as a part of overall anti-desertification policy. Overgrazing is widely cited as the major cause of environmental degradation in Sudan. Since in nomadic areas, livestock is the only source of wealth and food and insurance against resource depletion during drought, there is a tendency to raise the stock level against the carrying capacity of the land. Sorghum, sesame and groundnut are the main agricultural crops. Lease of land for mechanized farming and absence of crop rotation have led to environmental degradation. The Sudan needs a series of policy measures for containing the depletion of the natural capital stock and for giving individuals a stake in preservation of environment. They include policies regarding prices and exchange rates, credit for small farmers and overcoming institutional weaknesses.

Two-thirds of Botswana, a landlocked country, is occupied by the sands of Kalahari desert. From 1982 to 1986 there was a major drought in the country. Water is a major constraint on Botswana's development. Either the ground water resources need to be developed or some sort of diversion of surface water attempted. Due to rapid growth of livestock numbers, there is loss of palatable perennial grass and range degradation. Yet livestock ownership is directly encouraged by government policies. The existence of dual grazing rights, whereby land owners can graze their cattle on communal lands, encourages on the one hand a non-caring attitude towards commercial land and on the other pressure on communal land. The dual grazing rights need to be abolished and open access to communal land disallowed. Future economic development should not, as in the past be confined to mining sector; agricultural and wild life development need greater attention.

Nepal is a landlocked country extending 800 km from east to west in the Central Himalayas. Though there is some scope for increase in area under cultivation in the Tarai area, it is not feasible in the hills and mountain regions of the country. Hence for maintaining food supply for a growing population, there must be a significant increase in agricultural yields. However because of lack of availability of plant nutrients, yields are stagnant. The productivity of crop lands is adversely affected by the loss of soil and nutrients as a result of unsustainable farming practices. Nepal's forest resources are dwindling fast and soil erosion from the hills and mountains is the result. With the assistance of donor countries, Nepal has embarked on a number of projects for stabilization of stream banks, gully control, terrace improvements and protection and rehabilitation of grasslands. The community forest programme allocates areas of degraded and semi-degraded forest land to panchayats for management, controlled exploitation and reforestation. But the programme has not achieved as much active community involvement as would be desirable. Promotion of better resource management requires extension services which are conspicuously lacking in the hills and mountain regions of Nepal. Tourism is increasing but uncontrolled tourism can pose a danger to the ecologically fragile areas. Appropriate policies are needed to avoid ecological crisis.

In Indonesia, the economic strategies for

achieving export promotion and agricultural diversification have narrowly focussed on achieving short-run gains with little regard for proper resource management. Soil erosion and runoff in uplands of Java, the most thickly populated region in Indonesia with a density of 700 people per sq. km has meant loss of potential production. What it requires is a sustainable agricultural policy based on an appropriate farming system, technology package and management skills. With fertile lowlands having reached the limits of its production potential in irrigated rice, it is the uplands that provide scope for significant increase in production. Switching over from annual food cropping altogether into perennial tree crops and livestock could significantly increase the economic potential of the severely degraded uplands. Research and extension for the new farming system approach, building up the physical infrastructure of the uplands such as rural transport, integration of markets and post-harvest technology, and processing are immediate priority areas of investment rather than generous but wasteful and inefficient input subsidies.

97 per cent of Indonesia's 144 million ha of forest land is located in the outer islands notably Kalimantan and Irian Java. There is increasing demographic and economic pressure to 'open up' these forest lands. Although increased economic exploitation of forest resources has been achieved in the short-run, the current strategy may not be efficient or sustainable in the long run. As a result of shifting cultivation, planned agricultural conversion to support colonisation, logging and mining, the forest resources are depleting at the rate of 900,000 ha per year. In addition to forgone benefits of deforestation, there are losses of forest protection functions and in terms of bio-diversity and *option and existence values*. The timber companies to whom concessions for logging for exports are given by Government are more interested in short term commercial gains than long-term recognition of logged forests. Timber royalties are an insufficient compensation for depletion of the timber base. Indonesia needs to take policy measures to encourage concessionaires to take interest in the sustainable management of forest and ensure reasonable revenues to government.

