Journal of Indian School of Political Economy

Vol. VII No. 4
October-December 1995

A Journal devoted to the Study of Indian Economy, Polity, and Society

JOURNAL OF INDIAN SCHOOL OF POLITICAL ECONOMY is devoted to a study of the Indian Economy, Polity and Society. Emphasis is on reviewing developments since Independence with roots in the British administration where relevant. When a review is based on statistical data, as far as possible, full statistical base data are presented.

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Editorial communications should, however, continue to be sent to the Editor, Journal of Indian School of Political Economy, 'Arthabodh', 968/21-22, Senapati Bapat Road, Pune 411 053.

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OF INDIAN SCHOOL
OF POLITICAL ECONOMY

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

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

If a Reference is cited in a Note, the Note may use the shortened reference form:

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

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INDIA: A COUNTRY OF THE FUTURE?

R.M. Honavar

India is sometimes referred to as the country of the future, i.e., a likely candidate for the membership of the growth league of Newly Industrialised Countries (NIC). This paper examines the possibility of such an eventuality, not in isolation, but in comparison with the development of China, another large and poor country aiming at the same goal. The growth performance of China over roughly the same period in the second half of the twentieth century seems to have been much superior to that of India. The factors responsible for this superiority have been a very high saving and investment rate, single minded effort at growth, general acceptance of goals of growth and disciplined work due to communist ideology, and removal of obstacles, like great inequality and promotion of a relatively high quality of life. Indian effort, on the other hand, has faltered because of relatively low savings and investment, acceptance of a number of desirable goals which often clashed with each other, and the existence of a social and political structure which made it difficult to mobilise the necessary effort for development. The diversity and divisiveness of the Indian society led sometimes to wrong priorities and sometimes to dissipation of effort. Considerable progress has been achieved in the past, in spite of such handicaps and, in view of the much better current shape of the economy, India will continue to grow significantly. It is unlikely, however, that progress will be so high as to lead India to a membership of the NIC growth league.

INTRODUCTION

When India launched her programme of planned economic development in the fifties, she attracted the attention of the world as it was considered a novel experiment in democratic development by a poor country. High hopes were entertained about the overall growth of the economy and the increase in the standard of living of the Indian people. Forty years and seven Five Year Plans of development later, the Indian experiment is hardly noticed; or else India is pejoratively referred to as a country of the future. Newly industrialised countries (NIC) like Korea and Taiwan hold the centre of the stage, as champions in the growth league, because of their tremendous overall growth in this period. Starting from the same low level in the fifties and the sixties, their per caput incomes have risen to middle income country levels. City States like Hong Kong and Singapore have achieved an even higher level of prosperity during this period. Even late starters like Malaysia and Thailand have begun to grow rapidly and there are expectations that they will join the ranks of the NICs in the not too distant future! Last of all China, which is similar to India in terms of size, population, skills, poverty and other problems, appears to be forging ahead of India rapidly.[1]

How has this come about? Are they better endowed with resources than India? Obviously the City States do not have any natural resource other than the ability of their people; and South Korea and Taiwan cannot by any means be described as overly rich in resources. All these countries import raw materials from abroad and transform them for sale abroad again. Therefore, their skills, productivity, ability to organise and support from government policies seem to have been the foundation of their prosperity. Another possible ingredient is help received from friendly countries to overcome initial hurdles and later critical problems.

A comparative study of the development process could help throw light on why India has not made the kind of strides which these high-fliers have made. Such a comparison may not, however, be entirely meaningful because of India's size, population, diversity of its people, heavy dependence on agriculture and the magnitude of resource transfers needed. A comparison with China, however, may be more meaningful because of the similarity in the nature of the economies and because of the similarity of the problems faced in the course of development.

A comparative study has, however, certain

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The author is grateful to the late Prof. V.M. Dandekar, Dr. N. Rath, Shri M.R. Shroff and Dr. A.S. Nadkarni for their comments on an earlier draft. They are, however, not responsible for any deficiencies that still remain in the paper.

limitations arising from the fact that no two economies are totally alike. Certain policies which have worked in one society may not necessarily work in another because of the differences in their structure and institutions. Similarly, some instrument which is feasible in one society may not at all be feasible in another society. For example, exchange rate adjustments were relatively easy in an economy like South Korea where President Park's writ ran unchallenged till his assassination. On the other hand, it was an extremely agonising decision in an economy like India where till recently the entire nation would regard it not as a price adjustment but as a national dishonour. Similarly, the vigour with which a one child family norm is pursued in one-party China would be totally out of question in India with its multiplicity of political parties and religious groups whose perception of the goals of family planning differ quite widely. In spite of these limitations, a comparative study would throw up many factors which would be quite meaningful in explaining differences in development and suggesting remedial action. It would also be helpful in giving an idea of the kind of growth which India is likely to achieve if she continues, more or less, in the same manner as she has been doing so far.

I

ECONOMIC DEVELOPMENT IN INDIA

To begin with, it is necessary to list all the achievements of India in the field of development in these four decades to get a proper perspective. India's development record in the second half of this century can be considered good in comparison with its performance in the first half. National income has grown over four times in these forty years, the trend rate of growth being around 4 per cent per annum. It was 3.4 per cent per annum in the first thirty years and 5.5 per cent in the last ten years. As against this, the trend rate of growth was just 1.2 per cent in the period 1900-1946. However, the per caput income increased from Rs 1,127 in 1950-51 to Rs 2,227 in 1990-91 (at 1980-81 prices), an annual rate of increase of only 1.7 per cent, mainly due to the greater increase in population. Population, which increased by only 1.26 per cent per annum between 1941 and 1951, grew at much higher rates in the subsequent four decades. It was 1.93 per cent between 1951 and 1961, 2.24 per cent between 1961 and 1971, 2.28 per cent between 1971 and 1981 and 2.11 per cent between 1981 and 1991. As a result, total population increased from 361 million in 1951 to 844 million in 1991. India, therefore, continues to be among the 57 low income countries of the world out of a total of 207 [World Bank, 1994, p. 20]

India sought to achieve rapid development through a planned economy, instead of following a *laissez-faire* policy. Following the Harrod-Domar model, growth was to be achieved by increasing the volume of investment in each five year plan. It went up from Rs 3,360 crore at current prices in the First Five Year Plan to Rs 322,366 crore in the Seventh Plan. The gross domestic capital formation rate went up from 10.2 per cent in 1950-51 to 24.6 per cent in 1990-91. The gross domestic saving rate increased from 10.4 per cent to 21.9 per cent during the same period, the difference between the saving and investment rates being made up by the inflow of external savings or outflow of domestic savings.

Agriculture: The performance of Indian agriculture has been very good in these forty years. Agricultural production has increased at a compound rate of 2.7 per cent over this period, which contrasts with the growth rate of 0.25 per cent in the first half of this century. If, however, we split this period into two sub-periods - 1949-50 to 1964-65 and 1967-68 to 1988-89 - and ignore the two years of severe drought namely, 1965-66 and 1966-67, the growth rate is 3.1 and 2.6 per cent per annum, respectively. The production of foodgrains has gone up from 50.8 million tonne in 1950-51 to 176.2 million tonne in 1990-91. While the output of rice increased by about three and a half times during this period, the production of wheat rose by more than eight times. The output of jowar and bajra increased only moderately the output of maize rose by more than five times. The performance of pulse production has been somewhat lacklustre. The output of other crops has also increased in a reasonable manner, particularly of sugarcane, oilseeds and cotton (Table 1).

TABLE 1. PRODUCTION OF PRINCIPAL CROPS

(million tonne unless otherwise stated)

Crop	1950-51	1970-71	1990-91
Foodgrains	50.83	108.42	176.23
Rice	20.58	42.23	74.59
Wheat	6.46	23.83	54.52
Jowar	5.50	8.11	11.88
Bajra	2.60	8.03	6.91
Maize	1.73	7.49	9.07
Pulses	8.41	11.82	14.06
Potato	1.66	4.81	15.25
Oilseeds	5.16	9.63	18.46
Sugarcane*	57.05	126.37	240.29
Tobacco	0.26	0.36	0.56
Tea	0.27	0.41	0.72
Cotton**	3.04	4.76	9.76
Jute and Mesta***	3.31	6.19	9.10

* In terms of cane. ** Thousand bales of 170 kg each. *** thousand bales of 180 kg each.

Source: (i) *Indian Agriculture in Brief*, 24th Edition, Ministry of Agriculture, Government of India, New Delhi.
(ii) For Tea, *Economic Survey, 1994-95*, Ministry of Finance, Government of India, New Delhi.

The result of this growth has been an improvement in the food/population balance despite the large growth in population noted above. Net per caput availability of foodgrains rose from 395 grams per day in 1950-51 to 510 grams in 1990-91.

How was this improvement achieved? Firstly, there was an increase in the area sown. Net sown area went up from 118.75 m ha in 1950-51 to 140.27 m ha in 1970-71 and has stayed more or less at that level in the next two decades. This is 46.3 per cent of the total area of the country. Simultaneously, area sown more than once has gone up from 13.14 m ha in 1950-51 to 43.24 m ha in 1990-91. Gross cropped area has thus increased from 131.89 m ha to 185.48 m ha in these forty years.

Secondly, irrigation has played an important role in this transformation. Net irrigated area has more than doubled, from 20.90 m ha in 1950-51 to 47.43 m ha in 1990-91 and gross irrigated area has gone up from 22.50 m ha to 61.78 m ha by 1990-91. Net irrigated area went up from 17.5 per cent to 33.3 per cent of total cultivated area; and gross irrigated area from 17.1 per cent to 33.3 per cent of gross cropped area, respectively, in this period. In 1950-51, 39.7 per cent of net irrigated area drew water from canals and 28.7 per cent from ordinary wells. The balance of 31.6 per cent was shared between tanks and other sources. The picture has changed considerably by 1990-91. Wells accounted for 50.8 per cent of net irrigated area, the share of tube wells having risen to 30.0 per cent from almost nothing. The share of canal irrigation has come down to 35.7 per cent. The share of tanks and other sources has declined drastically. The most heavily irrigated crops were wheat, rice, oilseeds and sugarcane.

The increasing use of High Yielding Variety (HYV) seeds has been another contributing factor. The area under HYV seeds has increased substantially since 1966-67, the year in which a substantial thrust was given to the programme. From almost a negligible level, that area has grown to 65.0 m ha in 1990-91, most of it in grains, principally wheat and rice. The area under HYV seeds was 85 and 65 per cent, respectively, of gross area under these two crops. Similarly, the use of chemical fertilisers rose from 1.92 kg per ha of gross cropped area in 1960-61 to 69.28 kg in 1990-91. A fair amount of mechanization has also has taken place. The number of tractors in use has gone up from 9,000 in 1951 to 14.68 lakh in 1990-91 and the number of pump sets has increased from 1.09 lakh to 1.49 crore during the same period [CMIE, August 1994].

There has also been a significant increase in yield. The index number of yield for rice (Triennium ending 1969-70=100) went up from 67.3 in 1950-51 to 191.3 in 1990-91, when the yield rose to 1.756 tonne per hectare. In wheat, the increase in the index was from 61.6 to 302.0

and the actual yield in 1990-91 was 2.281 tonne per hectare. While these were all India averages, they were 2.42, 2.73, 3.51 and 3.09 tonne of rice per hectare for Andhra Pradesh, Haryana, Punjab and Tamil Nadu, respectively. In wheat, Haryana and Punjab achieved yields of 3.18 and 3.59 tonne per hectare, respectively. Maize, potato cotton and sugarcane are other crops in which a substantial yield improvement has taken place (Table 2).

TABLE 2. YIELD PER HECTARE: MAJOR CROPS

(kg per ha)

	1950-51	1990-91
Rice	668	1,740
Wheat	663	2,281
Jowar	353	814
Bajra	288	658
Maize	547	1,518
Pulses	441	578
Potato	6,917	16,195
Groundnut	775	919
Rapeseed Mustard	368	900
Sugarcane	33,422	65,269
Cotton	88	224
Jute Mesta	1,043	1,634
Tobacco	731	1,361
Tea	876	1,678

Source: As in Table 1.

Significant advance has been made with regard to the production of fish, meat, eggs and milk (Table 3). The output of fish has gone up by five times and the output of eggs by more than ten times. The increase in the output of milk and meat has been modest but it is claimed that India is the second largest milk producing country in the world.

TABLE 3. PRODUCTION OF SUBSIDIARY FOODS

Foods	Unit	1950-51	1990-91
(a) Fish			
Marine	'000 tonne	534	2,300
Inland	-do-	218	1,536
Total	-do-	752	3,836
(b) Eggs	million	1,832	21,101
(c) Milk	'000 tonne	17,000	53,931
(d) Meat	'000 tonne	514	1,834

Sources: (i) *Economic Survey, 1994-95*, Ministry of Finance, Government of India, New Delhi.
(ii) *Indian Agriculture in Brief*, 24th Edition, Ministry of Agriculture, Government of India, New Delhi.
(iii) *India: Economic Information Year Book*, 1995 by Agrawal *et al.*

Industry: Since the growth of industry and infrastructure was the main instrument of changing the structure of the economy, industrialization has been pursued vigorously. Public sector outlay (which is a proxy for investment) on power, industry and minerals, rose from 10.2 per cent of the total in the First Five Year Plan to 41 per cent in the Seventh Plan. As a result, the growth of industry has been both deep and wide. The emphasis was on building up basic and capital goods industries which would enable industry to grow on its own and without dependence on imported equipment and technology. This resulted in the development of industries like steel, heavy engineering, machine tools, heavy electrical equipment, heavy chemicals, fertilisers, cement and a whole range of intermediates. Simultaneously, development of infrastructure

like railways, road transport, electricity generation, coal mining, and iron ore raising, took place in a more or less complementary manner. Consumer goods industries, such as artificial fibre fabrics, radios, bicycles, sewing machines, electric lamps and fans, and drugs and pharmaceuticals have also developed during the same period. More recently, consumer electronics and motorised two-wheelers and petroleum production have grown in a big way. Table 4 gives an idea of the change in industrial production over these years.

TABLE 4. PRODUCTION OF SELECTED INDUSTRIES, 1950-51 - 1990-91

Industry	Unit	1950-51	1990-91
Iron Ore	million tonne	3.00	53.70
Finished Steel	-do-	1.04	13.53
Aluminium	'000 tonne	4.00	451.10
Machine Tools	million rupee	3.00	7,731.00
Railway Wagons	thousand	9.00	25.30
Commercial Vehicles	-do-	8.60	145.50
Cars, etc.	-do-	7.90	220.80
Scooters, etc.	-do-	nil	1842.80
Power Driven Pumps	-do-	35.00	519.00
Diesel Engines	-do-	5.50	158.40
Agricultural Tractors	-do-	nil	142.20
Power Transformers	million KVA	0.18	36.58
Electric Motors	million horse power	0.10	5.86
Fertilisers	'000 tonne	18.00	8,045.00
Soda Ash	-do-	46.00	1,385.00
Caustic Soda	-do-	12.00	992.00
Cement	million tonne	2.70	48.80
Bicycles	thousand	99.00	7,084.00
Sewing Machines	-do-	33.00	142.20
Electric Fans	million	0.20	4.24
Electric Lamps	-do-	15.00	274.40
Radio Receivers	thousand	54.00	685.00
Cotton Cloth	million sq. metre	4,215.00	15,431.00
Man-made Fibre Fabrics	-do-	300.00	5,126.00
Sugar	'000 tonne	1,134.00	12,047.00

Source: *Economic Survey, 1994-95*, Ministry of Finance, Government of India, New Delhi.

In spite of these impressive statistics, the growth of industry must be considered unsatisfactory. Ambitious targets were laid down for industrial growth in each Five Year Plan and large volumes of investment resources were provided, but actual growth was somewhat unsatisfactory except perhaps during the Seventh Plan. Although the target rates of growth varied between 7 and 10 per cent, the actual growth rate was only about 6.3 per cent. Industrial growth was particularly disappointing after the Third Five Year Plan and until the Seventh Plan.

These figures, however, do not give any idea of the growth of small scale industry. This has really been spectacular. In 1990-91, there were 19.38 lakh units in this sector which produced an output worth Rs 155,340 crore or a little over half the total output of the organised sector [*Economic Survey*, 1991-92, p. 87]. But the investment in this sector was only 11 per cent of the total investment in organised industry. Its product coverage extends from consumer goods and consumer durables to intermediates and light engineering goods. The idea behind the promotion of small scale industries was that they would need less capital and promote employment. By their very nature they could function from any location and would thus avoid urban agglomeration which is a characteristic of large scale industry. It was also hoped that they would nurture the entrepreneurial spirit and thus contribute to the growth of large scale industry at a later date. Not all of these expectations have been fulfilled, particularly those relating to spatial distribution of industry, and employment.

Another instrument which was used to accelerate industrial growth was the promotion of the public sector. The theory behind this, following the socialist model, was that rapid industrialization would require the setting up of giant enterprises with up-to-date technology in areas, which are unfamiliar but which are necessary in an overall perspective of growth. The private sector would not be able to take these up because of the inadequacy of their resources and because these would not ordinarily fit into their profit calculus. Also government's objective of building an egalitarian socialist society could be achieved by the public sector occupying the so called 'commanding heights of the economy'. The Industrial Policy Resolution of 1956, divided industries into three categories: (a) those where investment would be by the public sector alone; (b) those where both the public and the private sectors would be free to operate; and (c) those where the investment initiatives would be primarily with the private sector. It is in pursuance of this policy that the number of government companies went up from 36 in 1956 to 1,160 in 1990 and their paid-up capital from Rs 26 crore to Rs 44,985 crore during this period. In contrast, the number of private sector companies increased from 28,496 to 197,393 between 1951 and 1990 but their paid-up capital increased from Rs 749 crore to Rs 14,737 crore only. The capital employed in 236 Central Public Enterprises amounted to Rs 102,083 crore in 1990-91 and their turnover was Rs 118,676 crore [*Economic Survey* 1994-95, p. 109]. The comparative figure of sales for 1,885 large and medium public limited companies and 1,019 large and medium and private limited companies was Rs 71,787 crore for the year 1988-89. (The figure for central public enterprises for that year was Rs 93,137 crore) [*Statistical Outline of India*, 1992-93]. Bulk of the public industrial investment was in sectors like steel, non-ferrous metals, heavy electrical and non-electrical machinery, machine tools, petroleum and petroleum products, fertiliser, heavy chemicals, coal and communication equipment.

Industrial development on such a scale is not possible without supportive infrastructure. Considerable headway has been made in this regard. Table 5 gives the details

TABLE 5. INFRASTRUCTURE DEVELOPMENT

Infrastructure Sector	Unit	1950-51	1990-91
1. Electricity			
(i) Installed Capacity	thousand MW	2.3	74.7
(ii) Generated	billion KWH	6.6	289.4
2. Coal Production	million tonne	32.3	225.5
3. Petroleum	million tonne	0.3	33.0
4. Railways	thousand km	53.6	62.4
Freight Traffic	billion tonne-km	44.1	242.7
5. Length of Surfaced Roods	thousand km	157.0	1,001.0
6. Motor Vehicles on Roads	thousand	306.0	21,310.0
7. Shipping Tonnage	thousand GRT	391.0	6,030.0

Source: *Economic Survey, 1994-95*, Ministry of Finance, Government of India, New Delhi.

Quality of Life: The goal of development is an improvement in the standard of living of the people. It, therefore, implies an improvement in the quality of life and involves an improvement in nutrition, health care, public hygiene and sanitation, and education. Here also substantial changes have occurred. Total government expenditure on education has gone up from Rs 61 crore in 1950-51 to Rs 17,669 crore in 1990-91 [CMIE, August 1994, Table 2.8]. As a percentage of Gross Domestic Product (GDP) these figures reflect a movement from 0.68 per cent to 3.74 per cent. Per caput expenditure has gone up from Rs 1.70 in 1950-51 to Rs 210.85 in 1990-91. Table 6 gives an idea of the results achieved.

TABLE 6. NUMBER OF EDUCATIONAL INSTITUTIONS

	1950-51	1990-91
Institutions (numbers)		
Primary Schools	2,09,671	558,392
Middle/High Schools	21,012	2,25,255
Arts, Science & Commerce Colleges	370	4,862
Professional Institutions	208	886*
Universities	27	146
Students (thousand)		
Primary	19,155	99,118
Middle/High	4,601	54,180
Graduate & Above	174	4,090

* Refers to engineering, medical and teachers' training institutions.

Sources: 1. *Economic Survey*, 1993-94, Ministry of Finance, Government of India, New Delhi.
2. *Seventh Five Year Plan, 1985-90*, Planning Commission, Government of India, New Delhi.
3. *India - Economic Information Year book, 1995*, by Agrawal *et al.*

In spite of all this expansion, the educational scene cannot be described as very satisfactory. Firstly, the expansion of higher education facilities has been relatively greater than that of primary education. Secondly, the use of the facilities by females is much less than that by males. The percentage of literates in the total population has gone up from 18.3 per cent in 1951 to only 52.2 per cent in 1991 [*Economic Survey*, 1994-95, p. s-1]. India probably has the dubious distinction of having the largest number of illiterate people in the world. Comparable literacy figures for males and females for the two years were 27.2 and 8.9 per cent and 64.1 and 39.3 per cent, respectively. These figures covered in 1991 a range for men of 94.45 per cent in Kerala to 51.10 per cent in Arunachal Pradesh; and for women 86.93 per cent in Kerala to 20.84 per cent in Rajasthan. Although the enrolment of boys and girls between the ages of 6 and 11 was 86 per cent of their total population in 1990-91, the dropout rate was as high as 48 per cent.

Good health is an important constituent of the quality of life as well as productivity. Total expenditure on health has gone up from Rs 28.2 crore in 1950-51 to Rs 7,496 crore in 1990-91 or from less than a rupee per head to Rs 89.46. The increase in facilities is as follows:

TABLE 7. PUBLIC HEALTH FACILITIES

(number)

	1950-51	1990-91
Hospitals	2,694	11,174
Dispensaries	6,900	27,431
Hospital Beds for a lakh Persons	32	95
Registered Medical Practitioners for a lakh Persons	17	47
Registered Nurses for a lakh Persons	4	30
Ancillary Health Personnel	33,714	479,558

Source: *Health Information of India 1992*, Ministry of Health and Family Welfare, Government of India, New Delhi.

The distribution of these facilities is highly skewed in favour of urban areas. Thus, the number of hospitals per lakh persons in urban areas was six times that in rural areas and the number of dispensaries was three and a half times as large. There are variations in the facilities available among the various states as well.

The result of all this expansion in medical facilities has been a decline in the incidence of communicable diseases and the death rate. The latter has come down from 27.4 per thousand in 1951 to 11.4 in 1990. Similarly, the infant mortality rate has declined from 146 per thousand births in 1951 to 80 in 1990. However, the birth rate has dropped from 39.9 to only 32.5 per thousand in this period. Life expectancy has gone up from 32.4 years in 1951 to 58.1 in 1990 for men, and from 31.7 years in 1951 to 59.1 in 1990 for women. Despite this improvement these figures are not satisfactory, not only in comparison with those for developed countries but also with those for many developing countries.

Nutrition is the basis of good health. There are two ways of looking at the nutrition obtained by people. First, one can take into account the net availability of foodgrains, which is the source of energy for the bulk of the people, and see whether it is adequate to provide the minimum number of calories considered desirable. The other is to define a poverty line - income necessary to provide the required minimum of calories - and see what proportion of the population falls below or above that line. According to the first criterion, per caput net availability of cereals and pulses rose from 395 g per day in 1951 to 510 g per day in 1991. While this is commendable in view of the more than double increase in population, it is still considerably short of the 700 g or so considered by the FAO as the minimum needed. If account is also taken of the fact that everyone in the country is not guaranteed a minimum of food for consumption, the inadequacy becomes even more glaring.

This becomes clearer when we look at the percentage of people below the poverty line. This percentage is estimated by official agencies to have declined from 38 per cent in 1960-61 to 28 per cent in 1989-90 in rural areas; and from 40 per cent to 19 per cent in urban areas. These figures have been disputed and the reduction in the number of the poor is said to be much less. Nevertheless, even according to these figures 211 million Indians were below the poverty line - 169 million in rural areas and 42 million in urban areas - in 1989-90. According to the *Report of the Expert Group on Estimation of Proportion and Number of Poor* published in 1993, the respective figures for the year 1987-88 are 313, 229 and 83 million, respectively. That is, even after fort years of continuous development, we have not reached a stage where everyone in the country has enough to eat; and this condition affects t Scheduled Castes and Scheduled Tribes most acutely. Even as late as in 1983-84, 50.9 per cent of the Scheduled Caste population and 57.1 per cent of the Scheduled Tribe population were below the poverty line. The degree of inequality also seems to have remained almost unchanged. In 1958-59, the bottom 30 per cent of households accounted for 13.1 per cent of consumer expenditure and the top 30 per cent for 52.6 per cent; comparable figures for 1983 were 15.2 and 50.9, respectively.

The Second Five Year Plan Report contained an illustrative perspective of growth till the Fifth Five Year Plan (1971-76). Some of the key figures in that perspective were as follows:

TABLE 8. PERSPECTIVE OF GROWTH, 1951-1978

(At 1952-53 prices)

	A 1st Plan (1951-56)	B 2nd Plan (1956-61)	C 3rd Plan (1961-66)	D 4th Plan (1966-71)	E 5th Plan (1971-76)
1. National Income at the End of the p Period (Rs crore)	10,800	13,480	17,260	21,680	27,270
2. Investment as Percentage of National Income	7.3	10.1	13.7	16.0	17.0
3. Population at the End of the Period (million)	384	408	434	465	500
4. Incremental Capital-Output Ratio	1.38	2.30	2.62	3.36	3.70
5. Per Capita Income at the End of the Period	281	331	396	466	546

Source: *Second Five Year Plan, 1956-61*, Planning Commission, Government of India, New Delhi, p. 11.

The actual performance has been as follows:

TABLE 9. ACTUAL PERFORMANCE

	A	B	C	D	E
1. Index Number of National Income at 1980-81 Prices	119.4	144.9	162.5	203.2	235.9
2. Investment as Percentage of National Income	14.3	15.7	16.8	15.6	18.8
3. Population at the End of the Period (million)	359	434	485	541	607
4. Incremental Capital-Output Ratio	3.2	4.1	5.4	5.7	3.9
5. Index No. of per Caput NNP at 1980-81 Prices at the End of the Period	109.0	119.8	120.3	134.8	139.5

Source: (i) *India: Economic Information Year Book,* 1995, Agrawal *et al.*
(ii) *Statistical Outline of India,* 1992-93.

It is obvious that the expectations embodied in the perspective have not been fulfilled at all. National income which was expected to be two and a half times as large was slightly less than double. Similarly, per caput income which should have risen by 136 per cent was higher by only 28 per cent. This was because population growth was much faster than anticipated. In 1971 itself it was as high as 541 million as against the projected figures of 466 million for 1971 and 546 million for 1976, respectively. At the rate of growth prevalent in the decade, it would have been over 600 million in 1976. Again, though investment as a proportion of national income was higher than anticipated, it did not lead to higher growth because of a larger increase in the capital-output ratio. The Incremental Capital-Output Ratio (ICOR) was almost twice as high except in the Fifth Plan. It is worth noting that per caput income has not doubled even at the end of forty years!

The same story emerges, if we look at targets (T) and achievements (A) of each Plan:

TABLE 10. PLAN-WISE TARGETS AND ACHIEVEMENTS

(per cent growth)

Plan	National Income		Per caput Income		Agriculture		Industry	
	T	A	T	A	T	A	T	A
1st Plan (1951-56)	2.1	3.6	0.9	1.7	-	2.9	7.0	5.9
2nd Plan (1956-61)	4.5	3.9	3.3	1.9	0.0	3.2	10.2	6.4
3rd Plan (1961-66)	5.6	2.3	3.2	0.1	6.0	-0.5	10.7	6.8
4th Plan (1969-74)	5.7	3.3	-	0.9	5.0	2.6	7.1	3.7
5th Plan (1974-79)	4.4	4.9	-	2.6	4.0	3.4	9.0	6.3
6th Plan (1980-85)	5.2	5.4	3.5	3.2	3.8	5.5	6.9	6.2
7th Plan (1985-90)	5.0	5.8	3.2	3.6	4.0	3.4	8.3	6.5

Source: *India: Economic Information Year Book,* 1995, by Agrawal *et al.*, p. 318.

The performance of agriculture has varied a great deal with overfulfilment of targets only in recent years. Industry, on the other hand, has consistently fallen short of targets, except in the Seventh Plan. It has, however, shaken off the stagnation of the mid-eighties and has moved up to higher levels of performance.

Regional Development: India, being a large country, overall statistics may not give a proper picture of the progress that has taken place in different parts of the country. For this one has to look at state-wise statistics. For example, statistics of per caput State Domestic Product (SDP) show that in 1989-90, Madhya Pradesh's per caput SDP at Rs 678 was a little less than a third of the all India figure of Rs 2,169; and Goa's per caput SDP at Rs 3,678 was 1.7 times higher. 12

out of the 20 States/Union Territories for which data is available had SDP lower than the all-India average. Only five states, namely, Goa, Pondicherry, Haryana, Punjab and Maharashtra had a SDP above Rs 3,000. The highest per caput SDP, that of Goa, was 5.4 times that of the lowest, that of Madhya Pradesh. Again, in 1987-88 as against a percentage of 29.9 of people below the poverty line for the country as a whole, the percentages of poor people were as high as 40.8 in Bihar, 36.7 in Madhya Pradesh and 35.1 in Uttar Pradesh. Only Punjab, Himachal Pradesh and Haryana had poverty percentages as low as 7.2, 9.2 and 11.6, respectively. Of course, compared to 1977-78 there has been noticeable improvement. The all India percentage of population below the poverty line has fallen from 48.3 to 29.9. States like Karnataka, Maharashtra, Tamil Nadu and West Bengal which then had half their population below the poverty line have shown substantial improvement. But large and populous states like, Uttar Pradesh, Madhya Pradesh and Bihar continue to have rather large numbers of poor people.

The External Sector: All developing countries undergoing industrialisation have to import machinery, equipment, components and intermediates in the initial years and pay for it through exports. If they cannot, they seek external assistance, which is an inflow of external savings into the economy. India has had a more or less continuously adverse balance of trade in these forty years because of a tardy growth of exports, the size of the adverse balance being particularly large in the eighties. Invisibles have not been able to cover this gap except for a few years after the first oil crisis in 1973, when the flow of remittances from migrant Indian workers in the Gulf assumed a substantial size. Therefore, India has been continuously dependent on external assistance. However, the inflow of aid has not been heavy. Except for the Second and the Third Five Year Plan periods when net aid was 19.2 and 20.6 per cent of total Plan investment, respectively, it has never been higher than 6.2 per cent. If anything, the percentage has declined slightly in recent years. Bulk of it has been on concessional terms.

However, in the eighties, a good deal of borrowing from the world capital markets both by government and private parties has taken place. This was relatively short term and the interest rate, being governed by market forces was much higher than on assistance from developed countries and certain multilateral agencies. The country has also attracted a substantial volume of deposits from non-resident Indians (NRI) by offering rates of interest higher than those they would get in the countries of their residence.

The result of all this borrowing was that, in 1990-91, India's outstanding medium and long term debt was around Rs 100,000 crore, excluding NRI deposits. Including them it was a little over Rs 120,000 crore [*Economic Survey* 1991-92, Pp. 78-79]. Debt service, defined as amortization and interest payment, has been growing steadily because of the growing volume of debt and the hardening of terms over recent years. The debt service ratio, i.e., the proportion of debt service to exports and invisible receipts, has gone up from a little over 9 per cent in 1980-81 to about 21 per cent in 1990-91. If we take into account the liability arising on account of NRI deposits, the figure would be still higher by a couple of percentage points.

If such a large debt service is not to act as a brake on development, exports have to increase sharply year by year. In the first ten years of this period exports were almost stagnant at Rs 643 crore in 1960-61, because the main traditional items of export like tea, cotton textiles and jute textiles hardly showed any growth (Table 11). It has been argued that India suffered from export pessimism and, therefore, failed to take advantage of the growing world market for textiles and other consumer goods as the newly industrialised countries (NIC) did. Serious export effort began in the late sixties and exports rose by more than four times between 1970-71 and 1980-81. This was partly due to the prosperity of the gulf countries after the quadrupling of oil prices in 1973 and to the emergence of new products like fish, iron ore, leather goods, ready made garments, polished diamonds and certain types of machinery and transport equipment. Between 1980-81 and 1990-91, exports grew by almost

five times to Rs 32,553 crore due to the growth of the same items, as relatively low Indian wages and export incentives made them price competitive. Export growth became quite difficult towards the end of this period because of the deterioration in world economic conditions and increasing protectionism among developed countries.

TABLE 11. FOREIGN TRADE: TRENDS

(Rs crore)

Year	Imports	Exports	Balance of Trade	Exports as Percentage of Imports
1950-51	608	606	-2	99.7
1955-56	774	609	-165	78.2
1960-61	1,122	643	-479	57.2
1965-66	1,409	810	-599	57.2
1970-71	1,634	1,535	-99	93.9
1971-72	1,825	1,608	-217	88.1
1972-73	1,867	1,971	+104	105.6
1973-74	2,955	2,523	-432	85.4
1974-75	4,519	3,329	-1,190	73.7
1975-76	5,265	4,036	-1,223	76.8
1976-77	5,074	5,142	+68	101.3
1977-78	6,020	5,408	-612	89.8
1978-79	6,811	5,726	-1,085	84.1
1979-80	9,143	6,418	-2,725	70.2
1980-81	12,549	6,711	-5,838	53.5
1981-82	13,608	7,806	-5,802	57.4
1982-83	14,293	8,803	-5,940	61.6
1983-84	15,831	9,771	-6,060	61.7
1984-85	17,134	11,744	-5,390	68.5
1985-86	19,658	10,895	-8,763	55.4
1986-87	20,096	12,452	-7,644	62.2
1987-88	22,244	15,674	-6,570	70.5
1988-89	28,235	20,232	-8,003	71.6
1989-90	35,416	27,681	-7,735	78.1
1990-91	43,173	32,553	-10,640	75.3

Source: *Economic Survey*, 1991-92, Ministry of Finance, Government of India, New Delhi.

This growth was, however, not adequate because imports also grew rapidly. As the production structure grew, because India pursued industrialisation through import substitution, the need for imports of raw materials, spare parts and components also grew and imports had to be allowed, if capacity set up was to be fully utilised. The composition of imports was such that a reduction would have affected domestic production and, thus, indirectly exports. Therefore, except for two years (1972-73 and 1976-77), imports always exceeded exports. And in years like 1960-61, 1965-66, 1980-81, 1981-82 and 1985-86 exports as a proportion of imports were as low as 57.2, 53.5, 57.4 and 55.4 per cent, respectively, due to certain special circumstances. Exports as a percentage of GNP rose from 4.2 in 1960-61 to 6.95 in 1990-91. On the other hand, the percentage of imports rose from 7.4 to 9.22. In later years, imports consisted of bulk items like steel, non-ferrous metals, machinery, fertilisers, chemicals, rough diamonds and consumer items like edible oil. A short-term reduction is not possible without affecting domestic production and raising internal prices, both of which might affect exports adversely. The balance of payments situation continues to be precarious and its improvement is vital for further growth (Table 11).

Prices: One of the undesirable features of Indian economic development has been the more or less continuous rise in prices from 1955-56. In the initial years the tendency was somewhat subdued but, after the droughts of 1965-66 and 1966-67, inflation was much sharper with occasional great spurts due to bad monsoons or external shocks like the oil crisis of 1973 or wars with neighbouring countries. In the eighties it was even more pronounced (Table 12).

TABLE 12. INDEX NUMBER OF WHOLE SALE PRICES

(1970-71=100)

1950-51	47.5
1951-52	50.4
1952-53	44.1
1953-54	46.2
1954.55	43.0
1955-56	40.8
1956-57	46.5
1957-58	47.9
1958-59	49.8
1959-60	51.7
1960-61	55.1
1961-62	55.2
1962-63	57.3
1963-64	60.9
1964-65	67.5
1965-66	72.7
1966-67	82.8
1967-68	92.4
1968-69	91.3
1969-70	94.8
1970-71	100.0
1971-72	105.6
1972-73	116.2
1973-74	139.7
1974-75	174.9
1975-76	173.0
1976-77	176.6
1977-78	185.8
1978-79	185.8
1979-80	217.6
1980-81	256.2
1981-82	281.3
1982-83	288.7
1983-84	316.0
1984-85	338.4
1985-86	357.8
1986-87	376.8
1987-88	405.4
1988-89	435.3
1989-90	

Source: *Economic Survey*, various years, Ministry of Finance, Government of India, New Delhi.

The basic reason for such inflation was the inability of government to raise resources to meet its developmental needs and non-developmental expenditure. Tax revenue and domestic and external capital receipts were not large enough to cover total expenditure and the excess of expenditure over receipts had to be covered by borrowing from the Reserve Bank. The gross fiscal deficit rose from 0.5 per cent of GDP in 1975-76 to 2.4 per cent in 1989-90; similarly the monetised deficit rose from 4 per cent of GDP to nearly 8 per cent, during the same period. This monetised debt added to the money supply in the economy and exercised a continuous pressure on prices, the extent varying according to favourable or unfavourable factors, some of which were mentioned above. In the eighties, government profligacy was an important reason for the inflationary pressures in the economy (Table 13).

TABLE 13. COMBINED BUDGETARY TRANSACTION OF THE CENTRE, STATES AND UNION TERRITORIES AND FINANCING PATTERN

(Rs lakh)

Year	Total Expenditure	Of Which Non Development Expenditure	Total Revenue	Overall Budgetary Surplus (+)/Deficit(-)
1955-56	143,109	63,501	100,842	-14,987
1960-61	258,652	98,729	172,478	11,785
1961-62	284,408	110,791	194,772	-10,258
1962-63	336,713	136,980	232,470	-14,099
1963-64	412,809	177,951	286,834	-18,730
1964-65	459,183	185,199	328,932	-19,415
1965-66	540,713	207,370	360,918	-26,076
1966-67	592,188	266,098	400,978	-22,556
1967-68	621,800	267,047	434,859	-25,700
1968-69	658,835	279,286	477,260	-36,285
1969-70	707,685	311,524	531,854	-2,153
1970-71	806,648	351,245	581,994	-38,276
1971-72	972,596	424,144	670,005	-79,732
1972-73	1,083,933	453,563	776,556	-89,255
1973-74	1,190,771	505,188	877,508	-45,932
1974-75	1,478,959	573,568	1,091,912	-175,108
1975-76	1,811,447	698,457	1,324,244	-35,026
1976-77	2,035,659	774,626	1,477,308	-17,956
1977-78	2,234,065	785,673	1,590,238	-101,614
1978-79	2,590,506	918,613	1,834,788	-163,070
1979-80	2,916,572	1,051,483	2,055,889	-1265,480
1980-81	3,537,941	1,270,747	2,314,661	-1345,033
1981-82	4,054,630	1,446,317	2,815,967	-251,890
1982-83	4,801,494	1,765,903	3,236,673	-234,548
1983-84	5,569,398	2,121,996	3,624,766	-213,497
1984-85	6,673,395	2,474,760	4,208,808	-510,559
1985-86	7,641,535	3,069,144	5,006,699	-343,894
1986-87	9,158,083	3,739,622	5,761,573	-915,038
1987-88	10,324,804	4,425,814	6,622,038	-766,281
1988-89	11,261,041	4,930,022	7,369,330	835,617

Source: *India Database: The Economy*, by H.L. Chandhok *et al.*, 1990, Vol. I, Pp. 446-449.

An important consequence of this was that price stability became almost as important a goal as growth. Since the external sector could not be used to moderate inflation by importing food and other commodities, price stability often required a brake on government development expenditure. This was because government could not check the growth of non-development expenditure such as subsidies given to pacify important pressure groups. Also as government accumulated internal debt to finance development, because of its inability or unwillingness to raise tax revenue, debt service became a major and increasing component of non-development expenditure. Since the investments did not yield a surplus adequate to service this debt and since expenditure was continuously rising due to political compulsions, the government faced the unenviable choice of either more monetised debt or a check on development expenditure. The spectre of a debt trap began to loom larger and larger, because it could not cut development expenditure beyond a point.

How are India's achievements to be evaluated? Compared with the relative stagnation of the first half of the twentieth century, the progress made is indeed remarkable. Continued growth at rates higher than those achieved by developed countries in the same period, wide diversification of the economy, a certain degree of improvement in the quality of life - all achieved with relatively meagre resources and in a relatively free society - appear to deserve praise. But given the fact that these achievements fall very much short of what is needed to enable people to lead a satisfying and

meaningful life, the praise has to be muted. The extent of poverty, poor nutrition, incidence of disease and mortality, the not so high life expectancy, the looming threat of over-population, poor infrastructure with regard to water supply, sanitation and housing, and high illiteracy - all show that what has been done is not enough. This, in a sense, is a measure of the failure of the Indian experiment of democratic development.

II

ECONOMIC DEVELOPMENT IN CHINA

The Communists seized power in China in 1949 and began the transformation of its economy almost immediately. Thus, the development programmes of India and China have run parallel in these forty years or so. The two countries have other similarities as well. Both are large, China's area of 9.6 m square kilometre being three times as much as India's. Both have large and growing populations - 1,139 million people in China in mid 1990 and 827 million in India in the same year[2]. Both were and are amongst the poorest countries in the world; the latest World Bank *Economic Atlas* gives the per caput GDP of the two countries for 1991 as $370 and $330, respectively [World Bank, 1994, p. 18]. While India was in need of extensive rehabilitation because of World War II and the partition of the country, China had to face the more serious task of recovering from the ravages of the Japanese occupation before and during World War II and the long Civil War.

There were important differences as well. Although China's area is much larger, a very large part of the country is mountainous or desert and arable area is only about 10 per cent of the total, making it much less than the arable area in India. And this arable area runs from the north to the south along the eastern coast. Because of these physical characteristics, regional variations in the levels of living tend to be large. The North-West, West and South-West are mountainous or desert and, therefore, are poorer than the Northern, Central and Eastern parts of the country. Secondly, although the language spoken in different parts of the country varied as in India, everybody uses the same pictogram script and therefore, unlike in India, can easily understand each other from one end of the country to the other. Thirdly, the level of physical, linguistic and cultural differences which exist, say, among Punjabis, Assamese and Tamilians in India, do not seem to exist in China; they all look upon themselves as Han people. Minorities do exist in China over large areas, but they are so small in number that they do not do much violence to China's homogeneity. Finally, China seems to be better endowed with natural resources. Its coal deposits are perhaps the largest in the world and were estimated in 1957 at 1,500 billion tonne. Proven reserves were much smaller at 80 to 100 billion tonne. Its oil resources are one of the largest. The estimates of proven oil reserves vary a great deal but a conservative estimate for onshore oil deposits would be 3,000 million tonne with an equal amount offshore. The estimate of natural gas runs to 500-800 billion cubic metre. China's hydroelectric potential is also very large. Other minerals of varying quality with which China is well endowed are: antimony, bismuth, iron ore, manganese, mercury, molybdenum, tin, tungsten, barite, fluorspar, magnasite and salt.

How has the economy of China grown in these four decades? The question can be answered easily because the Chinese government now provides comprehensive statistics. Scholars tended earlier to be sceptical of these figures for several reasons. Firstly, the government did not have an adequate statistical service even for their own planning in the earlier years. There was a feeling that data for the earlier years were more in the nature of guesses. Secondly, there was a total disbandment of the statistical apparatus during the Cultural Revolution because of the extreme emphasis on decentralised planning. Thirdly, there was the familiar problem of differences in coverage. A great deal of work and greater openness since then has led to fairly satisfactory data being available which give a fairly good idea of the direction in which the economy has been moving.

Table 14 gives data about the growth of national income and of the two important sectors, agriculture and industry. Between 1953 and 1985 national income grew at an average annual rate of 6.6 per cent. Figures are given from 1953 because the first three years were a period of

consolidation and the First Five Year Plan commenced only in 1952. It will be seen that the growth of the Chinese economy has been high in a sustained way over such a long period. In the first 17 years exceptionally high growth rates were achieved, barring the four years 1958-62. In these four years there was an actual decline in national income, because of the disruption due to the policy of the 'Great Leap Forward' (GLF). Again, after a relative slow-down because of the ill effects of the Cultural Revolution, the growth rate climbed up with the reforms introduced by Deng Xiao Ping in 1979. This can be seen from the fact that the average growth rate for the period was 8.8 per cent as against the overall average of 6.6 per cent.

TABLE 14. GROWTH RATES IN THE CHINESE ECONOMY, 1953-85

(per cent per annum)

Years	National Income	Agriculture	Industry
1953-57	8.9	3.7	19.6
1958-62	-3.1	-5.8	1.8
1963-65	14.7	11.5	21.4
1966-70	8.3	3.0	12.3
1971-75	5.5	3.5	8.3
1976-80	6.0	2.2	8.5
1981-85	9.7	9.9	9.2
1953-85	6.6	3.4	10.8
1979-85	8.8	8.1	9.1

These high growth rates were not due to exceptionally high growth in agriculture. The overall growth rate in agriculture has been only 3.4 per cent, though in the two periods, 1963-65 and 1981-85, growth has been as high as 11.5 per cent and 9.9 per cent, respectively. The first one represents a recovery from the large decline in agricultural production during 1958-62 due to the GLF. Growth in the second period reflects the response of the farmers to a policy of decollectivisation and the freedom to dispose of output for private profit after meeting the state's demands under the responsibility system.

The high rate of growth of national income was really due to the growth of income in the industry sector. Income grew by 20 per cent or more during 1953-57 and 1963-65. This was because the first period witnessed the launching of communist oriented planned development and the second reflected a recovery from the GLF disaster. There has been a relatively realistic slowing down since then, though the growth rates are still high. Overall, the industrial growth rate has been as high as 10.8 per cent; the growth rate of 9.1 per cent for the period 1979-85 perhaps reflects the long term trend better.

Such high rates of growth were possible because of the high rates of investment (Table 15) or 'accumulation' as the Chinese designate it.[3] Even as early as 1953-57, China's investment as a proportion of national income was 24.7 per cent, a rate which India has been able to achieve only recently. From 1970 onwards, the rate was consistently above 31 per cent. In recent years, the Chinese have taken a decision to lower it in order to provide an incentive to its people in the form of higher consumption.

TABLE 15. CONSUMPTION AND ACCUMULATION AS PERCENTAGE OF NATIONAL INCOME

(per cent per annum)

Years	Consumption	Accumulation
1953-57	75.8	24.2
1956-62	69.2	30.8
1963-65	77.5	22.7
1966-70	73.7	26.3
1971-75	67.0	33.0
1976-80	66.8	33.2
1980-85	69.2	30.8

Agriculture: As the area of available land is limited, cultivated area has hovered around 110 million hectare. But sown area has been as high as 158 million hectare (Table 16). The difference between the total area sown and cultivated area

indicates the extent of multiple cropping. It is worth noting that the sown area has declined from the peak reached in 1957. Also the area under grain has come down continuously while that under industrial and other crops has gone up in a compensating manner.

The growth of output of major crops is given in Table 17.

TABLE 16. SOWN AREA AND PROPORTION OF GRAIN AND OTHER CROPS

	Total Sown Area (m Hectare)	Proportion devoted to (per cent)		
		Grain	Industrial Crops	Other Crops
1952	141.9	87.8	8.8	3.4
1957	158.0	85.0	9.2	5.8
1962	140.8	86.7	6.3	7.0
1975	150.2	80.9	9.0	10.1
1980	147.0	80.1	10.9	9.0
1985	144.3	75.8	15.6	8.6

TABLE 17. OUTPUT OF MAJOR CROPS

(million tonne)

Year	Total Grain	Rice	Wheat	Corn	Soya Bean	Tubers	Oil Bearing Crops	Sugar-cane	Cotton	Tea	Cured Tobacco	Jute
1949	113.2	48.6	13.8	n.a.	5.1	9.8	2.56	2.64	0.4	0.41	0.43	n.a.
1952	163.9	68.4	18.1	16.8	9.5	16.3	4.19	7.11	1.3	0.82	2.22	0.3
1957	195.0	86.7	23.6	21.4	10.1	21.9	4.69	10.39	1.6	1.12	2.56	0.3
1962	160.0	62.9	16.6	n.a.	6.5	23.4	2.00	3.44	0.7	0.74	1.29	0.1
1970	239.9	109.9	29.1	33.0	8.7	26.6	3.77	13.45	2.2	1.36	3.99	0.3
1979	332.1	143.7	62.7	60.0	7.9	28.4	6.4	21.50	2.2	2.77	8.06	1.1
1985	379.1	168.5	85.5	63.8	10.5	26.0	15.74	51.54	4.1	4.32	20.75	4.1

Major grain crops are rice, wheat, corn, soyabean, and tubers; important industrial crops are cotton, oilseeds, jute and sugarcane.

In 1952, total grain output in China was three times as large as that in India, though the area devoted to grain production was only 25 per cent higher than that in India. Even this was only a recovery to levels of output reached in the 1930s, which had been abnormally depressed by the unstable conditions of the Civil War and Japanese occupation. The lead in grain output has been maintained even currently. What is remarkable is that the Chinese have been able to achieve these results on a gross cropped area smaller than India's. This means that yields have risen in China throughout this period. Table 18 gives details of yields per hectare for different crops.

TABLE 18. YIELDS OF PRINCIPAL CROPS

(kg per hectare)

Year	Rice	Wheat	Corn	Soya-bean	Tubers	Peanuts	Rapeseed	Cotton	Jute	Sugar-cane	Tobacco
1949	1,889	644	n.a.	614	1,409	1,019	494	165	1,304	24,407	704
1952	2,413	734	1,349	824	1,889	1,289	509	240	1,934	38,935	1,199
1985	5,247	2,938	3,598	1,364	3,028	2,008	1,244	809	4,152	53,403	1,919

Since these are national averages, there are obviously areas where much higher yields are registered, as well as areas with lower yields. For example, the grain yields per hectare in Shanghai, Jiangsu and Zhejiang provinces were about 40 per cent higher than the national average, while they were almost half the national average in Inner Mongolia and Gansu provinces. Similarly, peanut yield in Shandung province was 40 per cent higher than the national average while that in Heilongjiang province was less than half.

How was this achieved? Mainly through greater use of fertilisers, HYV seeds, irrigation and mechanization. The Chinese have a long history of using large quantities of organic manure, particularly night-soil, in their cultivation. Table 19 gives details of chemical fertiliser consumption which they now use on a large scale.

TABLE 19. CONSUMPTION OF CHEMICAL FERTILISERS

(million tonne)

Year	Fertiliser Consumption	Year	Fertiliser Consumption
1952	0.780	1978	8.840
1957	0.373	1980	12.694
1962	0.630	1985	17.758
1965	1.942		

It is estimated that in 1957 the consumption of chemical fertilisers was only 3 per cent of total manure used and this percentage went up gradually to 50 in 1983 [Aubert, 1988, Table 4.2]. This would imply that organic manure consumption was as high as 12.92 million tonne or 81 kg per hectare in 1957. In 1985, per hectare consumption of chemical fertilisers works out to 123 kg. An equal amount of organic manure (fodder and night-soil) would also be used making a total of about 250 kg per hectare.

Water, the most important input in intensive cultivation, has also been used on an increasing scale. Only Southern China gets adequate and regular rainfall. The northern plain gets relatively little rainfall, which is subject to a great deal of fluctuation. Hence the use of irrigation. The area under irrigation has gone up considerably during the period as can be seen from Table 20.

TABLE 20. AREA AND NATURE OF IRRIGATION

(million hectare)

Year	Total Irrigated Area (A)	Of which Power Irrigated Area (B)	B as Percentage of A
1952	19.959	0.317	1.6
1957	27.369	1.202	4.4
1962	30.545	6.065	19.9
1978	44.965	24.895	55.4
1980	44.888	25.315	56.4
1985	44.036	24.628	55.9

About 40 per cent of net cultivated area is irrigated. An increasing part of this irrigation is provided by electric pumps or diesel pumps, particularly in those areas which are not served by the major rivers of the country and which, therefore, have to depend upon wells. The proportion of power irrigated area has gone up from 1.6 per cent in 1952 to 56 per cent of the total irrigated area in 1985. The number of motors for irrigation and drainage increased from a small number in 1952 to 6.16 million in 1985; and their horsepower amounted to 78.2 million. Approximately one-eighth of the total electricity generated is consumed in rural areas. A fair amount of it comes from small hydro-power stations in rural areas; their number was 55,754 in 1985 and generating capacity 3.8 m KW.

The use of agricultural machinery has been

increasing steadily even though Chinese holdings are small. The number of large and medium sized tractors went up from a negligible figure in 1952 to 852,357 in 1985. The number of small sized, walking tractors, more useful in Chinese conditions, rose from nil in 1952 to 3.8 million in 1985.

Water logging due to poor drainage and increasing salinity have been important problems in China in the areas in which the major rivers flow. So, measures have been taken to improve drainage and reduce salinity. In 1985, out of a total area of 24.2 million hectare liable to water logging, 77 per cent was covered with measures to prevent water logging. Out of 7.7 million hectare of saline-alkaline land, the area which was improved amounted to 59 per cent.

China has a long history of search for high yielding varieties of seeds in order to feed a growing population from a limited area. They have been able to develop and popularise during this period new varieties of wheat, maize (hybrids), groundnut, rapeseed and dwarf varieties of rice, similar to the Philippines miracle rice. Over 70 per cent of the sowings in these crops are under the new varieties. More recently, more productive hybrid varieties have been developed by China and sown over 20 per cent of the area under rice.

In spite of this progress, the problem of regional disparity exists in China to quite a significant extent. Since the area that can be cultivated is to be found in only a few provinces, those parts of the country which are mountainous or desert are naturally left behind in this race of agricultural development. As the Chinese authorities pursue a policy of not allowing movement of people from one part of the country to another, those deriving their livelihood from agriculture in these latter parts naturally have lower incomes. In addition, the Chinese authorities follow a policy of making more investable resources available to those areas where the response is likely to be better- the so-called 'high and stable yield' areas. Therefore, the disparity between the well endowed and the not so well endowed regions tends to be significant. It is true that the policy of state appropriation of the surplus over a certain level and transfer to less productive regions mitigates the inequalities but does not quite eliminate them because of the need to provide incentives. It is estimated that about 10 per cent of the population is what might be called poor. While the percentage is lower than in India, it still means that over a 100 million people are poor in China even after forty years of development. This is certainly something of a black mark against a society which is avowedly egalitarian. At the same time it must be stated that the degree of inequality, as measured by the proportion of total income enjoyed by the top 10 per cent, is much less than in many other developing countries.

With increasing grain production, greater attention has been paid to producing more meat, by diverting grain to animals, and fish, in order to impart a greater variety to people's diet. Table 21 gives details of the progress made:

TABLE 21. PRODUCTION OF MEAT AND FISH

(million tonne)

Year	Pork-Beef and Mutton	Aquatic Products	Of which Fresh Water Artificially Cultured
1949	2.20	0.45	-
1952	3.38	1.67	0.14
1957	3.98	3.12	0.57
1962	1.94	2.28	0.31
1978	8.56	4.66	0.76
1985	17.60	7.05	2.38

Progress has been particularly rapid since 1978. China is said to be the largest fresh water cultured fish producing nation in the world!

Because of such growth in production, the food/population balance has been improving steadily. While total population increased by 1.92 times between 1952 and 1985, food production increased by 2.30 times. As a result, availability of foodgrains has increased much beyond the FAO norm of 700 g per caput per day. The actual official ration amounted to 695 g in 1985. In addition, the per caput consumption of meat and fish per year doubled from 10 kg to 21 kg during this period. The calorie intake has gone up from 2,400 for rural areas and 2,200 for urban areas in 1983 to 2,628 in 1988. This was 111 per cent of the minimum recommended by the FAO.

TABLE 22. PER CAPUT FOOD AVAILABILITY AND RATION
(kg per year)

Year	Total Availability	Ration
1952	277	198
1960	207	164
1970	293	187
1978	335	195
1983	389	232
1985	n.a.	254

Source: Feuchtwang, Hussain and Pairault.

Industry: Following the practice of other socialist countries, rapid industrialisation was the main goal of China. Hence, large quantities of resources were devoted to industry in order to ensure the maximum possible growth. As in other socialist countries, basic and machine building industries were emphasised. But gradually, pragmatism compelled the authorities to allow the production of durable consumer goods, such as radios and television sets, bicycles, wrist watches, sewing machines, washing machines and refrigerators, to motivate people to work harder. Ideology alone could not motivate beyond a point. The growth achieved has been very impressive indeed as Table 23 shows:

TABLE 23. PRODUCTION OF PRINCIPAL COMMODITIES

Commodity	Unit	1952	1985
Cloth	million metre	3,830	14,670
Woollen Cloth	-do-	4.2	218.1
Sewing Machines	thousand	66	9,912
Bicycles	-do-	80	32,277
Wrist Watches	-do-	nil	54,311
Bulbs	million	26	1,533
Sugar	'000 tonne	450	4,510
Household Refrigerators	thousand	nil	1,448
Household Washing Machines	-do-	nil	8,872
Radios	-do-	17	16,003
Television Sets	-do-	nil	1,667
Coal	million tonne	66	872
Crude oil	-do-	0.4	124.9
Electricity Generated	million KWH	4.3	410.1
Steel	million tonne	1.3	46.8
Cement	-do-	2.86	145.9
Caustic Soda	thousand tonne	79	2,353
Fertiliser	million tonne	0.04	13.2
Soda Ash	thousand tonne	192	2011
Sulphurs	-do-	190	6,764
Power Generating Equipments	thousand KW	198	5,630
Metal Cutting Machine Tools	tonne	13.7	167.2
Tractors:			
Large and Medium	thousand	nil	45
Small	-do-	nil	822.5
Motor Vehicles	-do-	nil	439.2
Railway Locomotives	number	20	746
Railway Wagons	thousand	5.8	19.3

We noted earlier that China has probably the largest volume of coal reserves in the world. Between 1952 and 1985, coal production increased by almost 13 times. With plentiful supplies of iron ore, steel production went up from a little over a million tonne to 47 million tonne in this period. Oil output also increased from less than half a million tonne to 125 million tonne in 1985. Similarly, electricity generated grew from 4.3 b KWH to 410.1 b KWH in 1985. In cement, production increased from 2.86 m tonne to 146 m tonne. In fertiliser, the growth was from a negligible level to 13.2 m tonne.

The record is equally impressive with regard to consumer goods. Cloth output almost quadrupled between 1952 and 1985. Growth in the output of durable consumer goods, like bicycles, wrist watches, radios, television sets, sewing machines, refrigerators and household washing machines was phenomenal. While there was hardly any production of these in 1952, current output is 9.9 m for sewing machines, 32.3 m for bicycles, 54.3 m for wrist watches, 8.9 m for washing machines, 1.4 m for refrigerators, 16 m for radios, 1.7 m for television sets and 1,533 m for electric bulbs.

The output of machinery items was also equally substantial. 45,000 large tractors and 822,000 small tractors were produced in 1985. The output of metal cutting machine tools jumped from 13,700 to 167,200. The output of power generating equipment rose from 192,000 KW to 5.6 m KW. Progress with regard to the production of railway locomotives and wagons was not so impressive.

The production of consumer durables was increased substantially in order to motivate people to continue to work hard. After years of extreme austerity, a modest increase in the standard of living had to be permitted as a demonstration of the progress achieved by the Communist government. In a relatively egalitarian society with a large population, the number of people who can afford these small luxuries is bound to be large. The effort to meet this demand necessarily leads to such large volumes in output.

There has been a fair amount of development of transport facilities. Railway mileage increased from 21,800 km in 1949 to 52,100 km in 1985. The length of highways increased from 80,700 km in 1949 to 942,400 km in 1985. China also has an extensive system of navigable inland waterways, their length having increased from 73,600 km in 1949 to 161,900 km in 1962. It seems, however, that their importance is declining because in 1985 their length was only 109,100 km.

The number of locomotives was 11,772 in 1985; the number of passenger coaches was 20,872 and the number of wagons was 300,886. The number of trucks was 2,231,981 and the number of passenger vehicles 794,452. The growth of transport facilities was, however, not adequate for a country of China's size.

Industrial units are owned by the State, Communities and townships. The total number of industrial enterprises increased from 169,500 in 1957 to 463,200 in 1985. Most of these were relatively small; only 1.65 per cent of these were classified as large and medium sized. The proportion of state owned enterprises fell from 29.3 per cent in 1957 to 20.2 in 1985. Obversely, the share of collective owned enterprises went up from 70.7 per cent to 79.4 per cent during the same period. Over the years the share of township enterprises in collective owned enterprises has increased from 12.5 per cent in 1962 to 46.9 per cent in 1985.

In spite of the large number of enterprises, a large part of the gross industrial output is generated in state units. In 1957, 53.8 per cent of Gross Industrial Output Value (GIOV) was generated in state units and 19.0 per cent in collective units. The balance was in joint state/private ownership units. With the total abolition of private industry since then, the proportion of GIOV between state and collective units was 70.4 and 27.7 per cent, respectively, in 1985.

The bulk of employment in industry was in state enterprises. In 1985, 38.1 million persons were employed by these, while collective owned units employed only 17.0 million persons. Large and medium sized enterprises employed 37.68 per cent of the total industrial work force; and generated 46.34 per cent of the gross output.

There also exists a large number of village industrial enterprises. Their number in 1985 was 615,600. They employed 14.5 million people but the gross value of their output was a little less than 8 per cent of the value of output in other industrial enterprises.

Township industries are located in cities and townships. Somewhat confusingly, much of rural industry is located in county townships which may have a population up to 20,000. These townships are the locations for cement, chemical fertilisers, agricultural machinery, iron and steel, and similar relatively large scale plants. Brick works, electrical and machinery repair works and food processing plants were located at the commune and brigade levels. They include small workshops producing simple producer or consumer goods, and relatively large-scale units that are closely connected (through subcontracting) with major units.

Two arguments have been made in favour of developing small-scale industry. First, the sector has a unique capacity to use scattered labour, equipment, scrap and raw materials that cannot be made available to large-scale industry because of their small volume. Second, such industry releases local initiative and, as a result, resources are used more intensively and goods, more suited to local needs, tend to get produced. They also have an advantage that being locally based they save on transportation and this makes up for a certain degree of inefficiency in spatial planning. Their share in total output is particularly large in fertiliser, cement, agricultural machinery and hydroelectricity generating capacity.

Being a large country regional distribution of industry is necessarily uneven. This has been mitigated to an extent over the years due to the development of small-scale industry and a policy of differential allocations of investment resources. Before 1949, nearly all of China's industry was located in Shanghai, Tianjin and Manchuria. Over the years, industry has spread particularly to Inner Mongolia, North China and Beijing. While Manchuria, Shanghai and East China and the North China Plain are now heavily industrialised, the South, South West and North West China do not have much industry because of lack of fuel, distance from centres of population and absence of traditions of industrial skills, in spite of a deliberate policy of industrial dispersal to areas away from the east coast, due to a fear of external attack.

Population: China has the dubious distinction of being a country with the largest population in the world. Its population, which was 542 million in 1949, rose to 1,045 million in 1985 (and 1,139 million in 1990). As in other developing countries, the proportion of people living in urban areas has steadily increased from 10.6 per cent in 1949 to 36.6 in 1985, despite a policy of not allowing movement from rural to urban areas. (On the contrary, urban young people were sent down to rural areas as a form of corrective education). Although there has been a continuous increase in total population, the rate of growth has tended to come down because of a declining natural growth rate. The birth rate which was as high as 37 per thousand in the early fifties did not decline much till 1970. However, since then there has been a noticeable decline. Between 1950 and 1985, it fell from 37 to 17.80 per thousand. On the other hand, the death rate has shown a tendency to fall steadily over the same period - from 18 per thousand to 6.57. The infant mortality rate has also come down sharply from a level comparable to that in India in 1950 to 67 per thousand birth in 1982. The consequential rate of growth of population can be seen from Table 24.

TABLE 24. RATES OF POPULATION GROWTH

Years	Per cent Increase
1950-60	19.9
1960-70	25.3
1970-80	19.9
1980-85	5.9

While the decline in the death rate is due to better nutrition and health care being made available to people - particularly to children to bring mortality rates down - the decline in the birth rate is more due to the success of the family planning measures implemented in China. A high

level of female literacy, and comprehensive social security are the two additional factors that have brought down the fertility rate from 5.81 to 2.63 between 1956 and 1981. In recent years, the inordinate pressure mounted by government for the one child family has also contributed to this development. As the absolute size of population is large, and any further increase in it affects the food/population balance, the Chinese authorities want the birth rate to be so low as to bring about a decline in population. The ultimate goal is to have a size of about 750 million somewhere in the first half of the 21st Century.

Because of the sharp decline in the death rate, and the infant mortality rate, average life expectancy at birth has gone up from a level of 53.9 years for males and 50.2 years for females in 1950 to 66.4 for males and 69.3 for females in 1981. The larger improvement in the case of women is worthy of note, because it is indicative of an improvement in the status of women in a male dominated Confucian society.

The extent of the improvement in health facilities can be seen from Table 25.

TABLE 25. HEALTH FACILITIES

(numbers)

Facilities	1949	1985
(a) Doctors (000s)	363	1,413
(b) Doctors of Chinese Medicine (000s)	276	336
(c) Doctors per thousand of Population	0.67	1.36
(d) Health Institutions	3670	200,866
(e) Hospitals	2,600	59,614
(f) Beds in Health Institutions (000s)	85	2,487
(g) Beds per thousand of Population	0.15	2.14

Like all communist societies, China has set great store by educational development. Both, the need to have a literate work force which will play a crucial role in industrialisation, and the need to have a literate people who will absorb the new ideology made them invest heavily in primary education. The emphasis was less on secondary schools and considerably less on higher education (Table 26). Such institutions of higher learning, as there were, suffered great disruption during the Cultural Revolution providing a severe setback to China's programme of technology development.

TABLE 26. EDUCATIONAL INSTITUTIONS AND STUDENTS' ENROLLMENT

Institution/Enrolment	1949	1985
A. Institutions of Higher Learning	201	1,016
Enrolment (000s)	191	1,703
B. Secondary Schools	6,059	104,848
Enrolment (000s)	3,145	51,100
C. Primary Schools	526,964	832,309
Enrolment (000s)	51,100	133,702

This emphasis on primary education led to a literacy rate of 69 per cent in 1982 from levels not much different from those prevailing in India in the fifties. The progress was even greater with regard to female literacy. While 90 per cent of women were illiterate in pre-revolutionary China, the figure has come down sharply with age cohort, i.e., from 76 per cent among women aged 45-49 years to 14 per cent among women aged 15-19.

External Sector: Foreign trade in China has had a somewhat chequered career since the Communists came to power. During the First Five Year Plan they entered into an agreement with Soviet Russia and other East European countries for supply of industrial plants and technical assistance. These imports from Russia were planned to support the construction of 291 major projects, valued at $13.3 b and to be completed by 1967. Since the US had applied an embargo on China, imports from non-Socialist countries were not possible. When the break between China and the USSR occurred in 1958, only $1.3 b worth of equipment had been supplied and only 130 projects were completed. 27 projects had also been completed with plants received from other communist countries in the Eastern Europe. This large programme of industrialisation required payment through Chinese exports - mostly from agriculture. 'Exports are for imports and imports are for the country's industrialisation' was the slogan.

Because of the difficulties experienced in

squeezing an adequate quantity of grain for export to pay for these plant imports, self-reliance began to be emphasised from 1960 onwards and, therefore, trade expansion was not taken up seriously. In the mid-sixties, there was again a reversal of position. A number of complete plants were ordered and plans were made to import more. The Cultural Revolution put a stop to this, particularly because of a failure to honour contracts, attacks on foreign embassies and a general phobia against foreigners. A resumption of trade became essential in the seventies because of the enhanced capacity of the economy to absorb projects and the need for up-to-date technology, either to remove bottlenecks or to achieve rapid expansion in sectors like transport, oil, chemicals and metallurgy. This expansionary trend has continued in spite of difficulties from time to time.

Thus, between 1950 and 1970, total external trade increased from $1.13 b to $4.59 b, but between 1970 and 1985, trade increased from $4.59 b to $69.61 b (Table 27). During these 35 years, there has been an adverse balance of trade in 15 years; and, with the exception of 1985, the deficits have been none too large. The rather large deficit in 1985 was due to steep increases in the imports of machinery and transport equipment, iron and steel, non-ferrous metals and yarn.

TABLE 27. TOTAL VALUE OF IMPORTS AND EXPORTS

	US $ 100 million		
Year	Exports	Imports	Balance
1950	5.5	5.8	-0.3
1951	7.6	12.0	-4.4
1952	8.2	11.2	-3.0
1953	10.2	13.5	-3.3
1954	11.4	12.9	-1.5
1955	14.1	17.4	-3.3
1956	16.5	15.6	+0.9
1957	16.0	15.0	+1.0
1958	19.8	18.9	+0.9
1959	22.6	21.2	+1.4
1960	18.6	19.5	-0.9
1961	14.9	14.5	+0.4
1962	14.9	11.7	+3.2
1963	16.5	12.6	+3.9
1964	19.1	15.5	+3.6
1965	22.3	20.2	+2.1
1966	23.7	22.4	+1.3
1967	21.4	20.2	+1.2
1968	21.0	19.4	+1.6
1969	22.0	18.3	+3.7
1970	22.6	23.3	-0.7
1971	26.4	22.0	+4.4
1972	34.4	28.6	+5.8
1973	58.2	51.6	+6.6
1974	69.7	76.2	-6.7
1975	72.6	74.9	-2.3
1976	68.6	65.8	+2.8
1977	75.9	72.1	+3.8
1978	97.5	108.9	-11.4
1979	136.6	156.7	-20.1
1980	182.7	195.5	-12.8
1981	220.1	220.1	0
1982	223.5	192.8	+30.7
1983	222.3	213.9	+8.4
1984	261.4	274.1	-12.7
1985	273.6	422.5	-148.9

Major imports in 1985, for example, were wheat, sugar, natural rubber, logs, paper pulp, synthetic fibre, wool, iron ore, soda ash, fertilisers, plastics, paper and paper board, steel, copper, aluminium, zinc, complete sets of equipment, television sets, vehicles and ships. Of these, the really large value imports were wheat, synthetic fibre, logs, fertilisers, steel, non-ferrous metals, machinery, television sets and vehicles. Major export items were other cereals, petroleum and petroleum products, coal, cotton yarn, cotton, polyester and silk cloth and garments, tea, canned food, raw silk and carpets. In spite of its massive industrialization, industrial exports from China are quite limited.

China's gold holdings in 1985 amounted to 12.67 m ounces, a little more than India's holdings. Her foreign exchange reserves have varied a great deal. In 1979, they were only $2,154 million or a little less than two months' imports. In 1985, however, they rose to $11,913 million or a little over 4 months' imports. In the previous year they were equivalent to over 6 months imports.

Prices: In China retail prices seem to have been much more stable, partly because they were regulated by the state. In the first three decades, serious fluctuations were to be seen only during the years following the fiasco of the Great Leap Forward. Once stability in food production was restored, price stability seems to have been maintained for almost fifteen years. Upward movement in prices is to be seen from 1980 onwards when price revisions took place as a part of the process of liberalisation and a movement towards market determination of economic activity (Table 28).

TABLE 28. INDEX NUMBERS OF RETAIL PRICES

(1950=100)

1951	112.2
1552	111.8
1957	121.3
1962	152.6
1965	134.6
1970	131.5
1975	131.9
1976	132.3
1977	135.0
1978	135.9
1979	138.6
1980	146.9
1981	150.4
1982	153.3
1983	155.6
1984	160.0
1985	174.1

The public finance picture in China shows no large deficits, except during the GLF years and the years following Mao's death and the introduction of a relatively free economic regime. What is remarkable is that tax revenue and income from enterprises cover the bulk of the expenditure of government. Being a command economy, it was easy for the state to decide what part of the national product it would appropriate for its use. Therefore, though non-developmental expenditure was steadily increasing to a level of more than half the total expenditure, there were no serious inflationary pressures unlike in India. The proportion of debt in total resources was very small. Therefore, the kind of debt service problems faced by India were also not to be seen in China (Table 29).

TABLE 29. FINANCIAL REVENUE EXPENDITURE

(RMB 100 million)

Year	Total Revenue	Tax Revenue	Enterprise Income	Total Expenditure	Balance
1950	65.2	48.98	8.60	68.1	-2.9
1951	133.1	81.13	30.54	122.5	10.6
1952	183.7	97.69	57.27	176.0	7.7
1953	222.9	119.67	76.69	220.1	2.8
1954	262.4	132.18	99.61	246.3	16.1
1955	272.0	127.45	111.94	269.3	2.7
1956	287.4	140.88	134.26	305.7	-18.3
1957	310.2	154.89	144.18	304.2	6.0
1958	387.6	187.36	189.19	409.4	-21.8
1959	487.1	204.71	279.10	552.9	-65.8
1960	572.3	203.65	365.84	654.1	-81.8
1961	356.1	158.76	191.31	367.0	-10.9
1962	313.6	162.07	146.22	305.3	8.3
1963	342.3	164.31	172.68	339.6	2.7
1964	399.5	182.00	212.93	399.0	0.5
1965	473.3	204.30	264.27	466.3	7.0
1966	558.7	221.96	333.32	541.6	17.1
1967	419.4	196.63	218.47	441.9	-22.5
1968	361.3	191.56	166.73	359.8	1.5
1969	526.8	235.44	286.74	525.9	0.9
1970	662.9	281.20	378.97	649.4	13.5
1971	744.7	312.56	428.40	732.2	12.5
1972	766.6	317.02	445.69	766.4	0.2
1973	809.7	348.95	457.02	809.3	0.4
1974	783.1	360.40	407.26	790.8	-7.7
1975	815.6	402.77	400.20	820.9	-5.3
1976	776.6	407.96	338.06	806.2	-29.6
1977	874.5	468.27	402.35	843.5	31.0
1978	1,121.1	519.28	571.99	1,111.0	10.1
1979	1,103.3	537.82	492.90	1,273.0	-170.6
1980	1,085.2	571.70	435.24	1,212.7	-127.5
1981	1,089.5	629.89	353.68	1,115.0	-25.5
1982	1,124.0	700.02	296.47	1,153.3	-29.3
1983	1,249.0	775.59	240.52	1,292.5	-43.5
1984	1,501.9	947.35	276.77	1,546.4	-44.5
1985	1,866.4	2,040.79	-	1,844.8	21.6

III

EVALUATION OF RELATIVE PERFORMANCE

How is China's growth performance in these forty years to be evaluated *vis-a-vis* that of India? If we look at the overall rates of growth, China's performance is vastly superior to that of India. While the Indian rate of growth has exceeded 5 per cent only in the eighties, China's has been much above this figure throughout the period, except for the Great Leap Forward years and the Cultural Revolution years. China's agriculture has grown at the rate of 3.4 per cent and industry at more than 10 per cent per annum on an average. Comparable figures for India are 2.7 per cent and 6.3 per cent, respectively.

Development has always meant world over: (i) a reduction in the share of agriculture in the GDP and an increase in the share of industry and infrastructure; and ii) a transfer of workers from agriculture, principally, to industry. From the point of view of these criteria, Chinese performance is somewhat mixed. While the shares of agriculture and industry show the expected movement (Table 30), the proportion of the workforce employed in agriculture was as high as 62.5 per cent in 1985.

Indian figures on the other hand show a much slower structural change as can be seen from Table 30. While the shares of agriculture and industry have moved in the right direction, the change that has occurred is much smaller. The service sector is, however, more prominent in India: its share rose from 27.4 per cent in 1950 to 40.1 per cent in 1990-91. The percentage of workforce depending upon agriculture fell from 72.1 in 1951 to 63.9 per cent in 1987-88. This persuaded Malenbaum to conclude that India also

was in the same developmental boat, though somewhat behind China [Malenbaum 1982]. This conclusion, seems to play down the fact that China is much further up the road to development than India, because of its much higher share of industry in GDP. According to the World Bank, in the eighties although the share of agriculture in China was twice that in middle income countries, the share of industry was 25 per cent higher [World Bank, 1983, Vol. I, p. 73].

TABLE 30. PRODUCTION STRUCTURE

(percentage)

		Primary	Secondary	Tertiary
India	1950-51	57.2	15.4	27.4
	1990-91	34.4	25.5	40.1
China	1950	56.2	29.9	13.9
	1985	28.1	63.7	8.2

It is somewhat curious that, in spite of such impressive growth rates and the vastly larger production of goods, per caput income of China is stated as $380 for the year 1991, according to the World Bank *Economic Atlas 1994*, while the figure for India is given as $330. Dreze and Sen have expressed scepticism about these figures because, if India and China started at about the same level in 1950, China with its consistently higher growth rates should be far ahead of India. If this has not happened, China's per caput income must have been much lower than India's at the beginning of this period, which also is not plausible [Dreze and Sen, 1993].

Others like Matson and Selden argue that the much larger physical output of goods, and the much superior physical quality of life in China indicate a far higher per caput income [Matson and Selden, 1992, Pp. 701-715]. It is also possible that the low figure is due to the pricing system, the arbitrary exchange rate and the lack of importance of services in China's GNP. The real per caput GDP arrived at by the technique of purchasing power parity in the two countries also comes to the conclusion that per caput GDP in China is about twice as high as that in India in 1990, while India's GDP per caput itself is three times as large as the conventional estimate. Thus, Chinese progress seems to be such as to have already led her to the middle income category of nations, according to the UN *Human Development Report*, 1994.

A sectoral evaluation would give a better idea of relative performance. Since agriculture was and continues to be the sector on which the bulk of the people depend, we can begin with agriculture. So far as production goes, China is way ahead of India. Total grain production is more than double that of India, even after making allowance for the fact that Chinese statistics do not relate to dehusked grain as Indian statistics do, and include potatoes which Indian figures do not. Even with regard to other crops, like oilseeds and cotton, China's output is much higher than India's. With regard to other food items like meat and fish, Chinese figures are also much higher than India's.

Two characteristics of Chinese agriculture must be noted. China's grain output was more than double that of India even in the thirties and has continued to be so once she recovered in 1952 from the disruption caused by the warlords, the Japanese occupation and the long and devastating Civil War.

The second is the severe constraint on arable land; and in recent years even the area under cultivation has been declining. Therefore, the increase in output has been achieved almost entirely by increasing the yield per hectare to relatively high levels.

While China's growth in agriculture is impressive, India's performance is not at all to be sniffed at because this was against a background of near stagnancy in the first half of the twentieth century. Taking a longer view, Perkins traces a picture of continuous growth in China's agriculture from the fourteenth century onwards, in an effort to keep pace with China's growing population [Perkins, 1969]. The *Cambridge Economic History of India*, on the other hand, gives an impression of stagnancy in India from

the Mogul times, partly because of the very heavy burden of taxation on the peasantry, in order to support the lavish life styles of Kings and their noblemen. Instances are not lacking of farmers in northern India abandoning their lands for fear of not being able to meet the exactions of the King's men [Habib, 1984, Vol. I, p. 225]. In China, on the other hand, there was continuous expansion because both the burden of taxation and the burden of landlordism were not all that heavy. Existing technology with regard to water, seed, fertiliser and implements was utilised to the limit to extract the maximum possible output. According to Bhalla, the share of investment which went into agriculture was much smaller than in India and has been declining continuously [Bhalla, 1992]. The success in expanding agricultural output seems, therefore, to be due to China's long history of intensive cultivation because of the constraint on arable land area [Perkins, 1969]. Multiple cropping and use of high yielding seeds have been common practices for a long time. The application of large quantities of organic manure has also been a long-standing practice. The Communists, who were acutely aware of the race between population and food supply, extended the scope of these practices substantially.

In the wake of their assumption of power, the Communist authorities began to dismantle private property in land and, by 1956, had moved to full collectivisation. These were communes, brigades and production teams, and people derived a return according to the work they put in. From the point of view of production, this enabled the Chinese authorities to get over the disadvantage of small sized and fragmented holdings and enabled them to provide essential inputs like tractors, fertilisers, irrigation water and better seed, which a small farmer may not be able to provide. Also it enabled them to innovate as in the case of HYV seed and bear the risk of possible failure, which again small farmers could not have done. New technology could be introduced through committed and educated cadres, which may not have been possible with small peasant farmers.

In the seventies, when the returns to ideology began to diminish sharply because of the absence of any increase in the agricultural workers' living standard, even though the production had gone up steadily, the Chinese authorities gave up collectivisation and went back to unfragmented plots of land which the owner could cultivate and sell the surplus in the open market after meeting the state's demands under the responsibility system. This gave a boost to sagging growth rates and also led to diversified production in place of the one based heavily on grain.

In regard to water management, China's main problem was water control arising from drought and flooding because of lack of drainage. The major rivers, especially the Yellow, the Huai and the Hai used to play havoc because of their floods. Dams had to be built and drainage channels had to be dug to minimise this damage. This was done by the Chinese authorities, with great publicity, by mobilising thousands of workers to work on these projects in their spare time with hardly any equipment. Such behaviour was possible because of the farmers' desire to do Chairman Mao's bidding. This was also in the tradition of the 'Corvee' system which had enabled Chinese emperors earlier to get peasants to work on state projects at no cost. The accomplishments were large. But equally large mistakes were made because often revolutionary enthusiasm outran technical planning. Flooding was not often eliminated because the problem of silting had not been taken into account properly. Also water logging and salinity became problems in many areas. Over time, these have been rectified. What is important to note is that these projects were completed quickly, in contrast to India where irrigation projects took a very long time. Instances are not lacking in India where irrigation projects have been going on for as many as twenty five years, partly because of poor allocation of funds and partly because of the administrative structure of implementing them.

In North China, where no major rivers are to be found and wheat is grown, water management has taken the form of sinking wells and lifting water with the help of electricity. Roughly 55 per cent of the area is irrigated with the help of electricity, often generated in mini hydel generating stations.

China's efforts at water management have led to nearly 40 per cent of the net cultivated area being irrigated by 1975. Contrast this with the fact that India's irrigated area even in 1990 was only about 33 per cent of the net cultivated area.

China has traditionally been a heavy user of organic manure. To this she has added large supplies of chemical fertiliser. She was using 20 kg per hectare as early as in 1965, when Indian use was negligible. In addition to manufacturing crude fertiliser in small plants, China set up 12 large modern chemical fertiliser plants after the fiasco of the Great Leap Forward and the subsequent deaths on a massive scale due to a sharp decline in food production. This increased domestic production sharply and, by 1971, China's application of chemical fertiliser was 45 kg per hectare as against India's 15 kg. Fertiliser utilisation grew rapidly in the seventies and by 1985 this figure had gone up to 123 kg per hectare. If we add to this the organic manure used, the total fertiliser applied would easily be about 250 kg - a far cry from India's use of 51 kg per hectare in 1987-88.

Mechanisation also seems to have contributed to the growth of production. Mao, against the advice of his planners, insisted that mechanisation was necessary to increase agricultural production. The latter, like economists in India, had argued that this was inappropriate in a country where population was so large and where providing employment was a serious problem. Collectivisation and the ability of the tractor to do jobs too arduous for humans seem to have led to a growing use of what was commonly referred to as the 'Iron Buffalo'. Besides a small hand-held garden tractor was developed for use in small holdings. This led to an explosion in the number of tractors in use. Between 1965 and 1985, the number of large and medium sized tractors went up from almost nothing to a little over 850,000. In the same period, the number of garden tractors in use went up from nothing to 3.8 million. While the growth of the large tractor has slowed down in recent years, the use of the small tractor has increased phenomenally. In India, the figure of tractors in use is still in thousands.

The Chinese have a long tradition of developing high yielding seed varieties. They had discovered earlier and disseminated short duration rice varieties which made multiple cropping possible in a year. They also had introduced tuber crops (e.g., sweet potatoes) and maize which are high yielding. They have developed, independently of the Rice Research Institute in Manila, early maturing, semi-dwarf and high yielding varieties of rice by mid-1960s and promoted their use extensively. Similarly, they have made a good deal of progress with regard to wheat varieties which are high yielding. Because of the excellent extension system and the availability of water and fertiliser and the pressure on the communes to fulfil targets, there was fairly fast acceptance of the new seed varieties. The cadres in the rural areas did not have to worry about taking risks because they were executing orders from above.

On the other hand, though the HYV seed programme was launched formally in 1965, acceptance was slower in India, because of the inadequacy of the extension and credit systems, and because the farmer had to worry about the risk of failure in which case the investment in water and fertiliser would go waste. The smaller farmer was particularly vulnerable because failure would mean an increase in debt and a growing inability to undertake further investment. Initially, there was also no satisfactory procurement system to ensure a proper price if the output actually went up. India also does not seem to have been as successful in rice, unlike in wheat, in developing high yielding varieties which were suited to the widely varying growing conditions in the country.

Because of these factors, average yields per hectare in India were much less than in China, with the exception of sugarcane (Table 31).

TABLE 31. YIELD PER HECTARE

(tonne)

	China 1985	India 1989-90
Rice	5.225	1.751
Wheat	2.926	2.274
Corn	3.583	1.524
Cotton	0.806	0.224
Groundnut	2.000	0.919
Sugarcane	53.180	65.269
Rapeseed	1.239	0.900

Source: Figures for India are for 1990-91 from *Indian Agriculture in Brief*, 24th Edition, Ministry of Agriculture, Government of India, New Delhi.

In industry, the emphasis was on investment in heavy industry as in all other Communist countries. It was believed, as in the Mahalanobis model, that a rapid development of the heavy industry sector in the initial stages would enable the economy to raise sharply the people's standard of living at a later date. The Korean War and the embargo imposed on China by the US, which made trade an unattainable vehicle for growth, also reinforced China's resolve to develop all basic production facilities at home. She signed agreements with the USSR and other Socialist countries for turnkey plants for the manufacture of various machinery items and needed inputs. When Soviet experts left in the wake of the GLF, due to growing differences of opinion between Khruschev and Mao Ze Dong, the option of trade with the Soviet bloc was closed to them and they had to emphasize 'self-reliance' even more.

The Korean War instilled a fear of attack on China and military preparedness was one of the objectives of the programme of industrial investment. This had two consequences. A large part of the investment in heavy industry was made in the Western provinces, away from the eastern coast, so that they were less vulnerable to an external attack. This was also looked upon as a contribution to the development of the less well-off provinces in the West. Secondly, because transport development was not given the same attention, a host of small industries using locally available materials came up in almost all provinces to cater to the various needs of the people which could not be met by a few large plants. As a result, a large part of the target of output in important sectors like steel, coal, cement was met by the production of small industries.

Rapid industrial growth was due to a sharp increase in investment. While India was talking in terms of raising the investment rate to 10 per cent of GDP in the First Five Year Plan, the Chinese planners were talking of raising the accumulation rate to 18 per cent. In the period of the Great Leap Forward, when the economy was facing unprecedented strain, the investment rate reached a peak of 43 per cent, while the Indian rate slowly moved up from 10.2 per cent to 15.7 per cent. The burden imposed was so heavy that it had to be brought down to a level of 30 per cent or so in the post GLF years, to be raised again to a peak of 36 per cent during the Cultural Revolution. It is only towards the end of the seventies that the rate of investment has been brought down to 24 per cent. Even though the Indian investment rate has been rising steadily, it has managed to reach a figure of 24.6 only in 1990-91. It must also be remembered that while about 2 per cent of this would be financed by foreign saving throughout this period in India, almost the whole of China's investment was out of domestic savings till recently.

Simultaneously, a large share of total investment went into industry in China, as can be seen from Table 32. And, 85 to 92 per cent of this went into heavy industry during 1952-1980.

TABLE 32. SHARE OF INVESTMENT IN INDUSTRY TO TOTAL INVESTMENT

(Percentage)

	1954-58	1959-63	1963-70	1971-78	1978-84
China	44.4	57.7	57.6	65.6	72.2
	1950-59	1959-69	1969-77	1977-80	
India	30.9	41.0	40.2	41.0	

Sources: (1) Bhalla, 1992, p. 110. (2) Riskin, 1987, p. 271.

Because of such very heavy investment, output in important sectors like coal, steel, cement, fertiliser and petroleum increased rapidly. While Indian output of these commodities was plodding along, China's output was jumping very much ahead of that in India. After the death of Mao, when China decided to provide more consumer goods, the diversion of a part of these investment goods led to an explosive increase in the output of durable consumer goods like, watches, television sets, washing machines, refrigerators, bicycles, etc.

China was able to achieve high rates of accumulation because the state had complete control over the deployment of the social product. They froze industrial wages and also determined what was to be paid to those who worked in the collectivised agricultural sector and diverted the rest to investment. And, as income increased, more and more of the incremental product went into investment and, thus, the rate of accumulation went up continuously. They were able to persuade the people to bear these hardships by emphasising that unless people made sacrifices currently, Chinese society would not grow and a higher standard of living would not be there to enjoy at a later date. The Communist cadres were expected to set an example to others in this Spartan style of life. This sacrifice was made easier by eliminating the kind of inequality that capitalist societies tend to have, by abolishing the ownership of assets: Landlordism was abolished by collectivising agriculture and all became workers in the Communes, getting an income on the basis of work points earned. Similarly, industrial capitalism was abolished and all industry came to be owned by the state. Once again all those involved in industry became employees of the state and their consumption was also controlled by the state by a control on wages and salaries.

It was only in the seventies, when the system had run out of ideological steam, that wage revisions were undertaken, in order to enable people to enjoy the fruits of progress since the establishment of the Communist government. The obverse of this was the deployment of resources to produce durable consumer goods and not basic capital goods.

The high performance of industry has not been without serious costs. Firstly, when the Russians withdrew in 1960, the Chinese had to complete many unfinished projects on their own, which was both slow and inefficient because they could rely on no one else. But in the process they acquired a great deal of technical know-how, though they had to reinvent the wheel often. It was also expensive. Secondly, since the emphasis was the development of heavy industry, there was a lot of imbalance. Complementary inputs were not available because of uneven performance of different industrial sectors, so that shortages and excess capacity existed side by side and slowed down overall growth. Processing capacity grew much faster than raw and semi-finished materials supplies. At the beginning of the 1980s, the processing capacity of Chinese machine tools exceeded the supply of rolled steel by three to four times. In late 1980, machinery and equipment worth yuan 57 billion was stockpiled in warehouses (an amount greater than that year's capital construction). There were severe shortages of iron ore, non-ferrous metals, construction materials, transport equipment and energy - all within the sphere of heavy industry [Riskin, 1987, p. 272]. Since targets had to be fulfilled, quality often suffered and a large amount of useless production took place. As the units were concerned with production and not sales, they went on producing, irrespective of whether the output could be sold and without any desire to innovate or to improve quality. It has often happened that large imports of many items have been made even when large stocks were being held because of a difference in specifications or quality [Pairault, 1988].

Because of these imbalances enterprises used to inflate their requirements of inputs and hold stocks much larger than needed in order to be able to fulfil targets given. These problems were experienced in Soviet Russia as well in the early planning years, because of the nature of central command planning. They were experienced also in India to some extent for reasons of shortage of foreign exchange, even though there was no central command planning to the same extent.

This drive towards self-reliance was, however, not without other benefits. Etienne *et al.*, in their

comparative study of the steel industry in the two countries, argue that technologically Chinese industry was superior to India's even though both were behind that in developed countries [Etienne *et al.*, 1992]. This was because China did learn by doing, as she expanded existing plants to larger and larger capacities. India, on the other hand, set up new green field projects and thus lost the opportunity of using accumulated experience and already trained personnel. This was partly because the different steel plants in India were aided by different countries and were, thus, subject to the technological predilections of the donor countries to a great extent. Since this constraint was not operating on the Chinese they were able to do better. According to Etienne *et al.*, the experience of the private sector steel plant - Tata Iron and Steel Company - has been somewhat comparable to that of China in this respect. It is true that the cost of learning by doing was very high. But because of this they gained in confidence and were able to save costs by importing second hand machinery in many sectors and modifying it to suit their requirements. They were also able to design marginal equipment and enhance productivity.[4]

Indian industrial growth, on the other hand, has been pretty disappointing almost throughout these four decades. India also adopted a strategy of developing heavy industry - steel, machinery, machine tools, heavy chemicals, etc. - and also accepted the policy of 'self-reliance', in order to be free from dependence on the developed world for assistance as well as technology. For Socialist reasons - prevention of the concentration of economic power and of the growth of inequality in the system - India gave a prominent role to the public sector in the development of heavy industry and the achievement of self-reliance. India's record of achievement, however, fell far short of expectations embodied in the targets for the various sectors. According to the Mahalanobis model, the capital goods sector should have grown continuously. This did not happen because there was a shortage of resources in the public sector, as there was not enough demand for the output of these plants due to lack of complementary growth. For instance, the machinery sector, which was supposed to turn out a million tonne steel plant every year, was not able to function properly as there were no plans to set up such steel plants because of a lack of resources in the public sector and because of a lack of demand for steel. (It should also be mentioned that the heavy machine building plant at Ranchi never really attained its full potential for a variety of reasons). Since the rest of industry was dependent on public sector growth, overall industrial growth was also depressed. As India was a democratic state, government could not extract investible resources from the economy as China did. Also, as it was a mixed economy, signals from the market did matter to the private sector. In the absence of demand from the private sector, the ability of the public sector units to go on producing outputs in accordance with the targets laid down was limited. Thus, the entire process of industrial expansion got slowed down.