In the Amazon region of South America, current economic policies, incentives and investment strategies are blamed for widespread deforestation and the degradation and disappearance of the region's tropical forests at an alarming rate. The current patterns of exploitation are not sustainable. Although 400 of Amazonia's identified tree species are known to have commercial value, only 50 of them are being exploited and usually on an extensive scale without regard to environmental destruction. The pattern of deforestation in Amazonia is highly concentrated due to cattle ranching and forest farming and logging activities. It has meant loss of unique ecosystems, natural habitats and genetic material. It has also contributed to the global climatic change associated with 'green house' effect. Official development strategy has totally neglected these negative environmental and social side-effects. The extensive deforestation of the Amazon area (15 million ha) by 1987, can be directly related to government's financial programmes and subsidies for ranching and colonisation. The subsidies and other economic incentives that encourage inefficient and unsustainable forest conversion to ranching, large scale development projects and commercial cropping should be ended. Environmentally compensating projects may be encouraged to ameliorate environmental degradation. A new economic strategy is needed which takes into account the total value of the Amazonian ecosystem.

The first 66 pages of the book deal with theoretical concepts of sustainable development specially in relation to the discount rate to be adopted for the economic appraisal of projects.

The term development connotes a number of social objectives which include increase in per nutritional status, a fairer distribution of income, spread of education access to resources and increase in basic freedoms. The concept of sustainable development elevates conservation of the existing stock of natural resources to the level of one of the basic objectives of development. It rejects policies and practices that seek to raise living standards by depleting the production base of the existing stock is below optimum in many developing countries. Many of them are in the 'environment poverty trap'. As poverty increases, natural environments are degraded to obtain immediate food and fuel supplies. As environment degrades, the prospects for future livelihood decrease. Environmental degradation generates more poverty. This is a vicious circle. While

previous models of development have tended to assume that the 'future will look after itself', the sustainable development approach acknowledges that the future can be seriously endangered by actions taken now.

The demand for natural resources is generally less with high discount rates rather than low ones. High discount rate will discourage development projects. But high discount rates are also a cause of much environmental degradation, as individuals opt for short term measures to satisfy immediate want at the expense of sustainable practices. For renewable resources a high discount rate may result in resources being exhausted. On the other hand, lower discount rate encourages a larger total investment and will extract from the system more materials and energy. Sustainability can be introduced in the cost-benefit analysis by setting a constraint on the depletion and degradation of the stock of natural capital. Finally, while 'no development' decision leaves the option to develop at a later stage, development decision leaves no option to reverse irreversible damage.

Both the theoretical concepts and the practical experience in other countries are of great relevance to the current state of development in our country, particularly in the context of the fierce controversies generated in the wake of Tehri Dam and Sardar Sarovar projects. It is to be hoped that planners and politicians in our country would not overlook environmental considerations while taking decisions in relation to development projects. Development which destroys nature's life supporting system can be self-destructive.

P.R. Dubashi.
IAS (Retd.)

Edible Oilseeds - Growth, Area, Responses and Prospects, by K.N. Ninan, Bangalore, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi, 1989, Pp xvi+301, Price Rs 150/-.

The growth of edible oilseeds has been near-stagnant in the country. With the increase in demand for edible oils, Government has had to resort to imports; thus as against 84.7 thousand tonnes of edible oils valued at Rs. 23 crore imported in 1970-71, a quantity of 1.80 million tonnes valued at Rs. 920 crore was imported in 1987-88. The difficult foreign exchange situation makes it imperative for stepping up the production and yield of edible oilseeds in the country itself. Government constituted the Oilseeds Technology Mission in May, 1986, with the objective of improving oilseeds crop technology, post-harvest and processing technology and the transfer of the technology to the farmers through distribution of quality seeds, fertilizers, pesticides, credit, implements, etc. and price support operations. The above-mentioned study, which was undertaken at the instance of the Ministry of Agriculture, attempts to analyse the growth behaviour, and the factors influencing the supply response of edible oilseeds in the country. The study is based on secondary data for the period 1954-55 to 1983-84 / 1984-85.

The book is divided into seven Chapters. Chapter 2 discusses the current status and growth behaviour of three major edible oilseeds, viz. groundnut, sesamum, and rapeseed-mustard. Groundnut production in the country was found to have increased significantly at the rate of 3.17 per cent per annum during the pre-green revolution period, 1954-55 to 1964-65. During the post-green revolution period, a lower growth rate was registered, viz. 1.21 per cent per annum during 1967-68 to 1981-82 and 1.25 per cent per annum in 1967-68 to 1983-84. Among the States, Andhra Pradesh, Gujarat, Orissa, Punjab/Haryana and Rajasthan reported significant increase in groundnut production during 1954-55 to 1983-84. Production remained stagnant in Karanataka, Tamil Nadu, Uttar Pradesh, Madhya Pradesh and Kerala and declined (-0.98%) in Maharashtra during the same period. Production in these latter States had recorded declines in growth rates during the post-green revolution period. In Madhya Pradesh, Maharashtra, Punjab/Haryana and Uttar Pradesh the green revolution which favoured cereal crops such as wheat and rice, had a disastrous impact on groundnut cultivation leading to substantial reduction in the area under the crop. Except for Kerala, yield rates for groundnut remained stagnant in all the States, clearly pointing to the failure to achieve any technological break-through in groundnut productivity.

The bulk of the area under sesamum was found to be rainfed with only 5 per cent under irrigation. The production, area and yield growth rates of sesamum remained stagnant throughout the

period 1954-55 to 1983-84 for the country as a whole, although there were variations among the States. In a number of States the increase in area had been the main source of growth in sesamum output; further, except for the eastern States (West Bengal and Orissa), in all the major sesamum growing States, both the area and yield levels had either remained stagnant or declined significantly (e.g. Uttar Pradesh) during the post-green revolution period.

Rapeseed-mustard production, on the other hand, registered a positive and significant growth from 1954-55 to 1983-84, the growth rate being 2.94 per cent per annum for the country as a whole. All the States, except Maharashtra, registered increases in rapeseed-mustard production and yield. There was also a significant expansion in the area under rapeseed-mustard in the post-green revolution period in most States.

Chapter 3 discusses the growth behaviour of some of the other edible oilseeds, viz. safflower, niger, sunflower and soyabean. Maharashtra accounts for the bulk of the area (70.7%) and production (75.7%) of safflower in the country followed by Karnataka with 22.3% of the area and 20.3% of the production. These two States recorded a significant increase in production during the period 1965-66 to 1983-84 and also highest growth in yield rates. The study concludes that safflower seemed to have a comparative economic advantage over its substitute crops either in terms of price or yield or both in Maharashtra. Also, the crop's drought-tolerant nature and preference for low rainfall regions, explains its concentration in the drought regions of Maharashtra and Karnataka.

Over 80 per cent of the area and production of niger seed is concentrated in the States of Madhya Pradesh, Orissa and Maharashtra. Karnataka, Maharashtra and Orissa had registered a significant increase in niger seed production and area during 1965-66 to 1983-84; while it was more or less stagnant in Madhya Pradesh, Bihar and Andhra Pradesh. As in the case of safflower, niger is cultivated mostly on marginal or sub-marginal lands and regions with low or moderate rainfall.

Sunflower is also grown predominantly in Maharashtra and Karnataka, and its area and output has increased significantly between 1970-71 and 1983-84 in these two States, although yield rates remained more or less stagnant. The increase in area in the absence of any technological break-through in productivity, could be because of the demand for the oilseed as also institutional support for the crop.

Nearly 95 per cent of the soyabean area and output is concentrated in Madhya Pradesh (92.4%) and Uttar Pradesh. The rate of growth of soyabean production was high in both the States during the period 1970-71 to 1983-84, largely due to expansion of area. The yield rates during this period, did not register any growth in Uttar Pradesh and actually declined in Madhya Pradesh.

Chapters 4, 5 and 6 analyse the factors influencing area response for groundnut, sesamum and rapeseed-mustard, respectively. The analysis indicates that in the States where the area had expanded, factors like yield, irrigation and/or price along with rainfall influenced the increase in area. The spread of irrigation was found to be working to the detriment of oilseeds cultivation in States where the area was stagnant or declining. The farmers in these States preferred cultivation of rice, wheat or sugarcane, more price lucrative crops, than oilseeds.

A theme that runs through the entire study is the low yields of most oilseeds crops. The author concludes, however, that "through technological upgradation, appropriate economic incentives and institutional reforms, it would be possible for India to become self-sufficient in her requirements of oilseeds and edible oils" (p. 282). Unless there is a technological breakthrough in the productivity increase of these oilseeds, it is unlikely that incentives or institutional reforms will help in enhancing edible oilseeds production in the country.

F.K. Wadia
Indian School of Political Economy

The Political Economy of Unorganised Industry - A Study of the Labour Process, Manjit Singh, Sage Publications, Pp. 234, Price Rs 190/-.

It is customary among the Marxists to say 'Political Economy of this or that'. This book is something of an exception. It uses the term 'Political Economy' with greater justification; the area of its study is large enough to warrant such a title. Nevertheless, a great deal of space is given to tracing the growth of Indian capitalism in

general before coming to the specific issue of the unorganised sector in Punjab.

The author identifies four types of unorganised industry. First, there are the industries that are still home-based and where production depends on traditional skills and traditional labour. To quote "Though such industries are not formally subsumed under capital, yet they compete with the modern unit by engaging family labour including women and children" (p. 53). Examples are Sandal, and Coir industries.