Indian industrial growth has been affected by lack of resources in two ways. In the two gap model a shortage of domestic savings as well as a shortage of foreign exchange can act as constraints. In India both these factors operated as restraints. Since the strategy of industrialisation was based on import substitution, imports of equipment, components and spare parts, and raw materials rose continuously as industrialisation advanced but exports based on traditional items did not. This was partly because investment in traditional items like textiles was not made, as no opportunities for export expansion were perceived and also because a policy of reservation for handlooms was pursued in order to promote employment. New items of manufactures on which export hopes were pinned were high cost and uncompetitive. As the allocation of the national output was not wholly in the hands of the state, it could not squeeze for export a surplus out of a limited output for fear of exerting an inflationary pressure on prices. The result was continuous balance of payments deficits which had to be covered by rationing available exchange resources and by seeking foreign aid. A newly independent nation like India was extremely wary of closing the external gap by heavy dependence on foreign aid. For, fear of subjecting herself to a new form of colonialism as aid tended to be based

partly on political and partly on economic considerations. Also, the absolute amount of aid needed by India was very large because of the large size of the economy. Donors who had to stretch a limited amount over a large number of poor countries, were prepared to satisfy more fully the requirements of a large number of small countries, rather than those of a large country. Hence, total available external resources acted continuously as a serious restraint and retarded overall growth.

Even the available aid led to serious problems, because in course of time most of it came to be tied to purchases from the donor country. This naturally gave a monopoly power to the suppliers in the aid giving country and, therefore, the real value of aid became less than the nominal value. It also led to an assembly of equipment and technologies from different countries which was sub-optimal and which led to the persistence of the matching problem over a long period. Utilising the resources available from every aid giving country, by matching equipment and material available from them to what was needed in the country, became a frustrating exercise and the general effect was a slowing down of growth. This was compounded by the fluctuation in the volume of aid available.

China got over this problem by developing one or two items for export. Coal was one such item. More importantly, it developed quickly its oil resources from the Shengli oil field and built up its oil exports. Also being a command economy, it was able to export rice, at times, though domestically much needed, in order to pay for necessary industrial imports. India, on the contrary, had no such exportable resources and, since consumption was not rigidly controlled, could export only what was surplus after domestic requirements were met.

The public sector in India was set up to capture 'the commanding heights of the economy' and spearhead the drive towards faster industrialisation, technology development and greater equality. It was also to be a model employer in terms of amenities and wages paid to workers. While public sector investment has grown a great deal it has failed, in general, to contribute to the growth objectives set down for it. It succeeded in being a model employer in terms of providing housing, education, health facilities and other infrastructure as well as reasonable wages to workers, but it failed to generate resources for further investment in industry, raise productivity and improve technology. The ratio of net profit after tax to capital employed was a mere 4.5 per cent in 1989-90 for central public enterprises. If the profits of the petroleum sector were to be excluded, the return would be barely 1 per cent. The rate of return of all state Electricity Boards was -16.4 per cent and substantial losses were made by other undertakings of state governments.

Surpluses have not been generated because government in general has not followed a price policy which will cover costs. Costs have been rising because of inflation that the economy has been subject to, and public sector enterprises have not succeeded in increasing productivity to neutralise the increase in costs. Nor have price increases been allowed for fear that this may lead to cost push inflation and also act as an encouragement to inefficiency, particularly because many of these enterprises produce basic goods and are monopolies or near monopolies. Also, the management of these enterprises has not been satisfactory because of a lack of continuity due to an admixture of civil servants in management and the prevalence of a 'service' ethic among managers, political and bureaucratic interference, and the absence of any link between the political prospects of those ministers in charge of public sector enterprises and their performance. Trade union orientation in these enterprises has also been different and, therefore, workers have shown hardly any interest in achieving the broader goals of these enterprises.

Although it was hoped that they would develop their own technology and thus help the drive towards self-reliance, their performance has not been adequate. This has been due to lack of adequate resources for Research and Development (R&D), lack of continuous commitment of top management, an unwillingness to risk failure and the differing technological predilections of the foreign collaborators who came in the wake of foreign assistance needed by these projects. Loss making enterprises could not hope to set

aside resources for future development. Similarly, lack of continuity in top management denied the kind of support which R&D personnel need for doing their work. Since R&D work involves a great deal of risk of failure, top management of many enterprises were not keen on taking up such work for fear of being charged with wasting resources. Finally, in an environment where import of technology was always a possible option - and the private sector used it with a vengeance - only an unusually committed top manager would stake his resources and reputation on in-house R&D. Most opted for the easier way out.

Secondly, the elaborate regulatory system set up for the private sector, to achieve diverse objectives like the prevention of concentration of economic power and the growth of monopolies, provision of incentive to encourage domestic equipment manufacturing, protection to other domestic industry for conservation of foreign exchange, the achievement of balanced regional development, etc., succeeded in slowing down the process of industrial growth considerably and generated a whole host of new problems. Each authority concerned with a particular objective took its own time to decide matters and, in the process, the gestation period of projects got lengthened. As a consequence, project costs went up and the viability of many of them got affected adversely, creating a problem of sick industrial units over a period of time. The anti-monopoly regulatory regime led to small and uneconomic sized units being set up which prevented the realisation of the economies of scale. Also, since expansion was extremely difficult under this dispensation there was no incentive to compete or effect improvements of any kind. Thus, collectively they functioned like an oligopoly charging what the market could bear. On the other hand, by cornering licences, monopoly houses did emerge and they exercised tremendous pressure on government. The result was a high cost industrial structure which prevented the export of new products. The Chinese did not have to face some of these dilemmas because there was no private sector. The fear of monopolies did not trouble them. They built up large units and they pursued R&D as well as they could, because of the confidence gained after the exit of Russian technicians.

Another important institutional difference should also be noted. In their study of the steel industry in China and India, Etienne *et al.*, observed that the work ethic and commitment of workers in the Chinese plants was much higher than that in Indian plants, though most of these are in the public sector [Etienne *et al.*, 1992, p. 186]. This was perhaps because of the totally different role of trade unions in China. Unions in China had really to ensure that workers collaborated with the management in achieving the targets laid down for particular industrial units [Howe, 1978, p. 186]. Since wages were fixed by government, there was no collective bargaining, and strikes to achieve higher wages or better conditions were simply out of question. In India, on the other hand, trade unions were extremely important players on the industrial scene. Not only was the right to organise for collective bargaining recognised in India, but being a democracy, political parties of all hues have played an important part in industrial relations by developing their own trade unions. Since, in a mixed economy, capitalist owners are unavoidable, elimination of capitalism and capitalists became one of their goals and they did not hesitate to use trade unions as their instruments for this purpose. So, confrontation was more the rule than an exception. Since raising the share of labour in total industrial income through collective bargaining was a legitimate goal of trade unions, they did not hesitate to use their strength to bargain for higher wages both in private sector and public sector units. Strikes were frequent. Strikes were used by these unions simultaneously to better the economic conditions of their members, as well as to strengthen the political base of the parties to which the unions were affiliated. This often led to competitive raising of demands and disruption of activity. Because of such attitudes, objectives like the raising of productivity, increasing production, etc., ceased to be the concern of trade unions in India. The large differential between workers' wages and the remunerations of managerial personnel was another demotivating factor! While in China the wage differential between

management and workers was something like 2 to 1, it was much more in the Indian steel industry [Etienne *et al.*, 1992, p. 275].

One of the areas in which China has undoubtedly been more successful than India has been with regard to limiting the growth of numbers. China's death rate has come down to developed country levels in 1985. More importantly from the point of view of containing the growth of population, the birth rate has been halved in 1985. On the other hand, India starting from a similar level was able to achieve by 1991 a reasonably low death rate; but hardly any impression has been made on the birth rate.

How was this achieved by China? It is common knowledge that in developing countries more children are born, because their chances of survival and normal growth are relatively slim. But, once the death rate and the infant mortality rates go down, the need to have more children per woman in the child bearing age is not felt so acutely. The Chinese were able to bring down both the death rate and the infant mortality rate due to the tremendous improvement in health care. They concentrated on increasing facilities which will cure ordinary illnesses, which affect the bulk of the population. The effort was to make the reach of the health care system as extensive as possible. In that process, not only did they increase modern medical facilities, but they made use of traditional Chinese medical expertise as well as the celebrated barefoot doctors. Thus, the number of doctors per thousand persons was thrice that in India and the number of hospital beds more than twice the number in India. The need to have more children became less and less urgent, as the survival rate increased. Thus, the total fertility rate came down from 5.81 children per woman in 1950 to 2.41 children in 1991. The figure for India continued to be as high as 3.9.

There were two or three other factors which also reduced the need for children [Cheng, 1991]. A common motivation in poor societies is that the children would provide economic support in old age to their parents. In China, with the state taking over the responsibility of care during old age through a pension system and other welfare measures, the need for children as instruments of old age support became less pressing.

A large family is also an asset in a peasant society because it means more manpower. With the collectivisation of production particularly in agriculture - the individual household's need for manpower disappeared and became the state's responsibility. Since the parents became wage earners in the collectivised economy, having more children did not lead to a higher income, as children were not permitted to work. Also, the tendency for more and more females to go to work, particularly after the Cultural Revolution, both in the formal and informal sectors seems to have had a noticeable influence on the practice of contraception, number of children and age at which they were born and the spacing of children.

The most important factor which influenced family planning favourably was undoubtedly female literacy and education. In pre-revolutionary China, 90 per cent of women were illiterate. Before 1949, only a quarter of primary school pupils were females. Since then education among married women has been increasing. Only 15 per cent of women between 15-19 years are now illiterate or semi-literate; attendance in secondary schools rose to 41 per cent among women aged 15-19. Education affects fertility by raising the age of marriage, because girls have to stay longer in school and because education widens their employment opportunities outside agriculture. Education promotes a more considered view of family formation and acceptance of contraception for proper spacing of children.

Another factor indirectly responsible for such a rapid change in child bearing was perhaps the totally different attitude towards women in the new Communist society. With a view to storming the bulwark of the old society - the traditional family - the authorities passed the 1950 Marriage Law which forbade 'any' arbitrary and compulsory form of marriage and replaced it by a new democratic marriage system based on free choice of couples, monogamy and equal rights of both the sexes. The law also sought the protection of the lawful interests of women. Young women, thus, could choose their own partners, share the cost of setting up a household and have an equal status in household and family decision making. The government initiated an extensive campaign of marriage law education. The anti-tradition

drive during the Cultural Revolution added strength to the population control movement by attacking superstitious restrictions on the activities of women and pressure on women to produce a son at all costs. It was argued that for orderly economic development population planning must replace 'complete anarchy in mankind's reproduction'.

Finally, a factor which has influenced the decline in the birth rate is the adoption of a one child norm by the family planning authorities. To promote this objective there are incentives to those who accept and adhere to the norm and penalties for those who do not. The incentives are child support, preference in employment, housing, etc., in urban areas. It is also argued that tremendous pressure to have an abortion - peer as well as official - is brought upon those who have a second pregnancy.

As against this, India's record in population control is not very impressive. Although India was one of the earliest among developing countries to adopt family planning as a goal of policy, her success in limiting numbers has been minimal. While the death rate has come down sizeably, the birth rate continues to be only a little lower than in the fifties, and the annual population growth rate continues to be over 2 per cent. The infant mortality rate is still high. The only exception to this general picture is the state of Kerala where the death rate and the birth rate are 6.2 and 21.5, respectively [Dreze and Sen, 1993, Pp. 221-23; Bose, 1991, Tables 79-89]. The infant mortality rate for 1989 was 22 per 1,000 live births. Dreze and Sen have argued that this success in Kerala is due to (i) the high level of female literacy, (ii) the existence of a fairly comprehensive health system, and (iii) better nutrition through the extensive spread of the public distribution system. While their contention about better nutrition in Kerala can be contested, the other two factors are incontrovertible. It is true that female literacy rates are much lower in other states, being lowest in U.P., Bihar, Rajasthan and Madhya Pradesh which are also the states with the highest birth rates. The health care system in general, and in the rural areas in particular, is not as good as in China. As we saw earlier, the number of doctors per thousand is three times that in India and the number of hospital beds more than twice the number in India.

Finally, some of the social factors which led to a lower fertility rate in China still do not operate in India. Both the death rate and the infant mortality rates are not as low as they could be; children are needed as old age support, as there is no pension or social security system; and the status of women continues to be inferior to that of men, though the most formidable Prime Minister of India was a woman. The somewhat harsh one child policy adopted in China is out of question in India, particularly after the electoral defeat of Mrs. Gandhi as a result of the backlash of the forcible vasectomy policy enforced by her son during the Emergency. As a matter of fact, although the family planning programme is allocated resources and is implemented at an official level, political support on any substantial scale is hardly to be seen.

With regard to poverty eradication also, the Chinese record is much better. Firstly, there was complete rationing in urban areas so that everyone was assured of a minimum calorie consumption. 'Successive Chinese constitutions have guaranteed the fulfilment of basic needs to their citizens ..... an important element in this guarantee has been the prevention of destitution and the protection of vulnerable groups. In urban areas the permanent residence registration (*hukou*) has carried guaranteed employment, access to rationed essential consumer items, and an elaborate enterprise (*danwii*) based labour insurance system which involved not only health care, but also retirement and disability provisions. Until recently, the system has been maintained by strict controls on urban registration and migration. In rural areas, while land reform was the cornerstone for the provision of access to productive assets to households, and indeed there was considerable equality in the distribution within particular regions, levels of provision have varied widely as a function of local conditions, and endowments ..... severe deprivation has generally been avoided through a system of transfers (often in terms of grain) to the poorest regions. Thus, minimum nutritional intakes as well as shelter, basic health care and education were generally achieved, although cash incomes were maintained at a low

level. With this social security system in place, individual or household poverty was not a major concern of the policy makers, ...' [Ahmed and Wang, 1991, Pp. 1-2].

In rural areas, the basic ration of 1,500 calories was given to each person who lived in a commune. The surplus left with the commune after meeting its quota delivery was divided in an equitable manner among its members on the basis of the work point system. Nevertheless, poverty could exist if the commune itself was not a productive one. Since movement was controlled, the poor could not move to a prosperous area to better their lot. 'There are regions with around one hundred million people whose problems of keeping warm and not having enough to eat have yet to be solved, commented a reformers' popular magazine' [Gittings, 1989, p. 143]. More precise figures were later provided by the *Farmer's Daily* (May 8, 1986): in 356 counties, 14 per cent of the total population had average incomes of less than 200 yuan (approx US$ 68) in 1985. Their population totalled nearly 124 million. Nearly one-third of this group had an average income of less than 150 yuan (approx US$ 51). These figures compared with an average rural income nationally of 339 yuan. An official estimate puts the figure at 102 million in 1986 [Ahmed and Wang, 1991, p. 18]. These are persons in rural areas with an income below 200 yuan. 40 million among these were classified as extremely poor, because their income was below 150 yuan. It would perhaps be reasonable to assume that the number of people below the poverty line in China would be around 100 million, mostly in the rural areas. Bulk of them were to be found in the poorer provinces in the West and the Southwest.

The policy of liberalisation may have imparted a set-back to China's ethic of equality. Still according to Gittings, the visitor to China will not find the extremes of wealth and privilege encountered, say, in Brazil; nor is there urban poverty anywhere in China comparable to that in, say, Bombay [Gittings, 1989, p. 258].

As against this, a Report published recently puts the number of rural poor in India in 1987-88 at 229 million and the number of urban poor at 83 million. In all, 312 million people or 39.3 per cent of the total population is estimated to be below the poverty line. Except Punjab, Haryana and Himachal Pradesh, the proportion of poor is fairly high in all other states. In Bihar and Orissa, more than half the population is below the poverty line [Planning Commission, 1993].

Rural poverty in India was partly the result of small and fragmented holdings. Modern methods could not be used by those with meagre resources and small holdings; nor could they easily assume risks of adopting a cash intensive method of cultivation. The generally slow growth of agriculture due to lack of investment was the cause of poverty among agricultural labourers. Though there was a good deal of talk of rural industry, the relatively low incomes and the good penetration of the rural market by urban manufacturers did not offer much scope for the growth of rural industry.

Urban poverty was the result of migration by the rural poor in search of a better livelihood. Since employment was not easily found, partly because of the slow growth of industry and partly because of the capital intensive nature of industry due to the prevailing low price of capital and labour militancy, slums of the worst kind proliferated in all major cities. In the cities in the north-eastern part of the country (Calcutta, etc.), refugees from Bangla Desh added to the already existing hordes of the urban poor.

Various schemes to increase the viability of small and marginal farmers and to provide employment to landless labourers have achieved only limited success in solving the poverty problem. So far as farming is concerned, the holdings are far too small to achieve high productivity through improved methods of cultivation. The problem is rendered even more difficult by fragmentation. Consolidation of holdings has not taken place to any great extent, because the prevailing land hunger prevents farmers from participating in any reasonable arrangement. Similarly, cooperative farming has not made much headway because of the social structure of Indian villages and the fear among small farmers of the dominance and exploitation by large farmers.

The various rural employment schemes have not been able to achieve much because, in most cases, such schemes have not been well conceived

and also not implemented with care and enthusiasm. And the resources provided have not been commensurate with the magnitude of the problem. There has been a tendency to spread them thinly which reduces considerably their effectiveness. Similarly, attempts to increase employment through cottage and village industries have also not yielded adequate results.

The difference in the political system of the two countries also seems to have contributed a great deal to the difference in the outcome of development planning. In China, power was seized by the Communist party after a victory over the Guomindang forces. The rulers had a well-knit organisation from top to bottom and coherent ideology to transform the Chinese economy. Its leadership from Mao Ze Dong downwards had a broad understanding of what was needed to be done and cadres of party personnel were ready to implement the task given from above. As Mao was fond of saying, perhaps, with an exaggerated sense of the strength of the Communist Party, China was a blank sheet of paper on which the Chinese Communists could write whatever they wanted.

The Chinese leadership to a man wanted rapid development so that China will not have to undergo again the humiliations suffered from 'foreign devils' in the previous hundred years. The Korean war roused in them a fear of yet another imperialist attack on their country! Secondly, like Communists everywhere, they wanted rapid development, in order to enable their people to lead a better life. They were aware that this could not be achieved without a 'hard and bitter struggle' involving severe austerity. Thus, '(t)o completely transform the backward state of China's economy will require tremendous efforts on the part of the entire population and will also require a certain amount of time. Until we have rid ourselves of these backward conditions, we cannot hope for a very great rise in the standard of living of the people; all we can do is to implement a rational low wage system' [Song Ping, 1989, p. 337]. The Party, therefore, imposed an austere life style on everyone, high or low, in order to generate the large volume of resources needed for the kind of development they planned. The acceptance of such a harsh life was made possible by the elimination of landlords and capitalist entrepreneurs so that great inequalities in income and consumption were removed. Also, everyone was guaranteed a minimum of consumption. There was, therefore, no question of opposition to either the goals or the strategy of development.

However, it was not that there was no disagreement among the leadership. Deng Xiao Ping's rise, fall and rise and the bad end of Liu Shaoqi and Lin Biao are striking examples of such disagreement. The Great Leap Forward and the Cultural Revolution represented Mao's dissatisfaction with the pace of growth and the organisation of implementation. Mao felt that centralisation and bureaucratisation were restrictive, and that decentralisation would release people's energies and achieve more. Secondly, he was also keen that there should be no difference between the farmer and the factory worker, the ordinary citizen and the party functionary, and the town and the countryside. Therefore, the two events represented an attempt to achieve decentralised growth rather than central command oriented growth. Those, on the other side, like Zhou En Lai and Deng Xiao Ping, believed that decentralisation would lead to imbalance and chaos, and that centrally coordinated effort was necessary, if rapid and orderly growth was to be achieved. They felt that some of the earlier slogans, like 'let us produce more steel than Britain or the US', could only be achieved by such an effort. The kind of decentralised growth envisaged by Mao would only lead to waste and retard growth. It is, however, important to note that at no time was the need to achieve rapid growth ever questioned. Anybody who even faintly hinted at this was denounced as a capitalist roader. What was under dispute was whether growth should occur in great surges as Mao wanted or in a steady and orderly manner as Deng and other planners wanted.

The Indian situation was completely different. The Indian National Congress came to power in the wake of Independence, both at the centre and the states. Yet there were other parties like the Communist Party of India which had opposed the Congress and did not support the Congress blueprint of Indian development. It is doubtful if

within the Congress Party itself everyone shared Nehru's vision of a Socialist India.[5] The immediate objective of the Congress had been to achieve independence from the British, but it is doubtful if they had a common ideology, like the Communists, of what to do afterwards. Many of the members of the Congress Party were Gandhians who believed in Khadi and decentralised village development. Others probably had vague ideas about removing the adverse effects of British colonial exploitation. However, Nehru was able to impose upon them his vision of a Socialist Society as a suitable goal for India after Independence. Even at that time the Communists did not share this goal as it did not involve a revolution of the proletariat but was to be brought about through a parliamentary democracy. The development goals before the country were relatively modest, in spite of the known low living standard of the people. Indian planning, because of its democratic orientation, paid great attention to resources that could be mobilised in setting up a growth target. Nehru was aware that we could not follow totalitarian examples in this regard and was content to set modest targets. 'All our planning will depend on the target.... If you want a rate of advance of 5 per cent... you will have to find Rs 2,000 crore more than the present investment. Where is the money to come from? Either from taxation or as loan and aid or in the form of services. Because of these considerations any figure that we choose must be practicable. On the other hand, it is absurd to choose a target which is so low that it does not even let us advance. Let us remember that our population is increasing all the time which means that the number of people who come into the labour market and who need employment keeps increasing... We must not only absorb all of them but expand the reservoir of jobs. Now 3 per cent is not enough; 4 per cent is enough and a little more; and 5 per cent makes a fair dent on this problem... it will be a great burden, we have either to make this 5 per cent or be unable to achieve our objective of reducing unemployment' [Nehru, Vol. III, Pp 68-69].

Again, '(t)he development of modern nations in the Western World took place at a time when democracy as we know it did not exist. The pressure from the people did not come to the surface. When people are politically conscious, the common mass of humanity does not agree to bear the cost of progress at the cost of its own starvation. A very eminent observer said that if democracy as England has today had existed in England at the beginning of the nineteenth century, the growth of British industry would not have taken place or would have taken place at a very slow pace. In India we have full blooded democracy and side by side we have all the unhappy brood of poverty. It is frightfully difficult to add to the burden of that vast humanity in India to secure savings that progress requires. This would have been done when democracy does not exist. In Russia this was done but at a terrific cost in human suffering. The problem we have to face is how to cross the barrier of poverty without paying that terrible cost and without infringing individual freedom' [Nehru, Vol. IV, Pp. 81-113].

India failed to achieve even these modest targets. The consistent failure to achieve the modest overall growth targets led to a degree of cynicism among Indian economists and some of them even postulated an inevitable 'Hindu rate of growth' of 3.5 per cent. As a matter of fact, the plan that was drafted under the Janata Government in 1977 specifically accepted that a growth rate of four per cent was all that India could hope for. The surprising thing was that the then leadership accepted this without much demur.

This had another important consequence. Since the cake was not growing rapidly and the population was because of a lack of success in our family planning policy, distributional questions began to assume even greater importance. Nehru genuinely believed in the vision of an egalitarian Socialist Society. With his death his vision seems to have lost its thrust. Land reforms which led to the abolition of the Zamindari system did not lead to any discernible redistribution of surplus land. The politicians at the state level who were certainly no great believers in egalitarianism and a corrupt village bureaucracy successfully torpedoed even the feeble efforts at redistribution of surplus of land. His daughter and her successors used elimination of poverty and egalitarianism as instruments for electoral victories. Money had to be provided for employment

generation programmes, for making small and marginal farmers viable, for developing tiny and village industries, for sustaining tribals, and so on. And this had to be done without affecting adversely capitalists, large farmers, the white collar middle class and organised labour who were involved in the organised productive process. This juggling led inevitably to inflation, because larger expenditures had to be undertaken in the name of socialist development without mobilising additional resources from those who benefited from such development; and since the various programmes oriented towards the development of the poor were implemented without any conviction, the results were naturally inadequate. Thus, India had neither high growth nor a high degree of equality.

Since power was transferred peacefully the new rulers inherited the earlier administrative set-up, so that implementation of the new vision was in the hands of people who may not necessarily have accepted it and who a little while earlier had actively carried out the orders of their British masters. Therefore, it became necessary to reorient a colonial administration to the new task of development. This was done only half-heartedly. Instead of committed cadres, the task was in the hands of a bureaucracy which may not have been hostile, but certainly was not enthusiastic about it. Besides, since Nehru shared the British orientation with most of the top civil servants, it was easy for him to believe that they would implement the new development programme. Nobody paid any attention to reorienting the lower echelons to the implementation of the new tasks, although their involvement was most needed.

In complete contrast, in China 'Civil Servants retained from the old regime knew they had to work conscientiously to keep their jobs. Others were replaced by new officials who made up for lack of experience by enthusiasm to serve the people, taking up their posts wherever they were assigned. The country magistrate no longer prayed in front of the City Temple God for rain: he mounted his bicycle and rode to meetings, listening to the people who asked for electricity, piped water and a new income' [Gittings, 1989, p. 22].

Nevertheless, a great deal was achieved because of the persuasiveness and authority of Nehru's personality. Resources were raised to set up a number of public sector projects and to improve the infrastructure. However, the achievements of the first two Plans were pale shadows of what the Chinese achieved during the same period. This was partly because the political leadership was getting things done with the help of an administrative structure totally alien to development work. The procedures and methods they used were unsuited to the urgency of the task. The kind of urgency and people's involvement in the execution of water management projects, seen in China, were totally absent in India because the implementing agents were not the Communist cadres but a cadre of irrigation engineers who seemed to live in a timeless world! Efforts to have free popular participation in rural public works through *Shramadan* achieved derisory results, because of the inequalities in the rural economy and the lack of understanding and enthusiasm on the part of the implementing bureaucracy. Also, the Congress Party structure was such that no serious effort was made by it to convince and mobilise people for development effort. While people had been involved on a large scale in the Independence movement, development under the new rulers became an activity of the government, only slightly different from the earlier one of collecting revenue and maintaining law and order. Since the same administrative structure was undertaking these new tasks, the same distance, pace and procedures began slowly to prevail. Instead of the political leadership bending the bureaucracy to the new requirements of development, it allowed itself to be persuaded that the procedures and methods followed earlier were appropriate because they were fair and impersonal. The kind of dynamism which a new nation should have exhibited to achieve new goals was not exhibited to any great extent.[6]

Even though China is a large country, it is very homogeneous. Nearly 90 per cent of the population is Han, brought up in the tradition of Confucius and ruled by emperors with the help of an organised bureaucracy for more than 2,000 years, except for brief intervals. Notwithstanding the fact that they do not understand each other's

speech, they can communicate through the common written word. Over the centuries they had developed a proud oneness as members of the Celestial Kingdom and a contempt for the 'barbarians' outside. This was the very essence of nationalism. Large parts of China in the West and the North West are occupied by non-Han ethnic minorities, like the Tibetans and the Mongols, but they are numerically insignificant. Although the country has many provinces they were not sub-nationalities and could be and had been governed by the rulers from Beijing. Therefore, it was relatively easy for the new rulers to mobilise their energies for communist oriented development.

In contrast, India had never achieved this sense of oneness and had been, over a large part of her history, a conglomeration of different kingdoms, religious and caste groups and peoples. It was the opposition to British rule that had given rise to a nascent nationalism but the division of the country on the basis of religion had dealt a severe blow to the Indian nation. By the fifties, the divisive factors in Indian society which had been suppressed by the overwhelming need to oppose British rule began to surface. The reorganisation of states according to language, though done ostensibly to enable each linguistic group to achieve its full potential, succeeded in driving the first nail into the full development of a national identity. Disputes between states about territory on the basis of language became common and, more importantly, the issue of a unifying national language became a matter of dispute between the Hindi and non-Hindi speaking states. Each linguistic state turned into a sub-nationality and, therefore, uniform regional development became an important concern. Simultaneously, the caste factor began to emerge in each state and balanced development of the major caste groups also became an important concern of policy.

Although initially heavy industrial investment had been undertaken in China in the backward regions in the West and the South both for regional development and strategic considerations, the disappointing results led the authorities to pursue a policy of investing more where the return was higher. However, the greater gain from such was appropriated by the state and transferred to the less productive regions, thus minimising regional tensions. Such a policy was virtually impossible in India, because of the inability of the central government to transfer the larger gains from such an effort to other areas because of this regional feeling. Resources had to be spread evenly and, therefore, thinly to contain regional and caste susceptibilities. This often slowed down the pace of development.

While China was a command economy dominated by a single party with a strong ideological background, India sought development through a mixed economy and a democratic organisation. Both these aspects necessarily meant that many of the measures taken in China to achieve high rates of growth could not be taken in India. It was not possible, for example, to impose the high rates of saving which China had imposed almost from the beginning of the process of development. Since, in a mixed economy this would impinge on the better off classes, and their reaction to such a move would be an important factor affecting its implementation. High personal taxation led to evasion which could not be controlled because of the judicial system which was a valuable part of India's democratic organisation, and because of growing corruption which was partly a result of the electoral system in its democracy.

In a democracy, the leadership has to be elected to power. It can seek votes either on the basis of an ideology or a programme of work and earlier achievements based on that programme. Since achievements of the development programme appealed less and less to people, particularly to poor people, the leadership began either to appeal to casteist sentiments or to provide sops to the disaffected groups at the expense of the state, to secure votes. Development became increasingly a by-product of political manipulations to secure and remain in power. Thus, subsidies on inputs like water, electricity, fertiliser, etc., to farmers, tax and other concessions to industry, salary and wage increases and other benefits to the middle classes and organised labour and schemes, like the Employment Guarantee Scheme, Jawahar Rojgar Yojana and TRYSEM, to the poor were provided to secure electoral support. Dissatisfaction can arise in such a situation, if each group feels that it has not got what it deserved and others have got more than what they deserve. Therefore,

more has to be given continuously in order to retain their support. As happened at the end of the 1980s, the state came to be on the brink of bankruptcy, because of this game to gain and retain power by trying to placate different groups through state largesse rather than through purposeful leadership. The result was that development became increasingly a game of deploying a larger and larger volume of the states resources, rather than achieving worthwhile results from such expenditure.

Secondly, being a mixed economy, incentives instead of direct action became an important aspect of implementation; and these did not always produce the desired results. Private industry had to be given concessions in order to undertake investment necessary for planned development. For instance, tax concessions were given to stimulate investment and these were not always sufficiently productive of new private sector investment. Similarly, the various other incentives given to persuade entrepreneurs to undertake new investment in backward areas did not achieve, by and large, the desired result. Again, farmers had to be given various incentives to accept new seed, use of fertiliser, pesticides, etc., and despite these, the process of changeover to new methods was much slower than in China.

The form of political organisation in India also made it difficult to pursue growth singlemindedly. The Communist parties in India continued to aim at bringing about a proletarian revolution and, therefore, did not subscribe fully to the mixed economy model of the government. The result was that they did not hesitate to create difficulties and problems for both the private sector and the public sector. Other parties like the Bharatiya Janata Party (or its earlier *avatars*), regional parties like the Dravida Munnetra Kazagham (DMK), All India Anna Dravida Munnetra Kazagham (AIADMK), Akali Dal, etc., gave formal support to the development programmes laid down in each Plan, but pursued on the ground much narrower goals not necessarily connected with development. Also, their perceptions of development were not always the same as those of government. Organisations of industry and commerce, trade unions and farmers' associations all pursued their own sectarian goals which very often affected the development process. The result was that such unity of purpose as prevailed in the early Nehru years began to weaken after him greatly in each successive decade. Development policy became increasingly oriented towards accommodation based on electoral calculations rather than on overall cost benefit considerations. Thus, a stainless steel plant came to be set up in Salem, Tamil Nadu, in the wake of the anti-Hindi agitation there in 1966, and a steel plant in Vishakhapatnam to contain Telugu separatism. Resources were spread thinly on many contending demands rather than deployed on the completion of the few that were taken up. The result was long gestation periods, cost escalations and poor return on investment. Also being a democracy, the pace of implementation varied from state to state depending upon the bureaucratic set up, political perceptions and priorities. For example, in Bihar the social milieu made implementation extremely slow; in Tamil Nadu the state became a stage for its thespian Chief Minister. In Punjab a green revolution took place based upon the initiative of farmers and the cooperation of the administration, though the main political preoccupation was whether the Sikhs should rule the state or not.

Another factor which has seriously affected growth in India has been the growing level of corruption. Tax evasion, violation of price and other controls, and defiance of other regulatory regimes with the help of bribery are prevalent to a more than ordinary extent.[7] The scandals which erupt from time to time indicate both the large scale and the great prevalence of corruption in India. Smuggling, securing industrial and import licences through bribery, kickbacks on state purchases of materials, project imports and defence equipment - all seem to be common events in the Indian democracy where no holds are barred in the matter of gaining power or remaining in power. The undesirable economic consequences have been: wastage of scarce resources, non-optimal technology, delays in implementation, higher project costs and misallocation of resources. Economists have euphemistically called this rent seeking activity and have written extensively about its adverse effects on the society. But they have naturally not

referred to the generally degrading effect on society which such activity has, and the cynicism which it breeds, which is inimical to the proper functioning of a democracy.

It is not that corruption was absent in China. The cadres were accused of acquiring work points without doing much, appropriating consumer goods and doing favours to others upon receiving consideration. When targets are given and input allocations to match are not available, corruption is bound to arise, as the concerned organisations make efforts to secure those inputs in an unauthorised manner. During the Cultural Revolution, former Chinese diplomats in Indonesia accused Liu Shaoqui and his wife of undignified and corrupt behaviour during their visit to that country in 1961. Diplomats were accused of bringing back on a large scale electronic goods from abroad when they returned to China.

There is a great contrast in the attitude towards corruption between the two countries. In China authorities also found the misuse of political power by the cadres for personal gain. But there was constant vigilance against such tendencies and constant rectification efforts. In the middle of 1957, Mao stated: 'Since our victory in the revolution, the revolutionary will of some of our comrades has been waning, their revolutionary enthusiasm has been ebbing, their spirit of wholehearted service to the people has been flagging and so has the death-defying spirit they displayed in the days of fighting against our enemies; at the same time they are clamouring for position and for the limelight and becoming particular of what they eat and wear, competing for salary and scrambling for fame and gain - all these tendencies are growing' [Deb, 1993, p. 36]. Again in 1964 Mao commented: 'today a Branch Secretary can be bribed for a few packets of cigarettes and there is no telling what one could achieve by marrying one's daughter off to such a person' [Howe, 1979, p. 66]. As a result, a movement had to be launched against bureaucracy, sectarianism and subjectivism. There was constant emphasis that the outstanding element in the character of the Communist man was his capacity for self-denial. It has been stated by Liu Shaoqui 'On the Training of a Communist Party Member' that 'the test of a Communist Party Member's loyalty to the party and the task of the revolution and communism is his ability, regardless of the situation, to subordinate his individual interests, unconditionally and absolutely to those of the party. Constant emphasis was laid on articles, like Mao's 'Serve the People' and 'In Memory of Norman Bethune', which were parables which pointed to a moral of working selflessly and, if necessary, dying for the common good' [Deb, 1993, p. 35]. The Cultural Revolution was again an attempt to eliminate bureaucracy and corruption which had crept into the system though it went out of control and assumed a bizarre aspect.

The Indian political structure also started out in the same way. Gandhiji's influence on the Congress Party did impose self-sacrifice, simplicity and service to the people, particularly the poor and downtrodden, as the mottoes which should guide the new rulers. However, since the bureaucracy was inherited from the British, the ability to mould them into the new image was limited. Secondly, the Congress fashioned itself on the parties in Britain and did not attempt to mould its rank and file into a well-knit body owing strict allegiance to a set of objectives laid down from above. And, as the leaders who had been exposed to Gandhiji's ideology began to disappear, loyalty to the old values also began to disappear. The Santhanam Committee was a feeble response to public corruption which was soon forgotten by the new leadership which was coming to the fore all over the country.

While Nehru did make an attempt to control corruption in government, Mrs. Gandhi was more relaxed about it. She is said to have remarked that corruption is a worldwide phenomenon, implying thereby that India need not be unduly concerned about it. Nevertheless, as is the Indian habit, an elaborate organisation was set up to check bureaucratic corruption involved in tax evasion, smuggling, transfer of property, etc. But the results produced by this organisation have been meagre, on account of the inability to pursue any course of action vigorously.

Secondly, corruption became almost mandatory in order to meet the mounting expenditure to win and remain in power. Although allegations of corruption and misuse of political power were

constantly made to knock down adversaries in the struggle for power, hardly any effort was made to root out corruption because personal gain became a goal as important as political good and because there were not many other ways of raising resources for winning increasingly expensive elections.

Finally, the difference in political organisation between the two countries also makes for differences in learning from past mistakes. When at the end of the seventies, the Chinese leadership felt that central command planning was no longer the best way of running the economy and that market capitalism had to be introduced if China's standard of living was to increase, they did so quickly though not without a fierce internal struggle in the party. And in the eighties they achieved phenomenal growth in agriculture and in consumer durable goods production by: (a) allowing peasants greater freedom with regard to what they grew and allowing them to sell in the open market that part of output in excess of what they had to deliver to the state; and (b) by de-emphasising investment in heavy industry. In contrast, India seems to be almost like the Bourbons: forgetting nothing and learning nothing. During the same period, this country was unable to give up its regulatory industrial system as also its policy of subsidised public industry because it would mean giving up the Nehruvian legacy. A cynic may call this legacy the fine socialist plumes worn by vested interests whose activities were debilitating the economy. It was only towards the end of the eighties that a severe financial crisis and pressure from financing agencies like the International Monetary Fund (IMF) and the World Bank forced the country to a move towards liberalisation. In a democratic system, the ruling party finds it that much difficult to admit past mistakes because rivals would use it to dislodge it from power. Even in China, Mao lost a great deal of his prestige when he confessed to his economic incompetence when the GLF failed, and was not at the centre of things till the Cultural Revolution almost a decade later.[8] That is why the present Congress government blames the Janata Dal Government under V. P. Singh and the shortlived government under Chandrasekhar for the financial crisis before liberalisation began, though it was Rajiv Gandhi who started the rot in a big way. Therefore, reversal also became that much more difficult and slow.

IV. A COUNTRY OF THE FUTURE?

Where does India go from here? Polite and interested external observers of the Indian economic scene have often described India as the country of the future and some have even gone to the extent of describing it as the next Asian Tiger. Can India achieve this highly desirable state? If this is to happen the first requirement is to have a high growth rate over a fairly long period - a couple of decades or more. India has achieved a growth rate of over 5 per cent per annum only in the eighties, after a much lower figure in the first thirty years. This will probably have to double in the next twenty five years or so, if India is to make a transition to a middle income country. For this to happen, two things are needed: a very high investment rate and better return on investment undertaken. It is only in recent years that the proportion of investment to GDP has been in the neigbourhood of 25 per cent; in China the figure has been much higher over the period under study. Therefore, the share of investment in GDP may have to go up to at least 30 per cent for a fairly long period, if the kind of growth mentioned above is to be attained.

This can happen only if the savings rate also goes up in a matching fashion. At present the domestic saving rate is in the neighbourhood of 22 per cent and the balance is accounted for by an inflow of savings from abroad - foreign aid and inflow of foreign private investment. Either or both rates have to increase to match the higher investment rate needed.

Secondly, the return on resources invested has to be reasonably high if the kind of growth envisaged has to materialise. If investment is to be 30 per cent of GDP and the annual growth rate is to be about 10 per cent per annum, the capital output ratio has to be 3:1. In a developing economy like India, investment in capital intensive sectors like infrastructure and machinery is likely to be substantial. Therefore, an overall capital output ratio of 3:1 would require that the volume of capital intensive investment is maintained within reasonable limits and the capital output

ratio elsewhere is kept very low through efficient working. If this does not happen, the larger growth rate would need an impossibly high rate of investment.

High growth may be restricted not only by a lack of savings but also by an imbalance in external payments. A growing economy needs not only imports of machinery, raw materials, fuel, etc., but also consumer goods - particularly food- if there is a hiatus in agricultural production. To meet this need, exports have to grow in a similar fashion. The gap between imports and exports can be covered by the inflow of external aid and investment resources. If the latter are limited for any reason, high growth can be restricted by a failure of exports to grow and match the increased imports needed by a rapidly growing economy. Such a growth in exports requires a substantial increase in primary production initially. Simultaneously, as the market for primary products is likely to be limited, a switchover to high value-added products becomes increasingly important. Thus, along with an increase in the volume of investment, changes in the pattern of investment also become necessary. More attention needs to be paid to export oriented industry; and the need to maximise the return on investment of resources becomes important in order to achieve competitiveness. Factors like technology, economies of scale and an ability to adjust to fluctuating market trends assume great importance.

Development involves the transformation of an essentially agricultural society into an industrial one. The kind of rapid growth envisaged involves the growth of complex industry, to man which a skilled labour force is needed. It is not possible to develop one unless people from agriculture are trained to undertake complex industrial operations. This is best done where the labour force has acquired literacy of a high order and not merely an ability to read and write one's name. What is needed is an ability to follow instructions about processes and, with experience, to undertake small modifications which increase convenience and/or productivity of operations. Many innovations in industry spring from the shop floor, and the more literate and trained the labour force the greater is the likelihood of an increase in the number of such improvements.

A couple of non-economic factors are also involved in achieving high growth. Firstly, those in charge of the economic destinies of a country must want high growth. Since in a developing country the bulk of the people are poor, there is always a temptation to redistribute poverty rather than allow the national cake to grow rapidly. If the national cake is allowed to grow rapidly for a while, it is possible then to raise the standard of living of the people substantially than if the redistributive strategy is pursued from the beginning. 'No jam today for more jam tomorrow' should be the strategy.

Since this involves continuous ploughing back into investment the increase in GDP, it is necessary to persuade people to wait for the millennium which may be a long way off. This requires a consensus on the part of the society as a whole that such growth is desirable and a willingness to wait for the dawn of individual prosperity. The latter has been secured in China by the use of the state power, ideology and the prevention of the emergence of gross inequalities among the bulk of the people. Also the emergence of countervailing power to the state's authority has been strictly checked.

Finally, rapid growth of GDP does not improve the standard of living of the people unless the numbers of those who want to share the growing cake do not grow at a similar rate. A variety of circumstances have made possible the rapid growth of population in developing countries which almost threatens to neutralize the impact of the growth of GDP on individual incomes. Unless population growth is checked, even the rates of growth contemplated earlier will not succeed much in raising people's living standards.

If these are accepted as the necessary conditions of becoming a country of the future, the question is: Is India capable of fulfilling them so that in another two decades or so India reaches a middle income country level? For instance, it is estimated that even if China grows at the rate of 6 to 7 per cent per annum (as against a current growth rate of 9 per cent), its per caput income in 2010 will be the same as that of Spain today [*Economist*, 1994, p. 9]. Can India hope to do something

comparable?

It is only in the eighties that India's growth rate has exceeded 5 per cent per annum. This better performance owes more to agriculture and services than to industry. If India is to raise its growth rate further, industrial performance will have to be very much better than in the past. Also the growth in services, which really represents overmanning in many sectors, like government, banking and insurance, and public sector enterprises, has to be much lower than the present level. This requires an increase in internal demand as well as an increase in external demand for industrial goods. A growth in internal demand requires (in a circular fashion) a high investment rate and a high growth rate. The growth in external demand depends upon world market conditions for exportables and the competitiveness of Indian exports. Not only will India have to find the right kinds of goods to sell abroad, instead of trying to sell everything, but she will also have to achieve price competitiveness. This requires the giving up of earlier restrictions on the size of enterprise, import of technology and needed raw materials, as also an exchange rate policy which makes exports profitable, and achievement of higher productivity in enterprises. While a reasonable amount of progress has taken place with regard to the removal of restrictions, much more needs to be done in this field. At the same time, hardly anything seems to have been done in securing product niches in the world export markets. For instance, while China has virtually taken over the world toy market of Taiwan and Hongkong, India still seems to be ploughing the same old furrows. The Chinese success in this field seems to be due to manufacturers from Hongkong and Taiwan sourcing the production of toys in China because of its cheap labour. India cannot point to any such success. The products in which it has some success are cotton readymades, leather garments, gems and jewellery, yarn and textiles and low-tech engineering goods. It has not been able to penetrate other profitable sectors like shoes, readymade clothes made out of mixed fabrics-which Bangla Desh has done with remarkable success, electronic goods, etc. This is partly because of its allergy to foreign firms which could have used India as a source of imports, the absence of large sized firms which can combine successfully market research, technology and marketing, and the lack of resilience and skill shown by small exporting firms in Hongkong and Taiwan. It appears that in spite of liberalization these urgently needed changes will take place only over the medium term. Another growing obstacle to exports is the increasing protectonism in developed countries.

A higher rate of investment would be feasible only if more resources become available, i.e., more domestic savings and more external resources. The current high level of the savings rate is mostly due to household saving. It is unlikely that it can go up any further. So any increase in the savings rate has to come about only from the corporate sector and the government sector. Corporate savings are not large because the size of the sector itself is not very large. In contrast the government sector is far more important and used to generate a fair volume of savings till the beginning of the eighties. In recent years, this figure has become negative due to large increases in non-developmental expenditure, such as interest on public debt, increasing defence and police expenditure, subsidies and making up losses of public enterprises. While interest payments cannot be reduced as long as public debt keeps rising on account of budget deficits, and defence expenditure cannot be reduced as long as external security is threatened, it should be possible to reduce other items of non-developmental expenditure. However, decisions in this regard cannot be made, mainly because of political considerations. Cutting down agricultural subsidies will invoke opposition from farmers who have got used to relatively cheap fertilisers, water, electricity, etc. Cutting down food subsidies will affect the urban middle classes and organised labour. Similarly, refusal to subsidise the losses of inefficient public enterprises and allowing them to be closed down or privatised would invoke the opposition of organised labour. Running them more profitably through proper turnaround strategies would involve confrontation with bureaucrats, politicians, trade unions and the public. Nobody would like to take these hard decisions which have serious electoral implications.