The second group of industries are at an early stage of manufacturing form and are also dependent largely on domestic labour. Here he sees the transformation from merchant to industrial capital to be just beginning. Merchants advance raw material and obtain control over the workers. Examples are the lace, beedi, and carpet industries.

The third group consists of the standard form of manufacturing industry referred to by Marx. Here, workers are pure wage workers and manual labour is the main source of power used for production. Women and children are employed on a large scale. Examples are matchsticks, fireworks, and agarbatti producing units.

The fourth group consists of industries where manufacture has changed to machinefacture. Somewhat cheaper machinery is used, wages are paid on results, and, according to the author, both absolute and relative surplus appropriation takes place. He refers to these units as a form of 'Decentralised Factory System'. Examples are the garment export industry, and the cotton hosiery industry where putting out of work is common. Exploitation and work conditions are both of an abominable nature, and yet because the industry is decentralised, trade union formation has not penetrated deeply. The author also laments that all political parties are present in the shape of their own unions resulting in inter-union rivalry and fights.

A number of examples are given from Punjab which, perhaps, is unique in having a mixture of an agriculture and small-scale industry with near absence of large industry. In relation to the hosiery industry, which is his main focus, the author points out that as much as 57 per cent of the total industrial work force is employed in this one industry. Trade unions, though they fight among themselves, have, according to him, achieved a few things. Since putting out takes place, there was some trouble in getting the workers recognised as employees of the exporters who are generally merchants. This has been achieved, to some extent, through the efforts of the trade unions. The next step is to replace the piece-rate wage system by a time-rate wage system. The industry should also come under the Factory Act. This demand, if it succeeds, will alter the very nature of unorganised industry and its status. In fact, the author feels that the term 'Unorganised Industry' is something of a misnomer.

It is hoped that the present Government, with its concern for the unorganised sector, will heed the suggestions of scholars like Manjit Singh.

Sudhir Sonalkar

State Enterprises in a Developing Country - The Indian Experience 1950-90, by R.C. Dutt, Abhinav Publications, Pp. 201, Price Rs 250/-.

The author, R. C. Dutt, self-confessedly is not an economist, a sociologist, or a political scientist. But he has served in the public sector for several years and this gives him a view from within. Yet, in this book, he goes far afield looking at development as a whole and the problems and perspective of planning in India rather than examining in some detail of what ails the Public Sector, apart from advocating greater autonomy and emphasising accountability for the Public Sector.

Dutt seems to have been, in his reading and thinking, considerably influenced by Marxist theory as well as the current events in the socialist countries. He seems by and large to accept Kalecki's identification of the political regime in India as some sort of 'intermediate regime', neither capitalist nor socialist. In the present cacophony of 'the need' to privatise all sections of the economy, such an approach is indeed welcome.

As a brief history of thinking on planning, changes in it from the time of independence, the consequences thereof, etc., it is a useful book.

Reviewing thinking on planning before Independence, he comprehensively covers the alternate suggestions of M. N. Roy's People's Plan with its call for nationalisation of land, the Gandhian Plan put forth by S. N. Agarwal, which supplemented the demand for nationalisation of land with that for developing consumer goods production through cottage industries, and the Bombay Plan of the leading industrialists which wanted the Public Sector to be confined to infrastructure-providing industry leaving the rest of industry to private enterprise. He seems to have great faith in the Nehruvian vision or Nehru's early vision of 'social ownership of the means of production' as the goal and laments that there has been a steady departure from this towards pragmatism and the steady growth of the Private Sector where it, rather than the Public Sector, owns the 'commanding heights' of the economy. His own contention is that India is moving towards a form of 'Indicative Planning' as present in France with as little interference with market forces as possible.

That India is, in some way, at a crucial stage in its development - Dutt fleetingly and rather disconnectedly refers to the Assam Movement against Bengalis, the Jharkhand Struggle, the environment etc, all current issues - is unquestionable. Naturally, no solutions are offered. Dutt's heart is in the right place, and he may be one of a vanishing breed of public servants who, while functioning as pubic servants, are obsessed with the overall national good.

Sudhir Sonalkar

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

1987

Gedam, Dr. Ratnakar. M., *Poverty, Economic Development and Industrialisation,* Deep & Deep Publications, New Delhi, 1987, Pp. 463, Rs 275/-.