Can this lacuna be made up by increasing the reliance on external resources? This seems doubtful for two reasons. The current external debt burden is already so high as to stretch to the limit the country's debt servicing capacity. Further debt would lead to a substantial increase in the servicing burden because over the years the share of concessional debt has diminished sharply and the cost of debt has been steadily rising. So more external borrowing is possible only if export performance improves dramatically. Otherwise, the country may be caught in a debt trap. As we have seen earlier an increase in export performance to the extent required may not be all that assured.

Foreign private investment may be an attractive alternative because it does not impose a service burden immediately. Even at a later date, reinvestment of profits may keep the outflow of resources in check. If it is portfolio investment it imposes a great deal of volatility on the balance of payments, to avoid which good performance on the part of the economy becomes very essential. If it is equity investment the operational environment will have to change a great deal, for which the country may not yet be prepared. In particular, an exit policy and a containment of trade union power may be important requirements but difficult to achieve.

Another important requirement, if India is to be a country of the future, is the general acceptance of the need for high growth. The objective from the beginning has been 'growth with social justice' but the greater emphasis has been on justice, as that is what sells in a poor country. Rapid growth tends to create sharp inequalities and, to check these, instruments like public sector enterprises, industrial licensing with a view to preventing concentration of economic power, development of small scale industries, encouragement of trade unions to prevent exploitation of workers, and high taxation were adopted. But these became counter-productive. They only checked growth but did not lead to the achievement of justice. On the contrary, they led to the creation of vested interests, wasteful use of resources, corruption, dualism between those who were part of the system and those outside, like unorganised labour. The dream of equitable distribution of the gains of growth did not materialise because growth was not high; and as a result the benefits trickled down to only the top layers in society. For the bulk of the people, poverty threatened to become an insoluble problem. To achieve the objective of an increase in the standard of living of the majority of the people, high growth is absolutely essential; and various obstacles to resource mobilisation for larger investment should be resolutely done away with because they benefit only a few.

There is also another important condition to be fulfilled if India is to cease to be a third world country in the medium term, viz., the control of numbers. The growth rate which continues to be as high as 2.1 in 1990-91, has to be brought down to much lower level. For this, a great deal more of social action, such as greater female literacy and an improvement in the status of women, has to be taken, which has not happened in India. And it does not appear that the kind of push such action needs is being given.

There are some projections of future growth which maintain that India will overtake China in numbers in the early 21st century, because their policy has been vastly more successful than India's. In spite of the urgency of the problem, hardly any political support has been given to the problem, because of Mrs. Gandhi's debacle in 1975 due to an unimaginative population control policy. The lack of political support also reflects the narrow perceptions of those in power. It will not be easy to overcome these for a long time. Current political indications are that they will worsen for quite some time to come.

Looking at the existing socio-political scenario, it seems doubtful if India will be able to take adequate necessary action to make the necessary transition to a much higher standard of living. The forces ranged against growth are too many and too strong. Since the bulk of the population is poor, it would be very difficult to persuade them in a democratic manner that they have to forego 'jam today for more jam tomorrow'. Besides, there is no ideological underpinning for demanding such a sacrifice after more than forty years of development. Even China found it difficult to make people accept austerity after 1980. The task is made more difficult in India by the

failure of the authorities to maintain a reasonable degree of equality between the different sections of society. Therefore, redistribution of the gains of growth assumes as much importance as the uninterrupted continuation of the growth process. Really firm action is needed to cut down unproductive expenditure of government and ensure that those who benefit from the growth process contribute adequately for further growth. Tax administration has to be improved greatly and a proper pricing policy has to be followed for all public goods like water, electricity, railway transport, etc. If this is not done - and it appears very unlikely at present - it would be extremely difficult to raise the level of saving and investment to the levels required by high growth.

Indian political parties of all hues always emphasise how they are going to improve the conditions of the less well off through government outlays of various kinds rather than through higher growth. Populism has always been a winning electoral card since Indira Gandhi launched her slogan of *Garibi Hatao*. This is because such handouts are identified with the party giving these handouts, and ensure continuity in power. Anonymous growth may not lead to such quick identification. On the other hand, the various types of subsidies enable those in power to placate the vested interests and continue in power. There is hardly anyone who will maintain that such a policy will lead to financial bankruptcy, and that more rapid growth will benefit the economy in the long run rather than such large dollops of non-developmental expenditure, because politicians have a horizon no longer than the next election.

Another social factor which is inimical to high growth is the divisiveness of Indian society. Bulk of the Chinese are greatly cohesive. Indians, on the other hand, are split on account of language, religion and caste. These differences lead to those in authority to pursue far more limited growth and also pit one group against the other for political advantage and at the cost of overall growth. Instead of pursuing objectives which will benefit all, they tend to be defined more narrowly to benefit X or Y group, linguistic, regional, religious or caste. Intergroup rivalry thus tends to endanger overall progress.

Because of all these factors, one must come to the following dismal conclusion: India will continue to grow at a moderately high pace but will lag far behind, not only the established Asian Tigers, but also the emerging ones!

NOTES

1. In *India's Economic Reforms* by Jagdish Bhagwati and T.N. Srinivasan, there is a diagram, Fig. 1A, p. 3, which compares India's growth with other developing countries. While the Indian growth revealing curve almost bumps along the bottom, those of some of the other countries mentioned above rise sharply from the fifties.

2. All statistics relating to China are, unless otherwise stated, from the *Statistical Year Book of China*, 1986; Population figures from *Statistical Outline of India 1992-93*, Tata Services Ltd., Bombay.

3. While the term accumulation is more or less equivalent to the term investment as Western economists use it, national income is smaller because income generated in the service sector is not involved in the national income in communist economies. To that extent, the accumulation ratio tends to exaggerate investment. But the exaggeration cannot be much as the service sector tends to be small in the socialist societies. Therefore, a high accumulation rate does indicate that the investment rate is high.

4. They cite instances of dismantling and assembling of second-hand equipment imported from abroad, greater indigenisation and greater development of new machines in the Chinese steel industry [Etienne *et al.*, 1992, ch 8].

5. Notwithstanding the voluminous work done by Prof. K. T. Shah under the auspices of the National Planning Committee headed by Nehru, Gandhiji himself had provided an alternative blue print based on village self sufficiency.

6. In China again: 'The 505 kilometre long railway from Chonging and Chengolu, planned for over forty years without a start being made, was completed within two years' [Gittings, 1989, p. 22]. 'The starting point for the new communes was a vast campaign for water conservancy and land improvement in the slack 1957 winter season... It was an impressive effort; by January 1958, said the Chinese Press, one out of every six people was out digging the fields and hacking the hills' [Gittings, 1989, Pp. 31-32].

7. The extent of this can be seen very clearly in *Aspects of Black Money in India*, by Shankar N. Acharya and Associates.

8. He complained about Deng Xiao Ping, then Secretary of the Party, that Deng never consulted him about anything. 'Deng Xiao Ping never sought one out; from 1959 until the present (1966) on no issue at all did Deng ask (to see) me' [Riskin, 1987, p. 158].

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COMMERCIAL BANKS' FINANCE TO PRIVATE CORPORATE SECTOR IN INDIA, 1969-70 - 1990-91

J. Dennis Raja Kumar

Commercial Banks' finance to private corporate sector has been a subject of interest since the nationalisation of banks in 1969. This has assumed further importance in the context of recent policy changes. This paper attempts to examine the role of commercial banks in financing private corporate sector for the period from 1969-70 to 1990-91. The analysis has been carried out against the background of the credit policies of the Reserve Bank of India. In a regulated financial system, the credit policies are aimed at regulating the supply of bank credit. The study indicates the effectiveness of credit policies aimed to reduce the dependence placed on banks by the private corporate sector.

In recent years, the Indian economy has been witnessing changes in its policies relating to its growth path. The development strategies as propounded assign a larger role, perhaps a leading role, to private corporate sector in the development process of the economy. The private corporate sector, as referred to in this paper, is the non-government non-financial companies engaged in manufacturing activity. So defined, the private corporate sector accounted for around 87 per cent of the total private corporate activity (inclusive of agriculture, manufacturing and others) in the early 1980s [Shanta 1991, Table 5.3, p. 54] . The policy changes envisages a larger contribution from this sector to capital formation in the economy. Central to the success of these policy initiatives is the availability of funds to this sector to finance its investment. In this context, the role of the financial system becomes crucial to meet the financial requirements of this sector. The Government of India had appointed a Committee under the Chairmanship of Shri Narasimham to examine all aspects relating to the structure, organisation, functions and procedure of the financial system. The Committee had pointed out that 'With increasing deregulation of industry and the emergence of more competitive conditions, the responsibilities devolving on the financial system in mobilizing resources and allocating them efficiently and responding flexibly to emerging situations would be much greater' [Government of India, 1991, Pp. 2-3]. This paper attempts to examine the role of one important institution of the Indian financial system, namely, commercial banks in financing the private corporate sector in India.

The choice of commercial banks for the study may be justified on the following grounds. To begin with, these banks constitute the larger segment of the financial sector in the country and hence they assume a cardinal role in the financial intermediation process in the economy. The financial assets of all Scheduled Commercial Banks (SCB) account for 62.9 per cent of the financial assets of all financial institutions in India by the end of March 1991 [*Report on Trend and Progress of Banking in India*, 1991-92 July - June, p. 92]. The terms commercial banks and banks are synonymously used to refer to all Scheduled Commercial Banks. Second, the operation of commercial banks has been under state control since 1969, the year in which 14 major commercial banks were nationalised. Since then, it is the Reserve Bank of India (RBI) which has been formulating policies that influence the credit distribution of commercial banks. This obviously has a bearing on the availability of funds that banks have to lend to this sector. And finally, this segment of the financial sector is currently experiencing wide ranging reforms on the line of recommendations of the Narasimham Committee. This is likely to have implications for distribution of commercial bank credit.

The main objectives of this paper are, therefore, to study the role of bank borrowing by private corporate sector against its overall pattern of financing; to analyse supply of bank credit in the context of changing credit policies; and, to examine the determinants of its bank borrowing. It is intended to limit the period of study from

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This paper is drawn from my M. Phil. dissertation [Raja Kumar, 1993] completed at Centre for Development Studies, Trivandrum during the academic year 1991-93. I wish to thank my supervisors Dr. N. Shanta and Dr. K. Pushpangadan for their excellent guidance. I also wish to thank Dr. P. Balakrishnan, Dr. U. S. Mishra, Mr. M. Vijaya Bhaskar, Mr. Srijit Mishra and Mr. K. K. Hari Kurup for the useful discussions I had with them. However, I am alone responsible for errors, if any.

1969-70 to 1990-91, that is from the period of nationalisation to the period of ushering in of reforms.

BANKS AS AN EXTERNAL SOURCE OF BORROWING

The significance of bank credit in financing corporate investment may be assessed against the background of the overall pattern of corporate financing [Gupta, 1969, p. 21]. The pattern of financing shows the different sources of funds used by corporate sector to secure the required funds. Broadly, these sources are either internal or external. While internal sources include the use of capital, reserves and surplus and provisions, external sources comprise fresh issues of capital, borrowing and trade credits and others. This is based on the RBI classification as presented in its studies of *Finances of Public Limited Companies*. This is also the source of data for the following analysis. These studies cover the non-government non-financial public limited companies and, hence, largely reflect the private corporate sector engaged in manufacturing activity. [For the latest study, see *RBI Bulletin*, Vol. XLVII, No. 12, December 1993, p. 1,395]. This study covered about 59.8 per cent of all non-government non-financial public limited companies in terms of paid-up capital as at the end of March 1991. The imperative to resort to external funds largely stems from the insufficiency of internal funds to finance investment activities [Kuh, 1971, Pp. 26-44]. Given the importance of external sources, we now examine the flow of funds from various external sources. Table 1 brings out the relative share of funds from external sources to total funds and the share of funds borrowed from banks in the total borrowing (Table 1).

TABLE 1. EXTERNAL SOURCES OF FUNDS OF PUBLIC LIMITED COMPANIES

(Rs Crore)

Year	No. of Companies Covered	External Sources	Total Sources of Funds	% of (3) to (4)	Borrowing	Borrowing from Banks	% of (6) to (3)	% of (7) to (6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1969-70	1,501	277.87	605.12	45.92	111.65	73.78	40.18	66.08
1970-71	1,501	299.95	702.23	42.57	139.02	109.33	46.50	78.64
1971-72	1,650	337.02	818.68	41.17	133.06	85.23	39.48	64.05
1972-73	1,650	203.97	732.03	27.73	33.22	-55.12	16.37	-166.13
1973-74	1,650	618.23	1,265.32	48.86	222.85	155.69	36.05	69.86
1974-75	1,650	1,047.75	1,939.76	54.01	447.36	332.12	42.70	74.24
1975-76	1,650	743.67	1,295.50	57.40	431.45	263.56	58.02	61.09
1976-77	1,720	617.99	1,106.39	55.86	298.30	171.33	48.27	57.44
1977-78	1,720	800.66	1,371.44	58.38	365.98	181.23	45.71	49.52
1978-79	1,720	1,014.60	1,778.75	57.04	452.84	309.94	44.63	68.44
1979-80	1,720	1,445.15	2,536.31	56.98	690.64	324.82	47.79	47.03
1980-81	1,720	1,961.01	3,180.74	61.65	924.98	200.77	47.17	21.71
1981-82	1,651	3,184.57	4,482.52	71.04	1,652.72	593.54	51.90	35.91
1982-83	1,651	3,225.63	4,639.49	69.53	1,884.20	418.20	58.41	22.20
1983-84	1,838	2,624.82	4,197.69	62.53	1,698.26	585.99	64.70	34.51
1984-85	1,867	3,123.24	5,334.89	58.54	1,667.70	602.15	53.40	36.11
1985-86	1,867	4,892.12	7,442.55	65.73	2,866.26	1068.99	58.59	37.30
1986-87	1,953	5,236.70	7,438.80	70.40	2,982.80	1051.60	56.96	35.26
1987-88	1,953	4,496.30	6,963.70	64.57	2,413.10	660.20	53.67	27.36
1988-89	1,908	8,887.90	12,543.40	70.86	4,660.20	2408.70	52.43	51.69
1989-90	2,131	11,815.10	16,798.20	70.34	6,950.40	1935.70	58.83	27.85
1990-91	2,131	11,271.30	17,566.30	64.16	5,962.30	1818.70	52.90	30.50

Source: 'Finances of Public Limited Companies', *RBI Bulletin*, various issues.

The sources of borrowing by the private corporate sector are banks, other Indian financial institutions, foreign financial institutions, government and semi-government bodies, Indian companies, foreign companies and others. As evinced by Table 1, the sample companies of non-government non-financial public limited companies have been increasingly relying on external sources which account for more than two-thirds of the total cash flows in the 1980s. Moreover, among the external sources, the share of borrowing has increased. However, the relative share of borrowing from banks has steadily declined, from more than two-thirds of total borrowing in the early 1970s to one-third in the 1980s. Apparently, this has occurred during a phase in which the dependency on external sources in general and borrowing in particular had increased. It follows then that the decline in the share of borrowing from banks in the overall flow of funds is not due to any dearth in demand. This points to the need to examine bank borrowing from the supply point of view. Given the fact that bank credit in India is state regulated since 1969, it is possible that the decreasing reliance on banks by this sector for funds might be the consequence of credit policies pursued. Hence, as a prelude to this analysis, it is essential to give a broad overview of the regulatory measures governing credit distribution of commercial banks, particularly those relating to deployment of credit to industry, since the bulk of private corporate sector activity is concentrated in manufacturing.

CREDIT POLICIES

Until nationalisation, commercial banks, following the British banking system, made advances mainly guided by physical security and personal guarantee [Rosen, 1962, p. 17]. Since then these banks have been facing wide changes in policies governing their credit disbursement. The policies reviewed here are those having a direct bearing on the resource disposition of commercial banks in the economy by controlling both the quantum and cost of credit, and the direction of flow of credit.

Those that control the quantum and cost of credit are essentially the monetary instruments of the RBI. The important monetary instruments which have a bearing on resources available with banks to lend are Cash Reserve Ratio (CRR), Statutory Liquidity Ratio (SLR) and Bank Rate (BR). Any upward trend in the level of these instruments would affect the resources available to banks for lending. Table 2 maps out the movement of these instruments during the seventies and onto eighties.

An upward trend is seen in the use of monetary instruments. As mentioned, such a trend implies that it limits the resources available to banks to lend. It is reflected in the downward trend in credit to deposit ratio *vis-a-vis* an upward trend in investment to deposit ratio. This suggests that the increase in the reserve requirements has diverted funds towards investment and away from disbursement of credit. It implies that lesser resources were available to banks for the disbursement of credit. Rao had examined the implication of raising SLR on the disposition of bank resources. He had estimated that between March 1979 and March 1980, if SLR were raised by 1 per cent, it would have lead to an increase of investment of scheduled commercial banks in approved securities by 3.8 per cent with a corresponding decline in non-food gross bank credit by 2.2 percentage point [Rao, 1980, Pp. 867-868]. Another important policy which governed the credit distribution of banks was priority sector lending. Ensuring an increased flow of assistance to the hitherto neglected sectors was one of the prime objectives of nationalisation of banks. To this end, a new policy of priority sector lending was formulated by which liberal lending facilities were provided to neglected sectors like agriculture, small scale industries (SSIs), the self-employed, retail trade, small artisans and so on. Accordingly, the Government of India laid down a target of 33.3 per cent of bank credit to be allotted to these sectors by the end of March, 1979. This target was subsequently raised to 40 per cent to be achieved by March, 1985. Hence, by virtue of priority sector lending, bank credit to medium and large industries became a residual.

TABLE 2. MAIN QUANTITATIVE CONTROLS: 1971 TO 1991

As on last Friday of March	Cash Reserve Ratio	Statutory Liquidity Ratio	Bank Rate	Credit/ Deposit Ratio	Investment/ Deposit Ratio
(1)	(2)	(3)	(4)	(5)	(6)
1971	3.00	28.00	6.00	79.31	29.85
1972	3.00	28.00	6.00	74.06	30.80
1973	3.00	30.00	6.00	70.75	33.53
1974	7.00	32.00	7.00	72.98	32.41
1975	4.00	33.00	9.00	74.08	33.09
1976	4.00	33.00	9.00	76.84	32.55
1977	6.00	33.00	9.00	74.99	31.52
1978	6.00	33.00	9.00	67.26	35.55
1979	6.00	34.00	9.00	65.87	33.72
1980	6.00	34.00	9.00	67.81	33.45
1981	6.00	34.00	9.00	66.79	34.71
1982	7.75	35.00	10.00	67.87	34.62
1983	7.00	35.00	10.00	69.11	35.70
1984	9.00	35.00	10.00	68.15	35.06
1985	9.00	36.00	10.00	67.76	38.95
1986	9.00	37.00	10.00	65.65	35.77
1987	9.50	37.00	10.00	61.63	37.56
1988	10.00	38.00	10.00	59.75	39.40
1989	11.00	38.00	10.00	60.45	39.00
1990	15.00	38.00	10.00	60.77	38.55
1991	15.00	38.50	10.00	60.40	38.99

Note: 10 per cent of incremental demand and time liabilities (DTL) is to be added to Cash Reserve Ratio (CRR) for the periods from 1977 to 1980 and from 1984 to 1986.
Source: *Report on Currency and Finance*, Volume 1 & II, RBI, various issues.

Control, specifically of credit to industry, known as 'Credit Authorization Scheme' (CAS) was introduced by the RBI in 1965 even before nationalisation[1]. According to this scheme, 'banks were required to take prior authorization from RBI to sanction any credit worth Rs 1 crore or more to any single party, or any quantum that would take the total limit enjoyed by such party from entire banking system to Rs 1 crore or more on secured and/or unsecured basis' [RBI, 1983, p. 6]. The operation of this scheme was influenced by the recommendations of the Tandon Study Group which became the criteria for CAS scrutiny of applications under CAS[2]. The recommendations of the study group are briefly explained.

Banks provided working capital finance to industrial units to finance their current assets by way of cash credit. The manner in which banks extended credit under this system had accentuated the problem of potential imbalance in demand for and supply of funds. It was the borrowers' decision to borrow that determined the level of advances to be made by banks rather than how much a banker could lend at a particular point of time. This had lead to a permanent lock up of bank funds in borrowers' account to an extent that outstanding amount in cash credit account never fell below a certain level. It was in this context that the study group wanted to rationalise the system of working capital finance [RBI, 1975, Pp. 11-14].

The Study Group observed a lack of uniformity among banks in their assessment of working capital requirements mainly constituted by inventories and bills receivables. Hence, the Study Group observed the need for defining a reasonable level of inventories and receivables and the need for norms for these current assets. In this context, the Study Group viewed the role of banks as a lender to supplement resources of borrowers to carry an acceptable level of current assets [RBI, 1975, p. 17]. To make this role of banks more effective, the Study Group went on to define norms for holding a reasonable level of current assets and suggested some approaches to lending.

The Study Group stipulated specific norms for inventory and receivables that could be had in each industry. These norms were applicable to

all industries, both in the public and private sectors including the SSIs, with aggregate credit limit from the banking system in excess of Rs. 10 lakh and above [RBI, 1975, Pp. 19-26]. As regards the approaches to lending, the Study Group was guided by two basic rationale, namely, every industrial borrower should hold only a reasonable level of inventory and receivables conforming to the norms, and there must be a surplus of current assets over current liabilities. The second one implies that a part of current assets should be financed entirely from long term funds. Guided by this, the Study Group formulated three alternative methods for working out maximum permissible level of bank borrowing [RBI, 1975, Pp. 27-32].

In Method I, a borrower would have to contribute a minimum of 25 per cent of working capital gap from long term funds, which would give a minimum current ratio of 1:1. Working capital gap was defined as total current assets less current liabilities other than bank borrowing. Current ratio is a ratio of current assets to current liabilities. While current assets included raw materials, stores and spares, finished goods, receivables including bills discounted with banks and other current assets, current liabilities included creditors for purchases, bank borrowing including bills discounted with banks and others. In Method II, the Study Group envisaged that a borrower would have to provide a minimum of 25 per cent of total current assets from long term funds which would give a current ratio of 1.33:1. And under Method III, a borrower's contribution from long term funds would amount to the entire core current assets and a minimum of 25 per cent of balance current assets, thus strengthening current ratio further. The core current asset was defined to include 'an absolute minimum level of inventory such as raw materials, process stock, finished goods and stores which are in the pipeline to ensure a continuity of production' [RBI, 1975, p. 17]. Placing a borrower on Method I would enable him to borrow more than if placed under other methods. In other words, placing a borrower on Method III would involve larger contributions from long term funds to finance current assets and thereby reducing the reliance placed on banks. The Group recommended that the beginning should be made with Method I and successively Method III should be reached. The implication is that bank credit would supplement owned funds instead of bank credit by itself financing working capital of borrowers.

These recommendations were endorsed by the RBI and were eventually incorporated in its credit control measures on August 21, 1975[3]. As regards the approaches to lending, the RBI asked commercial banks to adopt Method I initially and successively move on to Method III. This recommendation of approaches to lending was reiterated by Chore Committee[4]. The Chore Committee also, like the Tandon Study Group, felt the need to reduce dependence on banks by medium and large borrowers, both in private and public sectors. In their view, the net surplus plus cash generated by an established industrial unit should be utilized at least partly to reduce borrowing for working capital purposes. In other words, the Committee argued that the established units should not divert their cash generation exclusively for expansion purposes which should legitimately be financed by promoters' own fund and other term lending institutions. To enhance owners' contribution for working capital purposes, the Group accepted the style of lending as proposed by the Tandon Study Group and suggested the adoption of Method II of lending whereby owner's contribution would amount to 25 per cent of current assets giving a minimum current ratio of 1.33:1. And this was made compulsory for all borrowers having aggregate working capital limits of Rs 10 lakh and above [RBI, 1979, Pp. 28-30]. This recommendation was accepted by the RBI and incorporated in its credit control measures on December 8, 1980[5].

Though the operation of CAS underwent some structural changes mainly concerned with raising of its upper limit, the RBI withdrew the CAS in October 1989 following its finding that the purpose of CAS was achieved by the enforcement of discipline on the lines referred to earlier[6]. But nevertheless, all proposals involving sanction of aggregate working capital beyond Rs 5 crore and all term loan proposals requiring the RBI's prior authorization were subjected to post sanction scrutiny [RBI, 1989, Pp. 305-308].

To sum up, the following observations may be

made: first, the increasing level of reserve requirements have lessened the overall resources available to commercial banks to lend; second, the introduction of policy of priority sector lending would have reduced the proportion of credit going to large industrial sector; and, third the operation of CAS, guided by the recommendations of the Tandon Study Group and of the Chore Committee, would have reduced the reliance placed on banks by the industrial sector. Against this background, the supply of bank credit to private corporate sector is analysed.

SUPPLY OF BANK CREDIT

The private corporate sector studied is the one engaged in the manufacturing activity. Hence, before examining the bank credit to this sector, the distribution of credit to industry is analysed (Table 3).

TABLE 3. SCHEDULED COMMERCIAL BANKS' ADVANCES TO INDUSTRY

(Rs Crore)

	Industry (2+3)	Medium & Large Industry	SSI	Agri-culture	Total Bank Credit	% of Col.(1) to Col.(5)	% of Col.(2) to Col.(5)	% of Col.(3) to Col.(5)	% of Col.(4) to Col.(5)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Mar. 1968	2,068	1,857	211	67	3,064	67.47	60.60	6.89	2.19
Dec. 1970	2,610	2,141	469	291	4,108	63.53	52.11	11.42	7.07
Jun. 1972	3,053	2,414	639	360	5,300	57.60	45.55	12.06	6.79
Jun. 1973	3,634	2,875	759	572	6,333	57.38	45.44	11.98	9.03
Jun. 1974	4,730	3,725	1,005	709	7,999	59.13	46.57	12.56	8.86
Jun. 1975	5,262	4,144	1,118	969	9,012	58.39	45.98	12.41	10.75
Jun. 1976	5,883	4,632	1,251	1,214	11,679	50.37	39.66	10.71	10.39
Jun. 1977	6,452	4,990	1,462	1,400	13,458	47.94	37.08	10.86	10.40
Jun. 1978	7,610	5,762	1,848	1,961	15,961	47.68	36.10	11.58	12.29
Jun. 1979	8,963	6,686	2,277	2,521	19,162	46.77	34.89	11.88	13.16
Jun. 1980	10,236	7,702	2,534	3,152	21,311	48.03	36.14	11.89	14.79
Jun. 1981	12,222	9,154	3,068	4,160	24,885	49.11	36.78	12.33	16.72
Jun. 1982	14,010	10,473	3,537	5,076	29,590	47.35	35.39	11.95	17.15
Jun. 1983	16,635	12,778	3,857	5,786	35,021	47.50	36.49	11.01	16.52
Jun. 1984	18,343	12,931	5,412	7,655	43,326	42.34	29.85	12.49	17.67
Jun. 1985	20,659	14,030	6,629	8,820	49,995	41.32	28.01	13.26	17.64
Jun. 1986	23,970	17,052	6,918	9,770	56,183	42.66	30.35	12.31	17.39
Jun. 1987	28,335	20,714	7,621	11,019	63,727	44.46	32.50	11.96	17.29
Jun. 1988	33,243	23,750	9,493	12,517	71,285	46.63	33.32	13.32	17.56
Jun. 1989	41,655	29,834	11,821	15,266	88,027	47.32	33.89	13.43	17.34
Mar. 1990	50,846	37,934	12,912	16,626	104,311	48.74	36.37	12.38	15.94
Mar. 1991	59,093	42,647	16,446	18,573	124,201	47.58	34.34	13.24	14.95

Note: The advances are the outstanding amounts as on the last Friday.
Sources: *Report on Currency and Finance*, RBI, various issues.
Banking Statistics: Basic Statistical Returns, RBI, various issues.

It is seen from Table 3 that the share of industry in total bank credit has continuously declined during the post nationalisation period from 67.47 per cent in 1968 to 41.32 per cent by the end of June 1985. Since then it has gradually risen to 48.74 per cent by the end of March 1991. Within the industrial sector, SSIs have retained its share somewhere around 10 to 13 per cent of total bank credit throughout the 1970s and 1980s. And hence medium and large industries show a trend that reflects the one observed for industrial sector on the whole. The share of agriculture in the overall credit has increased very substantially during the 1970s and onto 1980s to around 17 per cent. As mentioned earlier, one of the main objectives of nationalisation of commercial banks was to direct more credit to priority sectors, comprising agriculture, SSI and others. Table 3 shows that in the post nationalisation period, the share of both agriculture and SSI in total bank credit had risen substantially to 28.19 per cent by the end of March 1991 from 9.08 per cent at the end of March 1968. The larger reduction in the share of credit to medium and large industry was thus a result of an increased flow of credit to priority sectors, particularly to agriculture and

SSI. Further, the sharp decline of its share in the year 1976 coincides with the introduction of more regulatory measures along the lines proposed by the Tandon Study Group. This suggests the effectiveness of policy measures intended to curb lending to big borrowers and to promote lending to priority sector.

Having observed the trends in the supply of bank credit to industry, we now examine credit given to the private corporate sector. The RBI,[7] in disaggregating credit distribution according to organisation, identifies four major categories, namely, Public Sector, Private Sector, Co-operative Sector and Individuals. The public sector includes Central Government owned undertakings, State Government owned undertakings and Quasi Government Bodies. The private sector includes Public and Private Limited Companies other than Government owned and/or managed Corporations and Companies (henceforth non-government companies). The other categories of private sector include a) Public and Private Limited Companies owned and/or managed by Government and b) Partnerships, Proprietary Concerns, Joint Families, Associations, Clubs, Societies and Trusts. The non-government companies represent the private corporate sector in the economy and hence, credit to this form of organisation is examined (Table 4).

TABLE 4. DISTRIBUTION OF SCB CREDIT TO PRIVATE CORPORATE SECTOR (PCS)

(Rs Crore)

	Total Credit to PCS (1)	Total Bank Credit (2)	% of (1) to (2) (3)	Industrial Credit to PCS (4)	Total Industrial Credit (5)	% of (4) to (5) (6)	% of (4) to (1) (7)
Jun. 1973	2,661.60	5,771.13	46.12	2,372.94	3,792.54	62.57	89.15
Jun. 1974	3,404.86	7,288.77	46.71	3,006.93	4,942.67	60.84	88.31
Jun. 1975	3,657.08	8,180.19	44.71	3,286.55	5,553.90	59.18	89.87
Jun. 1976	4,043.05	10,568.17	38.26	3,658.43	6,266.58	58.38	90.49
Jun. 1977	4,533.38	12,063.88	37.58	4,063.43	6,930.70	58.63	89.63
Jun. 1978	5,154.82	14,145.41	36.44	4,577.52	7,533.77	60.76	88.80
Jun. 1979	6,022.20	16,826.46	35.79	5,299.29	8,876.34	59.70	88.00
Jun. 1980	6,220.14	18,426.02	33.76	5,528.86	10,136.20	54.55	88.89
Jun. 1981	7,259.91	21,321.69	34.05	6,391.40	12,086.32	52.88	88.04
Jun. 1982	8,497.29	25,008.37	33.98	7,565.70	13,856.57	54.60	89.04
Jun. 1983	9,527.32	29,930.80	31.83	8,513.66	16,463.66	51.71	89.36
Jun. 1984	10,432.09	34,428.48	30.30	9,391.72	17,788.76	52.80	90.03
Jun. 1985	11,471.23	39,966.27	28.70	10,320.61	19,969.78	51.68	89.97
Jun. 1986	13,420.89	43,566.84	30.81	12,116.29	22,985.98	52.71	90.28
Jun. 1987	16,844.91	48,283.61	34.89	15,091.67	27,141.96	55.60	89.59
Jun. 1988	19,559.27	53,330.41	36.68	17,495.37	31,820.71	54.98	89.45
Jun. 1989	24,834.51	65,696.71	37.80	21,893.44	39,966.02	54.78	88.16
Mar. 1990	30,406.41	80,164.69	37.93	26,782.57	48,933.19	54.73	88.08
Mar. 1991	36,415.97	96,880.39	37.59	31,516.65	56,766.17	55.52	86.55

Source: *Banking Statistics: Basic Statistical Returns*, RBI, various issues.

As is evident from Table 4, the proportionate share of credit to non-government companies in total bank credit had declined from 46.12 per cent in June 1973 to 28.70 per cent in June 1985, but increased to 37.59 per cent by the end of March 1991. It is also seen that more than half of the credit distributed to industry goes to non-government companies. However, its share had gone down from 62.57 per cent in June 1973 to 51.68 per cent in June 1985 and had risen to 55.52 per cent by the end of March 1991.

It is also seen in Table 4 that credit drawn by non-government companies has been predominantly employed in the industry, as the share of industrial credit to total credit distributed to this sector works out to nearly 90 per cent. This, along with the larger share of non-government companies in the overall credit to industry, implies that it is the credit to non-government companies which will eventually affect the overall credit to industry.

Based on the above observations, the following conclusions may be drawn. More than one-half of the bank credit to industry goes to non-

government companies, whose relative share in the overall credit has declined. The reduction in the relative share of non-government companies in total credit had been in line with that of medium and large industry. This suggests that it is the reduced share of non-government companies in the total credit that had greatly contributed to the reduction in the relative shares of medium and large industry and, perhaps, reflects the effect of policies intended to curb lending to big borrowers.

The bank credit so far examined is essentially short term in nature. Banks provide long-term funds to PCS by investing in its securities. The following is an analysis of investment made in the securities of Joint Stock Companies by Scheduled commercial banks[8]. It is important to note that this investment in securities does not include investment in Government securities through which the public sector is largely financed. In other words, it represents the securities issued by private corporate sector and, hence, reflects the role of commercial banks in long-term financing of the private corporate sector. A break-up of investment into shares and debentures has also been made and examined. As separate data on investment made in both shares and debentures are available only since 1972, the break-up between these securities is given from 1972. Keeping in mind the nature of present analysis, only the proportion of investment in these securities in the total investment has been examined (Table 5).

TABLE 5. INVESTMENTS IN THE SECURITIES OF JOINT STOCK COMPANIES

(Rs lakh)

	Total Investment by Banks (1)	Securities of Joint Stock Companies (3+4) (2)	Investments in		% of (2) to (1) (5)	% of (3) to (2) (6)	% of (4) to (2) (7)
			Shares (3)	Debentures (4)			
1968	125,759	2,970			2.36		
1969	141,039	3,739			2.65		
1970	158,658	4,374			2.76		
1971	187,051	3,965			2.12		
1972	228,877	4,521	2,246	2,275	1.98	49.68	50.32
1973	302,422	6,031	2,351	3,680	1.99	38.98	61.02
1974	340,663	7,137	2,376	4,761	2.10	33.29	66.71
1975	404,085	7,971	2,450	5,521	1.97	30.74	69.26
1976	513,634	9,267	2,735	6,532	1.80	29.51	70.49
1977	584,854	13,686	2,923	10,763	2.34	21.36	78.64
1978	815,352	12,726	3,511	9,215	1.56	27.59	72.41
1979	918,886	11,522	4,403	7,119	1.25	38.21	61.79
1980	1,088,402	11,353	4,355	6,998	1.04	38.36	61.64
1981	1,335,905	11,392	4,620	6,772	0.85	40.55	59.45
1982	1,516,016	12,304	4,128	8,176	0.81	33.55	66.45
1983	1,791,501	14,072	4,271	9,801	0.79	30.35	69.65
1984	2,186,779	16,823	4,525	12,298	0.77	26.90	73.10
1985	2,570,311	17,481	4,780	12,701	0.68	27.34	72.66
1986	3,219,614	18,546	4,621	13,925	0.58	24.92	75.08
1987	4,075,315	68,731	5,177	63,554	1.69	7.53	92.47
1988	4,964,299	111,599	10,577	101,022	2.25	9.48	90.52
1989	5,939,465	133,358	18,604	114,754	2.25	13.95	86.05
1990	6,932,151	169,695	25,383	144,312	2.45	14.96	85.04
1991	8,035,541	236,416	21,142	215,274	2.94	8.94	91.06

Source: *RBI Bulletin*, various issues.

From Table 5, it is seen that the proportion of investment made in the securities had declined over the years, from 2.76 per cent in March 1970 to 0.58 per cent in March 1986 and rose to 2.94 per cent by the end of March 1991. A close look at Table 5 also reveals that the proportion since March 1988 is as high as that witnessed in the pre-nationalisation period. A break up between shares and debentures shows that while the proportion of investment in shares has gone down, it has increased in the case of debentures. It shows that the provision of long term funds by banks to PCS has mostly been by way of investing in debentures.

DETERMINANTS OF BANK BORROWING

The above analysis from both demand and supply side emphasises the need to examine determinants of bank borrowing of private corporate sector. Based on some empirical studies, it is postulated that the bank borrowing (BB) is positively influenced by investment in inventory (INV) and negatively by internal funds (IF) [Ambegaokar, 1969; Venkatachalam and Sarma, 1978; Sharma, 1991]. The interest rate, that is cost of borrowing, has been postulated to reduce bank borrowing. However, the demand for bank funds might continue to increase despite a rise in the rate of interest of banks, if the cost of alternative source of borrowing increases even more than the rate of interest of banks. In other words, demand for bank credit would depend upon the interest rate relative to the cost of alternative source of borrowing [Khusro and Siddhartan, 1972, p. 16]. Hence, relative rate of interest (r) has been used to reflect the cost of borrowing. The implementation of the Tandon Study Group norms along with other credit control measures (CCM) has been hypothesized to have reduced the borrowing from banks. Thus, the postulated model is represented by

$$BB = f(INV, IF, r, CCM) \quad \ldots (1)$$

$$\frac{\delta I}{\delta INV} > 0; \frac{\delta}{\delta IF} < 0; \frac{\delta I}{\delta r} < 0; \frac{\delta I}{\delta CCM} < 0$$

For estimation, the following variables were used. It was observed that the share of bank borrowing has been declining in relation to total borrowing. To explain this trend, the proportion of borrowing from banks to total borrowing (BOB) is used as a proxy for the role of banks' finance. Investment in inventories is defined to include funds used to invest in raw materials, work-in-progress, finished goods and stores and spares. The relative rate of interest is defined as lending rate of Industrial Development Bank of India (IDBI) divided by the advance rate of State Bank of India (SBI). The lending rate of IDBI is taken as a proxy for the cost of alternative sources of borrowing[9]. Borrowing from banks is essentially short-term in nature, while that from other financial institutions is long-term in nature and, hence, their lending rates are not comparable. To overcome this problem, one could use bazaar bill rate, reflecting the interest rate of short-term borrowing. However, this is not available from the late 1970s. Since the borrowing from other financial institutions had increased and constitute the major chunk of total borrowing, the lending rate of IDBI is used. Moreover, there seems to be a movement towards term loans by banks. Flow of funds from 'Other Indian Financial Institutions', other than banks, during the early 1970s was negative which had subsequently gone up. It accounted for 38.18 per cent of the total borrowing for the year 1990-91 [*RBI Bulletin*, Vol. XLVII, No. 12, December 1993, p. 1,410]. The proportion of outstanding bank borrowing other than short term was 18.22 per cent of total bank borrowing for the year 1990-91 [*RBI Bulletin*, Vol. XLVII, No. 12, December 1993, p. 1,406]. All other variables, mainly CCM, systematically affecting the BOB, is captured by introducing a time variable (t) in the absence of any data on these variables.

Specifying the equation (1) in a linear form:

$$BOB = \alpha_0 + \alpha_1 INV + \alpha_2 IF + \alpha_3 r + \alpha_4 t + u_t \quad \ldots (2)$$

where α_0, α_1, α_2, α_3 and α_4 are the respective regression coefficients and ut is a stochastic error term. The estimate of equation (2) is

$$\begin{array}{llll} BOB = 96.61 & + .0081\ INV - & .00039\ IF & \\ \quad (3.51)^* & \quad (1.16) & \quad (-.06) & \\ -19.41\ r & -3.37\ t & & \ldots (3) \\ \quad (-.72) & \quad (-3.92)^* & & \end{array}$$

Adj. $R^2 = .67$; D-W = 1.56; F = 11.5; N = 22.

* t-value significant at 1 per cent.

In the above regression results, the time variable shows a significant negative trend. This suggests that the declining role of banks is significantly explained by the credit control measures. However, the equation also shows that only the coefficient of 't' is significant. One possibility is that 't' may be a dominant variable. This can be tested by estimating the trend equation alone. The trend equation is given below:

$$\begin{array}{ll} BOB = 74.54 & -2.28\ t \quad \ldots (4) \\ \quad (15.32)^* & \quad (-6.14)^* \end{array}$$

Adj. $R^2 = .65$; D-W = 1.58; F = 37.7; N = 22.

* t-values significant at 1 per cent.

The equation 3 explains 67 per cent of variation of which the trend alone explains about 65 per cent and, hence, we have a case of dominant variable. Therefore, equation (3) is estimated without the dominant variable 't'.

Since 't', a proxy for all other effects including the policy variable, is dropped from the specification, we have introduced a dummy variable to capture the effects of the implementation of the Tandon Study Group recommendations, the most important credit control measures introduced during the period. Its impact is measured using dummy variable (D) for the intercept. Since the Tandon Study Group recommendations were implemented in 1975, the dummy variable is defined as:

D = 1, 1975-76 to 1989-90; and,
= 0, otherwise.

Obviously, we would expect a negative coefficient for D, if the credit squeeze has affected the behaviour after the implementation of the recommendations of the Tandon Study Group. Accordingly, equation (2) is rewritten as:

$$BOB = \alpha_0 + \alpha_1 D + \alpha_2 INV + \alpha_3 IF + \alpha_4 r + u_t \quad \ldots(5)$$

The estimated equation is:

$$BOB = \underset{(2.49)}{125.3} \underset{(-2.369)^*}{-31.596\,D} \underset{(1.474)^{**}}{+.0121\,INV} \underset{(-2.037)^*}{-.0117\,IF} \underset{(-1.076)}{-51.655\,r} \quad \ldots(6)$$

Adj. $R^2 = .52$; D-W = 1.20; F = 6.8; N = 22.

* t-values significant at 5 per cent; and

** t-value significant at 15 per cent.

The dummy variable is significant and negative. This means that the implementation of the Tandon Study Group norms has been effective in reducing the role of banks. Hence, it can be concluded that true to the objectives, these policies have been effective in reducing the role of banks in financing the private corporate sector. The use of internal funds was postulated to reduce the dependence placed on banks. It suggests that the policy measures which reduced the quantum of finance made available to the private corporate sector have led this sector to use more of internal funds. Thus, as expected by the Tandon Study Group and the Chore Committee, the internal funds have been replacing banks' finance. The investment in inventories, though statistically found to be weak, had the expected positive influence. Moreover, the cost factor appears to have hardly any influence on the role of banks, though the expected sign emerges.

SUMMING UP

The examination of the pattern of financing shows that private corporate sector has been increasingly resorting to external funds in general and borrowing in particular during the 1970s and 1980s. It suggested that there was a demand for funds from this sector. Nevertheless, the analysis of borrowing according to different sources revealed that the role of banks had declined. Further, the examination of the supply of bank credit showed that the relative share of private corporate sector in total bank credit had declined from the time of nationalisation until the mid-1980s.

To understand the factors responsible for these trends, a statistical analysis of the determinants of borrowing from banks was carried out. It clearly showed that the various credit control measures since nationalisation were the major factors influencing the observed trend in bank credit. Implementation of the Tandon Study Group norms, for instance, is found to have reduced the role of banks. The use of internal funds is another factor that contributes to the reduced role of banks. The cost factor has no influence on the role of banks, indicating that it is the availability of funds rather than the cost associated with it that affects the role of banks.

The above discussion clearly brings out the significance of the supply of bank credit. It is seen that the supply of credit by banks since nationalisation has moved in line with an increased level of reserve requirements which reduces the overall resources available with banks to lend. This is evident from the downward trend in credit to deposit ratio *vis-a-vis* an upward trend in the investment to deposit ratio. Moreover, the overall supply of bank credit during this period was regulated by the policy of priority sector lending. Bank credit to industry in particular was governed by the recommendations of the Tandon

Study Group reiterated by the Chore Committee. It can, therefore, be said that the declining role of banks in financing private corporate sector could be due to these supply factors. In a regulated financial system, the credit policies are aimed at regulating the supply of bank credit. The study therefore indicates the effectiveness of credit policies aimed to reduce the dependence placed on banks by this sector.

Seen in this perspective, these are important results in the context of the ongoing economic reforms, particularly in relation to policies towards financial sector. In this context, two major recommendations of the Narasimham Committee [Government of India, 1991, Pp. iv-vi] need to be highlighted. First, reduction in the level of reserve requirements and second, redefining the priority sector and reducing the target to a lower level of ten per cent. Implementation of these recommendations implies that there will be less of directed credit. Given that the declining share of bank funds to private corporate sector is attributed to supply factors rather than to demand factors, it is possible that in the new regime of lesser directed credit, resources of banks would be absorbed by this sector, given its endemic demand for funds. All these indicate that commercial banks are likely to be a significant source of borrowing for private corporate sector. Does this imply that bank credit to industry would assume its pre-nationalisation characteristic? What implications would this have for the pattern of industrial growth and structure? This is yet to be known.

NOTES

1. The operation of this scheme had been well examined by Marathe Committee, appointed by the RBI in 1982. For a detailed account of its operation, see RBI, 1983.

2. Appointed by the RBI in 1974 under the Chairmanship of Tandon. For the terms of reference of this Study Group, see RBI, 1975.

3. For other recommendations accepted by the RBI, see *RBI Bulletin* [Vol. XXIX, No. 8, August 1975, Pp. 676-679].

4. Appointed by the RBI in 1979 under the Chairmanship of Chore. For the terms of reference of this Committee, see RBI, 1979.

5. For the other recommendations of the Chore Committee accepted by the RBI, see *RBI Bulletin* [Vol. XXXIV, No. 12, December, 1980, Pp. 981-985].