The guardians of rationality and trustee of the poor have created theoretical base which hopefully and eventually should eradicate the poverty from the world. But the existence, perpetuation and proliferation of widespread poverty leads to doubt about the effectiveness of the theoretical base explaining cause, reasons and reality of the poverty. In this book an attempt has been made to provide pro-, anti- and synthesis of the ideologies, as prevailing in the contemporary world.

It deals with the magnitude, severity and categories of poverty, stages of economic growth and their implication, the process of economic development. Other topics dealt in this book are: Vicious circle of poverty, qualitative indicators of socio-economic and political development, the basis of rural development, integrated rural development, community development, balanced and unbalanced growth theories, core-periphery, growth pole, structural transformation, modernisation, social welfare, life cycle of those born in poverty, basic needs, etc. The new concept of polygon of poverty, the effect of distance of targeted mass from the source in implementation of development or welfare programme has been introduced.

Besides the process of the industrialisation and relevant issues, the other topics dealt are industrial policy, IDR Act, industrial estates, foreign collaboration in India, leading sector concept, import substitution, definitions of small scale sector and industrial undertakings, IDBI's role, concept of development "from above", basis of encouraging public sector enterprises, trade development authority, NSIC, joint plant committee (JPC), concepts of free port, crown colony, enterprise zones, export processing zones in India, functions of State Industrial Development Corporations, registration and licensing mechanism and implication, small scale vs large scale, advantages and disadvantages of large and small scale sector, problems of small scale sector, theoretical explanation of the growth of small scale sector. A new concept of Neo-Development has been proposed against the pseudo- development mechanism of development strategies as advocated in growth pole or core periphery theories. It contains numerous references and selected bibliography.

1989

Baishya, P., *Small and Cottage Industries: A Study in Assam,* Manas Publications, Delhi, 1989, Pp. 336, Rs 225/-.

The book is an attempt at interweaving macro problems of industrial development of backward regions with micro level study of 26 small and

cottage industries which came up in field investigation of 5 purposively selected moffusil areas of industrial concentration and 5 sample villages in the erstwhile Kamrup district of Assam.

Part I of the book deals with the industrial development process, industrial policy of India vis-a-vis small and cottage industries and the pace of industrial development of Assam in a historical perspective.

The case studies are being placed in Part II of the book wherein some basic hypotheses of small and cottage industries have been tested with the help of primary data. The primary data show that while the traditional industries are decaying gradually, wage employment, rather than self-employment is rising as a predominant phenomenon in these industries. Although the industries affect income diffusion, skewness in its distribution is also found to be a common feature. As the small factories are immune from labour regulations, the small far from being beautiful, is rather uglier than the big.

However, facing the realities of labour alienation, the author advocates modernisation of traditional industries and dispersal of modern big and small industries to the moffusil areas of Assam through an on-the-job training programme. In his Foreword Dr P.C. Goswami has recommended the book to be useful to policy makers, administrators, research scholars and teachers.

Chaubey, P.K., *Growth Models in Indian Planning*, Himalaya Publishing House, Bombay, 1989, Rs 250/-.

This is a book dealing with the official modelling exercises carried out in various plans of the country, starting from the First Plan (1951-56) to the Sixth Plan (1980-85) including the abandoned Fourth Plan (1966-71) and the aborted Sixth Plan (1978-83). The exercises are described and evaluated.

While an attempt is made to delineate the models underlying the figures provided in the plan documents, various claims made elsewhere are also examined. Inconsistencies between models or parts of models forming the technical exercise behind a particular plan are discussed threadbare. An account of general planning process and the role of modelling therein is presented in the Prologue while in the Epilogue a summary account of evolution of formulation methodology is given. The point is made that though we are moving in a desirable direction yet our speed is slow and there is much to be done. A dig is also made at the tendency of the Commission to temper with the standard notions and thus mislead people.

In addition, in order to provide technical backdrop for beginners not well worsed with technicalities, there is an introductory chapter devoted to standard planning techniques that are or can be employed.

Gedam, Dr Ratanakar, M., *Facets of Economic Development*, Ashish Publishing House, New Delhi, 1989, Pp. 504, Rs 400/-.

In this book it is assumed that irrespective of one's awareness, economic forces embrace one and all in the society, but some grow rich and some are destined to be destitute. It is still mysterious what path and strategy will cause glory to men and country. Do poor countries and poor people get technology and know how to eradicate the poverty of nation and poverty of individual? In academic circle the poverty of individual is attributed to irrationality. It is incorrect to say poor are irrational lot. The drive for modernisation, industrialisation, economic development etc., needs appraisal as it is a continuum process which affects the individual in the society. The widespread aberration in economic forces and system leads to analysis and critics. The critics and dialectics has been accepted as a part of research studies. The anatomy of the various concepts used in economic and economic development is not uncommon in academic field. Hence in this book various terms, concepts and theories of underdevelopment have been critically dealt. The numerous definitions of the commonly used terms and their implications has been narrated. The topics covered are economic development, growth, discrimination, meritocracy, criterion of entitlement, accessibility to assets, paradox in growth and redistribution,

black box approach adaptation for poverty eradication, definition and implication of poverty line, net poverty, absolute poverty and relative poverty, reasons and causes of poverty, inequality and equality, anatomy of trickle down concept, measurement of inequality, egalitarianism, political modernisation, rationalism, rationality, rational behaviour, rational expectations, income distribution, principle and practice of hedonism, utility, instinct, irrational, empiricism, etc.

In this book a new theoretical contribution to academic field has been made by introducing a Dual Curve methodology for inequality in contrast with theory of Lorenz Curve and inequality trap situation has been narrated. Also the concept of Neo-Development has been restated by explaining the conditions attributing to nullification of trickle down. An attempt has also been made to reveal the existence of multitude of vicious circles leading to the poverty of individuals and poverty of nation, such as hunger cycle, low productivity cycle contributing to low capital formation, etc. It also consists bibliography and various references.

1990

Dhawan, B.D. (ed.), *Big Dams : Counterclaims*, Commonwealth Publishers, Delhi-2, 1990, Pp. 207, Rs 220/-.

The select writing in this volume are to serve the limited purpose of acquainting the concerned Indian reader with the numerous aspects of the raging big dam debate in the particular context of Narmada and Tehri dams. Many of these are already published during the last one year. The writer-editor has been actively involved in this debate, beginning with his write-up on mounting antagonism towards big dams in *Economic and Political Weekly*, in May last year. In point of fact, a majority of the writings are from this journal whose 'Discussion' column also proved very handy for some writers for making short but enlivening interventions.

The editor decided to collect all these *EPW* writings in one volume for the benefit of wider readership. While doing so, he chose to include some other major papers which had contemporaneously appeared elsewhere. Simultaneously, he sounded some outstanding experts to contribute their own thinking on the big dam issue-the response has not been very encouraging.

There are twelve chapters in this volume. Chapter 1 is an introduction to both the papers in this collection and to the major irrigation segment of the Indian irrigation sector. It is well nigh impossible to categorise the papers. While some appear to be questioning the big dam idea in its entirety, others support the same to the hilt. There are contributors who are looking at both sides of the coin on merit.

Dhawan, B.D., *Studies in Minor Irrigation- with Special Reference to Ground water*, Commonwealth Publishers, Delhi-2, 1990. Pp. 209, Rs 200/-.

This book is part of the Institute of Economic Growth Series in Economic Development and Planning. It consists of a collection of research papers published by the author during the last two decades. Their focus is on ground water. Bringing them together in one compact volume should be of particular interest to research scholars who find locating articles published in diverse journals a bit tedious job.

There are twelve chapters, with chapter 1 serving as an introduction to both the subsequent eleven papers and to the minor irrigation segment of Indian irrigation sector - it also contains some suggestions for minor irrigation development in the Eighth Five Year Plan under preparation. While the papers in chapters 2 and 3 familiarise the reader with the dynamics of ground water bounty of India, the one in chapter 4 deals with the regulatory aspect of this precious resource. A summary picture of tubewell economics is given in chapter 5. The scale economies of tubewell irrigation are revealed in chapter 6. How traditional and modern techniques of ground water irrigation compare with one another is analysed in chapters 7 to 9. The last three chapters deal with problems of ground water development in Uttar Pradesh, the largest state of the Indian Union.

Gedam, Dr Ratnakar, M., *The Economics of Science and Technology*, Ashish 'Publishing House, New Delhi, 1990, Pp. 280, Rs 300/-.