6. For the successive upper limits, see RBI, 1983, p. 9; 1989, Pp. 202-203.

7. See RBI, *Banking Statistics: Basic Statistical Returns*, table titled 'Classification of Outstanding Credit of Scheduled Commercial Banks - According to Occupation and Organisation'. The outstanding credit relates to accounts with credit limit over Rs. 10,000.

8. This is based on the 'Survey of investment of Scheduled Commercial Banks' as published in the *RBI Bulletin*. For the scope and coverage of these surveys, see *RBI Bulletin* [Vol. XLVI, No. 2, February 1992, p. 325].

9. The advance rates of the SBI and the IDBI were collected from the Statement titled 'Structure of Interest Rates in India' in *Report on Currency and Finance*, RBI, various issues.

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ADVANTAGE FROM TRADE: AN INPUT-OUTPUT APPROACH

Dhanmanjiri Sathe

This paper develops a methodology for measuring the advantage which an economy gains from its foreign trade in a static, input-output framework. The advantage is measured in terms of the Stimulus and the Net Stimulus to the output generated by the exports and imports. The methodology has been applied to the Indian economy for the period 1951-52 to 1983-84, using six input-output tables. It is generally expected that with trade liberalisation (i.e., outward-orientation), the advantage to the domestic economy from foreign trade increases. However, the case of the Indian economy shows that the advantage from trade need not increase with opening-up. The share of foreign trade in total output and the advantage from trade seem to be loosely related. The advantage from trade seems to be most affected by the composition of exports and imports. Moreover, it has been found that the increase in manufactured exports need not be more beneficial to the domestic economy as is generally believed.

The purpose of this paper is to develop a methodology for measuring the advantage which an economy gains from its foreign trade and to estimate empirically the advantage which has accrued to the Indian economy. The methodology has been developed in a static, input-output (i-o) framework. Section I gives the methodology for determining the advantage from trade along with the limitations of the approach. Section II discusses the data used for the empirical estimation. The next section gives the results for the Indian economy and the conclusions of the paper are given in the last section.

1. Methodology

1.1 The Input-Output System

The input-output system is given by the following set of equations

$$X_1 + M_1 = X_{11} + X_{12} + X_{13} + ... + X_{1n} + F_1 + E_1$$
$$X_2 + M_2 = X_{21} + X_{22} + X_{23} + ... + X_{2n} + F_2 + E_2$$
$$\vdots$$
$$X_n + M_n = X_{n1} + X_{n2} + ... + X_{nn} + F_n + E_n$$

for i, j = 1 ..... n sectors.

where X_i is the total output in the economy, M_i is the import vector. E_i is the export vector, F_i is the final demand. X_{ij} is the output of sector i going into the production of output of sector j (i.e., it is the inter-industry use).

Backward Linkages (BL)

Let $a_{ij} = X_{ij} / X_j$. a_{ij} gives the input demanded from sector i by sector j for supplying unit one currency worth of final demand for sector j.

Forward Linkages (FL)

Let $b_{ij} = X_{ij} / X_i$. b_{ij} shows the allocation made as input to sector j by sector i for unit one currency of output of sector i.

1.2 Gain and Loss Through Linkages of Foreign Trade

The concept of the output linkages of foreign trade was introduced by Leontief [1966, p. 63]. In essence, he says that suppose a country were to import 20 x of commodity x, then for the domestic economy 20 x of direct demand gets eliminated and in addition indirect demand for certain other industries also falls. In the case of exports the effect works in the opposite direction.

We have pursued the above idea in the following way.

The output generated due to the BL of exports is a contribution of the foreign trade to the domestic economy. This is because of the fact that exports make certain input demands on the economy. This is the *'gain in production'* which

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This paper is an improvised version of her doctoral dissertation submitted in 1990, to the University of Poona. The author is grateful to the supervisor, Prof. P. Venkatramaiah.

the economy has got due to exports. It can be captured by $\sum_{ji}\sum[[A_{ij}^{d}]\,[\hat{E}_j]]$, where $[\hat{E}_j]$ stands for the diagonal matrix of exports. The $[A_{ij}^{d}]$ is the domestic coefficient matrix[1]. This has been used so that the backward linkages accruing to the domestic economy are considered and the imported input requirements are excluded.

On the other hand, we see that since exports go outside the economy, they do not enter as inputs into other sectors. Thus, exports do not create any output through the FL with the domestic economy. This is a *'loss in production'* which the economy faces due to foreign trade. It is given by $\sum_{ij}\sum[[\hat{E}_i]\,[B_{ij}]]$,.

The output generated due to the BL of imports measures the demand for inputs which the economy would have experienced if the imported goods had been domestically produced. Since this demand is not being experienced by the economy, the BL of imports constitutes a *'loss in production'* to the economy. It is given by the $\sum_{ji}\sum[A_{ij}]\,[\hat{I}_j]$, where $[\hat{I}_j]$ stands for the diagonal matrix of imports. After the imports have entered the economy, they can be used as inter-industry inputs. Thus the output generated due to the FL of imports is a positive contribution of the foreign trade to the economy. It is the *'gain in production'* to the economy and is given by $\sum_{ij}\sum[[\hat{I}_j],[B_{ij}]]$.

For the sake of brevity, we shall call the 'output that could have been possibly generated due to the forward linkages of exports' as the 'FL of exports' and so on for the others also.

We have considered above only the direct linkages and not the indirect linkage effects. This is because, while the interpretation of total (i.e., direct plus indirect) BL is clear cut, there are many difficulties associated with the total FL, related to a unit rise in the value added [Cella, 1984; Sathe, 1990]. Thus to maintain parity, we have considered only the direct backward and forward linkages.

1.3 Stimulus-Deprivation Framework

On the basis of the above discussion, we have developed the Stimulus-Deprivation framework, where we define

Stimulus = BL of exports + FL of imports

The expression gives us the sum of the 'gain in production' or the output which was made possible due to foreign trade.

Deprivation has been defined

Deprivation = FL of exports + BL of imports

Then,

Overall Net Stimulus = Stimulus-Deprivation

This measure gives the net rise in output due to foreign trade and due to the nature of forward and backward linkages.

The Overall Net Stimulus to the economy is a combination of two forces: (i) foreign trade aspect and (ii) the linkage aspect. Hence the measure can be looked at in two different ways. The first one, from the point of view of foreign trade, can be defined as follows:

(i) Net Stimulus of Exports = BL of exports - FL of exports

Net Stimulus of Imports = FL of imports - BL of imports.

This measure gives us the output contribution of exports and imports.

We can look at the benefit to the economy from the linkage side also. Thus we define

(ii) Net Stimulus of BL = BL of exports - BL of imports

Net Stimulus of FL = FL of imports - FL of exports

The measure of stimulus and different measures of net stimulus developed above have been examined as a percentage of total output. When total output, linkage coefficients and exports/imports are all changing, it is difficult to infer whether these linkages have made a greater or smaller contribution to production over a period of time. To overcome this difficulty, we have expressed the linkage effects as a percentage of total output. It also needs to be noted that the output generated due to the linkages of foreign

trade is a combined result of the linkage coefficients on the one hand and the foreign trade vector on the other hand (i.e., its value and composition), which we have not separated in this study.

1.4 Limitations of the Framework

In the above framework, both cases of 'loss in production' are a bit problematic. With respect to the FL of exports, we cannot be sure as to the way in which the exported goods would have been utilised, had they remained within the domestic boundaries. The assumption of fixed coefficients in an i-o framework is made with respect to input coefficients and not allocation coefficients. Thus, the allocation coefficients (i.e., the FL) could be different if the supply is different.

With regard to the BL of imports, though one can be certain about the input requirements of producing imported goods domestically, domestic production of certain goods may be virtually impossible due to capacity constraints and the non-availability of necessary natural resources. Consequently, the measure used in this paper may not 'correctly' estimate the 'loss in production'. However, since it would be very difficult to estimate empirically the loss after making adjustments for the above, we have continued with the use of the measure.

2. Data

For our analyis, we have made use of six I-O tables, at current prices, viz., 1951-52 [Indian Statistical Institute, 1960], 1959 [Planning Commission, 1967], 1968-69, 1973-74, 1978-79 and 1983-84 [Central Statistical Organization, 1978, 1981, 1989, 1990, respectively].

It needs to be pointed out that the tables have been constructed with different methodologies and sectoral classifications. Though we have made several adjustments, it cannot be claimed that they are completely comparable. Broadly, we can assert that the tables for 1968-69, 1973-74, 1978-79 and 1983-84 are highly consistent, because they have an almost similar sectoral classification scheme and they have been prepared using the same methodology by the same organization, i.e., the Central Statistical Organisation.

The I-O tables have been used at current prices and this needs a word of explanation. To a certain extent, the effect of price changes have been taken care of by considering the ratios instead of absolute values. Secondly, it was found that when the tables were converted to constant prices (1950-51 as base period), the exports turned out to be higher than the imports. It did not seem correct to use this kind of data base for the Indian economy which for the last forty years has had the Balance of Trade problems.

3. Results

3.1 One of the major strengths of the above-mentioned approach is that it enables us to measure precisely the output generated due to exports and imports. While we have developed a composite index of advantage due to trade, we are also in a position to examine the BL of exports independently, in the context of export-led growth in the economy, and the FL of imports to estimate the growth effects of imports.

3.2 Share of Foreign Trade in Total Output

In Table 1, we have presented the exports and imports of the Indian economy and their share in the total output, for the input-output tables under consideration. It can be observed that the shares of exports and imports in the total output were the highest in 1951-52. In that year, the exports were 5.61 per cent of the total output and imports 7.45 per cent of the total output. In 1959, the share of both exports and imports fell considerably to 3.19 per cent and 5.48 per cent, respectively. Since then, though there has been an expansion in both exports and imports, the shares of exports and imports have never reached the levels of 1951-52. In 1983-84, the share of exports was 4.11 per cent and that of imports was 6.41 per cent. It is common knowledge that, by and large, the share of foreign trade in the total output has been low

for the Indian economy as compared with many other developing countries. But, 'if trade provides crucial components without which whole sectors of the economy cannot function, then this situation must not be identified with unimportance' [Streeten, 1973, p. 16].

TABLE 1. EXPORTS AND IMPORTS OF INDIA

(Rs lakh, at current prices)

Year	Exports	Imports	Total Output	Share of Foreign Trade in Total Output
1951-52	64,487	85,640	1,148,955	13.06
	(5.61)	(7.45)	(100)	
1959	53,270	91,500	1,668,841	8.67
	(3.19)	(5.48)	(100)	
1968-69	127,064	185,895	4,121,287	7.59
	(3.08)	(4.51)	(100)	
1973-74	226,961	295,004	7,276,906	7.17
	(3.12)	(4.05)	(100)	
1978-79	575,225	724,546	12,696,180	10.23
	(4.53)	(5.70)	(100)	
1983-84	1,101,755	1,716,070	26,769,700	10.52
	(4.11)	(6.41)	(100)	

Figures in brackets indicate the share in the total output.

3.3 Composition of Foreign Trade

As can be expected in a developing country, the composition of India's exports was skewed in favour of certain traditional goods like tea, jute manufactures and cotton textiles in the early fifties. It can be observed from Table 2, that 'Agriculture' (Sector 1), 'Food, Drink and Beverages' (Sector 4) and 'Textiles' (Sector 5) accounted for around 86 per cent of the total exports in 1951-52. In fact, it has been claimed that the particular composition of India's exports, and the stagnant conditions facing these exports, provided the rationale for diversification of exports. It was, in turn, expected to lead to an increase in exports earnings [Planning Commission, 1956, Pp. 98-99]. The diversification was partially achieved over the decades. In 1983-84, the share of the above mentioned three traditional commodities came down to 35 per cent. The Table also depicts the rising importance of certain non-traditional items. They are 'Metallic products and Machinery' (Sector 13), 'Non-metallic minerals'[2] (Sector 8), along with 'Other Transport' (Sector 17) and 'Other Industries' (Sector 18). Their combined share in the total, which was 2.22 per cent in 1951-52, rose to 37.64 per cent in 1983-84. It needs to be pointed out that the year 1983-84 is peculiar because during this year the exports of 'Other Mining' (Sector 3) were quite substantial. This sector includes 'Crude Petroleum' and exports of this commodity were being made only during this period because India was still developing its capacity in refining petroleum. By 1986-87, these exports were discontinued.

It can be observed from Table 3, that in the initial years of development, the share of Agricultural imports (Sector 1) was very high. In 1951-52 it accounted for 45.80 per cent of the total imports. Over the years, this share fell to 6.83 per cent in 1983-84.

Between 1951-52 and 1959, the importance of 'Chemicals and Petroleum' (Sector 9), 'Iron and Steel' (Sector 11) and 'Metallic Products and Machinery' (Sector 13) has increased manifold, as a result of the Second Plan priorities. These sectors have continued to be dominant till 1983-84. Over the years, it can be noted that 'Non-Metallic Minerals' (Sector 8) and 'Other Industries' (Sector 18) have also gained in importance. The sudden rise in the share of 'Other Mining' (Sector 3) to 18.62 per cent in 1973-74, is a result of the well known rise in the price of crude petroleum in 1973.

TABLE 2. INDIA'S EXPORTS

(Rs lakh, at current prices)

Sector	Year					
	1951-52	1959	1968-69	1973-74	1978-79	1983-84
1. Agriculture	10,414	20,770	21,887	29,773	55,234	128,469
	(16.14)	(38.99)	(17.22)	(13.12)	(9.60)	(11.66)
2. Coke and Coal	508	240	145	154	284	116
	(0.78)	(0.45)	(0.11)	(0.06)	(0.04)	(0.01)
3. Other Mining	3,228	2,180	2,454	5,306	11,750	137,087
	(5.00)	(4.00)	(1.93)	(2.33)	(2.04)	(12.44)
4. Food, Drink, and Beverages	10,873	1,770	17,336	48,530	86,565	100,686
	(16.86)	(3.32)	(13.64)	(21.38)	(15.04)	(9.13)
5. Textiles	34,066	16,830	31,015	54,599	105,466	156,301
	(52.83)	(31.69)	(24.4)	(24.05)	(18.33)	(14.18)
6. Paper and Printing	92	60	515	744	5,532	9,633
	(0.14)	(0.11)	(0.44)	(0.32)	(0.96)	(0.87)
7. Leather and Rubber	1,790	2,780	7,031	15,566	33,962	47,128
	(2.77)	(5.21)	(5.55)	(6.85)	(5.90)	(4.27)
8. Non-metallic Minerals	68	390	602	2,616	69,921	118,226
	(0.11)	(0.73)	(0.47)	(1.15)	(12.15)	(10.72)
9. Chemicals and Petroleum	870	540	4,047	8,796	20,882	79,135
	(1.34)	(1.00)	(3.18)	(3.87)	(3.63)	(7.18)
10. Cement	50	0	178	194	140	76
	(0)	(0)	(0.14)	(0.08)	(0.02)	(0.01)
11. Iron and Steel	79	450	7,102	5,362	25,597	8,916
	(0.12)	(0.84)	(5.58)	(2.36)	(4.27)	(0.80)
12. Non-ferrous Metals	97	10	1,028	1,357	9,974	2,100
	(0.15)	(0)	(0.80)	(0.59)	(1.73)	(0.19)
13. Metallic Products and Machinery	248	290	5,278	12,847	60,943	96,595
	(0.38)	(0.54)	(4.15)	(5.66)	(10.59)	(8.76)
14. Construction	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)
15. Electricity	0	0	0	0	0	289
	(0)	(0)	(0)	(0)	(0)	(0.02)
16. Railway Transport	986	3,580	3,680	5,500	10,501	16,784
	(1.52)	(6.7)	(2.89)	(2.42)	(1.82)	(1.52)
17. Other Transport	797	2,410	14,323	21,315	44,447	88,508
	(1.23)	(4.25)	(11.27)	(9.39)	(7.72)	(8.03)
18. Other Industries	324	970	10,443	14,297	35,018	111,706
	(0.50)	(1.82)	(8.21)	(6.29)	(6.08)	(10.13)
Total	64,487	53,270	127,064	226,961	575,225	1,101,755
	(100)	(100)	(100)	(100)	(100)	(100)

Figures in brackets indicate the share in total exports.

3.4 Direct Linkages of Foreign Trade

With this background, we are in a position to examine the direct linkages of foreign trade, which have been presented in Table 4. The linkages at absolute levels, have been given (i) as percentage share in total output, and (ii) as percentage share in exports/imports.

TABLE 3. INDIA'S IMPORTS

(Rs lakh, at current prices)

Sector	Year					
	1951-52	1959	1968-69	1973-74	1978-79	1983-84
1. Agriculture	39,226	22,470	44,346	60,177	29,927	117,231
	(45.80)	(24.55)	(23.85)	(20.39)	(4.13)	(6.83)
2. Coke and Coal	52	0	5	0	848	2,953
	(0.06)	(0)	(0)	(0)	(0.11)	(0.17)
3. Other Mining	7,770	3,740	12,388	54,952	138,326	386,271
	(9.07)	(4.08)	(6.66)	(18.62)	(19.09)	(22.50)
4. Food, Drink, and Beverages	3,867	660	2,834	10,848	62,158	80,128
	(4.51)	(0.72)	(1.52)	(3.67)	(8.57)	(4.66)
5. Textiles	4,699	1,830	2,665	952	6,260	20,007
	(5.48)	(2.00)	(1.43)	(0.32)	(0.86)	(1.16)
6. Paper and Printing	1,828	1,660	3,138	3,604	22,340	43,580
	(2.13)	(1.81)	(1.68)	(1.22)	(3.08)	(2.53)
7. Leather and Rubber	245	160	1,613	633	1,749	5,923
	(0.28)	(0.17)	(0.86)	(0.21)	(0.24)	(0.34)
8. Non-metallic Minerals	671	1,350	537	1,414	49,131	116,626
	(0.78)	(1.47)	(0.28)	(0.48)	(6.78)	(6.79)
9. Chemicals and Petroleum	6,545	16,730	30,065	52,348	149,872	300,747
	(7.64)	(18.28)	(16.17)	(17.74)	(20.68)	(17.52)
10. Cement	48	0	11	0	6,890	10,456
	(0.05)	(0)	(0)	(0)	(0.95)	(0.60)
11. Iron and Steel	2,226	8,530	7,972	25,453	50,030	120,298
	(2.59)	(9.32)	(4.28)	(8.62)	(6.90)	(7.01)
12. Non-ferrous Metals	2,091	4,100	8,903	14,167	27,434	43,734
	(2.44)	(4.48)	(4.78)	(4.80)	(3.78)	(2.54)
13. Metallic Products and Machinery	15,936	29,560	46,892	55,611	111,718	318,020
	(18.60)	(32.30)	(25.22)	(18.85)	(15.41)	(18.53)
14. Construction	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)
15. Electricity	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)
16. Railway Transport	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)
17. Other Transport	0	0	6,500	8,700	23,860	75,940
	(0)	(0)	(3.49)	(2.94)	(3.29)	(4.42)
18. Other Industries	436	710	18,026	6,145	44,003	74,156
	(0.50)	(0.77)	(9.69)	(2.08)	(6.07)	(4.32)
Total	85,640	91,500	185,895	295,004	724,546	1,716,070
	(100)	(100)	(100)	(100)	(100)	(100)

Figures in brackets indicate the share in total imports.

The first share would capture the effects of linkages on the production levels over the period of time. The second share would give us the linkages of trade independent of scale. It would tell us the linkages generated per Rs 100 of exports/imports.

(a). *Linkages as percentage share in total output:* It can be observed from Table 4, (first bracket) that the share of FL of exports in the total output has remained almost the same until 1973-74 (i.e., around 1.1 per cent). There has been a rise to 2.03 per cent in 1978-79. In 1983-84, the share had become 2.28 per cent. On the other hand, the share of BL of exports in the total output was high in 1951-52, viz., 2.31 per cent. It has fallen since then, and continued to be low at 1.59 per cent in 1983-84. While the fall between 1951-52 and 1959 can be attributed to falling exports even in absolute terms, the phenomenon seems to have continued even in the later years.

The share of FL of imports in the total output appears to have been high throughout and has increased over the period. In 1951-52, this share was 3.41 per cent which had increased to 5.37 per cent by 1978-79. The BL of imports as a share of total output was 2.25 per cent in 1951-52. This share fell to 1.50 per cent by 1973-74 but rose to 2.64 per cent in 1983-84.

(b). *Linkages as percentage share in exports/imports:* This index would give us the linkages independent of scale and, hence, enable us to examine the structure of foreign trade. The structure of trade can be arrived at using the Chenery - Watanabe [1958] classification. The second bracket in Table 4 gives the linkages generated by Rs 100 worth of exports/ imports.

TABLE 4. DIRECT LINKAGES OF FOREIGN TRADE

(Rs lakh, at current prices)

Linkages	Year					
	1951-52	1959	1968-69	1973-74	1978-79	1983-84
1. FL of exports with T-mat	13,992	19,277	43,474	83,965	258,412	612,268
	(1.21)	(1.15)	(1.05)	(1.15)	(2.03)	(2.28)
	(21.69)	(36.18)	(34.21)	(36.99)	(49.92)	(55.57)
2. BL of exports with D-mat	26,594	19,238	51,252	103,174	243,755	427,609
	(2.31)	(1.15)	(1.24)	(1.41)	(1.91)	(1.59)
	(41.24)	(36.11)	(40.38)	45.45)	(42.37)	(38.81)
3. FL of imports with T-mat	39,261	51,401	99,234	279,171	681,917	1,386,596
	(3.41)	(3.08)	(2.40)	(3.83)	(5.37)	(5.17)
	(45.84)	(56.19)	(53.38)	(94.63)	(94.11)	(80.80)
4. BL of imports with T-mat	25,965	30,744	73,262	109,622	308,018	707,370
	(2.25)	(1.84)	(1.77)	(1.50)	(2.42)	(2.64)
	(30.31)	(33.60)	(39.41)	(37.15)	(42.51)	(41.22)

D-mat = Domestic Transactions Matrix
T-mat = Transactions Matrix
Figures in the first brackets show the linkages as percentage of total output
Figures in the second brackets show the linkages as percentage of exports/imports.

It can be noted that the FL of exports have more than doubled for the period considered. Thus in 1951-52, the FL of exports were Rs 21.69 for Rs 100 of exports and this increased to Rs 55.57 in 1983-84. The BL of exports when made independent of scale have also risen from Rs 41.24 in 1951-52 to Rs 42.37 in 1978-79, only to fall to Rs 38.80 in 1983-84. According to the Chenery-Watanabe classification [1958], it can be claimed that the exports are becoming more of 'intermediate' type, because the FL have increased. On the other hand, because the BL have remained within a small band, we cannot, on the basis of linkages, claim that the exports have shifted from 'primary' goods to 'manufactured' goods. But, an examination of the pattern of India's exports made in Table 2 and section 3.3, reveals that such a shift has indeed occurred. An increase in the share of manufactured goods in the total exports should have led to higher backward linkages per Rs 100 of exports. This contradiction can be resolved by stating that a part of backward linkages of the manufactured exports are in fact the import linkages arising out of imported inputs. Another study by the author shows that the import intensity of exports has almost doubled over the period considered [Sathe, 1995]. A part of the potential backward linkages which the exports are generating are the 'leakages' in the system. Thus, an increase in the manufactured exports need not necessarily lead to a consequent rise in the domestic backward linkages of exports (which has growth implications for the economy). When the linkages of imports independent of scale are observed, we find that there has been a remarkable increase in the forward linkages of imports, which makes imports more of the 'intermediate' type. However, between 1978-79 to 1983-84, there has been a substantial fall in FL of imports as percentage of imports. This points towards imports becoming more of the 'final demand' type. The BL of imports have also increased making the imports more of the 'manufactured' type.

3.5 Impact of Foreign Trade

(a). *Stimulus of Foreign Trade:* The stimulus of foreign trade is the sum of 'gain in production' given by BL of exports and FL of imports. In Table 5 (A), we have put forth the same. It can be seen that in 1951-52, the stimulus of foreign trade as percentage of the total output was 5.72 per cent, it decreased to 3.64 per cent in 1968-69 and reached its highest level in 1978-79 at 7.28 per

cent. However, since then it has fallen to 6.76 per cent in 1983-84. As has been mentioned above, these linkages are a combined effect of the linkage coefficients and the absolute values and patterns of exports and imports. Thus, it can be observed that as the share of foreign trade in total output has fallen from 1951-52 onwards, the share of stimulus in total output has also fallen until 1968-69. However, in 1973-74, the share of foreign trade fell further to 7.17 per cent from 7.59 per cent in 1968-69 (Table 1); but the stimulus as share of total output rose to 5.24 per cent from 3.64 per cent for the same period. As can be seen from Table 4, this was a result of substantial increase in the FL of imports as percentage of total output (first bracket), while BL of exports also increased slightly. Between 1973-74 to 1978-79, the share of foreign trade in total output increased and the BL of exports and the FL of imports also rose, giving the highest stimulus for the period under consideration. However, between 1978-79 to 1983-84, though the share of foreign trade in total output rose, the stimulus fell to 6.76 per cent. Looking at Table 4, it can be seen that the BL of exports and FL of imports as percentage of total output, both fell in this period. It shows that the exports and imports became less effective in generating output in the early eighties, in spite of increase in the share of foreign trade in the total output. The reason for this seems to be that exports generated less of domestic backward linkages, though they became more of the 'manufactured' type (due to import linkages) and the imports became more of the 'final demand' type in 1983-84.

TABLE 5(A). IMPACT OF FOREIGN TRADE

(Stimulus as percentage of total output)

	Year					
Year	1951-52	1959	1968-69	1973-74	1978-79	1983-84
Stimulus to total output	5.72	4.23	3.64	5.24	7.28	6.76

TABLE 5(B). IMPACT OF FOREIGN TRADE

(Net Stimulus as percentage of total output)

	Year					
Net Stimulus	1951-52	1959	1968-69	1973-74	1978-79	1983-84
A. Overall Net Stimulus	2.25	1.23	0.81	2.59	2.83	1.84
B. Net Stimulus of exports	1.09	-0.002	0.18	0.26	-0.12	-0.69
Net Stimulus imports	1.15	1.23	0.63	2.32	2.95	2.53
C. Net Stimulus of BL	0.05	-0.68	-0.53	-0.08	-0.51	-1.05
Net Stimulus of FL	2.19	1.92	1.35	2.68	3.34	2.89

(b). *Net Stimulus of Foreign Trade*: The next step is to examine the net stimulus of foreign trade. The results have been presented in Table 5 (B). The Overall Net Stimulus captures the net effect of the backward and forward linkages of exports and imports. This, as a share of total output, has passed through a downward cycle until 1978-79. That is to say, in 1951-52 the net output generated from trade as percentage of the total output, was high at 2.25 per cent. Then it fell by almost half to 1.23 per cent in 1959. This fall continued until 1968-69, when the Overall Net Stimulus plummeted down to 0.81 per cent. After that it started rising and reached 2.83 per cent in 1978-79. It is intriguing to note that it again fell to 1.84 per cent in 1983-84, though the share of foreign trade in the total output had increased slightly from 10.23 per cent in 1978-79 to 10.52 per cent in 1983-84 (Table 1).

The Net Stimulus of exports/imports shows that it is via the imports that the economy has made increments in its output than via the exports. Thus, the Net Stimulus of exports which was 1.09 per cent of total output in 1951-52, has fallen since then and continues to be negative (or a very small positive figure) for most of the period considered. It implies that for these years the BL of exports was less than FL of exports. It is an important

observation because, if the exports are not stimulating the economy as much as they are depriving it, such a pattern of exports should be viewed with concern. This pattern has negative implications for a scarcity-ridden economy like India. This result is the consequence of exports becoming more of the manufactured type, but not leading to corresponding rise in the backward linkages, and also becoming more of the intermediate type with high forward linkages. On the other hand, the Net Stimulus of imports was 1.15 per cent of the total output in 1951-52 and it has almost doubled to 2.53 per cent in 1983-84. This is a consequence of an increase in the forward linkages of imports while the backward linkages remaining in the same band.

The Net Stimulus of BL (FL) captures the net effect of the backward (forward) linkages of exports and imports. The results show that, as far as the BL is concerned, the economy has, in fact, made a loss. It is via the Net Stimulus of FL that the economy has made substantial gain. Thus FL have played a more fruitful role than the BL.

IV Conclusions

From the above analysis, we reach the following conclusions:

1. The period considered is fairly large (i.e., 32 years) and many important shifts have occurred in the domestic as well as international policies of the Indian economy. While the period between the early fifties and mid-seventies can be taken as 'inward-looking' period when import substitution policies were vigorously followed, the remaining phase is characterised by a slow movement towards liberalisation. However, there does not seem to exist any causality between the 'outward-orientation' of the economy and the advantage from trade (defined as Stimulus and Net Stimulus) in the sense of a more liberalised regime leading to higher advantages and vice versa. Thus, the Overall Net Stimulus as percentage of the total output is less for 1983-84 than for 1951-52, 1973-74 and 1978-79, though the former enjoyed a more liberalised regime.

2. The advantage from trade seems to be positively though loosely related to the share of foreign trade in the total output. Thus, as the share of foreign trade fell after 1951-52, the advantage also fell till 1968-69. In 1973-74, the advantage rose, though there was a slight fall in the share of foreign trade in the total output (i.e., from 7.59 per cent in 1968-69 to 7.17 per cent in 1973-74). In the next period, both the advantage and the share of foreign trade rose, though in the last period (i.e., 1978-79 to 1983-84) an inverse relationship can be observed.

3. The advantage from trade seems to be related to the kind of exports and imports being made. Thus, advantage is higher if less of the final demand imports are made and more of intermediates are imported.

In case of exports the situation is more complex. Prima facie, it would seem that the higher exports of manufactured goods would lead to higher output generated through the backward linkages of exports. Thus, advantage is higher if more of manufactured goods are exported as against less of primary goods. However, though the composition of exports seems to have shifted in favour of manufactured goods, this does not get reflected in the backward linkages generated by the exports. This is because the domestic backward linkages which have been considered, have fallen over the period. The export of manufactured goods has led to an increase in the import intensity of exports, as has been shown by the author elsewhere [Sathe, 1995]. In such a situation, an increase in the value of exports would have the implication of making foreign exchange available which, in turn, would make imports possible. These imports, in turn, would lead to an increase in output in the other sectors, though the backward linkages of exports have themselves fallen for the period considered. Thus, the growth effect of the backward linkages of exports has been much lower than what is apparent from the export data.

NOTES

1. A matrix is defined as the technological coefficient matrix capturing the BL and the B matrix is the allocation matrix, capturing the FL.

2. This sector consists of 1. wood product including furniture, 2. furniture and fixture, 3. non-metallic minerals. The third item includes pearls, precious and semi-precious stones.

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V.M. DANDEKAR: SOCIAL SCIENTIST WITH A DIFFERENCE

Nilakantha Rath

Vinayak Mahadeo Dandekar, the first Editor of this Journal and the founder President of the Indian School of Political Economy, who died on 30th July, 1995, at the age of 75, was an unusual Indian Economist in many ways. He had no formal university training in economics beyond the undergraduate level. He studied statistics, a new subject in the Indian University set up at the time, in Professor P.C. Mahalanobis's newly fledgling Indian Statistical Institute at Calcutta and took the Master's degree of the Calcutta University with a gold medal. He obtained admission to the Ph.D. programme in statistics of the University of London. But he was one of the large number of Indian students booked by a steamer to London, who walked out of the steamer at Bombay as a protest against the treatment meted out by the Company, and that saw the end of his further formal education and trip abroad for the purpose. He spent a year as a statistician in the Government of Bombay before joining the Gokhale Institute of Politics and Economics at Pune in its newly established Dorabjee Tata Section in Agricultural Economics. Here began a lifelong association with that Institute, and his career as a researcher in economics.

In analytical economics, Dandekar was largely self-taught. He was not a wide reader; but whatever he read, he read with a sharp, inquisitive and critical mind. His reading of economic analysis never ceased. He read such literature in order to examine the empirical reality. After retirement from the Gokhale Institute of Politics and Economics he spent considerable time reading the Sraffa and von Neumann models and the related literature in order to provide an analytical base for the observed pattern of salaries, wages and income distribution.

Dandekar began his career in economic research on the eve of planning for economic development in India and he unavoidably became one of the main analysts of economic policy in the country.

During his first ten years in the Gokhale Institute he worked on a number of subjects like measurement of national income, stagnation and lapse into illiteracy in primary education, the first demographic survey of a district in India, application of statistical methods in anthropometry, and his only paper in statistics. But his main intellectual preoccupation was India's rural economy.

II

His first five years were spent in doing various village and farm surveys which provided an enduring basis for his perceptive understanding of the rural economy and society. This experience and understanding soon came in handy at the time of the first round of the National Sample Survey and the Rural Credit Survey.

Prof. D.R. Gadgil, a member of the National Income Committee, had differences with the chairman Prof. P.C. Mahalanobis on the design of the very first round of the National Sample Survey, indeed on the very idea of an all-embracing statistical survey organisation. In order to try out the different ideas, it was agreed to entrust one-third of the total sample to the Gokhale Institute to conduct the survey according to the Institute's scheme. Dandekar was the designer of this scheme, and wrote the final report. This was the first survey attempting, amongst other things, the measurement of the magnitude of rural employment. While the subsequent rounds of the N.S.S. incorporated some of the enquiry items and forms of the Gokhale Institute survey, the employment part of it was ignored till after the first all-India Agricultural Labour Enquiry in 1950-51.

Dandekar was closely associated with the design of the questionnaires of the All-India Rural Credit Survey (RCS) of the Reserve Bank of India; he was in charge of the tabulation of the survey data, and wrote two of the district monographs.

His survey report into the working of the Bombay Tenancy Act of 1948 brought out clearly the limitations in the implementation of the law fixing the maximum rent payable and restricting the termination of tenancy. The greater power in the village of the larger landowners who leased out land and the weaker position of the tenants made it very difficult for the latter to seek

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redressal of their grievance under the law. The implication was termination of tenancy by transfer of ownership right to the tenants. This is what was done by the new Bombay Tenancy Act of 1956 - a revolutionary step at that time.

Subsequently, in a review (1962) of the various enquiry reports into land reforms, sponsored by the Planning Commission, Dandekar brought out clearly the fact that in different states, the small landowning lessors constituted half or more of all lessors, but they leased out only a very small proportion of the total land leased out, and that to not only other small tenants, but also to medium and large landowning tenants. The smaller proportion of large landowning lessors leased out very large proportion of total leased land, mainly to small tenants. With this evidence, Dandekar argued that the implementation of any land-to-the-tiller legislation (like the 1956 Bombay Act) would take only half the time, while covering the bulk of the leased land, if the implementation of the law were to exclude the small landowning lessors from its purview. The government of Maharashtra took nearly two decades to legally decide all transfer cases under the 1956 law, when following Dandekar's plea, it could have been completed in half that time. Moreover, applying the law, virtually abolishing tenancy, affected the small landholding lessors adversely in many ways. It led to poor cultivation of such land reducing the little income from it. It made decision to migrate for alternative work opportunities difficult for the poor landowners. And, it resulted in the small landowning lessors losing their land to medium and large landowning tenants. The government of Maharashtra reversed this unhappy consequence, in some instances, in the middle seventies, following agitations by small tribal landowners. In states where the land-to-the-tiller laws were not passed or implemented, incidence of tenancy steadily declined, partly because of the fears and uncertainties associated with tenancy protection and land ceiling laws, but mainly because, following the introduction of new technologies in agriculture, the larger landowners found it more profitable to cultivate land on their own than lease out. This led to a situation where it was largely the small land owners who continued to lease out land, a significant part of it to medium and large farmers - a phenomenon that in recent years has been characterised as 'reverse tenancy', without remembering that this had existed in the past as Dandekar had pointed out.

Towards the end of his life, which was four decades after the land-to-the-tiller legislation in Bombay Presidency, he persisted in his proposal to free small landowners from the rigours of such a tenancy law. He also advocated a gradual raising of the land ceiling. Both these, he felt, were necessary because of the pressure of population on land on the one hand and the possibilities opened up by the new technology in agriculture on the other. He had argued that co-operative farming, advocated in the first and second Five-Year Plan Reports, would reduce labour employment unless the co-operatives were operated on feudal lines. Therefore, they cannot be the solution to the problems faced by small farmers in India. The proper way to prevent exploitation of labour in rural India, he argued, was for the state to ensure employment for labour at a minimum subsistence wage.

His study on the use of food surpluses for economic development, conducted at the instance of the Food and Agricultural Organisation (FAO) in 1956, gave him, for the first time, an understanding of the irrelevance of the time measure of unemployment amongst the self-employed and even some wage-employed in rural India. He advocated assured daily employment at a minimum subsistence wage rate which would lead to self-identification of the unemployed and the underemployed. Such employment programme in the public sector was proposed by him for the use of food surpluses.

This later formed the basis of the famous monograph *Poverty in India,* (written in collaboration with N. Rath) in 1971. Poverty is an income related concept. But data on income distribution were not available. Therefore, consumption expenditure data were used for the purpose. Since the line - the Poverty Line - had to be drawn at some level of per capita consumption expenditure, that level of per capita expenditure which enabled the consumer to consume food that gave the necessary k. calories was defined as the poverty line. The line was

based on the average calorie availability in different per capita expenditure groups; and this was different for different states of India. Poverty and unemployment are, of course, two different concepts. But, it was argued that the two were strongly related. Excluding the bottom ten per cent population which was poor because of old age or heavy dependency load on the earners, it was suggested that the remaining were poor because of unemployment or very low earnings - less than the subsistence level wages. It was shown that if able bodied persons in these households had full employment during the year at the prevailing daily wage rate, they would not have been below the poverty line. The difference between the average subsistence wage rate or the per capita daily expenditure on the poverty line and the observed average per capita expenditure (or earning) of the poor (the ratio of the latter to the former was, later on, christened as the Sen Index) provided the basis for estimating the employment to be generated at the subsistence wage level for eradication of poverty. How was this employment to be generated? Dandekar had earlier been very critical about the promotion of household industries for the purpose and had illustrated his criticism with detailed examination of the Ambar Charkha programme. In *Poverty in India,* the theme was elaborated to show that it was in effect a very expensive administrative device to distribute an equal amount of subsidy. What the monograph advocated was a rural works programme for creating various common facilities and infrastructure in the countryside, which would provide wage work to the people to get over poverty. The state government of Maharashtra alone formulated such a project, which, with all its inadequacies and limitations, attracted wide attention in the country and outside.

Dandekar later on went forward to suggest either labour co-operatives or a land army of workers in order to ensure regular wage employment anywhere - not only near the village - at a better than subsistence wage.

Dandekar never repeated this exercise of measurement of poverty; for he considered attention to poverty eradication measures as more important and relevant. Towards the end of his life he was associated with a Planning Commission Committee on measurement of poverty in India. It is surprising that he signed this report; for, its recommendations were contrary to his earlier formulations, and he later criticised the recommendations of the Committee in the second volume of his collected writings (now in press).

Dandekar's long debate with Dr. P.V. Sukhatme (from whose study were taken the k.calorie norms for estimation of poverty) related to the statistical method used as also the data base of Sukhatme's later formulation of a lower k.calorie norm.

His long critique of Prof. T.W. Schultz's *Transforming Traditional Agriculture* shows Dandekar at his critical best. While not disputing Schultz's case for technological improvement for transforming traditional agriculture, he pointed out the irrelevance and flaw in two of Schultz's major preludes to his central thesis. He showed the author's contention of absence of rural unemployment or underemployment in traditional agrarian societies to be highly questionable and pointed out its irrelevance to the author's central thesis. He made a distinction between the viable and the non-viable segments of traditional agriculture and argued that increase in rural population and labour will lead to deterioration of the land, labour and capital of the non-viable segment and consequent downward sliding from the equilibrium visualised by Prof. Schultz.

This also led him to write a paper on the logic of price policy in agriculture. A paper by P.N. Mathur and M. Ezekial published in *Kyklos* purported to show with empirical data that Indian farmers had a backward bending supply curve for foodgrains due to a fixed cash need of the farm household for expenditure on non-farm products. Dandekar pointed out that the data had been wrongly presented and handled, and, when correctly examined, showed no such thing. It is surprising that long after the publication of Dandekar's paper, the *Kyklos* article is found quoted by scholars as evidence of a backward bending supply curve in agriculture. In his article, Dandekar went forward and explained why in Indian conditions supply of farm products would respond favourably to rising relative prices.

These formulations about price response of farm production led him to formulate a scheme

for marketing of foodgrains in India in which inter-district trade would be handled by trading monopolies in every district, helping thereby competitive equalisation of prices across the country. In such a situation, the state can obtain any quantity it needed for the public distribution system and buffer stock by pre-empting purchase at the highest bid auction price in different regulated markets in the country. Dandekar was opposed to restriction on free movement of agricultural commodities and preferred the state subsidising sales through the public distribution system than forcing producers to bear a part of this cost through restriction on movement and forced deliveries at lower than market price.

When the government had almost given up the idea of introducing crop insurance, Dandekar wrote a paper advocating a limited insurance scheme to cover the 'crop loans' (short term production loans) taken by the farmers. On the General Insurance Corporation showing interest in the scheme, he formulated detailed schemes for different crops in such states where the corporation and the state government came forward to introduce it. He worked as an adviser to the corporation for a number of years in the beginning.

Another question relating to agriculture in which Dandekar took great interest related to flow irrigation in the dry water-short regions, like most of Maharashtra. A couple of enquiries by his colleagues in the Gokhale Institute showed that the prevailing sugarcane based flow irrigation yielded the lowest incremental production and income per acre-inch of irrigation water. As a member of a three man committee on irrigation set up by the state government, Dandekar was able to persuade his colleagues, including a senior irrigation engineer as secretary of the government, that the proper economic and equitable approach to the use of canal water in such regions should be to restrict its use over a period of eight months than the whole year. This would prevent flow irrigation water being used for growing crops like sugarcane. This created a large body of favourable public and farmer opinion in the dry agricultural regions, forcing policy makers to move in the direction, though very slowly and haltingly.

Another problem on which Dandekar wrote a number of articles in the later half of the sixties with his usual logic, gusto, combativeness and sarcasm was the problem of cattle in India. There was persistent demand from different quarters - religious leaders, the Rashtriya Swayam Sevak Sangh, the sarvodayists, etc. - for a law to ban cow slaughter. Dandekar wrote a paper on the problem of surplus cattle in India, in which he showed that for the steady supply of the requisite number of bullocks as draught animals and for increased production of milk, it was not necessary to have the existing stock of cows nor maintain all the offsprings year after year. 'Family Planning' for cows was contrary to the interest of milk production. The growth in numbers of cattle, including calves, was also contrary to the economics of increased milk production as well as manure supply. There was, he argued only one logical option - slaughter of unnecessary animals. While the print media and the state controlled radio gave wide publicity to Dandekar's writings on the subject, he was strongly opposed by the advocates of ban on cow slaughter. Though cow slaughter was ultimately legally banned in most states, Dandekar's writings gave a fillip to the study of cattle economy in India.

Dandekar worked as a chairman or member of a number of committees of the central or state government and of financial institutions on matters relating to the rural economy, where he made substantial contribution to the formulation of the recommendations. He worked on pricing of farm commodities in the public distribution system and on identification of small farmers for supply of credit at concessional rates. As a member of the K.N. Raj Committee on Agricultural Taxes, he made substantial contribution in the formulation of the proposal for an agricultural holding tax in place of land revenue.

III

Till about the middle of the seventies, Dandekar was preoccupied with the rural economy. From around that time he turned his attention to other aspect of the economy.

In 1962, his services had been lent by the Gokhale Institute to the State Government of Maharashtra to work as an Officer on Special

Duty to tour and report on the functioning of the newly created Zilla Parishads as planning bodies for the districts. This gave him an opportunity to understand not only the attitude and orientation of the elected members but also the pressing needs of the villages requiring attention from the state. This experience was very useful to him when he was appointed by the state government as chairman of a Fact Finding Committee on Regional Imbalance, a politically burning issue at the time. Dandekar and his colleagues in the Committee examined the facts not at the level of the three broad regions but at the Taluka/District level. The Committee recommended an approach to eradication of such regional imbalance in all items that were the prime task of the government in this country. The method required budgetary allocation to talukas/districts that were below the state average in order to bring these up to the level of the state average. The same exercise was to be repeated with the new state average, until, by such successive measures, the entire state was provided with the facilities which were the state's sole responsibility. Such a scheme of allocation, by rule rather than by discretion, however, was not to the liking of many politicians in all parties. The result was a perfunctory decision by the government which amounted to the filing of the report without taking a decision on it one way or the other. Nevertheless, it must be admitted that the Committee's suggested approach was relevant for every state in India; for, regional imbalance is a common phenomenon in all states.

He strongly advocated decentralization at every level. He was not only for greater freedom and resources to the states in matters like agriculture, health and education, but also asked for decentralisation in such matters to districts, talukas and village panchayats. He argued that decisions by beneficiaries and users would bring not merely greater accountability but also ultimately greater control by the local population.

He advocated labour's participation in the management of industry through shareholding. As a corollary to this, he strongly pleaded with the government as well as the concerned unions to allow labour to take over the management of sick mills.

Dandekar had come to recognise two different classes in the urban industrial context - the organised and the unorganised, and in the agricultural context the viable and the non-viable farmers (including the landless labour). He realised that the organised sector gets a rental while the unorganised sector is reduced to subsistence wages, or less, and unemployment. He used the Sraffa and von Naumann models to ultimately explain this type of dualism. He was therefore greatly uncomfortable with the high and rising salaries and earnings in the organised sector and was pleading for a cut in their consumption expenditure to provide a subsistence minimum to the poor in the unorganised and non-viable sectors of the economy. While pleading for a freer market economy, he advocated a support price for rural labour and an appropriate fiscal policy to raise and transfer the resource.

He put on khadi all his life. But he was not a Gandhian economist. In a special lecture he paid tributes to Gandhi for not merely his high moral stance but also his consistency. Nevertheless, he found Gandhian economic advocacy unsatisfactory because it did not square with the needs of minimum welfare of a growing population.

During the last two decades of his life he was writing frequently on budgetary and monetary problems in which he was greatly concerned with rising revenue deficits and monetary expansion fuelled by governmental borrowings to fill the gap.