Human species are called homosapiens as they have inherent quality of thinking. The creativity of mankind has resulted in various inventions, innovations, and discoveries. Some of inventions, and discoveries of the ancient age have changed the destiny of the man. Science and technology has influenced men's living style. Obviously science is as old as mankind itself. This book provides an overview of the science and technology. The chronological history of science has been brought out. The history of science in India has also been dealt. In fact there are various mythological stories still prevailing in India hence special reference has been made to elucidate the Hindu mythology and its relevance to scientific facts by clarifying the query as to whether mythology contains any scientific facts. Vedic India as well as contribution of Indian science to the world has also been dealt. Apart from this, various definitions have been given to clarify what science and technology is. As it is common to use the term "revolution" an attempt has been made in this book to define scientific revolution in contrast with political revolution. The process of basic research, applied research, innovation, patents, product and process development, etc., has been dealt. The economic and legal aspects of Intellectual properties Law, Intellectual property, Paris Convention, Berne Convention, World Intellectual Property Organisation, etc., have been dealt. The contemporary struggle of industrialisation is dominated by transfer of technology changes, international technology trade and transfer, the appropriability theory etc. which are described in this book. With special reference to industrial scenario the topics covered are: modernisation of industries, product and process development, kondratieff cycle, innovation, upgradation of technology, appropriate technology, technology gap, mode of technology transfer, know-how, and international issues of technology transfer, etc. The concept of Economies of Scale has been dealt at length to prove it wrong by proposing new concept which explains why small scale industries perform better than the large scale industries. The concept of Neo-Development proposed by author has been further modified in this book by inclusion of a topic on nullification of trickle down in contrast with growth pole concept.

Raina, B.L., *Planning Family in India. Pre-Vedic Times to Early 1950s.* Commonwealth Publishers. New Delhi - 2, 1990, Pp. 262.

The book gives glimpses of planning family in India from pre-vedic (before 2500 B.C.) times to early 1950s, before the Government of India launched a Nationwide family planning programme. Two periods are discernable in the time span under investigation viz., the ancient period and Middle Age when a major focus was on having large number of children and the period commencing around early nineteenth century when the subject of restricting the size of the family began to be discussed. The book is accordingly divided in two parts.

Part I deals with the Ancient and Middle Ages and covers the knowledge of the human reproduction, fertile and infertile periods, management of premature births and abortions, status of women, marriage practices, desire for number of children at various periods, medicines for fertility/infertility, care of expectant mothers, rites relating to rearing of children upto the age of 16 years and allied subjects. The account is based on anthropological studies, archaeological investigations and ancient texts. The account during the Middle Ages gives general perspective of family planning among Zoroastrians, Jews, Christians, Islam and some practices mentioned in *Swara Yoga*.

Part II is based mainly on published reports. The section on Family Planning Association of India is based on the two letters of Lady Dhanvanthi Rama Rau, giving her reminiscences. A section is devoted to family planning in the Indian Armed Forces. The subject of rhythm study of family planning is discussed in the chapter entitled "The Coloured Beads", along with comments on the relevance of the rhythm study at present.

A chapter is devoted to Pandit Jawaharlal Nehru on Population. There are seven appendices

including reports of Mrs Rena Dutta 1938-45, extracts from reports of Dr Abraham Stone etc. The book is a valuable contribution to early history of family planning in India.

Singh Manjit, *The Political Economy of Unorganised Industry. A Study of Labour Process*, Sage Publication, New Delhi, Pp. 234, Rs 190/-.

The term 'unorganised sector' is widely used in current discussions of the Indian industrial scenario. However, it still suffers from a great deal of conceptual confusion. The purpose of this study is to clear part of this conceptual confusion by studying the labour process in the unorganised industrial sector through a detailed case study. Dr. Manjit Singh maintains that in order to arrive at a meaningful definition of the 'unorganised sector' it is necessary to trace the history of the various forms of industrial capital and to place the sector in the overall social relations of production. He has accordingly divided his study into two parts.

In the first part, the author traces the growth of industrial capital and the path of relations of production in Europe and India. Dr. Manjit Singh demonstrates that the course followed by industrial capital in India was different from Europe, primarily because of India's colonial experience. He then proceeds to present a detailed account of the political economy of the growth of small-scale industries in Punjab.

The second part of the book presents an analysis of Ludhiana's woollen hosiery industry. Dr. Manjit Singh finds that, despite the availability of advanced technology, this small-scale sector still relies on hand-operated 'machines'. As a result, this sector is based on the 'putting-out' system of production which means that the work force is scattered and the workers never know their real employer. This has affected the emergence of working class consciousness and the development of a strong trade union movement. This book studies the inter-relationship between the level of development of industrial capital and its effect, and provides a framework for the conceptual redefinition of 'unorganised sector'.

ARTICLES

1987

1. Raipuria, Dr Kalyan, 'Prelude to UNCTAD VII: G-77 Ministerial Meeting', *RIS Digest*, New Delhi, Jan-June 1987.

The article brings out the agenda and functioning of the Group of 77 (Developing Countries) for taking a common stand on issues for discussion in the UNCTAD VII, 1987, in Geneva. The 'Havana Declaration' adopted in the Ministerial meeting held in Cuba is discussed. This document contained the assessment of the world economy, proposals of the G-77 and measures suggested for amelioration of their problems. The article also points how different regional (G-77) groups' stands were harmonised reflected in Havana Declaration.

1988

2. Raipuria, Dr Kalyan, 'India and World Economic Disarray in the Eighties', *Man and Development*, Chandigarh, X/1, March 1988.

The papers has three main sections. Section I discusses the world economic disarray observed in the eighties covering the fields of trade, finance and technology. Disarray in the economic relationships among the groups of the Developed and the Developing countries is also brought out. Disarray has increased unequal interdependence, according to the paper. Section II analyse how India faced the disarray through adjustment; participation in North-South negotiations, promotion of South Cooperation, and bilateral cooperation. Summary of main observations is provided in Section III and concludes by saying that India has achieved a resilience to be able to face any turbulence in the world economy.

1989

3. Raipuria, Dr Kalyan, 'The Theory and Practice of Estimating Domestic Resource Cost in India', *Economic and Political Weekly*, Bombay, XXIV/32, August 12, 1989.

The paper discusses the recent developments in the theory of DRC and brings out the extended applications in difficult fields. Estimation practices in India are discussed to point to the major deficiencies in the macro economic context and evaluation of cost and benefits. The issues of adjustment for real/true prices; use of world/border prices; analysis of price elasticity areas, imports for exports, and net foreign exchange earnings, are discussed. The paper suggests that "more can really be done" to make the DRC estimate realistic. It is found that the practices followed in the recent empirical work done by the international/national organisations/individuals leaves much to be desired.

4. Raipuria, Dr Kalyan, 'Managing DIS in India: Strategies and Methodologies', *Economic and Political Weekly* (Review of Industry and Management), XXIV/34, September 1989.

This paper introduces the concept of development information system (DIS) and the system as it has evolved during the last forty years and as it is managed presently in India. The strategies and methodologies followed in evolving DIS in India is briefly reviewed and the limitations pointed out in the light of emerging information requirements. The paper also brings out problems and challenges of further developing DIS in India. At the end, the paper provides some reflection on further strategy and methodologies based on the review. The paper, in brief, stylises the whole array of institutions/organisations involved in information gathering and processing into DIS, integration of which should be the long-term objective.

Raipuria, Dr Kalyan, 'Industrial Policy: Need to Stress Job Creation', *Business Standard*, Calcutta, November 8, 1989.

The Article, in the perspective of the Seventh Plan, reviews the performance of growth of employment in the organised industry, public and private sector, as compared with growth of GDP. It is brought out that growth of employment in private industry, despite adequate mobilisation of capital and observed growth, declined over the Seventh Plan period. Employment generation has not been integrated with development frame and the brunt of the task of employment generation has been taken by the Government. The article points to the need for studying alternative industrial patterns with the objective of employment maximisation, while growing faster than the rest of the economy.

Tilak, J.B.G., 'Center-State Relations in Financing Education in India'; *Comparative Education Review*, XXXIII (4) November 1989. Pp. 450-80.

The paper examines the financial relationships in the sphere of education between the Union government and the state governments in India as developed during the pre and post-independence periods, concentrating on the latter period, in particular on the role of the Planning and Finance Commissions in promoting equity through their respective processes of allocation of resources to education, is a political model that has little regard for economic principles of equity and efficiency.

1990

Raipuria, Dr Kalyan, 'Emerging Scene of Indian Economy and Policy Perspective: Case of Balance of Payments', *Economic and Political Weekly*, (forthcoming).

This article reflects on India's Balance of Payments during the Seventh Plan 1985-90 as it performed compared to projections. In doing so the paper brings out the exact role of BOP in Plan

financing and the idealistic frame of projections as also certain gaps. The performance review points to the accumulated debt and depletion of reserves during the Seventh Plan period despite encouraging performance of exports. The issues raised in paper relate to distribution of net inflow and investment financing of private and public sector, increased inessential imports and foreign collaborations, objective of net foreign exchange earnings as compared to domestic resource cost, terms of trade, utilisation of available and expanding invisibles earnings.

Tilak, J.B.G., 'Union Budget and Education', *Educational Technology*, New Delhi II (10), March 1990, Pp. 10-11.

The course of educational development is guided by the budgetary allocations. Union budget, besides indicating the innovative developments also provides a cue to the place and importance of education in the scheme of activities of the government. The paper analyses the place given to education in 1990-91 budget of the Union Government and finds that the budget is no different from the earlier one, and does not show any directional change.

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