IV

Dandekar spent his professional life at the Gokhale Institute as a researcher, and as its Director for the last thirteen years when he was simultaneously the head of the University of Poona's Department of Economics. But he was not a regular teacher; he had taught classes, post-graduate and undergraduate, off and on. His greater contact was with college and university teachers for whom he very regularly organised refresher courses. He was greatly disturbed at the poor level of teaching and the equally poor and unreliable examination system. He wrote about both these. But he was not one to only describe a situation, but one to prescribe a solution. In the field of examination he advocated a way of framing questions and setting questions for

examination that would obviate the possibility of leakage and copying. He advocated a system of higher education, following Adam Smith, in which the teachers were to be paid by the students for what they received in education. It is not surprising that in a seminar on the subject organised by the University Grants Commission, most participating Vice-Chancellors did not find his proposal acceptable because they thought the deficiencies of the existing university system arose mainly because of the large number of affiliated colleges. Since no one in the country appears willing to seize the bull by the horn, the matter is being sought to be slowly tackled through the backdoor by the entry of private universities.

His article in the sixties on Brain Drain, written with characteristic punch and sarcasm, attracted wide attention, but of course, made little impact otherwise.

Unlike many academic economists, Dandekar was not an ivory tower scholar. He was ever willing to participate in meetings of farmers, farm labourers, workers, etc., not only to discuss problems with them but also on occasions to participate in their demonstrations. As a result he was possibly the most well-known and respected economist in the rural as well as urban areas of Maharashtra.

He was very strong in his conviction that the decision making at various levels - the central, the state, the local and the co-operative - will improve if the elected representatives of the people at these levels are properly informed about the facts of the economy and the polity and the way to read these facts for understanding their relevance for various policy advocacies.

For this reason, in 1969-70, when he was on long leave from the Gokhale Institute, he set up the Indian School of Political Economy at Lonavala, with the major object of training the people's representatives in the facts of Indian economy and polity. His close friends and associates in this endeavour were rather sceptical about the willingness of these representatives from Parliament downwards to Zilla Parishads and co-operatives to participate in such an endeavour. But Dandekar persisted, to start with by organising two-week courses on different subjects of relevance for the Zilla Parishads, Co-operative Banks and Sale-Purchase Unions as well as the Legislative Assembly's elected members during three years 1972-75. The programmes were a great success; his sceptical associates were converted, and the participants were so enthusiastic as to ask for a regular arrangement for such continuous learning and inter-action. But this promising experiment came to an abrupt end with the declaration of Emergency in 1975. Dandekar tried to persist by organising sessions on the 20 Point Programme. But the elected political persons at the district level felt completely disheartened and disinterested since they saw that they had become utterly irrelevant in the new scheme of things. The lifting of Emergency could not bring back the earlier political ethos for political workers, particularly of the Congress party, and the experiment was given up. Dandekar, as the Founder-Director of the School, and later its President, made the publication of a research journal devoted to the review of development of the Indian economy and polity since Independence, the main work of the School.

He worked on a large number of government committees. From 1970 to 1980, he was Chairman of the National Sample Survey Organisation of the Government of India. He was chairman/member on many committees on land reform, on automation in industry, on reorganisation of the Life Insurance Corporation, and on National Accounts. Except for a one year stint with the F.A.O. in the middle fifties as a consultant on land reforms, he never served in any international organisation, though he attended many conferences and seminars abroad and presented papers there. For nine years he was president of the Indian Society of Agricultural Economics which post he voluntarily relinquished on reaching the age of seventy-five. He carried on the tradition of the society so ably developed by Prof. M.L. Dantwala and strengthened the research and training activities of the Society. The Indian Council of Social Science Research and the University Grants Commission honoured him with fellowship and prize. He was elected president of the annual conferences of the Indian Society of Agricultural

Economics in 1967, of the Indian Economic Association in 1973, and of the Indian Society of Labour Economics in 1987.

V

His personal interests were wider than economics. Right from his M.A. days in Calcutta, he was fascinated by the possibility of a statistical analysis of astrology which he considered essentially an empirical subject. Whenever he had a little time, he used to collect horoscopes and try out statistical analysis of particular aspects. Some years ago he read a book by two distinguished scholars of England on astrology. In order to write a foreword to a Marathi translation of this book, he carried out statistical analysis of some summary data relating to twentyfive thousand horoscopes collected by two French scholars reported in this book. He found the preliminary results fascinating enough to try to obtain the original data for a more systematic analysis. But death snatched him away before he could use the data.

Music was another matter of great personal interest to him. He had tried his hand at writing notations for Indian classical music. He was also a lover of drama and cinema and had written a full film script on a story by him which is still lying in the heap of unexamined scripts with the Doordarshan.

In all these matters Dandekar preferred to do it himself rather than be a passive listener or observer. He often used to quote the remark of the late Mr. Higginbotham, who in reply to a strong criticism of Gandhi by a western educated young Indian as one who abhorred fine things in life, like music and dance, said, "Gandhi did not advocate watching dance by others; Gandhi said, 'Dance yourself'".

VI

Dandekar was distinguished for his logical and original mind. On every matter under discussion his formulation was original and refreshing. What is more, he was not merely a critic but always had a positive proposition or suggestion to make. His habit of carrying any basic idea to its logical end sometimes resulted in his advocacy of particular public policy finding few acceptors at the political and administrative levels. In his enthusiasm for a logical and equitable solution he sometimes did not fully recognise the limitations of the existing administrative set up. Political considerations were another matter which, beyond a point, did not bother Dandekar.

He was outspoken, enjoyed public debate, and was no respecter of personality. At the age of ten he left home because of differences with his father, and went through school and college with the help of scholarship and private tuitions. He was a favourite student of Prof. Mahalanobis; but he carried on a serious and sharp debate with him on the National Sample Survey in the very beginning. However, Prof. Mahalanobis expressed great happiness to him when he became chairman of the N.S.S.O. in 1970. He worked closely with Prof. D.R. Gadgil, but differed sharply with him in the matter of the Gokhale Institute. He had been a worker in the Rashtriya Swayam Sevak Sangh through school and college days; but, not unexpectedly, fell out because of its authoritarian ideas. He engaged in sharp public debate against Golwalkar Guruji on his ideas on *Chaturvarna*. On cow slaughter his debate with and attack on the Shankaracharya were well known. His unscheduled public debate in a public meeting in Pune with Shri Y.B. Chavan (the then defence minister of India) on Maharashtra's economic performance reverberated through the length and breadth of the state. He spoke against the Emergency and was unafraid of the threats of police action.

In writing and speech Dandekar could never resist the temptation of making a sharp sarcastic comment. This was not to the liking of many; but most of them remained his friends till the end. In his earlier years his criticism of the papers of fellow scholars, young and old - in the Gokhale Institute and elsewhere - was devastating. The younger scholars were often scared away to the point of forgetting the positive suggestions. With advancing years Dandekar mellowed, particularly with younger people.

Dandekar was something of a perfectionist, and wanted to mould the world in his image. If any draft paper or monograph shown to him had a central, useful and relevant point, Dandekar wanted to rewrite it the way he would, or ask it

to be rewritten that way. The result was unfortunate; he had no time to rewrite every such document, and authors avoided him fearing their pieces would never see the light of day. Many young and not - so - young colleagues who would have benefitted from his criticisms, therefore, could not. In the last five years of his life a very mellowed but basically unchanged Dandekar, as Editor of the *Journal of the Indian School of Political Economy*, spent almost all his time in editing the papers that came for publication. His style of editing must have made most paper writers feel grateful, but set almost impossible standards for his successors.

Dandekar was not a religious man in the conventional sense. But he loved the Ganesh idol greatly: one wonders if it had anything to do with his own name. His idea of secularism was confined to public institutional conduct. In private life, he was willing to let people behave as they pleased. He was very much of a Marathi Brahmin despite his wide contacts.

He had a strong sense of values and was unwilling to take any lessons in it from any one. He had no financial greed or aggrandisement. But he had, at the same time, a fascination for the successful clever man, resulting in his doing a tight-rope walk in dealing with such people.

In personal dealings, he was considerate; but he cannot be described as an affectionate person. Though he had a very wide circle of friends, he was basically a loner. He never indulged in entertaining people. Despite his wide public standing, one had the impression that he was more feared than loved. He was uncompromising, and that went with his loneliness.

He was a very organised person. No letter remained unanswered for more than twenty-four hours. No time schedules were overshot or forgotten. Death came to him suddenly; had his doctors given him the slightest indication of his suspected illness and its risks, Dandekar would have done everything to keep his word with his publishers about the third volume of his collected writings, which must now remain unpublished.

In his death India has lost a very unique social thinker and advocate of social causes.

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DOCUMENTATION

The purpose of this section is to make available to the readers official documents such as reports of committees, commissions, working groups, task forces, etc., appointed by various ministries, departments, and agencies of central and state governments which are not readily accessible either because they are old, or because of the usual problems of acquiring governmental publications, or because they were printed but not published, or because they were not printed and remained in mimeographed form. It will be difficult and probably not worthwhile to publish the documents entirely. We shall publish only such parts of them as we think will interest our readers. The readers are requested to send their suggestions regarding official documents or parts thereof for inclusion in this section.

In the present section we publish:

1. Report of the Indian Delegation to China on Agricultural Planning and Techniques, Government of India, Ministry of Food and Agriculture, July-August, 1956, Chapters VII - XI. (Chairman: Shri M.V. Krishnappa)

2. Report of the Indian Delegation to China on Agrarian Co-operatives, Government of India, Planning Commission, May, 1957, Chapter XII. (Chairman: Shri R.K. Patil)

REPORT OF THE INDIAN DELEGATION TO CHINA ON AGRICULTURAL PLANNING AND TECHNIQUES JULY-AUGUST, 1956

CHAPTER VII

MEASURES FOR IMPLEMENTATION-AGRARIAN RE-ORGANISATION

Priority for "social reforms"

7.1 For the achievement of targets laid down in the Plan, the Chinese authorities rely primarily on three sets of measures, namely, (i) agrarian re-organisation or "social reforms", (ii) economic and financial measures or tax, price planned purchase and credit policy, and (iii) technical reforms. Of these three measures, they place the greatest emphasis on the first, by which they primarily mean land reform and co-operation. Chairman Mao Tse-Tung has himself emphasised that of the main types of reforms required for the improvement of Chinese agriculture, namely, social reforms and technical reforms, social reforms should be given higher priority and should precede technical reforms. The Chinese authorities are of the view that different facets of co-operation are inter-connected and have a close bearing on agricultural development. Thus, the purchase of foodgrains and other agricultural produce by the State at prices fixed in advance determines the amount and the stability of farm income. The supply of consumer goods to rural areas influences the agricultural effort which may be forthcoming, and the agency through which consumer goods are made available also has a decisive influence on the character of the rural economic structure. Without co-operative credit societies, the provision of finance for agricultural production and for meeting consumption needs cannot be adequately organised. Even if the People's Bank or the Agricultural Bank were willing to provide the funds, no amount of rural savings can be drawn effectively into the economic system. Finally, they feel that the introduction of advanced techniques in agriculture, including improved seed, extended use of fertilisers and manures, programmes of minor irrigation and drainage and the utilisation of the manpower resources of the village requires that small peasant-farms be replaced by producers' co-operatives. Each of these developments, and especially those relating to credit and farming, were made possible by the land reforms carried out in China during 1951 and 1952.

7.2 During our stay in China, we gave close attention to the role of agricultural co-operatives and the manner in which they were functioning. In this Report, we confine ourselves in the main to those aspects of agricultural co-operation which have a special bearing on agricultural development. Since a separate report, largely devoted to this subject, will be presented by the Indian Co-operative Delegation, we think it would be useful to official as well as non-official workers in the field of co-operation if the instances of agricultural co-operatives studied by members of the Agricultural and the Co-operative Delegations are brought together as case studies in a single volume and made generally available. There are detailed aspects of the working of agricultural co-operatives which will be better understood by those engaged in developing co-operative farming in India if studies of individual co-operatives in China are put together. We append, however, to this chapter a brief account of one of the co-operative farms, the Red Day Co-operative of the Shuang Ling Hsiang, that we visited in China by way of illustrating the organisation of and nature of planning in a typical producers' co-operative.

7.3 It is not necessary for us in this Report to trace the various elements of thought and reasoning which lie behind the programme of agricultural co-operatives in China. Fundamental reforms are seldom undertaken unless technical, economic and ideological considerations call for them. As a result of land reform, agricultural holdings in China became extremely small. Without larger units a continuous increase in agricultural production could not be envisaged. The conditions for a steady rise in agricultural output in the ordinary course did not exist. For this, mutual aid teams consisting of peasant-farmers and supply of credit afforded only a partial remedy. Without being brought into co-operatives, it was scarcely possible to mobilise the resources of villages for productive purposes and to introduce improved techniques of production on any large scale. As the Central Committee of the Communist Party declared in October, 1955 "actual experience has taught the peasants that they cannot go on living as they used to - farming scattered, tiny plots on their own -

that the only way out is for a large number of people to come together, pool their labour and work under collective management." There was never any doubt in the mind of the Communist Party that

> "Agricultural producers' co-operatives can organise labour power rationally so that productivity can be raised more rapidly; they can systematically and effectively use land and extend the area under cultivation; they can resist or reduce the ravages of nature and, with State help gradually introduce technical reforms in agriculture. For these and other reasons, they are able to bring about a speedy development of the productive forces in agriculture and give the peasants substantial benefits."

On technical and economic considerations, therefore, the question before the Government and the Communist Party in China was not whether there should be co-operatives, but the form which agricultural co-operatives should take, the manner in which and the speed at which they should be introduced and the concessions which might be needed in order to persuade traditionally individualistic peasants to pool their lands.

7.4 In any under-developed country, the development of agriculture has to be seen, not as an independent activity, but in relation to the programme of industrialisation. Here as is well-known, the Chinese have adopted a policy of rapid industrialisation with special emphasis on the building up of heavy and basic industries, machine-building and defence. In such development, no small part of the burden of industrialisation falls on peasants - a burden, the Chinese authorities feel, the peasants cannot discharge if they continue with their individual holdings, each ploughing his land with his limited resources and selling his small surplus. Thus, the pattern of industrialisation of a country dictates to no small extent the pattern of agricultural development and the structure of the rural economy.

7.5 No less important than these technical and economic considerations was the view held by the leaders of the Communist Party that a socialist society could not be built up unless co-operative farming took the place of peasants-proprietorship and step by step all vestiges of individual ownership in land were discarded. As they put it, "the nation could not stand with one foot on socialistic industry and the other on a peasant economy." Or, in the words of Chairman Mao Tse-Tung, "if positions in the countryside are not held by socialism, capitalism will assuredly occupy them." Furthermore, apart from considerations of national defence, unless agriculture itself in the course begins to employ improved techniques, including machines, the building up of basic industries and of machine building industries creates its own difficulties. The mechanisation of agriculture, over whatever period it may be achieved, requires relatively large farms so that in each country embarking upon such a course, the pooling of the bulk of peasant holdings is a path difficult to escape. It was for these various reasons that the Central Committee of the Communist Party declared a year ago that-

> "The aim of the co-operative movement is to lead about 110 million peasant households from individual to collective farming and then go on to bring about technical reform in agriculture; it is to eliminate the last vestiges of capitalist exploitation in the rural areas and establish socialism. The building up of socialism is the cause of hundreds of millions of people."

Land reforms

7.6 This is not the place to describe in detail the principles and methods followed in carrying out the land reform programme. It is sufficient to recall that land reform in China meant an extraordinarily wide distribution of ownership in land. Altogether about 118 million acres of land were distributed among 300 million peasants, men and women, an average of one-third of an acre per head. Besides land, houses belonging to landlords containing about 38 million rooms, about 30 million draught animals, 39 million agricultural implements and about 5 million tons of foodstuffs were confiscated from landlords and re-distributed. Many former landlords were allotted land on the same basis as tenants and labourers. Rich peasants cultivating their own

lands were not at this stage disturbed, while a proportion of middle peasants actually obtained additional land in accordance with the scale of distribution adopted in each local area. Thus, whether it benefited, injured or left untouched, land reform in China was a gigantic event which, in a period of less than two years, transformed the entire rural structure and destroyed many old class relationships and distinctions of status and opportunity, leaving the field clear for new goals and new values. The fact that members of the Communist Party, already close to peasantry, had led the people at every step in the process of land reform, identifying themselves with the interest of poor peasants and turning the enthusiasm and hatred aroused in the people into a social weapon, further increased, we were told, their hold over rural masses. Had the processes of land reform in China been different from those which actually occurred, had the technical and economic conditions created by land reform been different and had there been a party leadership in the country-side less identified with the cause of poor peasants, it is conceivable that the course of events in China in the field of agricultural co-operation would have been somewhat different.

7.7 As early as 1953, the Central Committee of the Communist Party of China issued a policy statement on Decisions on the Development of Agricultural Producers' Co-operation. This had been preceded earlier in 1951 by a policy document on Decisions on Mutual Aid and Co-operation. The lead given in these early documents is summed up thus in a statement on behalf of the Central Committee of the Communist Party of China in 1954 which recorded the results of the agrarian reform movement:

> "To carry out co-operative farming the actual path to be followed begins with mutual-aid teams, voluntarily organised for the mutual benefit of the peasants, using collective labour, but on a basis of private ownership of property. Next comes semi-socialist agricultural producers' co-operatives, with collective labour, common use of land, and single management. The last stage of the road is the higher form of co-operatives, the fully socialist agricultural producers' co-operative-collective farms".

Subsequent events have helped mainly to fill the details, speed up the processes, and evolve practical solutions for new and difficult problems. The basic approach, however, had been decided upon more than three years ago. Agricultural co-operation followed naturally from land reform. Arrangements for State purchase of foodgrains and other farm products and the organisation of credit co-operatives closely linked with the People's Bank were important supporting developments. Together, they helped eliminate the rural trader, the urban merchant and the landlord, so that the ground was fully prepared for agricultural co-operatives.

Agricultural Producers' Co-operatives

7.8 Agricultural co-operatives had relatively small beginnings. In 1950, there were 19 producers' co-operatives, in 1952, 3,644, in 1953, 15,068 and in 1954, 114,366. During this period, the number of peasant households in agricultural co-operatives increased from 219 to about 2.3 million. The year 1955 - as it happened, agriculturally an excellent year - marked the turning point. There were many in the leadership of the Communist Party itself who felt insecure at the pace at which co-operatives were being formed. At this stage, came Chairman Mao Tse-Tung's report of July 1955 on "The Question of Agricultural Co-operation" to a meeting of secretaries of provincial, municipal and autonomous regional committees of the Communist Party of China. This is undoubtedly a document of historic importance which constitutes the dividing line between the period of steady and cautious progress in co-operation to the "new upsurge in the socialist mass movement." Chairman Mao Tse-Tung sensed that the leadership was lagging behind the mass movement. "We should realise, here and now" he said, "that an upsurge in socialist transformation will soon come about all over the country's rural areas. This is inevitable." "We must be convinced first, that the peasant masses are willing, led by the Party, gradually to follow the socialist road; second, that the Party is able to guide the peasants to take this road. These two points are the essence, the crux of the matter. If we lack this conviction, it is impossible for us to

virtually achieve socialism in the period of roughly three five-year plans." This call from Chairman Mao followed by the organisational drive of the Communist Party and efficient support in the execution of individual programmes by all levels of the administration, gave to millions of workers in the Communist Party a great new objective to work for. From all accounts, the progress of agricultural co-operation during the past year or more has exceeded the best anticipations of the leaders of the Government and the Party.

7.9 In 1955, the number of agricultural co-operatives rose to 633,742 of which only 529 were of the 'advanced' type. By the end of May, 1956, 10,010,000 agricultural co-operatives had been established. These included 91.2 per cent of the 110 million rural households of China, of which 61.9 per cent had become members of agricultural co-operatives of the 'advanced' type and 38.1 per cent of co-operatives of the 'elementary' type. In the elementary co-operative, 'the principal means of production such as land, draught animals and farm tools owned privately by members are put under a single, centralised management and gradually turned into their common property', and 'the co-operative pays each member an appropriate sum as dividend out of its annual income, commensurate with the amount and quality of land the member pools in the co-operative.' The 'advanced' type of co-operative is 'a socialist, collective economic organisation' in which 'peasants joining the co-operative must turn over their privately-owned land and other important means of production, such as draught animals, large farm tools, etc., to the collective ownership of the co-operative'. The differences in internal management and organisation are relatively small. In both, the principle of mutual benefit is emphasised, the right to withdraw is allowed, small private plots for cultivation are given, and compensation is paid for draught animals and farm tools. Formally, the main distinction relates to the 'dividends on land shares', but there are important differences in actual operation. The elementary co-operative tends to remain relatively small, the advanced co-operative tends to become steadily larger. In the former, the fact that a return on land over and above the return for labour exists has in the opinion of the Chinese authorities the effect of limiting the extent to which manpower is utilised on works of benefit to the whole community.

7.10 In the First Five Year Plan, which was presented in June, 1955, the aim was that by 1957 about one-third of all the peasant households might join agricultural producers' co-operatives of the elementary form, the proportion in some provinces being about one-half. By the end of the Second Five Year Plan, it was hoped to organise a majority of peasant households in the elementary form of co-operatives in all the principal agricultural areas. Such has been the speed with which co-operation has gone forward that in most parts of China, the main task of establishing agricultural co-operatives of the advanced type is expected to be completed by the close of the winter of 1956. The pressure of population over much of China is great and the individual holdings left after land reform are so small that once a village moves towards the co-operative form of organisation, the elementary agricultural co-operative can only be a place of temporary halt. Increasingly, it becomes a stage to be passed by since in the conditions now prevailing in Chinese villages, we were told, the dividend for ownership can account for only a small fraction of an individual's income, and the full benefits of co-operation are realised more fully in the advanced than in the elementary form.

7.11 It is customary in China to refer to these developments as 'the surging tide of agricultural co-operation'. Increase in the number of producer co-operatives is significant; even more so is the transformation in their character which is now proceeding with all the force of a 'huge mass movement.' In a social and economic change of this order, necessarily, there are many forces and pressures at work and important questions of organisation, political, administrative and technical, are involved. It is outside the scope of this Report to enter into a discussion of these aspects, especially as we expect that they will be dealt with fully by the Co-operative Delegation. Within each co-operative, with a view to its effective functioning, decisions have to be taken on a number of questions, as for instance, internal management, the taking over of land, draught

animals and farm tools, the setting up of funds to meet production expenses, to acquire means of production to provide relief and welfare, and for reserves, the organisation of the labour force into working teams and production brigades, the formulation and implementation of production plans, the provision of cultural and welfare services, and political work and the education of members in the spirit of collectivism which is undertaken in each co-operative under the 'guidance of the Communist Party and the People's Government and with the help of the Youth League and the Women's Federation'. Here, we propose to invite attention to certain aspects of agricultural co-operatives which are related specially to attempts to raise the level of production, to achieve higher yields and to fulfil the targets of the national plan. We shall also refer to a few features of agricultural co-operatives in China which perhaps need to be watched more closely than may be the case at present. Our observations may be conveniently set out under the following heads:

(1) The place of individual peasants,
(2) Production plans of co-operatives,
(3) Organisation of the labour force,
(4) Incentives and remuneration,
(5) Resources, technical assistance and supplies,
(6) Problems of leadership,
(7) Possible weaknesses in organisation and programmes.

The place of individual peasants

7.12 During visits to villages and co-operatives when information is furnished about the number of households and the proportion who have joined co-operatives one learns of the small numbers who have chosen at this stage to continue as individual peasants. From the accounts given, it appears that those farmers have remained outside the co-operatives who are either not eligible for admission into a co-operative or who feel that they stand to gain more on their own. The first category includes, according to model regulations, former landlords, rich peasants and counter-revolutionaries whose status has not been changed and who have not yet qualified for membership under the warrant of the local people's council, and persons deprived of political rights. Poor peasants and middle peasants are specially encouraged to join co-operatives and active steps are taken also to draw in demobilised soldiers, dependants of revolutionary martyrs, soldiers and government workers and also new settlers. The second category includes, on the one hand, middle peasants who have sufficient manpower in the family and also adequate number of draught animals to enable them to cultivate their holdings efficiently and, on the other hand, poor peasants who are physically not so strong or who do not have a sufficient number of working members in their families to earn more through their labour in the co-operative than on their own. Another class of peasants who have, at this stage kept out are those who, while cultivating their lands, have additional means of livelihood other than agriculture so that their total incomes may be larger than those they could earn in the co-operative. The proportion of households which the two categories mentioned above cover is likely to diminish fairly rapidly. The earlier status and activities of individuals have lost much of their interest, and the conditions in which profitable individual farming can be undertaken have already ceased to exist. A word may be added here regarding a suggestion which is sometimes made to the effect that in India co-operative farming will succeed to a greater extent if it is confined, at any rate at first, to smaller peasants and those with somewhat larger holdings are excluded from co-operatives. Whatever the merits of this suggestion, it would be a mistake to base it on the analogy of the Chinese practice. In China, there are definite ideological considerations which led to the differentiation under the Agrarian Reform Law of 1950 of the class status of individuals as landlords, rich peasants, middle peasants, poor peasants and workers which has no counterpart in the Indian approach to social and economic development.

7.13 By far the most important aspect of agricultural co-operatives and indeed of the entire scheme of rural development in China is the emphasis on production. In October 1955, the Central Committee of the Communist Party

directed all its workers to remember that "attention should be focussed on production, for that is the key issue". Co-operatives are told that as production develops they should make steady headway with specified kinds of welfare work. The level of production will determine the level and scope of welfare activities. The role of the co-operatives in increasing production is summed up well in Article 4 of the model regulations of elementary agricultural co-operatives issued in March 1955.

"The co-operative must bring about a steady expansion of productive activities, raise the level of agricultural production, make its members more efficient and increase yields.

The co-operative must work to plan. It should draw up plans both for the production and sale of products in the light of its own conditions and gear these plans to the production and purchase plans of the State.

With its land under centralised management and by working collectively the co-operative should, as circumstances permit, start using better farm tools, constantly improve farming skills, and, with the assistance of the State and working class, bring about the gradual mechanisation and electrification of agriculture.

The co-operative should do everything possible to take full advantage of organised collective work, promote labour emulation, encourage and urge every member to work hard, and make vigorous efforts to create wealth both for the community and for each individual member".

Production plans of co-operatives

7.14 Each co-operative is instructed to prepare its plan of production. At present, besides the annual plan which is prepared in April and runs for the agricultural year beginning in October, 7-year plans for the period 1956-62 are being prepared at various levels. The tasks of co-operatives in the field of production are laid down very clearly in Articles 25 and 29 of the model regulations which have been approved this year for agricultural co-operatives of the advanced type:

"In organising and developing production, the policy of the co-operative shall be to work in a thrifty and diligent way. It must make energetic efforts to extend the scope of production, develop a diversified economy by combining agriculture with other related pursuits, practise strict economy and reduce costs of production.

The co-operative shall, in accordance with economic resources and local natural conditions, make vigorous efforts along the following lines to raise the level of agricultural production:

1) build irrigation works; conserve water and soil;
2) use improved farm tools and gradually bring about the mechanisation of agriculture;
3) increase the supply of manure and other fertilisers by all possible means and make better use of them;
4) use improved strains of crops;
5) suitably and systematically enlarge the area under high yield crops;
6) improve the soil; level and terrace arable land;
7) make rational use of all arable land and increase the area on which several crops a year are grown;
8) improve farming methods; practise deep ploughing and intensive cultivation;
9) eliminate and prevent insect pests, plant diseases and other natural calamities;
10) protect and breed more and better live-stock; and
11) reclaim waste land and enlarge the area under cultivation according to plan.

Every co-operative must make energetic efforts to learn the most efficient farming methods and do its utmost to find the best ways of increasing output and putting them into practice.

The co-operative shall, in accordance with the state plan and local conditions, make vigorous efforts to increase the output of the principal crops such as grain and cotton, and at the same time promote the cultivation of such other industrial crops as mulberry, tea, hemp,

oil-bearing crops, sugar-cane, beetroot, tobacco, fruits, medicinal herbs, spices, etc.

Wherever necessary and possible, the co-operative shall actively develop forestry, animal husbandry, fishing, handicrafts, transport, sericulture, apiculture, poultry farming and other subsidiary occupations.

Provided that its normal production is not affected, the co-operative shall encourage and suitably help its members engage in subsidiary cottage occupations suited to individual management.

The co-operative shall draw up a comprehensive production plan in order to organise production on systematic lines.

The co-operative shall draw up a long-term plan covering a period of three or more years and giving all-round consideration to the various productive and constructive tasks it will undertake during this period.

Before the beginning of the farming year, the co-operative shall draw up its annual production plan under the following main heads: (1) sowing plans, output targets, and the necessary technical measures needed for ensuring fulfilment of these plans; (2) plans for forestry, animal husbandry, fishing and other subsidiary occupations; (3) capital construction plans; and (4) plans for employing all available man-power and draught animals.

To ensure fulfilment of the annual production plan, the co-operative shall draw up schemes for the progress of work in the various farming seasons and stages of work, set definite production tasks and definite dates for their completion."

In the individual co-operatives which we had occasion to study, we found that considerable attention was being given to intensive cultivation and preparation of the soil, irrigation, drainage and conservation of water and soil, increased supply and better use of local manures, expansion and the planting of trees by the roadside and along rail-roads. Except to the extent equipment or chemical fertilisers and insecticides, credit and technical assistance had to be obtained, the rest of the effort came from the members of the co-operative; their own labour was the major resource they were now able to tap to a greater extent than ever before.

Organisation of the labour force

7.15 Among the difficult problems which arise when co-operative farming is undertaken with traditional techniques are those relating to the organisation of work and the provision of incentives for harder work. For peasants used to working in family groups with co-operation with others in certain operations only, a co-operative farm is a totally new situation in which complex questions of work distribution, work measurement, control and team work are involved. In this respect, in China, once the decision was taken that agricultural co-operation should precede rather than follow mechanisation, there were a whole set of new problems to be solved. While we were not in a position to form an assessment of the internal strains and difficulties which might exist in the average co-operative, from such observation as we have made, it appears to us *prima facie* that essentially workable methods for organising labour and ensuring team work and discipline as well as providing incentives for hard work have been evolved.

7.16 Since, through amalgamation or expansion of existing co-operatives, there has been a general trend towards increase in the size of the agricultural co-operative, one of the first questions to be considered is the relationship between the co-operative and the traditional village or, to use an expression common in China, the 'natural' village. Where a group of natural villages come into a co-operative and one of them is chosen as the headquarters of the co-operative it is common to base production brigades, which are the basic units for labour organisation, on natural villages. For instance, the co-operative in Chekiang province of which an account has been given in the appendix to this Chapter, the labour force of 19 natural villages and hamlets was organised into 8 production brigades, the largest of which had 101 households and the smallest 68.

7.17 Each production brigade consists of a number of working teams. Thus, the 8 production brigades of the Chekiang co-operative mentioned

are divided into 100 working teams. As will be explained later, the remuneration of each worker is related to the work done by him or her. On the other hand, small private plots are allowed on a family basis and take account of the number of working members. It will be seen, therefore, that while organising the working members of a co-operative into teams and brigades whose size and composition could be adjusted to the nature of the task to be carried out, an attempt is made to retain a link between the working units and such natural background factors as the village of residence and the household to which a worker belongs.

7.18 A general meeting of members elects a management committee to run the co-operative. The management Committee is composed of 9 to 19 members, including the chairman and vice-chairman (or vice-chairmen) depending on the size of the co-operative. The management committee appoints the leaders of production brigades and of working teams, but usually it secures in advance the consent of the members of these groups to the proposed appointments. A supervisory committee is also elected by the general meeting or by delegates elected by a general meeting, its functions being to see that the chairman and members of the management committee abide by the regulations of the co-operative and the resolutions of the general meeting, that the accounts of the co-operative are in order, and that there is no corruption, theft, sabotage, waste, or damage to the co-operative's property. The chairman of a co-operative is a person with much power and responsibility as he 'represents the co-operative in its dealings with other parties'. The management committee of a co-operative generally works through sub-committees for different activities, the common division being between production and planning, finance, animal husbandry, culture, education, public health and welfare, and political education. Leaders of production brigades function directly under the production and planning committee which is generally headed by the chairman of the co-operative. There are no committees at the level of the production brigade, but within each working team arrangements for work, determination of the work points due to each member and other matters of mutual interest are decided in informal consultation during rest intervals or at the end of the day. In the arrangements for organising the labour force which have been described above there are considerable reserve powers, especially with the leaders of production brigades and with members of the management committee, through which failures in team work, lack of application and indiscipline can be dealt with. At the same time, there is constant insistence on the need for democratic functioning, respect for the rights of working members, mutual help, emulation in labour and programmes for eliminating illiteracy and raising the cultural level of members. Decisions of a management committee are valid only when they are adopted by a majority of its members and every management committee is directed to 'conduct its work in a democratic way; there must be no abuse of function or power'.

Incentives and Remunerations

7.19 From the working of the early co-operatives, it has become clear that a co-operative cannot function efficiently without a piece-work system 'in accordance with the principle, to each according to his work, that is, more work, more pay'. To put the piece-work system into practice each co-operative has to decide upon suitable norms for various jobs and to fix rates of payment. As the model regulations for advanced co-operatives explain:

> "The norm for each job should be based on the amount and quality of work which an average member working diligently under normal conditions can do in one day on that particular job. It should not be set too high or too low. Payment for fulfilling the norm for a job is reckoned in units of work-days. The number of work-days a member earns for fulfilling the norm for each job is decided on the basis of the skill and intensity of labour involved and the importance of the job to the production of the co-operative as a whole. There should be suitable difference in the number of work-days awarded for fulfilling different kinds of norms. Such differences should be neither too small nor too great.

When working conditions change, the management committee may revise the norms of the different jobs accordingly."

The norms fixed on the co-operatives studied by us showed that there was a high degree of adaptation to local conditions and local judgement, and there did not seem to be any rigidity in the details of the norms which had been determined. The system of norms is now fairly common and is replacing an earlier system in which work points based on skill and capacity for work were assigned to individual members, but norms and rates of payment for specific jobs were left undetermined.

7.20 The scheme of norms for various jobs which is the basis for the distribution of the total income of a co-operative among its members provides the chief factor making for hard work and is a useful way of combining both social and individual incentives. In the words of the model regulations for elementary co-operatives-

"The amount of money and produce allotted for each work-day depends on the annual income of the co-operative as a whole. As a general rule, what remains of the total income of the co-operative in a particular year, both in kind and in cash, after deducting production expenses, the reserve fund, welfare fund and dividends on land, will be divided by the total number of work-days worked by the co-operative during the year. The result is the value of each work-day. Thus the greater the annual income of the co-operative the more each work-day is worth. When the annual income of the co-operative drops, the value of each work-day drops too. Therefore, if a co-operative member wants a bigger income he must make an effort to earn more work-days; at the same time, each member must also do his best to increase the total income of the co-operative so that the value of each work-day increases accordingly. In this way, the personal interests of each member are correctly combined with the collective interests of the co-operative."

We have no reason to suppose that these aims are not being realised in practice, although it is not improbable that in many co-operatives there exists doubts and criticisms to which there may or may not be satisfactory answers. It is not easy for a visiting delegation to grasp such elements in a new situation in which large numbers of men and women are thrown together rather suddenly in a complex set of social, economic and organisational relationships such as a large agricultural co-operative represents.

7.21 During the past year or two, there has been much progress towards the system of fixing responsibility for work. In the beginning, each co-operative tended to work on 'the system of fixed responsibility based on the seasons of the year or on particular stages of field work'. From this co-operatives have tried to pass as quickly as possible to 'the year-round system of fixed responsibility' under which definite areas are assigned to working teams and production brigades for the performance of all the agricultural operations required throughout the year. Crop output norms are fixed for individual production brigades and it is the responsibility of the management committee of the co-operative to ensure that the requisite means of production are supplied. Production brigades which over-fulfil their output norms are credited with additional workdays and those which fulfil less than 90 per cent of their norms may, depending upon the circumstances, be even penalised. Prizes are awarded to individuals or units who distinguish themselves and there is little doubt that the banners which are a familiar sight of agricultural co-operatives in China are a form of social recognition increasingly valued by the officials of co-operatives as well as by the ordinary working members.

Resources, Technical Assistance and Supplies

7.22 The financial resources made available by the State for schemes of development in agriculture, water conservancy, etc., and the system of agricultural loans by the Agricultural Bank and credit co-operative are described in Chapter VIII.

The various technical measures for assisting co-operatives in respect of improved seeds, fertilisers, insecticides and technical advice generally are described in Chapter IX. It is too early to assess the effects of these financial and technical arrangements on agricultural production. It would appear, however, that the reorganisation of agriculture on co-operative lines, which has been accomplished, would lead to a substantial increase in the extent to which local resources and surpluses are mobilised for implementing production programmes. Secondly, a measure of specialisation is now taking place within each co-operative so that for different activities, small groups of ancillary workers who can assist and carry out the instructions of technicians from the Technique Popularisation Stations are becoming available. In other words, once organised, the capacity of the Chinese peasant to absorb technical changes has increased and, with experience is likely to continue to increase. In the third place, with the growing demand for greater research and better technical services, the pressure on the various Government departments to equip themselves to provide the services needed is bound to increase rapidly. Already, the personnel available for field work and the number of Technique Popularisation Stations is being considerably increased and this is a process which will be accelerated. Thus, the steady expansion of financial resources, supplies and technical assistance from within as well as outside the co-operative combined with a fuller mobilisation of the available labour has created conditions in which the agricultural economy of China is in a position to achieve steady progress.

Problem of Leadership

7.23 While there can be no doubt about the direction, the actual pace of progress is likely to be determined largely by the quality of leadership thrown up by the co-operatives. This is a difficult problem in any scheme of social or economic organisation and the leaders of Government and the Communist Party in China are well aware of its importance. The principles placed before co-operatives are aptly set out in article 8 of the model regulations for elementary co-operatives:

"The co-operative should live up to the principles of democracy and strive for unity and constant progress.

The co-operative should manage things in a democratic way. Officers of the co-operative should keep in close touch with members, discuss things with them thoroughly, and rely on the members as a body to run the co-operative well. They must not abuse their authorities and position or restrict democratic rights.

The co-operative should take any measures which will effectively strengthen internal unity, and foster comradely relations among members. There must be no discrimination against members who belong to national minorities, members who come as settlers, new members or women members.

The co-operative should take any measures which will bring about a steady rise in the level of political understanding of members; it should give them regular education in socialism and patriotism, and see to it that every member abides by the laws of the country, and lead its members in the advance to socialism".

The success of agricultural co-operative during the past two years owes much to the cadres of the local branches of the Communist Party. There is stress on bringing the energies of the women and the younger members of the co-operatives into full play. Short-term training for local cadres is being provided on a large scale. We have ourselves come across Chairmen and other officials of co-operatives whose competence impressed us. Yet, at this stage, it is difficult to escape the conclusion that local co-operatives depend heavily on direction and stimulus provided from country and district branches of the Communist Party and from cadres sent down to work in the village by the Peoples' Councils at higher levels. In the early days of co-operation, as indeed in much other rural activity, only a thin line may distinguish effort organised through direction and initiative from outside the co-operative and the contribution which a more or less self-governing co-operative community can make towards its progress and welfare when it becomes fully conscious of its needs as well as responsibility in

the scheme of national and local development. As time passes, new elements are needed to sustain creative community effort.

Possible Weaknesses

7.24 China's success in organising agricultural co-operatives on a national scale over a brief period of three years is an achievement of such proportion that we in India can learn much now and in the coming years from the successes and failures of the Chinese. We have felt some doubt whether in the unified administrative structure of China, local development plans are not so weak in their scope and the resources provided for them as to come in the way of the continuous growth of co-operation in agriculture as well as other fields of activity. Secondly, even in U.S.S.R. where agriculture is mechanised and the measurement of each person's work is relatively easy, the increase in the size of collective farms has tended to create a considerable gap between individual working members and those who constitute the committee of management. Where existing agricultural techniques are being only gradually improved, it seems all the more essential that the primary unit should not become so large that the Chairman of a co-operative and members of its management committee are not in sufficient direct touch with individual members of the community. In a rural group, besides the incentive of higher reward for more work, there are other incentives and influences which need to work in the same direction. Those responsible for the development of agricultural co-operatives in China are conscious that laterly there has perhaps been excessive trend towards enlargement of the size, membership and area of individual co-operatives. There can be no rigid formulae on such a subject, but there would appear to be need for considerable caution in this respect. In the third place, on the whole Chinese agriculture is weak in animal husbandry. In the production and development plans of co-operatives more emphasis might be given to this aspect of the rural economy. This might require not only a larger allocation of resources but also perhaps certain changes of an organisational character. In the breeding and care of cattle, collective maintenance has a part to play but along with it there might be room also for individual families being enabled to breed and look after cattle as much for their own benefit as for the advantage of the community. Since fodder resources are at the disposal of the co-operative, such schemes of animal husbandry development would require special arrangements for making green and dry fodder available to individual families. Finally, for the time being, on account of extensive minor irrigation and drainage works, soil conservation, intensive preparation of the soil, conservation of local manure, tree-planting and other forms of agricultural work which can be undertaken locally, it has been possible for co-operatives to create a great deal of new work and thereby to afford fuller employment to local labour. Indeed drawing women into the active labour force of the village larger numbers are being given work than was the case before co-operatives were organised. Fuller and more continuous employment on these lines has helped to reduce and, to a considerable extent, even to eliminate the worst forms of rural poverty. This is a lesson of great value to India. Nevertheless, it may be difficult for a rural economy so greatly dependent on agricultural operations as that of China to continue to expand indefinitely work opportunities in farms for which the main resource needed is organised human labour. A balanced rural economy would require considerable integration of agricultural and non-agricultural work. The general scheme of economic development in China with its stress on heavy and basic industries and machine building and on light industries organised in the main plants which are technologically up-to-date may fail to provide the avenues of diversification in employment necessary for relieving the pressure of population on land. This has a bearing on the future development of agricultural co-operatives in China and the part they might play in solving, not merely the immediate problems of production and employment, but also those which will be accentuated by the continuous growth of population.

7.25 In applying the lessons of the Chinese experience of agricultural co-operatives to conditions in India, it is an advantage that this

experience has been gained on a nation-wide scale and in a concentrated manner. The development of agricultural co-operatives is itself a continuous process and, as the Chinese recognise, many new problems will have to be faced and solutions found. The agricultural situation in India differs from that in China in several ways. In particular, here we have had and propose to have continuity of development such as has not been possible in China. Our social and economic changes follow upon one another and it is only over a period of a few years that a full picture emerges. Secondly, we place perhaps greater reliance on local planning at the level of the village, the district, and the State and for different regions in the country. In the third place, on the whole we have less pressure of population than exists in China. Fourthly, while it is far-reaching in scope, our land reform is based fundamentally on the idea of peasant proprietorship. It is our goal to reorganise our rural economy on co-operative lines, but this is a task to be accomplished over a period of years. On the one hand, we have to take steps to organise co-operative credit, marketing and supply of consumer goods and co-operative cultivation and management of land. On the other hand, we have to take all steps in our power through the National Extension Service to enable individual peasant farmers to raise their yield, to increase productivity and achieve higher standards of living. Thus while we proceed towards co-operative development on sound lines, we have, at the same time, to develop efficient methods for peasant farming, and for organising various common services for peasants. In this context we have also much to learn from the experience of countries like Japan which have, over a period of several decades, achieved singular success in small scale agriculture.

APPENDIX TO CHAPTER VII

A TYPICAL COOPERATIVE FARM

Red Day Cooperative Farm

7.26 The Red Day Cooperative of the Shuang Ling hsiang of the Checkiang Province, has a typical history. Although the village was liberated in 1949, cultivation was going on in the old way until 1951. During those two years the main events were the setting up of a local supply and marketing cooperative society and expropriation of land belonging to political criminals and non-cultivating land-lords, and distribution of this land to landless labourers and poor peasants. In the old days there were altogether 23 land-lords in this area. While during land reform 11 rich peasants were left untouched, the lands of the other 12 landlords who did not cultivate themselves were expropriated. Some of them had left the village and the others were given the same share as the other farmers in the village and were reduced to the position of middle peasants. The average share of each middle peasant was about 11 mous (1.81 acres) per family. There was some variation in the size of these farms depending on the relative fertility of the soil. One of the members of the farm when questioned by us said that before the land reform his holding was 6 mous (0.99 acres) only and as a result of land reform his holding had been increased to 11.7 mous (1.92 acres). A second man said that before land reform he owned 5 mous (0.82 acres) of land and as a result of land reform his total holding had been increased to 11 mous (1.81 acres). A third member said that his original holding was 3 mous (0.49 acres) only which became 7.5 mous (1.23 acres) as a result of land reform. In distributing land some consideration was given to the difference in quality of the various plots of land. Before Liberation none of these people possessed any draught animals. They possessed also very few farm implements and hence faced considerable difficulties in the cultivation of land efficiently. With a view to solving some of the difficulties 11 households out of a total of 678 formed themselves into a mutual aid team in 1951. They helped each other in farm work and took concerted action regarding the procurement of the supplies required by them as also the disposal of their produce. In forming this mutual aid team they had received special encouragement and help from the local Communist Party. In 1952 this mutual aid team was converted into a cooperative farm of the elementary type in which their land was pooled but they got dividend for the land as well as remuneration for labour. They told us that they pooled the land because they found that with all the strips lying scattered they could not follow

any improved method of cultivation. The greatest difficulty was about irrigation and also about crop planning. There was also shortage of labour during peak sowing and harvesting periods in view of the fact that no landless labour was left as a result of land reform. The membership of the cooperative farm increased to 23 households in 1953 and to 56 households early in 1954. It was in September, 1954 that this cooperative farm was changed from the elementary type to the higher type, viz., collective type and the membership also increased to 154 households. In 1956 the farm further expanded and all the 678 households in the hsiang joined the farm. At the time of our visit the farm covered the whole hsiang which consisted of about 9 hamlets and 7 electoral districts. It had a total population of 2,907 households and comprised of 3,859.5 mous (635.66 acres) of dry land and 200 mous (32.94 acres) of fish pond. The total working population of the farm numbered 1,527 of whom 903 were male and 624 female. It was the practice to classify the labourers into full labour units and half labour units according to their ability. Healthy adults were usually classified as full labour units while old men, sick persons and children were classified as half labour units. On the basis of this criteria the total labour force of the farm was classified into 616 full male labour units, 287 half male labour units, 293 full female labour units, 331 half female labour units. The labour force was divided into 8 production brigades, each of which was sub-divided into a number of companies. Each Company in its turn was sub-divided into a number of production teams. The average size of a production team was 14 to 17 and there were altogether 100 production teams in this cooperative farm. The usual practice was to make a brigade responsible for all work in a specified area which might comprise of one or more hamlets. In certain other cooperative farms that we saw there was a special brigade for looking after animal husbandry but in the Red Day Cooperative farm all the 8 brigades were formed on an area basis and there was no special brigade for animal husbandry. On the average each brigade had been allotted 7 mous (1.15 acres) of land (of which 60 per cent was irrigated and 40 per cent dry) per full labour unit. For instance, we were told that the 5th brigade of the farm was in charge of 3 hamlets and comprised of 3 Companies, each in charge of one hamlet. Since two of these hamlets were fairly big the Companies in charge had 16 to 17 teams each, while the Company in charge of the third hamlet which was small had only 6 teams. Each team in its turn was given a definite area to look after. One of the teams that we examined was in charge of 43.84 mous (7.22 acres) of irrigated land, 29.96 mous (4.88 acres) of dry land and 1.39 mous (0.23 acres) of fish pond. Altogether this particular brigade was in charge of 461 mous (75.92 acres) of irrigated land, 278 mous (45.78 acres) of dry land and 15 mous (2.47 acres) of fish pond. The general practice in the Red Day cooperative farm was for members of the same family to work in the same team. But in some other cooperative farms that we visited we found that the practice was different and members of a particular family were distributed as between different companies according to their aptitude for different types of labour. Members of each team or company or brigade usually gave an indication of their preference regarding the appointment of their leader, but the final appointment was made by the Committee of Management of the Cooperative Farm. Since September, 1955 when the farm was converted into the collective type, dividend for land has been abolished. The members were paid entirely according to the amount of work put in. The system of payment was based on working points. There is no attempt yet to standardise these norms or rates in China. The actual rate was evolved separately for each farm, each type of operation, etc., by Committee of Management of each farm. The cooperative farm was, no doubt, given some guidance by Party members and the Agricultural Officers as to how to fix the norms and the rates, but what should be the point allocated to a particular type of work was left entirely to the members of the Farm and the norms and rates varied considerably from farm to farm. At the end of the season the Committee of Management of the Cooperative Farm made an assessment of the gross revenue, deducted from it all costs, paid tax to the State and any other dues like interest charges, etc., that might have to be paid, allocated certain proportion for the reserve fund, relief

fund, etc. and then distributed the balance to the members according to the working points that they had earned during the season. The payment was partly in cash and partly in kind depending on circumstances. So far as kind payment was concerned, the members sold the portion that they did not require for their own consumption either directly or through the cooperative farm to the Government or to the supply and marketing cooperative. Besides the remuneration that they got from the cooperative farm, many members earned a supplementary income from subsidiary occupations like silk reeling, pig breeding, chicken rearing, etc. Each member of the farm was also given a small garden plot of his own. The size of this plot differed from farm to farm. In the Red Day cooperative farm the rule was as follows. If a family had one member it got .1 mou (0.016 acres) of land as private plot, for two members it got .15 mous (0.024 acres) of land, for three to four members .2 mous (.023 acres) from five to six members .25 mous (.041 acres) and for seven members or above .3 mous (0.049 acres). The collective farmer was free to grow whatever he liked in this private garden plot and to consume or barter or sell the produce to fellow collective farmers also in the local market.

7.27 The Red Day farm had a Committee of Management comprising 21 members, one of whom was the Director, 5 were Vice Directors and one was the Accountant. It had also a Committee of Supervision comprising 11 members. All the members were elected for a period of one year by the general body of the farm.

Crop Planning for the Farm

7.28 We were told that the Committee of Management of the Farm started preparing its own plan as soon as they received information about the annual plan for the country from the authorities concerned. In the light of the target fixed in that plan, they decided upon the targets for their own farm. For instance, in the current year, they formulated their own plan early in spring last soon after they received details of the country plan. In formulating this plan, they took into account not only the available area suitable for different crops but also the possible increase in production during the year and the fertilisers, insecticides, ploughs, animals, etc., that were likely to be available as also the performance in the previous year in the same farm and the performance in some of the neighbouring farms. Taking into account all these various factors and also the advice tendered by the Agricultural Officers and the representatives of the Communist Party, the Committee of Management of the Farm decided upon the following programme of production for the year 1956:

(1) 2,541.7 mous (418.262 acres) of land which was suitable for paddy was to be put under that crop. The target of average yield of paddy per mous was put at 703 catties (4,705 lbs. per acre) as against 531 catties (3,554 lbs. per acre) in 1955 and 512.5 catties (3,430 lbs. per acre) in 1954. The total production of paddy expected in 1956 was 178,377 catties (196,625 lbs).

(2) 3,398.7 mous (559.8 acres) of land which was suitable for jute was to be put under that crop. The target of average yield per mou of jute fibre for 1956 was 481.5 catties (3,223 lbs. per acre) as against actual yield of 484 catties (3,239 lbs. per acre) in 1955 and 31 catties (2,121 lbs. per acre) in 1954. The total production of jute was expected to be 1,636,260 catties (1,803,649 lbs.).

(3) In 3,078 mous (507 acres) of land, it was proposed to grow rapeseed as a winter crop. The target for the production of rapeseed was put at 263,818 catties (290,807 lbs.) in 1956. The crop which was harvested sometime earlier, however, turned out to be higher than the target, viz., 296,403 catties (326,725 lbs.).

(4) In 832.4 mous (137 acres) of land, wheat was to be produced as a winter catch crop. The target of production was put at 77,146 catties (85,038 lbs.). The actual production, however, turned out to be larger viz., 81,639 catties (89,990 lbs.).

(5) In 412.7 mous (68 acres) of land, barley was to be grown as a winter catch crop and the target of production was put at 56,151 catties (61,895 lbs.).

(6) *Fish* - In 270 mou (44 acres) of fish pond, it was proposed to produce 49,045 catties (54,062 lbs.) of fish. The target of yield per mou was put at 173 catties (1,158 lbs. per acre) in 1956 as against 150 catties (1,104 lbs.) in 1955.

(7) *Pigs* - The cooperative itself possessed 3 boars and 200 swine and its target of production of young pigs in 1956 was put at 500.

(8) *Silk cocoons* - The target for silk cocoons was fixed at 3,337 catties (3,678 lbs.).

(9) *Draught cattle* - The farm did not so far possess any draught cattle. In 1956, it proposed to acquire 14 animals.

(10) *Ploughs* - The farm did not so far possess any ploughs. All the cultivation work was done by spades and hoes. For 1956, its target was to acquire 8 single share ploughs and 5 double share ploughs.

(11) *Insecticides* - For 1955, the farm used only 300 yuans (Rs. 600) worth of insecticides. In 1956 its target was to use 2,100 yuans (Rs. 4,200) worth of the insecticide known as 666. The price of the insecticide was about 25 cents per catty.

(12) *Chemical fertilisers* - For 1955, the farm used 50,860 catties (56,063 lbs.) of paddy and jute mixture (primarily ammonium sulphate). For 1956, it proposed to use 220,000 catties (242,506 lbs.) of these mixtures. The price was about 17 cents per catty.

(13) *Double cropping* - For 1955, the farm had only 96 mous (52 acres) of land from which two paddy crops were taken. For 1956, they proposed to take two paddy crops in 756 mous (125 acres) of land.

(14) *Agricultural loan* - For 1955, the farm borrowed 3,500 yuans (Rs. 7,000 from the Agricultural Bank. For 1956, they proposed to borrow 6,600 yuans from the Agricultural Credit Cooperative through which the loans from the Agricultural Bank were now being channelised so far as this country was concerned.

(15) *Water conservancy* - For the year 1956, the farm did not have any new scheme of water conservancy. In 1955, 4 water pumps were set up as an experimental measure by the local Agricultural Department. Three of these pumps cost 3,200 yuans (Rs. 6,400) each and one pump cost 5,000 yuans (Rs. 10,000). After the pumps had started working and had proved successful, the Cooperative Farm took them over from the Agricultural Department. The cost of the pumps would be paid in instalments. The first instalment had not, however, yet been paid at the time of our visit. We saw one of these pumps. It was a 25 H.P. diesel pump manufactured in China. Its capacity was 20,000 cu. sec. and it helped irrigate 1,500 mous (247 acres) of land.

7.29 The agricultural tax of the farm was assessed at 632,133 catties (696,800 lbs.) of paddy, the value of which was roughly equivalent to 9 per cent of the value of the total produce of the farm in 1952. This tax was to remain unchanged for three years from 1953-54. But how much of it would be paid in kind and how much in cash depended upon the production each year and also upon the requirements of the farmers. Since this particular farm specialised in the production of jute, rapeseed, etc., it could pay only a part of the agricultural tax in kind. For instance, in 1955 it paid 132,133 catties (145,650 lbs.) of paddy as tax in kind and the value of the balance, viz., 500,000 catties (551,150 lbs.) of paddy was paid in cash. All the jute, rapeseed and other crops that the farm produced were sold to the Government purchasing agency at the price fixed by the Government. On the whole, the farm appeared to us to be quite a prosperous one. Its gross income was over 12 lakh yuans, (Rs. 24 lakh) and in 1955 about 95,000 yuans (Rs. 190,000) was kept in capital fund, 22,000 yuans (Rs. 44,000) in reserve fund and 3,500 yuans (Rs. 7,000) in relief fund. The annual income of an average farmer worked out to 500 yuans (Rs. 1,000) in 1955. The Director himself earned 955 yuans (Rs. 1,910) in 1955. They expected the income to go up substantially in 1956. We saw teams of workers carrying on

different operations in different fields and all of them appeared to work quite hard. The figures of yield quoted by the farmers and mentioned earlier certainly showed substantial increase from year to year. How far this increase in yield was due to cooperative farming and how far due to various technical measures, *e.g.*, use of improved seeds improved tools and implements, improved techniques, larger amounts of fertilisers, better use of water and also better season was not possible for us to say. But two things were clear. The organisation of cooperative farming had certainly made it easier to introduce improved techniques of production as well as fertilisers, insecticides, etc. Similarly, cooperative farming was also compelling the relatively inefficient farmers to work harder than usual because while working in a team under the supervision of a team leader, he could not be as negligent as he might be when he was working on his own.

No Surplus Labour

One would have expected that the replacement of a large number of small peasant holdings by one large cooperative farm would give rise to the problem of surplus labour in as much as it should lead to a considerable degree of rationalisation. We were told, however, that the case was not so. Whatever labour was released as a result of rationalisation was now being utilised in doing many useful things like building roads and contour bunds, planting shelter belts, extending irrigation channels, undertaking community work, keeping proper accounts, etc., which the individual peasant could not or would not normally do. More labour was also now absorbed as a result of the greater intensification of cultivation. Formerly, there was very uneven distribution of the load of work. Sometimes farmers had to work for even 14 to 16 hours a day at one season while at other periods they had work hardly for 3 to 4 hours. Now the work load was more uniform and varied between 8 to 10 hours a day.

CHAPTER VIII

MEASURES FOR IMPLEMENTATIONS - ECONOMIC AND FINANCIAL MEASURES

8.1 As has been explained in the previous chapter economic measures like prices, marketing, supply, credit and tax policies are important instruments which are utilised to a very large extent by the Chinese authorities for the implementation of the plan and the achievement of their broad objectives.

8.2 The purchase and sale of foodgrains in China is a government monopoly. Commercial products like cotton, jute, tea, tobacco and skins and furs are also purchased by the Government. Minor produce such as fruit, eggs and poultry is purchased in the main by supply and marketing co-operatives. In the outskirts of towns vegetables are sold at special vegetable markets both to vegetable factories and to retail dealers. Consumer goods and small means of production and other agricultural requirements reach the villages through the network of supply and marketing co-operatives and the chain of shops controlled by them. Purchase as well as sale prices are fixed in advance and are maintained at levels determined by the government. Until 1952, the government bought and sold through the market. Following the completion of land reform a complex and integrated system of state-cum-co-operative trade has been developed. It may now be said that, except for transactions in fairs and markets organised by the State and the insignificant operations of petty private merchants, the supply of goods to rural areas and the purchase and procurement of agricultural produce are more or less completely within the scope of government's planning. The terms of trade between agriculture and industry along with the allied question of the relative levels of rural and urban wages are therefore among the central problems of agricultural and rural planning.

Foodgrains

8.3 Food production increased from 106 million tons in 1949 to 152 million tons in 1952, a rise of nearly 43 per cent. It further rose to 154 million tons in 1953, 158 million tons in 1954 and 172 million tons in 1955. In 1955, out of a total food

production of 172 million tons, paddy accounted for 77 million tons and wheat for 23 million tons. The growth of towns and cities specially with the increasing tempo of industrial development and construction and the need for exports of agricultural produce were important factors in hastening the transition from a controlled market economy to the unified system of purchase and sale of foodgrains which has been developed since November, 1953.

8.4 Each year the State draws up a plan of unified purchase and sale of foodgrains. Its two main objects are the supply of adequate quantities for urban centres and for the non-farm rural population and the maintenance of stable levels of agricultural prices. To a limited extent private merchants still function as agents of the State, but they are not allowed to purchase and sell on their own as in a free market. Since March, 1955, each year, in accordance with the plan, the quantity to be purchased and the quantity to be sold are determined in advance. As an inducement to greater production, in fixing a target for State purchase of foodgrains for the year July, 1955 to June, 1956 the government declared that for a period of three years this target would not be raised.

8.5 Such a scheme of purchase of foodgrains calls for accurate estimates of production, determination of the requirements of consumption and of the surplus available, and a scheme of relative prices for the main agricultural products which can be maintained without excessive strain. The first aspect has been considered earlier. The government's declared policy is to limit the purchase of foodgrains to 80 per cent of the surplus, leaving farmers free to dispose of such further surpluses as they may not themselves be able to use. There is no uniform or rigid methods of estimating the consumption requirements of farmers. Members of each rural community are encouraged and expected to assess their requirements in terms of consumption needs of different families, requirements of horses, pigs, etc., seed requirements and consumption in such forms as soya bean, milk. For each province there are rough guides which can be followed. Thus, in the predominant rice growing areas 500 catties (551 lbs.) of (unhusked) paddy may be allowed for each person, whether adult or minor: elsewhere 360 to 380 catties (397 to 419 lbs.) of other foodgrains may be allowed. For seed, the allowance may be in terms of acreage to be sown as, for instance, for paddy, 10 catties per mou or 67 lbs. per acre. For feeding a horse the allowance varies from 700 to 800 catties or (772 to 882 lbs.). The fact that local adjustments are always possible lends strength and flexibility to the system.

8.6 This is also achieved in a measure in the towns with the help of peoples' committees which exist in all streets. In urban areas, since October, 1955, fixed amounts of foodgrains are supplied. With 28 to 32 catties (31 to 35 lbs.) per adult per month as a norm, adjustments are made according to age and the kind of labour done. Where need be, a larger quantity may also be allowed. Naturally no sales are permitted. Frequently, individuals draw less than the amounts sanctioned for them and return the food tickets which they do not need.

8.7 The foodgrains budget of the year July, 1955 to June, 1956 illustrated the magnitudes involved in the system of unified purchase and sale.

Foodgrains	Million catties	Million tons
Production (including unhusked)	3,39,000	166.99
Production (husked and milled)	2,92,000	143.69
State purchase, including agricultural tax	89,300	43.94
Sale in rural areas	36,000	17.72
Sale in urban areas	41,900	20.62
Exports	3,000	1.48

Other farm products

8.8 For sales in rural areas as well in urban areas the Government maintains an extensive network of retail grain shops. Sales are made for cash against ration cards. In a village about 12 miles to the south of Peking out of 500 households, 190 hold such cards, 60 of them being non-agriculturists and 130 agriculturists. In areas situated further away from towns where horticulture and floriculture are much less important, non-agricultural workers constitute the main body of card-holders.

8.9 In the early phase of State-purchase of foodgrains supply and marketing co-operatives

functioned on behalf of the governments; in 1955 this responsibility was taken over by the Ministry of Foodstuffs. Similarly, supply and marketing co-operatives purchased on behalf of the government major products like cotton, jute, tea and silk cocoons as well as local products and minor produce like pigs, fruit, eggs, etc. The purchase of five main products cotton, jute, tea, tobacco and skins and furs - passed in January, 1956 to a new Ministry of Purchase of Farm Products from the Ministry of Foreign Trade which had previously been responsible for them. The purchase of silk cocoons continues with the Ministry of Foreign Trade and of local products and minor produce with supply and marketing co-operatives. Sugarcane is purchased by the Ministry of Light Industry and peanut and oilseeds by the Ministry of Foodstuffs.

8.10 For each of the items within its field, the Ministry of Purchase of Farm Products prepares each year an annual purchase plan. For cotton, detailed planning is undertaken, including the planning of areas to be sown, but for tea and jute the Ministry confines its planning to advance contracts for purchase at pre-determined prices. The demand for cotton is divided broadly into (a) cotton textiles, (b) exports and (c) domestic uses, *e.g.*, for 'padded coats'. The supply of cloth is planned so as to permit a person to purchase upto 60 Chih feet (or 70.5 feet) per year. Contracts for purchase are entered into with agricultural co-operatives. These indicate the area to be sown under cotton, the quantity to be produced and the quantity to be sold. Cotton producers are allowed to retain upto 3 catties (3.3 lbs.) per head, but cannot sell to private merchants. To encourage the cultivation of cotton and other commercial or 'economic' crops, various incentives are employed. The government offers to buy whatever quantities may be offered. Preference in the supply of oilcake and other concessions are given to areas which grow 'economic' crops. Thus, if 100 catties (110 lbs.) of cotton are offered for sale above the agreed quantities, the government is prepared to provide additional quotas of food (10 catties or 11 lbs.); cloth (10 Chih or 11.7 feet) and oilcake (50 catties or 55 lbs.). The purchase contract provides for the payment in advance varying from 10 to 25 per cent of the purchase price in two instalments, about two-thirds being paid at the signing of the contract and the balance when the seed has sprouted.

8.11 An elaborate machinery has been built up for the purchase of agricultural crops. At present there are 7,540 purchasing stations, supported by smaller collection centres in villages. The bulk of them deal in all commodities but there are some which are exclusively for buying cotton. Apart from purchase against contracts farmers also sell in State-organised markets at prices fixed by the government. As explained later, the agricultural tax is collected in the main in foodgrains but may also be paid in cotton.

Agricultural prices

8.12 Within a year of Liberation the new regime brought the price situation under firm control. Compared to the average of 1950 which may be taken as the base the index of wholesale prices stood at 117.9 in 1951, 118.1 in 1952, 116.6 in 1953, 117.1 in 1954 and 117.8 in 1955. To some extent this stability has been due to the maintenance of price levels for the purchase and sale of agricultural crops. The main considerations in determining these prices are of course the need to increase agricultural production, and to improve rural incomes and at the same time to stimulate capital formation in the economy as a whole.

8.13 The basic prices to be fixed are those of food crops; in relation to these the prices of other crops are worked out. Thus, in one region, one catty (1.1 lbs.) of cotton is taken as being equivalent in value to 8.44 catties (9.30 lbs.) of paddy or 7 catties (7.7 lbs.) of wheat. There are variations in the set of prices adopted in different regions. These variations may be due to factors such as cost of transport, the natural conditions of production and relative profitability, and the price differentials which were customary in different parts of China even before Liberation.

8.14 The average purchase and sale prices of the principal foodgrains at the present time as supplied to us by the Chinese authorities are:

	Purchase price		Sale price	
	Yuans cents per 100 catties	Rs. As. per maund	Yuans cents per 100 catties	Rs. As. per maund
Wheat	9-30	13-14	..	..
Wheat flour	..	-	18-4	27-8
Paddy	6-1 (unhusked)	9-2	10-3 (unhusked)	15-6
Maize	5-3	7-14	6-9	10-5

We were told that prices of this order give to the farmer net profit of 10 Yuans per mou (Rs. 121 per acre) during good harvests. It was stated that in a normal year, in Hopei province, a mou of wheat and in Liaoning a mou of maize may bring a net profit of 6 to 8 Yuans (or Rs. 73 to 97 per acre) and in Hunan province the net profit for a mou of paddy may be 5 Yuans (or Rs. 61 per acre). It was also stated that on the present range of prices, in 1954, the State lost a sum of Rs. 300 million Yuans (or Rs. 60 crore) but this was felt to be justified by the gain to production through the maintenance of stable prices for the purchase and sale of foodgrains. It is not unlikely that with the reorganisation of agriculture along co-operative lines and the rise in real wages in rural areas which is already in evidence, in the coming years the terms of trade will become more favourable to agriculture than they have been in the past. The effort to carry out the long-term plan of agricultural development is also likely to exert a pressure in the same direction, so that agricultural prices may be expected to rise slowly but definitely during the next few years.

Supply of goods to rural areas

8.15 As has already been explained in the previous chapter, for the supply of consumer goods and agricultural accessories to rural areas an extensive network of supply and marketing co-operatives has been built up. The network has taken the form of a pyramidical structure which functions under the overall leadership of the All-China Federation of Supply and Marketing Co-operatives. The 'basic' supply and marketing co-operatives are at the level of the district or the sub-district, which may have a population of, say, 100,000 to 200,000. Above this level are the co-operatives for counties and provinces; below this level are retail shops which function as branches of the basic co-operative in individual hsiangs (administrative villages) and the 'natural' villages of which they are composed. In a hsiang there may be several retail shops functioning under the leadership and inspecting supervision of a central shop at the headquarters of the hsiang. Each shop, however, obtains its supplies direct from and reports its requirements to the basic co-operative. There may also be in each hsiang a few petty private retail shops. These sell fresh articles of common use such as tea, bread, cakes, etc., and, as agents of the supply and marketing co-operative, such articles as matches, cigarettes, wines, etc.

8.16 At the end of 1955, China had 27,067 supply and marketing co-operatives with a total membership of 162 million. These supply goods in turn to 183,182 retail business establishments which included 160,090 retail shops, 14,005 permanent stalls and 9,087 mobile supply and marketing teams. The total retail sales in villages amounted to 11,651 million Yuans (or Rs. 2,330 crore). Purchases of farm products and raw materials by supply and marketing co-operatives in the villages amounted to 6,568 million Yuans (or Rs. 1,314 crore). Each establishment in the supply and marketing system buys as well as sells. The greater part of the purchases of peasants take place in shops maintained by this system. A limited amount of buying and selling is undertaken in fairs where peasants mainly deal with one another. Barter also takes place as, for instance, when pigs are exchanged for fodder crops. In the case of minor products such as fruit, vegetables, eggs, poultry, etc., peasants are free to sell whatever quantities they may wish to.

FINANCE OF AGRICULTURE

8.17 In the Chinese Five Year Plan the investment outlay proposed for the Agriculture, Water Conservancy and Forestry Departments is shown as 6,100 million Yuans (Rs. 1,220 crore). It is, however, explained that this figure refers only to the provision for these Departments. This figure does not include loans nor does it include quite substantial investment in agriculture made in the budgets of the other departments, *e.g.*, Industries, Defence, etc. The total outlay by way of government expenditure and loans for agriculture, water conservancy and forestry is given in the Plan as 8,400 Yuans or roughly Rs. 1,680 crore for a period of five years. The break-up is given as follows:

2,680 million Yuans (or Rs. 536 crore) for capital construction in agriculture, water conservancy and forestry;

2,840 million Yuans (or Rs. 568 crore) in miscellaneous expenditure allocated by the State to agriculture, water conservancy and forestry departments;

300 million Yuans (or Rs. 60 crore) allocated to the army to reclaim waste land;

1,060 million Yuans (or Rs. 212 crore) allocated as relief fund for rural areas; and

1,520 million Yuans (or Rs. 304 crore) granted by the State for giving additional agricultural loans.

Part of the above outlay includes what will be reckoned in India as non-developmental expenditure, but it is not possible to indicate the proportion. Moreover, the figure for loans is not rigid and in fact, has exceeded the plan provision considerably. Besides, it includes short-term as well as long-term loans. On the other hand, government expenditure does not appear to include the value of concessions given on sale prices of agricultural implements like water wheels, etc., which are manufactured by the State-owned factories. Due to these various reasons and also due to a difference in the accounting procedure it is difficult to give exactly the corresponding figures from the Indian First Five Year Plan but the following figures from our Plan may be mentioned here to give a rough idea of the relative order of magnitude involved:

Rs. 357 crore for Agriculture and Community Department
Rs. 384 crore for Irrigation
Rs. 17 crore for Food Control

Rs. 758 crore TOTAL

It will thus appear that investment in agriculture is much greater in China than in India. But the difference may be somewhat less than is indicated by the figures mentioned above. In the first place, from the Chinese figures, short-term loans and non-developmental expenditure have to be taken out. Secondly, although the official exchange rate is 1 Yuan = Rs. 2, in practice, the Chinese price level is somewhat higher than the Indian price level and, therefore, the real exchange rate would be somewhat lower. It has not been possible for us to make any precise estimate of these two factors. Nevertheless, we feel that even after all the adjustments have been made the order of investment in China in the field of agriculture should work out to a considerably higher figure than in India.

8.18 As suggested earlier, in China, long-term and short-term loans given by the Agricultural Bank and its branches are over and above the appropriations provided in the plan. Investment by peasants over the period of the first plan is reckoned to be of the order of 10,000 million Yuans (or Rs. 2,000 crore), of which 6,000 million Yuans (or Rs. 1,200 crore) is to be used to increase fixed assets and 4,000 million Yuans (or Rs. 800 crore) as circulating capital. It is conceivable that with the setting up of agricultural co-operatives as the common pattern of organisation, investment from local resources may well exceed the levels contemplated when the plan was formulated.

8.19 The success of agricultural co-operation has recently made possible and also necessitated a considerable increase in the amounts made available by the Agricultural Bank by way of long-term and short-term loans. The total amounts of agricultural credit made available in different years has been as follows:

1950 201 Million Yuans or Rs. 40 crore.
1951 400 Million Yuans or Rs. 80 crore.
1952 1,070 Million Yuans or Rs. 214 crore.
1953 1,260 Million Yuans or Rs. 252 crore.
1954 840 Million Yuans or Rs. 168 crore.
1955 1,000 Million Yuans or Rs. 200 crore.

The target for 1956 is 3,200 million Yuans (or Rs. 640 crore). This is in the nature of a maximum limit which includes the amount outstanding at the end of the previous year and at the very least would involve a doubling of the amount advanced previously. Until August, 1956, the total amount loaned had reached the level of 2,800 million Yuans (or Rs. 560 crore). The limit is fixed each year with reference to the requirements of production as well as the overall financial position of the economy, but may be changed, when necessary, during the course of the year if, for instance, floods occur or a typhoon causes heavy damage. In each rural area account is also taken of the level of production and the amount of purchasing power in the hands of the people.

8.20 The statistics of agricultural loans above represent loans advanced by the branches of the Agricultural Bank to agricultural co-operatives and credit co-operatives and, to a very small extent, to individual peasants. These loans are in addition to loans advanced by local credit co-operatives. An estimate of the amount annually advanced by credit co-operatives was not available, but it was understood that during the five months January to May, 1956, this amounted to 780 million Yuans (or Rs. 156 crore).

8.21 Agricultural loans are advanced at the same rates of interest throughout the country both by the Agricultural Bank directly and by credit co-operatives. Thus, loans for farm equipment and permanent improvements which may be for periods of 1 to 3 years and, sometimes longer, are given at the rate of 0.48 per cent per mensem. Loans to individuals peasants, whether members of credit co-operatives or otherwise, for meeting consumption requirements are given at the rate of 0.72 per cent per mensem. For enabling poor peasants to take shares in co-operative associations the rate of interest is 0.4 per cent per mensem. For short-term loans for seeds, fertilisers, etc., loans are given at the same rate as long-term loans, namely, 0:48 per cent per mensem. Credit co-operatives receive loans from the Agricultural Bank at the rate of 0.51 per cent per mensem. They are able to attract rural deposits at lower rates because the maximum rate allowed on rural deposits may go up to as much as 0.66 per cent per mensem, and the minimum rate is 0.24 per cent per mensem. The effect of this interest rate structure tends to be that, in the main, loans by credit co-operatives are given to an increasing extent for meeting consumption requirements and not for financing production.

8.22 Until March 1955, when the Agricultural Bank was set up, agricultural loans were handled by the agricultural department of the People's Bank. The People's Bank has more than 20,000 branches; about 16,000 of these are in rural areas, usually serving both the People's Bank and the Agricultural Bank. These include central branches at the headquarters of provinces, branch offices in administrative regions and counties and, at the district level 'business centres' which in many cases are still functioning as part of the local offices of the People's Bank. The main responsibilities of the Agricultural Bank are to provide loans and credit, to guide the work of credit co-operatives in rural areas, to receive deposits from agriculturists (largely through credit co-operatives) and to adjust the amount of cash needed in rural areas. Loans to producers' co-operatives are given primarily for (1) building up local irrigation and drainage works, (2) buildings, purchase of farm implements and purchase of draught animals and (3) for obtaining seeds, fertilisers and repair of implements. Loans to individuals, whether members of Co-operatives or otherwise, are given for the purchase of small implements, for obtaining raw materials for subsidiary occupations, and for meeting consumption requirements. As stated earlier, poor peasants are given assistance for taking shares in co-operatives. Loans for this purpose are generally given for five years, repayment starting usually from the third year. State farms also receive loans from the Agricultural Bank for the provision of equipment, buildings, livestock, irrigation facilities and working capital, but often these loans are for periods of 5 to 10 years. Loans to individuals are, as a rule, for a period of one

year only.

8.23 An important part of the work of the Agricultural Bank and of credit co-operatives concerns rural savings. The total amount of deposits from rural areas could not be ascertained, presumably because the Agricultural Bank's work in the field of rural savings and deposits is done on behalf of the People's Bank, but it was indicated that the deposits with credit co-operatives during the five months, January to May, 1956 amounted to 210 millions Yuans (or Rs. 42 crore). On current deposits, interest is allowed at 0.24 per cent per mensem, on deposits for periods exceeding six months, but less than a year at 0.51 per cent and on deposits exceeding a year at 0.66 per cent per mensem. The Agricultural Bank and the credit co-operatives also send out parties into villages to collect deposits. State bonds issued by the Government bring in about 600 million Yuans (or Rs. 120 crore) every year and of this amount about 30 per cent is contributed by peasants.

Credit Co-operatives

8.24 For credit as well as for farming, co-operatives exist only at the local level, which may be the village or a group of villages or a hsiang or sometimes an area exceeding a hsiang. There is no pyramidical co-operative structure in these fields. In 1955, there were 160,000 credit co-operatives, but this number is likely to diminish as small hsiangs get amalgamated into larger units. At present about 97.5 per cent of the hsiangs have credit co-operatives. Many of these credit co-operatives have developed from the credit teams which were organised voluntarily by peasants in the period immediately following land reform. The credit team itself is an older idea in China, having been tried out with success in the liberated areas during the period of the civil war and the war against Japan. The main functions of credit co-operatives are to assist production, specially by meeting the consumption requirements of peasants, to help peasants to join producers' co-operatives, to eliminate usury and to work as agents of the Agricultural Bank in their respective areas. Agency work such as transmission of loans on behalf of the Agricultural Bank is undertaken by credit co-operatives on a fee of 1 per cent of the money loaned. One half of this amount is paid when the loan is advanced and the rest when it is recovered.

8.25 While the People's council in the hsiang and in the district are responsible for prescribing forms and registers and issuing administrative instructions, with such assistance as they may need from the Agricultural Bank, the Bank is responsible for giving technical guidance and direction to credit co-operatives, and for training their cadres. Responsibility for appointment and promotion is undertaken by each co-operative for itself. As is customary in China, each credit co-operative has a congress composed of all its members, a board of direction of management and a board of supervision. Both county and district branches of the Agricultural Bank have organised short-term training courses. The county branches arrange for training courses usually lasting a month and separately for (1) general policy and methods and (2) for specialised work such as accounting. District branches arrange for training for shorter periods such as a week or two weeks. Lectures and discussions for exchange of experience are the usual forms which the training takes, and by this time almost all personnel employed in credit co-operatives have gone through this degree of training. There are no training arrangements above the county level.

AGRICULTURAL TAXATION

8.26 The agricultural tax in China accounts for about 10 per cent of the total revenue. In terms of money its yield was 2.75 billion yuans (or Rs. 550 crore) in 1953; 3.3 billion yuans (or Rs. 660 crore) in 1954 and 3.05 billion yuans (or Rs. 610 crores) in 1955, and receipts under this head in the budget for 1956 were placed at 2.8 billion yuans (or Rs. 560 crore). As a rule, the tax is collected in two instalments, in autumn and in spring. About 93 per cent of the collection is in kind and the balance is in cash. Of the former 85 per cent is accounted for by grain and 8 per cent by cotton and peanut. In 1951-52, during the course of land reform, the new government took steps to fix standard annual yields per mou (that is 0.16 acre), on the assumption of average management and normal weather conditions. This assessment took account

of the quality of land and also whether one or more crop were grown during the year. The standard yields fixed five years ago are still in force. The actual tax to be collected is calculated on the basis of these yields with reference to the area cultivated. In each region a standard crop is selected, for instance, paddy in South China, and the value of other crops is fixed with reference to this crop. In terms of grain, the tax amounted to about 38,801 million catties (or 19 million tons) in 1952, 35,100 million catties (or 17 million tons) in 1953 and 38,000 million catties (or 18.7 million tons) in 1954 and 1955. The proportion of the agricultural tax taken by the Central and Provincial Governments varies. In some cases, as in Sinkiang or Inner Mongolia, the entire collection is left to the province to facilitate the balancing of the provincial budget. As a rule, however, 60 per cent of the collection is taken into the national budget and 40 per cent is left to the provinces.

8.27 Besides the agricultural tax, there is a local surcharge known as 'additional tax' which is levied mainly for the benefit of the hsiang and the county peoples' councils. The rate of surcharge was 15 per cent of the tax in 1952, 12 per cent between 1953 and 1955 and 22 per cent in 1956. With increase in production and the success of co-operatives there are greater demands to be met by the peoples' councils at the county and the hsiang level. Whereas, between 1953 and 1955, out of the additional surcharge of 12 per cent, the hsiang received about 7 per cent and the county and the province about 5 per cent, out of the larger surcharge for 1956 the share of the county and province has risen to 15 per cent. The peoples' councils at the level of the county and the province may, when necessary, provide additional grants for hsiangs. The proceeds of the 'additional tax' on land do not form part of the state budget of China.

8.28 The actual rates of taxation vary in different provinces according to local conditions. Thus, in some provinces uniform rates prevail, but in others the rates fixed varied with the amount of land held. The lowest rate anywhere is about 5 per cent of the annual production, but the highest may be as much as 30 per cent. In Liaoning province, for instance, the average rate works out to 21 per cent of the produce and in Heilungkiang province it amounts to 23 per cent of the gross produce. In a number of provinces, as for instance in Kwangtung, the rates which were determined at the time of land reform or immediately after it vary with the size of holdings from 5 to 30 per cent of the produce. With the progress of agricultural co-operation, the unit of taxation is now the agricultural co-operative where the advanced form of co-operative is in existence, but individuals are liable to pay agricultural tax directly where the elementary form of co-operative still prevails.

CHAPTER IX

MEASURES FOR IMPLEMENTATION - TECHNICAL REFORMS

Role of Technical Reforms

9.1 While both agrarian re-organisation and the economic measures described in the previous two chapters were necessary for the creation of conditions conducive to the development of Chinese agriculture, in the last analysis actual increase in production could be brought about mainly by technical reforms. Land reforms and co-operation were useful because they created conditions under which farmers could have the will and the ability to adopt improved techniques. Agricultural finance was necessary because otherwise it would be beyond the means of many farmers to adopt improved techniques. Price, planned purchase and tax policies were important because adequate incentives and disincentives were needed to induce the farmers to utilize improved techniques of production in the desired manner and for the production of desired crops. It is true that Chairman Mao Tse-Tung himself had put relatively greater emphasis on land reforms and co-operation but he did so perhaps not so much because he felt that land reforms and co-operation by themselves would increase production but because he was of the view that unless these measures were carried out, the Chinese farmer would not take to improved techniques of production with enthusiasm. Technical reforms must be, therefore, regarded as a very important feature of China's agricultural development.

Types of Technical Reforms

9.2 By technical reforms, the Chinese authorities mean not merely mechanisation and the adoption of modern techniques but also the popularisation of old techniques which have been traditional in some areas or with some groups of farmers but have not been popular in other areas. In fact, in China, unlike in Russia, mechanisation has been given a relatively low priority during the first two or three five-year plan periods. The Chinese authorities realise that until their country is sufficiently industrialised so as to syphon away a fairly large number of people from the rural areas to urban areas, or rural industries are developed very considerably, mechanisation of agriculture may accentuate the problem of rural under-employment. Therefore, they are not putting much emphasis on mechanisation for the present except in state farms or newly reclaimed areas or sparsely populated areas. The technical reforms which they are emphasising at present are mostly the well-known methods of intensive cultivation. These methods have been listed in Chapter V and are (i) more intensive use of manures and fertilisers, (ii) soil improvement, (iii) use of better seeds, (iv) extension of multiple cropping areas, (v) planting more high yielding crops, (vi) improving farming methods, (vii) wiping out insects, pests and plant diseases, (viii) use of improved farm tools and gradual introduction of mechanised farming, (ix) water conservancy projects and water and soil conservation, and (x) opening up of virgin and idle lands, and extending cultivable lands. As has been explained in previous chapters, these measures are being popularised and implemented through special campaigns undertaken by the members of the Communist Party, organising co-operative farm workers into brigades and work teams with a view to mobilising their labour in the most effective manner, organising exhibitions, conferences and visits to model farms with a view to exchanging experiences of good cultivation, bringing out a large number of publications and posters describing the experiences of the good farms and the results of scientific research and imparting technical knowledge through a special organisation, namely, the Technique Popularisation Stations.

Technique Popularisation Stations

9.3 There is no technical measure in the field of agriculture practised in China which is really new. But it is the manner in which these technical measures are being implemented which is remarkable. In Community Project areas in India, we have village level workers who are general purpose men and whose job is to enthuse villagers and to act as the channel through which information about improved techniques can be passed on from research workers to actual tillers of the soil. In China, it is the directors and vice-directors of the co-operative farms and the members of the Communist Party working in villages who function as general purpose workers at the village level. They may not be themselves technical experts but they devote their full energy in enthusing the farmers to use improved methods and transmitting the information about improved technique from scientists at higher levels to actual tillers of the soil. Unlike in India, these workers at the village level in China whose number runs into millions do not have to be paid by the state. They work in the village itself and generally get paid by the co-operative farms on the basis of working points like any other member except where they have other sources of income. This means that China has been able to have a very large general purpose extension agency at a much smaller cost to the state than we have been able to have in India. For agricultural extension work, however, there is a specialised technical organisation in rural areas of China called Agricultural Technique Popularisation Stations maintained by the provincial Department of Agriculture. These Stations vary considerably in size as also in character from one part of the country to another. In a big suburban area, *e.g.*, in Canton, the station may be quite a big one and may have as many as 30 to 40 technical personnel and may cover about 60 to 70 hsiangs. In a rural area, *e.g.*, Shensi, each Technique Popularisation Station may have only 4 to 8 technical people and may cover 2 to 3 hsiangs. All the workers in these stations are full

time employees and are paid by the State. Today in China, there are over 10 thousand Technique Popularisation Stations and this means that, on an average, there is one Technique Popularisation Station for 20 hsiangs. The Chinese authorities are, however, rapidly multiplying the number of these stations. Naturally the greatest progress has been made so far in an old liberated area like the Shensi province while more recently liberated area like Kwantang province is relatively thinly covered. But the objective seems to be to multiply these stations until the whole country is covered as intensively as the Shensi province is today. It may be, therefore, useful to note here that the Shensi province has a rural population of 1.5 crore and a total cultivated area of 113 lakh acres as compared to a rural population of 1 crore and total cultivated area of 139 lakh acres in the Punjab. This is a mainly wheat and millet growing area, the total acreage under wheat being about 60 lakh acres. In this province, there are 1,069 hsiangs, each having between 500 to 1,000 families. There are altogether 581 Technique Popularisation Stations each having a staff of 4 to 8 agricultural specialists. This means that there is on the average one Technique Popularisation Station for about 2 hsiangs. Besides these 581 Technique Popularisation Stations, there are 100 veterinary stations, 14 machine tractors stations, 84 state farms, 6 secondary agricultural schools and 4 agricultural experimentation stations in the province. The total staff of the Agriculture Department of the province is 9,788 at different levels. This shows the degree of intensity with which the Chinese authorities are trying to cover their countryside with agricultural personnel. The rate of increase in the number of the Technique Popularisation Stations is also remarkable. There were only 3,500 stations in 1954, the number rose to 8,000 in 1955 and to 10,000 by the summer of 1956 and it is proposed to increase it to 16,000 next year. These stations are staffed by agricultural and animal husbandry experts and some of the more important stations have specialists in charge of different kinds of farming activities, such as cropping, seed selection, care of livestock, use of farm tools and machinery, etc. These stations also serve as centres for giving special short-term training to co-operative farmers. In some cases, the farmers go to the station in their off-time for the purpose of training and in other cases the technical experts from the station go to the villages and give training to the farmers on the spot. Upto the end of May, 1956, 5,08,000 farm workers had been trained in the short course. The trainees included directors of co-operative farms, accountants, agricultural and animal husbandry technicians, brigade and team leaders, etc. Many co-operative farms have also set up their own organisation to study farm techniques with the help of these Technique Popularisation Stations. These stations thus play an important part in introducing better farming methods, such as, use of improved types of farm tools and better seeds, making better use of fertilisers and manure, adopting plant protection measures, improving agricultural skills, etc.

9.4 The role of a Technique Popularisation Station in developing China's agriculture can be best understood if we describe here a station that we visited near Peking. This station called the Nanyuan Technique Popularisation Station was first established in 1953 with a staff of 3 technical and 2 administrative personnel. There were, however, some teething troubles and the station was closed in 1954 due to shortage of properly qualified technicians. The station was, however, re-started in 1955. At the time of our visit, it had 14 members on the staff of whom 9 were technical. Among these 9, 4 were for field crops, 4 for animal husbandry and 1 for vegetables. In this particular Technique Popularisation Station, agriculture and animal husbandry were combined but there was a proposal that with the increase in the volume of work, the animal husbandry section would be separated from the agriculture section in the near future. Of the 5 non-technical men, one was the director, who was a former member of the liberation army, 2 were clerks and 2 were ordinary labourers. This station was under the technical control of the Bureau of Agriculture of the Peking Municipality and under the administrative control of the District People's Council. The main functions of the station were:

(1) Popularisation of scientific knowledge regarding agriculture, *e.g.*, use of fertilisers, growing of field and vegetable crops, methods of controlling diseases, insects and pests, improvement in the method of cultivation and management of land, etc.
(2) Summing up the experience of advanced farmers and extending this advanced experience to other areas;
(3) Helping the farmers in the knowledge of animals both in regard to breeding and prevention of animal diseases;
(4) Training of technical cadres for the co-operative farms.

This station serves 14 hsiangs in which are now included 37 co-operatives and about 18,700 households. The farthest farm is at the distance of $7\frac{1}{2}$ miles from the station. The station has a hostel where the co-operative farmers who come for training are housed. The period of training varies according to the subject. For example, the period of training for pig feeding lasts 7 days, for cattle feeding 10 days and for vegetable growing 12 days. Generally, lectures are also given on the cultivation of crops and other related subjects. At these discussions the model workers also narrate their experience and group discussion is encouraged. Technicians from the Agriculture Bureaus and Agricultural Research Institutes also participate in the discussions. During the period of training, they earn work-points from their respective co-operative farms. Government provides them with cheap meals at a concessional price of about 5 annas per day. The farmers are given training in the hostel during the off-season, namely December to Febtruary. During other seasons, the technicians from the station go to co-operative farms and give the farmers on-the-spot training. This two-way traffic helps a great deal in extending knowledge to the farmers and in collecting first-hand information regarding problems of the farmers to be passed on to research workers for investigation. The station had last year 159 trainees in animal care, 102 in pig raising, 182 in field crops and 215 in vegetable growing. Besides these people who received training at the station itself, 1,261 peasants received training in the villages during the busy season. The type of advice and help which the station gave to the farmers may be described by a few illustrations. Last year, the early sowing of cotton was completed by about the 8th of April. A complaint was received that seeds did not germinate even after 2 weeks although the normal time of germination was only one week. Wherever the seeds had germinated, the germination was defective. The technicians of the station discovered that this defective germination was mainly caused by the fact that the temperature was unduly low at the time of sowing. The cultivators were advised to resort to transplanting the cotton seedlings in gaps if they were not very many or else to sow afresh. On another occasion there was an attack by an insect pest called army worms. The technicians of the station tested the outbreak with a special apparatus and discovered that the attack might soon become very serious. An intensive spraying with the insecticide 666 was immediately undertaken. This year, as a result of heavy rains the cotton crop was seriously damaged. The technician of the Station himself was unable to suggest a remedy. He, therefore, brought experts from the North China Agricultural Scientific Research for different types of damages. The technicians of the station were equipped with soil testing kit on the basis of which they advised the co-operative farmers regarding manurial schedule, lime requirement of soil, etc. They had other equipments also *e.g.*, equipment for testing germination percentage of seeds, soil thermometer, etc. They kept a record of the temperature of the soil and advised the farmers as to the right time when seeds should be sown. They also carried out in the co-operative farms different demonstrations and experiments on thick sowing, close planting, deep ploughing, etc., with the help of the farmers themselves and persuaded the co-operatives to demarcate separately areas for the production of improved seeds on which proper roguing was insisted upon. At the time we visited the station, one of the important items of work on which they were busy was in regard to advising the cultivators on the topping of cotton plants to encourage more fruiting branches on the plants. Topping of cotton like close planting appeared to be two techniques which were being encouraged very much in China. In India, however, neither

of these two techniques have been found to be particularly advantageous. The station had a small library and a collection of extension literature and its main hall was decorated with instructive posters, charts, etc., all relating to various techniques for the improvement of agriculture. There was no artificial insemination centre attached to this station. There were, however, 2 holstein stud bulls and 2 stud horses which were being maintained by one of the co-operative farms attached to the station and were used for the purpose of breeding in this particular area. The station had no land of its own and whatever experiment it wanted to carry out was done in the lands of the co-operative farms of the area and with the co-operation of the farmers themselves. The annual budget of the station was reported to be about Rs. 30,000 and the expenditure on staff was about Rs. 24,000, the balance being contingent expenditure. The junior-most technician in the station got a salary of Rs. 60 per month while the chief technician got a salary of Rs. 180 per month.

9.5 These Technique Popularisation Stations are thus playing an extremely important role in the development of China's agriculture. They are educating the farmers in improved techniques and passing on to them the results of research. On the other hand, they are also helping to maintain contact between the farmer and the research worker and to pass the problems of the former to the latter. They are also providing a very useful balancing factor in the whole process of development of co-operative farming. Quite a large part of the progress that has been achieved in China so far is, no doubt, due to the enthusiasm and hard work, better organisation, etc. But a stage will come when there will not be very much further scope for increasing production through these factors alone. It is at this stage, that the technical service provided by the Technique Popularisation Stations will come to aid and will help to make up more than what may be lost through the natural wearing off of initial enthusiasm with passage of time. The prospect for future development of China's agriculture has indeed become bright as a result of the organisation of these Technique Popularisation Stations. One special thing about the Chinese Technique Popularisation Stations is that they are not multi-purpose organisations. Their main work is agricultural extension and they stick to that work only. They have nothing to do with the provision of credit or provision of supplies. This is an important point which is worth underlining here. In India, much of the time and energy of the village level workers and even of technical officers at higher levels are taken up by the need for looking after credit, supplies, etc., and by the fact that they have to look after not only agriculture but also a number of other subjects like education, health, etc. We feel that the fact that the Technique Popularisation Stations in China are not multi-purpose institutions but are primarily agricultural extension organisations has been responsible to a considerable extent for the concentrated attention that the Chinese farmers are paying to increasing their production today.

Use of manures and fertilisers

9.6 Of the various measures which the Technique Popularisation Stations are trying to popularise and through which agricultural production is sought to be increased, the fullest utilisation of every possible source of manure and the introduction of improved methods of fertilising are amongst the most important. The Chinese farmer has always been well known for the intensive use that he makes of the manurial resources of the village. He does not, therefore, require much persuasion. What the Technique Popularisation Stations are trying to do is to ensure a more scientific use of the manurial resources of the village, popularise correct doses and more effective and sanitary methods of application, promote the use of chemical fertilisers, carry out soil tests and advise the farmer regarding the best methods of fertilising the soil for growing different types of crops. About 85 per cent of the total cultivated area in China is manured through organic manures such as night soil, stable manure, compost, green manure crops, mud from the bottom of canals and ponds rich in organic matter, oil cakes, etc., and through chemical fertilisers. It is estimated that some 50 per cent of the manure used is night soil and stable manure, 20 to 30 per cent compost and 10 to 15 per cent green manure.

The use of chemical fertilisers is relatively small but it is steadily on the increase. As against 1.2 lakh tons in 1949, it has risen to a figure of 10.3 lakh tons in 1955. The target for 1956 is 17.3 lakh tons. Every effort is being made to utilise night soil and stable manure. The utilisation of night soil is estimated to be about 70 per cent of the potential production and that of stable manure to be 60 per cent.

Night soil

9.7 China's agriculture is noted for its use of human excreta or night soil of which some 200 million tons are available per year. Night soil has been used there for centuries and has been one of the chief factors responsible for the maintenance of soil fertility in spite of intensive exploitation of land. In all Chinese towns which do not have modern sewage facilities night soil is collected from every house each morning. Processions of wheel barrows, carts or boats carry it to the countryside where it is carefully applied to each growing plant. In South China with year round cultivation, it is commonly used fresh in liquid form but in North China with seasonal agriculture, it was formerly the usual practice to dry it for future use but this practice is now being discouraged. In the North, human faeces was added to animal manure and other refuse and the mixture was used on the land. The solid excreta was collected from towns and cities and made into cakes which were placed on the ground to dry, either without further treatment or mixed with animal manures, soil or ash. The cakes dry up in about a week and they are then ready for sale. On an average, the composition of such cakes is about 9 per cent moisture, 59 per cent ash and 1.7 per cent nitrogen, 1.6 per cent P_2O_5 and 19 per cent carbon. There is considerable loss of nitrogen during this drying process. Night soil is a carrier of intestinal parasites if used without treatment and the practice of utilising fresh faeces is a danger to public health. Hence the common method now recommended by the Technique Popularisation Stations is the wet method that is followed in South China. It consists of adding to fresh night soil water equivalent to one-third of its weight and preserving the liquid in pits or jars. It gets ready for use within two weeks to a month or more depending upon the temperature and is considered free from danger as fermentation during storage kills the pathogens. The collection and handling are attempted to be done under hygienic conditions. In the villages, the farmers use the pit latrines and cover up the faeces with soil and apply ashes and lime and also use 666 as disinfectant to control the fly nuisance. In this way the danger of spreading intestinal parasites is lessened. The produce from village latrines is collected at monthly or two monthly intervals and put into big receptacles or pits which are lined to which water is added one-third its weight. It is then allowed to ferment for about three months before use. Where urine is conserved, the usual process is to add water three times its weight and it is allowed to ferment for about a fortnight or a month and is then applied in the liquid form. The analysis of the liquid fresh and fermented night soil is as under:

	Fresh	Fermented
Nitrogen	0.85%	0.5%
P_2O_5	0.26%	0.2%
K_2O	0.21%	0.3%

The night soil in the liquid form fermented as noted above is used both as a basic fertiliser as well as for top-dressing. It is applied at the rate of about 6,500 to 13,000 pounds per acre. If the night soil is mixed with earth and fermented, the rate of application of the liquid is about 26,000 pounds per acre.

Stable Manure

9.8 Besides night soil, a very large volume of stable manure and mud from the bottom of canals and ponds which is rich in organic matter are also being used in China for manurial purposes. The dose of stable manure is about 6,000 lbs. per acre and that of mud about 13,000 lbs. per acre.

9.9 Considerable emphasis is also being put in China on the use of green manures. The common green manure crops in the South are Astragalus sinensis and Medicago denticulata. They are sown in early October and cut for green manuring towards the end of April. Average outturn of green matter per acre is about 13,000 pounds and

when the growth is very good it may reach as high a figure as 52,000 pounds. In the Chekiang province, Astragalus sinesis is sown in early October by broadcasting the seed in the standing field of rice and is cut and applied to the soil towards the end of April. Astragalus is also sown after maize for green manuring or in the standing crop of maize which is generally harvested by the end of October. It is also sown in alternate rows along with the wheat or rape seed crop. In some areas, the green manure crop is also grown in high lying fields. The green matter obtained is applied to two or three times the area on which the green manure crop is sown. In the province of Shensi, in irrigated lands one of the methods of enriching the soil is to grow alfalfa for one or two years and after the last cutting, plough it into the soil. It is sown in February or March in the standing crop of wheat. After wheat is harvested, the field is irrigated and alfalfa makes a good growth. It is ploughed in by the middle of August and subsequently wheat can be sown on it in September. The extent of green manuring varies from State to State. In the Chekiang province it was reported that 40 per cent of the rice area is green manured.

Oilcakes

9.10 In China, oilcakes mostly soyabean cakes, are also used in very large quantities for manurial purposes. The consumption of oilcakes increased from 32.7 lakh tons in 1949 to 45 lakh tons in 1955.

Chemical Fertilisers

9.11 Along with the campaign for a more intensive use of night soil, stable manure, manurial muds, green manure and oilcakes, the Technique Popularisation Stations are making an intensive effort for extending the use of chemical fertilisers. Formerly the Chinese farmers did not use chemical fertilisers in any appreciable quantity. In fact, in two of the villages that we visited the farmers had not made any use of chemical fertilisers until they were persuaded to do so by the local Technical Popularisation Station this year. We were told that there is already a very large demand for chemical fertilisers and at present the limiting factor is supply rather than demand. China produces only one-third of the total quantity of chemical fertilisers that she consumes at present. The balance is imported from the U.S.S.R. and other countries of eastern Europe. New factories are, however, being set up in China for the production of chemical fertilisers. In the First Five Year Plan, it is proposed to increase the production of ammonium sulphate from 181,000 tons in 1952 to 5,40,000 tons in 1957 and of ammonium nitrate from 7,486 tons in 1952 to 44,000 tons in 1957. The rate at which the use of chemical fertilisers has gone up in China in recent years will be seen from the following table:

Year	Chemical Fertilisers
1949	1.2 Lakh tons
1950	1.6 Lakh tons
1951	2.2 Lakh tons
1952	3.0 Lakh tons
1953	6.0 Lakh tons
1954	8.2 Lakh tons
1955	10.3 Lakh tons
1956(Target)	17.3 Lakh tons

9.12 The soils in China are generally deficient in nitrogen as well as in organic matter. Technique Popularisation Stations generally advise the farmers to use chemical fertilisers in combination with organic manures. For instance, in the Shensi province farmers are advised to apply compost or stable manure at the rate of about 26,000 to 40,000 pounds per acre at the time of deep ploughing in November. Ammonium sulphate is applied to the wheat crop as a top-dressing at the rate of 66 to 100 pounds per acre. Mixing the chemical fertiliser with wheat seed in equal quantity at the time of sowing is now being recommended. In the rice region, the compost manure is applied at the rate of about 6,500 pounds per acre, or mud from the bottom of canals or ponds is applied at the rate of 13,000 pounds per acre before transplanting. Subsequently, the manure may be applied two or three times as top dressing at the rate of about 20 to 30 days. Application of fertiliser to the paddy crop in the earing stage is considered to be very important.

Night soil may be replaced by Ammonium Sulphate in which case the rate of application at each time may be about 30 to 60 lb. per acre.

9.13 As regards the value of applying chemical fertilisers in conjunction with organic manures, we were given the following results of fertilisers experiments carried out during 1947 to 1951 at the East China Agricultural Scientific Research Institute, Nanking. The per cent yields of paddy obtained under different treatments were as under:

Treatment	Yield in per cent
1. No manure	100.0
2. Ammonium Sulphate	122.5
3. Organic Manure alone	117.6
4. Ammonium Sulphate + Organic Manure	133.4

The yield of the control plot was about 3,000 lbs. per acre.

9.14 Experiments are currently being conducted in China on the use of different types of nitrogenous fertilisers such as Ammonium Sulphate, Ammonium Nitrate and Urea both on the state farms and on the co-operative farms. Experience of the past two years shows that for paddy, ammonium sulphate is better than ammonium nitrate and that urea is as effective as ammonium sulphate. For dry crops, however, ammonium nitrate appears to be better. Experiments will have, however, to be continued for some more years before a definite conclusion can be reached. We found that phosphates were not yet being used on any large scale in China. Red soil areas of China are, however, deficient in phosphate and we were told that good responses were obtained on them by the application of super-phosphate. We felt that the use of phosphates required to be popularised much more than it had been done so far.

Bacterial Fertilisers

9.15 Another line of interesting work that is going on in China is inoculation of legumes such as soyabeans and peanuts with improved strains of nodule forming bacteria. Biologist Chang Kung Shien and his research associates in Shenyang Institute of Soil and Forestry have increased the yields of soyabeans by 10 per cent by treating them with nodule forming bacteria. The use of bacterial fertilisers like nitrogen, azotobacter, phosphobactor, etc., has developed very considerably in Soviet Russia and the Chinese scientists are carrying on experiments with some of these bacteria with a view to adopting them to Chinese conditions.

Scope for developing local manurial resources and utilisation of chemical fertilisers in India.

9.16 There is considerable scope for the development of local manurial resources and use of chemical fertilisers in India on which special emphasis needs to be put by the extension staff. Estimates show that in India 227 million tons of dry cattle manure are available annually, making an allowance for another 227 millions tons which are used as fuel. This would mean a potential quantity of 1.24 million tons of nitrogen annually. If to this is added the nitrogen in the urine which after allowance for losses should give about 1.58 million tons of nitrogen, the potential quantity of nitrogen comes to 2.82 million tons annually. The potential availability of phosphate and potash from these sources are estimated at 0.76 and 0.99 million tons respectively. As against the potentials available, the percentage amounts utilised for the present are only about 24.4 per cent of nitrogen, 32 per cent of phosphate and 46 per cent of Potash. Similarly, as regards urban waste, there are some 3,000 urban centres in India which require to be brought under Municipal Town Refuse Compost Scheme. There are, for the present, only 1,926 centres working. Potential night-soil compost production is some 4.3 million tons as against the actual production of some 2 million. Besides, there is a large number of village Panchayats with a population of 3,000 to 5,000 where the night-soil composting can be taken up. Sewage and sullage also need to be properly utilised. As regards bone utilisation, out of 0.45 million tons only about one-third is at present utilised for the crushed bone industry and the production of bone-meal. A large programme for the utilisation of bones is needed for which a

number of bone digester plants need to be set up in the countryside. Green manuring is another field in which there is considerable scope for extension.

9.17 The present consumption of nitrogenous fertilisers in terms ammonium sulphate is estimated at about 0.6 million tons which is proposed to be raised to 1.85 million tons by the end of the Second Five Year Plan and that of superphosphate from 0.1 million tons to 0.72 million tons.

9.18 The present knowledge of many of the farming practices particularly those describing the patterns of consumption of manures and fertilisers is inadequate in formulating the general policy regarding the supply of fertilisers. Some work has, however, been undertaken under the auspices of the Indian Council of Agricultural Research for carrying out a pilot survey in one district of each of the States of Madras, Andhra, Bihar and U.P. representing the six different agricultural regions. The object of the scheme is to secure data regarding fertiliser consumption, distribution of the same among different crops, cultivation practices connected with fertiliser use and so on. The field work has so far been completed in the West Godavari District of Andhra State and the Coimbatore District of the Madras State. Preliminary analysis of the data collected in West Godavari District has been completed which brings out some interesting facts. It shows that 78.8 per cent of the cultivated area was manured, about 27 per cent of the area was benefited by fertilisers, about 78 per cent of the area under paddy which is the major crop accounting for about 68 per cent of the total cultivated area in the District received fertilisers and other manures, sugarcane was cent per cent manured, tobacco received manuring for 93 per cent of the area and 70 per cent of the area under fruits, vegetables and spices was manured. Such survey leads to valuable information on the basis of which further planning can be done. The Indian Council of Agricultural Research has approved a bigger scheme to investigate into the fertilisers and other farming practices in the country, and it is necessary that the scheme should be implemented without any further delay.

9.19 Compared with other Asian countries like China and Japan, the fertility of our soils is at a low level resulting in lower yields. This is because we do not pay as much attention to the production and use of bulky manures on the farms as the others do. There is also scope for larger consumption of chemical fertilisers. An all-out effort is needed to conserve and utilise all available manurial resources in the country and use larger quantities of chemical fertilisers in increasing the food production.

Soil Improvement

9.20 Besides promoting a more intensive and scientific use of manure and fertilisers, the Chinese authorities are encouraging a number of other measures, such as terracing, strip cropping, soil conservation rotations, etc., for improving the soil. In spite of the intensive use of animal manure and night soil made by the Chinese farmers, the soils in China generally lack organic matter. This is because land has been used most intensively in China throughout the ages. Moreover on account of shortage of fuel, most of the farmers cut the stalks and leaves of crops to serve as fuel. This is specially true in the wheat belt along the Tsinling Mountains and in the Huai River Valley where the farmers not only cut the stalks and leaves of crops but also pull out the roots. The Technique Popularisation Stations are therefore inducing the farmers to make compost of straws, grasses, etc., as much as possible and are also encouraging the planting of crops like common medic in provinces in the north west and astragalus and vicia in the provinces south of the Yangse river with a view to improving the soil.

Rotations

9.21 Suitable crop rotations have been developed in China on the basis of soil type, topography and climate and are being prescribed widely with a view to improving the soil. These rotations naturally vary from locality to locality in accordance with the character of land, climate, etc. Some of the principal crop rotations in different agricultural regions may be briefly described here. A single crop system is in general practice in the areas where spring wheat is commonly grown and where winters are severe and moisture

is a limiting factor. By winter fallowing, soil moisture is accumulated and is sufficient in the average season to grow a satisfactory crop. Crops suitable for this one crop system with winter fallow are spring wheat, millet and Irish potatoes. Although the soil here is generally as suitable to the growing of two crops a year - including a green manure crop - as are soils in other areas, the climate with its cold and long winter and low rainfall, preclude such an use. In the winter wheat-millet region, in certain parts such as in Shansi a five year rotation is followed which includes winter wheat, winter fallow, kaoliang, soyabeans or black beans and millet. The order of this rotation system is as follows:

Year	Winter	Summer
1st	Winter wheat	Soyabeans
2nd	Fallow	Kaoliang
3rd	Winter wheat	Soyabeans or black beans
4th	Fallow	Millet
5th	Fallow	Kaoliang

In some places, kaoliang may be replaced by millet. This system includes three winter fallows, two crop legumes and five crops of cereals. It makes good use of winter fallow periods for water accumulation, adds nitrogen by the use of legume, requires a variety of plant nutrients, and utilises a larger root feeding area by the differences in root distribution of the several crops. Although fertility cannot be maintained by such a system without some supplementary treatment such as chemical fertilisers, night soil, etc., it reduces the loss of soil fertility to a minimum and tends to make the best use of the natural resources of the soil. In the winter wheat-kaoliang region, a six year rotation is followed which consists of winter wheat followed in order by soyabeans or green beans, winter fallow, kaoliang, wheat, millet, winter fallow, green beans, wheat and sweet potatoes. In sandy soils, peanuts replace soya-beans in the cropping system. In this region from Chengting in Hopei southward along the Peking Hankow railway line to Chi Hsien, American cotton is an important crop usually under well irrigation. It is planted in late April and harvested in September, leaving the land fallow in winter. Millet or black beans are planted in May and harvested in August. This crop is followed by wheat. After wheat, millet or black beans are grown in the third summer and the land lies fallow in the winter for planting cotton in the following spring. In this three year rotation, two winter fallows and one legume crop are included to maintain the soil in fairly good condition. Two of the many rotations of central rice region in China are:

(1) One year rotation in which astragalus sinensis is grown in winter and rice in summer.
(2) Two-year rotation in which, in the first year as tragalus is grown in winter and rice in summer and in the second year wheat, barley or rape seed are raised in winter and rice in summer.

This two year rotation can be expanded in a longer rotation by growing different crops in winter. In the rotation used in the rice growing regions of Central China, astragalus is grown as a soil improver. The vegetative portion of the crop may be cut and carried to other fields to be ploughed under, it may be fed to hogs or it may be used for composting. Astragalus roots and residues are ploughed under in preparation of the land for paddy. Stable manure, night soil and in limited areas ammonium sulphate are used for fertilising paddy. Larger quantities are applied on paddy lands not growing a previous crop of legume. When winter wheat follows paddy it may receive an application of night soil or ammonium sulphate in early spring.

Inter-cropping

9.22 Another system of improving soil fertility is the adoption of a system of inter-cropping. It is a common practice in Szechuan, Kansu and some other provinces. Usually a tall crop such as maize and kaoliang is planted with low growing crops such as soyabeans and the low crop grows vigorously after the tall crop has been harvested. Soil erosion is greatly reduced by this practice. Peas, lentils and beans are included in North China and beans and vetches in South and Central

China for rotation. Inter-cropping with spring maize and early potatoes grown in alternate rows is also practised in some areas.

Manurial requirements

9.23 As regards the manurial requirements of different soils in China, the position is briefly as follows:-

Generally speaking, as to geographical distribution, the soil of farm lands north of the Huai River and the Tsinling mountains needs nitrogen, that in the Yangtze valley and south western and south eastern provinces needs nitrogen and phosphate and the Yellow earth prevailing in Kwangsi and Kweichow provinces needs not only nitrogen and phosphate but also potash. Much work remains to be done to prepare suitable manurial schedules for the guidance of cultivators on the basis of soil type and crop grown. But now that there is a country wide extension organisation, this information can be collected in course of time by conducting field tests on the cooperative farms. Academia Sinica has been working on the improvement of Laterite and Red Earth in Kiangsi provinces to improve their fertility. Work is also in progress with alkaline soils to increase their fertility. Some land reclamation work has been done by drainage of saline lands on which irrigated cotton is being grown. Similarly in the vicinity of Tientsin-Teinku in Hopei in several areas in the north east considerable area has been reclaimed for growing rice. Action is also being taken to build ditches and flood-diversion canals, strengthen dykes and embankments and take other measures to prevent floods and water-logging.

Multiplication and distribution of improved seeds

9.24 The multiplication of improved seeds is another method by which the Chinese authorities are trying to step up agricultural production. The various improved seeds are evolved at the Regional Agricultural Scientific Research Institutes and the State Experimental Farms and they are then multiplied on a large scale in selected state and cooperative farms and distributed through the supply and marketing cooperative societies. In the Ministry of Agriculture at the centre there is a Seed Bureau which has under it the following four departments:

(1) Variety Inspection Department
(2) Improved Seed Extension Department
(3) Improved Seed Multiplication Department
(4) Seed Inspection Office

Every province in China has a research institute and an experimental station which are responsible for the testing of varieties considered suitable for different areas in the provinces. The Variety Inspection Department of the Central Ministry of Agriculture has to arrange for the supply of improved seeds for experimental work, inspect how the experimental work is carried out and analyse the results of experiments carried out over a number of years with a view to deciding which areas should grow particular varieties of improved seeds. The function of the improved Seed Extension Department is to plan the extension of improved seeds, select and store improved seeds for distribution to cooperative farms and educate the cooperative farmers how to select and store improved seeds. The Improved Seed Multiplication Department is in charge of the improved seed multiplication stations and is responsible for planning the multiplication of improved seeds in the whole country and training the cooperative farmers to undertake the multiplication of improved seeds in reserved areas in their own farms. The Seed Inspection Office is responsible for developing techniques for inspecting seeds and for testing their germination purity, moisture content, weight, etc. So far, 800 seed testing stations have been established in China and there are plans for establishing more than 2,000 so that ultimately there would be one seed station for each county.

9.25 Before promoting the wide-spread use of improved seeds which have proved their worth in a certain area or which have been successfully grown by scientific institutions or imported from abroad, a certain amount of preparatory work such as expert appraisal, experimental planting and demonstrations to the peasants are generally carried out. On the basis of the information thus

obtained steps are taken for multiplication and distribution of the improved seeds. The improved seeds evolved by the breeder are multiplied on the Government Experimental Farms. These seeds are multiplied in the following year in the Seed Multiplication Stations. Next year the produce of these stations is passed on to the cooperative farms which earmark a separate area for growing this improved seed. The produce of this area in the following year is then sown on the entire area of the cooperative farms. We were told that in the case of a self-fertilised crop, the fresh seed from the original seed multiplication farm is replaced only after 7 or 8 years while for crops where fertilisation is high, for example, in the case of cotton, the seed is replaced after four years. In 1955, 20 per cent of the total area under food crops and 30 per cent of the total area under cotton was under improved seeds. It is proposed to cover the entire area under cotton by improved seeds within the next two to three years while in the case of foodgrains, it will take a few years more before the area can be so covered.

Multiple cropping

9.26 One of the methods for increasing agricultural production which is being given a very high priority by the Chinese authorities is the extension of multiple cropping areas. Technique Popularisation Stations are making a special effort to instruct the farmer regarding the possibility of growing two or more crops in a land where only one crop has been grown hitherto. This is one field which has been neglected so far in India and where we can profit a good deal by the Chinese experience. As has already been mentioned earlier, China has at present a gross sown area of 373 million acres which is 134 per cent of their net sown area as against 326 million acres in India which is only 103 per cent of the net sown area in India. This means that the Chinese are growing a much larger number of crops in the same area than we are doing in India. The Chinese authorities told us that multiple cropping usually increases the yield of paddy by about 1,000 to 1,300 lbs. per acre. An example of how the area under multiple crops is being increased in China may be given with reference to the Chekiang province. The main crop in this province is paddy. Out of 5.5 million acres of cultivated land, paddy is being grown over four million acres. Cultivators now follow the cropping methods noted below to facilitate multiple cropping:

(1) Growing of late rice which is transplanted by the middle of May and harvested by the end of October and following it in winter by such crops as wheat, barley, rape, astragalus, etc.
(2) Growing medium rice crop which is transplanted in early May and harvested by the end of September and following it by winter crops as stated in (1) above.
(3) Growing early rice crop which is transplanted by the end of April and harvested by middle of July, following it with late crop of paddy which can be transplanted towards the end of July and harvested in early November and thereafter raising winter crop of wheat, barley, rape, etc.
(4) Growing early paddy, following it after harvest with autumn crops such as maize, soyabeans, millets, sweet potatoes, etc., and raising the third crop either of wheat, barley or rape.

It will thus be seen that in the Chekiang province where formerly only two crops used to be raised during the year, farmers are now raising three crops.

Scope for double cropping in India

9.27 One of the methods for increasing agricultural production is by increasing the area under double or multiple cropping. Irrigation resources that are developed would further add to such areas where double cropping is possible. It is a common practice in certain areas in India to follow double cropping in paddy lands under assured rainfall conditions. But determined drive is necessary to increase this area and such causes as damage from cattle grazing due to letting the cattle loose after the harvest of paddy crops can be overcome by education and collective action by the peasants. In Madras, cotton is now being grown in between the two paddy crops in suitable areas. Similarly

in irrigated areas it is now possible to grow wheat or other winter crop after early maturing variety of American cotton recently introduced. Experiments have also shown that double cropping with jute and paddy under low land conditions and double and triple cropping under mid-land condition is practicable. With jute as an early additional crop to the two crops of paddy in a double or triple cropping programme for *aman* paddy area, sowing of jute has to be completed as early as possible. Keeping the date of transplanting of paddy the same, jute has to be harvested irrespective of its stage of maturity by the end of July or so, *i.e.*, about 5 to 7 days before transplanting paddy. In many areas where wheat is a single winter crop grown, it is possible to grow early maturing legumes like *moong* and cow-peas during the kharif season as catch crops before the sowing of the main winter crop, as is done in U.P. Similarly gram can be raised after the harvest of the groundnut crop in the cotton tract if seasonal rains are received. The cultivators are aware of these practices but are not adopting them on a large scale. It is necessary to find out the causes and see how this practice can be encouraged. In irrigated areas, it is also necessary to investigate if it is more economical to raise a single crop of late paddy in a year instead of raising medium variety of paddy and follow it by crops like wheat, peas, etc. In many areas in India, especially areas which have been newly irrigated, multiple cropping is not being practised to the extent possible. This is a short-coming which should be corrected as early as possible and State Governments and the extension workers should take the same vigorous action in this direction as is being done in China.

Substitution of low-yielding grain crops by high-yielding crops

9.28 Another way in which the Chinese authorities are trying to increase their food production is by enlarging the acreage under high yielding crops like paddy, maize, potatoes, sweet potatoes, etc., in place of low yielding crops like wheat, coarse grains, etc. It is their experience that the yield of paddy per acre is nearly three times that of wheat. Yield of maize is about 50 per cent more than that of other coarse grains. If planted with potatoes or sweet potatoes, yield per acre is five to six times more than if planted with cereals. As regards food value, about $2\frac{1}{2}$ units by weight of these crops are equivalent to one unit of grain. The cultivators are accordingly advised to replace suitable areas of coarse grains and other low yielding crops by such high yielding crops as potatoes including sweet potatoes, maize or rice depending upon local conditions. The research stations are busy developing high grade strains of potatoes and sweet potatoes and working out methods of preserving, storing and processing such crops.

Scope in India

9.29 There is in our view considerable scope in India for producing such high-yielding crops in place of low yielding crops. There was, some years back, a campaign launched for growing of such non-cereal crops. It is true that food habits of the people change slowly; but even so it should be possible to make some headway in this direction. Some of the areas under lesser millets such as *kodom* and *kutki* can be brought under early paddy if cultivators in such areas convert them into paddy lands by construction of bunds. Necessary loans need to be made available for this purpose. Tapioca is extensively grown in Travancore and some areas in the South. Techniques for its proper utilisation, storage, processing, etc., needs to be developed. There is considerable scope for increasing area under potatoes which should be fully exploited. Definite targets need to be fixed for each area, taking into consideration the local factors.

Improving farming methods

9.30 Apart from the use of improved seeds, irrigation, organic and chemical fertilisers, proper rotations, etc., there are various other cultural operations such as preparation of seed bed, proper seed rates and spacing, interculture, etc., which increase the output per acre. Special emphasis is laid in China on deep ploughing and close planting. Deep ploughing by the use of improved ploughs is estimated to raise the yield by 10 to 20

per cent and in some crops by 25 to 30 per cent. Similarly, we were told by some experts that "close planting" tends to increase yields by some 20 per cent in the case of paddy in certain areas. One of the vice-Ministers, however, told us that close planting has not in practice proved to be successful for all areas and all crops.

Improved techniques of paddy cultivation

9.31 The improved technique of raising paddy crop that is being advocated in China may be illustrated by the following example from the Chekiang province. Cultivators are advised to give deep ploughing in autumn. Subsequently, one or two ploughings are recommended. During ploughing the turned up soil by different furrows should meet and no gap should be left. The first ploughing is usually done when the soil is dry. Land is irrigated after first ploughing and the second ploughing is given when the water is still standing. This helps to kill the paddy stem borer which is a serious pest in this as also in the other rice growing areas. In marshy wet land winter ploughing is given and the land is exposed to sunshine. Deep ploughing on a limited scale is being done by newly established Tractor Stations in these areas. Improved paddy seeds suitable for the particular tracts have been evolved and are being recommended to the cultivators. Selection of superior seeds for raising of nursery is done by resorting to the following steps: (i) Seeds are exposed to sunshine for two days. (ii) Seeds are dipped in salt solution of about 20 per cent concentration and those remaining floating on surface are discarded. (iii) Seeds are then steeped in sodium bi-carbonate solution of 48 per cent strength for two days. This is considered to make the young shoots being stronger. (iv) Seeds are then put in a basket covered with hay and warm water at 80° F is poured over the hay twice daily for two or three days. When the young shoots are about 3 mm. in length they are ready for sowing into a nursery. In the nursery bed, the main point is to reduce the density of the seed. The seeds should not be planted too close. Previously the peasants used to sow about 200 'catties' (1,339 lbs. per acre) of seeds per 'mou'. Now the recommendation is to use about 100 'catties' per 'mou' (669 lbs. per acre). One 'mou' of seed nursery is sufficient to plant 20 to 30 'mou'. Much stronger seedlings are obtained by adopting this technique as compared to the old method. Transplanting is done after the seedlings are about 25 days old. The land is prepared as usual. The seedlings are planted close with lesser number of seedlings per bunch. Previously, the cultivators used wider spacing and larger number of seedlings per bunch but the extent varied from region to region in the province. About 5,000 to 10,000 bunches with six to ten seedlings per bunch used to be planted. According to the recent experiment, the standard is to plant about 16,000 bunches per 'mou' with about six seedlings per bunch. In practice, this number varies according to the soil type. The spacing is usually $7\frac{1}{2} \times 7\frac{1}{2}$ inches. In the central region of the province where the soil is not so productive about 10,000 bunches are planted per 'mou'. Before transplanting one thousand 'catties' of animal manure or two thousand 'catties' of mud from ponds or rivers, rich in organic matter, are added per 'mou'. Subsequent manuring consists of two or three top dressings with liquid night soil at the rate of 1,000 'catties' per 'mou' (6,693 lbs. per acre) at each application or 5 to 10 'catties' (5.50 to 11 lbs.) of Ammonium Sulphate. Top dressing with fertiliser at the earing stage of the crop is considered very important. Interculture is done between the rows with small improved appliances by human labour and suitable irrigation is given.

9.32 The method of close planting is now being vigorously advocated in China and we were told that in 95 per cent of the area sown in the Chekiang province, this method has been adopted. We were told that the cultivators now plant single seedlings with two shoots per hole with a spacing of about $5\frac{1}{2} \times 6\frac{1}{2}$ inches as against their previous method of planting 4 to 5 seedlings at a longer distance. The nursery beds are usually manured at the rate of 200 'catties' per mou (1,339 lbs. per acre) of green manure compost or night soil. Five to ten 'catties' (5.5 to 11 lbs.) of chemical fertiliser such as

Ammonium Sulphate is also added about four days before the seedlings are dipped in the solution of ammonium sulphate before transplanting.

Japanese method of paddy cultivation in India

9.33 The method of close planting now advocated in China is just the opposite of the Japanese method of paddy cultivation which has recently become popular in India. Although higher yields have been reported from all quarters, as a result of the Japanese method some defects have also been observed in this method, viz., that there is lodging and high percentage of unfilled grains. We feel in the light of the Chinese experiments that it would be desirable for our State Governments to take up detailed investigations by conducting experiments on cultivators' fields and to find out what modifications are needed in the Japanese method to suit local conditions. Spacing in between the plants in the same row and number of seedlings to be used in each bunch as also the requisite manurial doses and their time of application need to be worked out under different soil and climatic conditions. Some work in this direction has no doubt been done by the States under the auspices of the Indian Council of Agricultural Research; but the experiments so far conducted are few and far between and State Governments should, therefore, work out the details of this method suiting the different tracts.

9.34 Deep ploughing and closer planting are recommended for practically all crops in China. American cotton in Hopei province is given a spacing of $10\frac{1}{2}$ to $12\frac{1}{2}$ inches between plants and about $19\frac{3}{4}$ inches between rows which is much less than that adopted for American cotton in India. Topping of cotton is a common practice adopted in China but the work done in India does not show any special advantage from this practice. It may be worthwhile to carry out some further research work in India in regard to this question.

Experience of best farms

9.35 Apart from carrying out research in improved farming practices, the Chinese authorities are collecting detailed information about the experiences of the best farmers in raising crop yields. These experiences are studied and given wide publicity. The various provincial and municipal authorities are required to publish at least one book in a year summing up the experience of the successful farmers. Besides this, Conference of model peasants are called at regular intervals at different levels, visits are arranged by groups of farmers to model farms, and agricultural exhibitions are organised where the improved farming methods are demonstrated and awards are given to farmers who distinguish themselves in increasing production. The campaigns for emulation and exchange of experience are given a very high priority in China's agricultural extension work.

Control of insects, pests, plant diseases, etc.

9.36 A vigorous campaign for combating plant diseases, insect pests, destructive birds and animals and undertaking plant protection measures is a very important feature of the Chinese programme for increasing agricultural production. The Technique Popularisation Stations give advice to the farmers in regard to control measures against pests and diseases. Whenever a crop disease pest is reported, experts from these stations visit the farms and give necessary advice and also short-term training to the farmers. The co-operative farms usually keep themselves equipped with plant protection appliances and insecticides and pesticides. In case of need, they get loan for the purpose from the Agriculture Bank or the Co-operative Credit Societies. The appliances, insecticides, etc., are usually obtained from the supply and marketing societies. We were told that in 1956, it was proposed to supply about 200 thousand tons of insecticides and pesticides and 4.33 million sprayers and dusters. When we were in Peking an International Conference on Plant Protection was being held there. Accounts were given and documentary films were shown how Chinese farmers were being organised to take action against various enemies of crops. As in other fields the main feature of China's work in this field also was the adoption of relatively simple techniques but implementing them on a mass scale by organising the farmers

as it were into a number of brigades. An essential part of this drive is the popular campaign against the "four evils", rats, sparrows, flies and mosquitoes. Even small boys are being taught to regard it a patriotic duty to kill these pests. Even before Liberation, there were not many birds and wild animals left in China since the Chinese would eat many of them. But today the number if much less. In fact, during our tour in China we could not see any sparrow or crow.

Introduction of improved Agricultural implements

9.37 In China considerable emphasis is being put on the improvement of agricultural tools and implements. The Chinese authorities feel that in view of the heavy pressure of population on land the scope for large-scale mechanisation will be limited during the next decade or two. Although they are making use of tractors and large-scale machines where these can be utilised with advantage and have set up a certain number of machine tractor stations, mechanised farms, etc., they recognise that bulk of the Chinese farmers will have for a long time to come to depend upon human and animal driven agricultural implements. There are still many areas in China where even animal driven implements are scarce and agricultural operations are carried by implements operated by human beings. In fact, in some places, we saw even women drawing ploughs and carts. The process of improving farm technology in China is, therefore, not only from animal power to mechanical power as in India but also from human power to animal power as well as from animal power to mechanical power. The Chinese authorities are, therefore, at present putting a very high priority on the improvement of agricultural implements operated by human and animal power and their introduction on a large-scale. There is an Agricultural Implements Popularisation Department in the Central Ministry of Agriculture which has its counterpart in the Provincial Departments of Agriculture as well as the County Departments of Agriculture. The staff of this Department often go out into the villages and maintain liaison between the research workers and manufacturers of agricultural implements on the one hand and the farmers on the other. They collect information about the short-comings of the existing implements and the improvements that are required, try out improved implements developed by experts in China and in other countries and give necessary advice to the manufacturers of agricultural implements regarding possible and desirable improvements. When a new implement evolved by the agricultural scientists is found to be satisfactory after test, this Department gets it manufactured on a large scale and then proceeds to popularise it through the Provincial and County Agricultural Implements Popularisation Departments as also the Technique Popularisation Stations. The Chinese experts with whom we had discussions, expressed great interest in the agricultural implements, developed in India and in Japan. They are now introducing on a very large scale certain improved types of sullage cutters, water wheels, maize hullers, rice threshers and double wheel ploughs which have been evolved by the Chinese engineers. Some of these implements are not dissimilar to those which are in use in better farms in India and Japan and some of the countries of eastern Europe but we felt that Japan has made much greater progress in the matter of developing improved farm tools. The prices at which these agricultural implements are being made available to the farmers in China seemed to be very reasonable. We saw a water wheel in Sian which being sold at a price of Rs. 200 and an equipment of that type will not cost less than Rs. 350 in India. Since there is no system of direct subsidy, it appeared that the Chinese Government factories which manufactured these water wheels were selling them at a specially concessional price. As has been explained earlier, these equipments are usually sold through the supply and marketing co-operative societies. But it is the responsibility of the Technique Popularisation Stations at the field level to introduce them to the farmers and organise necessary training courses. When it is decided that a particular improved equipment should be popularised in the country, the usual practice is to launch a special campaign. The field workers of the Agriculture Departments and all the members of the Communist Party working in the villages undertake a vigorous propaganda

amongst the farmers for the use of these implements. Demonstrations are arranged by the Technique Popularisation Stations and farmers are pressed to make use of these implements. As a result of these campaigns, considerable progress has been made in China in regard to the introduction of improved farm implements. For instance, in 1952 there were only 351 double-wheel double-share ploughs sold to farmers. In 1955, the number increased to 3,70,000. In 1956, it is proposed to sell as many as 14 lakh of these ploughs to farmers. Similarly, in 1952 only 1,148 double wheel single share ploughs had been sold, the number increased to 46,400 in 1955 and the target for 1956 is 100,000. In 1952, 256 improved harrows had been sold, the number increased to 12,950 in 1955 and the target for 1956 is 36,120. The number of sowers sold has increased from 556 in 1952 to 19,090 in 1955 and the target for 1956 is 58,840. The number of improved inter-cultivation implements sold increased from 32,770 in 1952 to 72,770 in 1955. The number of harvesters increased from 997 in 1952 to 9,656 in 1955. There was, however, a tendency to introduce these improved implements more on the basis of a popular campaign than scientific extension. Co-operative farms had been formed in very large numbers. A great enthusiasm for improved implements had been created. The demand of the farmers had to be met as a matter of urgency and hence the new implements were introduced without proper experimentation to suit local conditions. This led to certain unfortunate results. In many cases, farmers were given implements which did not suit their requirements, and there was considerable disappointment. As has been mentioned in a previous chapter, Mr. Chou-en-Lai himself gave us the example of the double wheel double share plough. The Chinese Department of Agriculture have already sold one million ploughs to co-operative farms during the current year. But these ploughs are suitable only for certain areas - and not for areas where there is terrace cultivation or where there are water-logged paddy lands or where the ploughs have to be drawn by buffaloes. Hence many of these ploughs which were purchased by the farmers rather indiscriminately could not be used by them and in order to avoid demoralisation, the State had to purchase back all such ploughs from the farmers who found it difficult to use them. The Chinese authorities have now realised the importance of carrying on adequate experiments in different localities and for different crops before recommending any implement to the farmers and there they have taken steps to strengthen their organisation for studying the performance of improved implements under different soil and climatic conditions.

9.38 In India, certain implements have been developed by our scientists which have not yet been introduced on a large scale to the cultivators. Some progress has no doubt been achieved in regard to the use of steel plough, water lifting engines and pumps, threshers, winnowing fans and winnowers, cane crushers, fodder cutters, etc. But there is yet no effective organisation to follow up the modifications needed according to soil and climatic conditions. It is true that a survey of agricultural implements has been carried out under the auspices of Indian Council of Agricultural Research by different State Governments on the basis of which schemes for the improvement of agricultural implements are proposed to be drawn up. There is also a proposal to set up in the next five year Plan three or four testing stations for bullock drawn implements. Some of the States have also formed Agricultural Implements Advisory Committees consisting of agricultural engineers, agricultural experts, farmers and manufacturers and dealers of agricultural implements. But much more remains to be done in this field. There is a great need for the strengthening of the agricultural engineering sections at the State level and four large-scale demonstrations on the cultivators' fields, stocking of implements at suitable centres in the rural areas and making them available at prices within the reach of the cultivators as also ensuring adequate repairing facilities and supply of spare parts.

9.39 Although in China the major emphasis is being put on the use of improved agricultural implements as has been described above, certain experiments are also being carried out for the use of tractors and other heavy farm machinery. The Chinese authorities may not go the whole hog

towards farm mechanisation, especially in areas which are now densely populated. But there are areas, especially in north-west China, which are sparsely populated and where farm mechanisation offers several advantages. Moreover, the Chinese authorities do not rule out farm mechanisation altogether. Since farm mechanisation reduces drudgery and also increases the efficiency and income of the farmers, they contemplate that even in China farms will have to be mechanised one day. Although that day may come only after a decade or two, the Chinese authorities are taking steps to introduce mechanised farming in selected areas. They have set up a number of mechanised State farms and also machine tractor stations in these areas.

State farms

9.40 At present, the total area cultivated by State farms in China amounts to 2.2 million acres. It is expected that the area will go up to 2.8 million acres in 1957 and 23 million acres in 1967. All the State farms in China are not, however, mechanised. There are at present about 3,000 State farms and of these, only 140 are mechanised. The State farms, whether they are mechanised or not, usually serve as models of farming technique and management. They are used by the research institutes as experimental farms. They play an important role in the multiplication of improved seeds and they are also used for the purpose of demonstration of improved techniques to farmers. Each mechanised State farm possesses its own tractors and other agricultural implements and is financed and managed entirely by the Government. Some of the State farms are of the same type as the Government farms in India and most of them have been equipped with machinery which have been obtained as gifts from Peoples' Democracies of eastern Europe. Mr. Chou-en-Lai told us that the cost of production in many of the State farms was higher than the cost of production in cooperative farms where only human or animal power was used. It appeared that Chinese authorities were not now very anxious to set up new State farms except where they are needed for experimental purposes or where the area has been newly reclaimed and poses difficult problems of colonisation.

Machine Tractor Stations

9.41 Some of the big collective farms which have been set up in China require the services of tractors and other heavy farm machinery. In order to provide this, a number of machine tractor stations have been set up. The total number of machine tractor stations increased from 11 in 1953 to 138 in 1955 and 152 by the end of May 1956. The target for 1957 is 194 when it is expected that these stations will have a total of 2,897 tractors (averaging 15 h.p.) serving an area of as much as 5.5 lakh acres. The working of a machine tractor station can be illustrated by describing the Nanyuan Machine Tractor Station which was visited by us. This station was established with 7 tractors in March, 1953. In August, 1956 when we visited this station, it had 73 tractors and had a programme of securing 16 more before the end of the year. The total staff amounted to 186. The area of operation of this station extended over 41 hsiangs and the maximum distance over which this station had to operate amounted to 40 miles. The station was under the charge of a Manager who had one Agronomist and one Mechanical Engineer to assist him. The station had a general repairing workshop which had a number of sections, *e.g.* assembly, manufacturing, electric, injectors experiments, black-smithy, welding, etc. Besides these, there were general administration sections in the station, *e.g.*, accounting, supply, adjustment, general work, etc. The 73 tractors of the station were grouped into 19 brigades, each brigade having 3 to 7 tractors. Each brigade had a full-time leader organiser, a statistician and an assistant leader who was a part-time driver. For each tractor, there was one chief of tractor and one driver. There were as many as 19 women drivers in this particular station. The tractors usually worked in two shifts each of 10 hours per day. The brigades were equipped with wireless telephone and a motor-cycle for communication and transport. For any difficulty reported concerning mechanical breakdown, the staff of the

mechanical workshop went out with spare parts. There was no mobile workshop. Work was done at the station itself and if any special type of repairs was required, the tractor was sent to one of the big workshops in the neighbourhood. The tractors were used for spring ploughing and sowing from about the 5th of October to 10th April; for summer harvesting, sowing and weeding from 10th June to 10th August and for autumn and winter ploughing and sowing from 10th September to 30th November. The rest of the year was used for the maintenance and overhauling of tractors. In 1955, the Nanyuan Tractor Station ploughed up 31,992 acres and the target of 1956 was 1,06,888 acres. The total expenditure incurred by the station was Rs. 5.2 lakh in 1955 exclusive of capital cost. The percentage distribution of the expenditure was as under:

Fuel	45 per cent.
Repairs	25 per cent.
Managerial	9 per cent.
Miscellaneous	21 per cent.

The cost of operation had been gradually brought down from Rs. 26 per acre in 1953 to Rs. 16 per acre in 1955. The plan figure for 1956 was Rs. 13.3 per acre. Most of the tractors used in this station were from USSR, Czechoslovakia, Eastern Germany and Hungary. There were only three American tractors. The details of the tractors and equipment in the farm are given below:

Tractors

Country	Name of the tractor	D.B.H.P.	Number	Remarks
USSR	DT;	36	2	
	NATZE	32	3	caterpillar type
	KT;	24	1	
Germany	KS07	32	16	caterpillar type
Czechoslovakia	ZETOR 25-K;	15	11	wheel type
	ZETOR 35;	24	9	caterpillar type
Hungarian	SL5055	32	2	caterpillar type
	G 35	18	3	wheel type
	GS 35	18	23	
American	Ford	12	3	wheel type

Implements

Five bottom ploughs	25
Four bottom ploughs	24
Three bottom ploughs	12
Two bottom ploughs	14
Rollers	8
Weeders	13
Disc harrows	9
Simple harrows	124 sets (there are three for one set)
Sowing machine - 48 rows	12
24 rows	19

Note: For DT54, there will be four seed drills each having 24 rows behind it.

9.42 All these tractor stations are under the Bureau of Agricultural Machinery in the Central Ministry of Agriculture which is also responsible for preparing long term plans for the establishment of tractor stations, making arrangements for the manufacture of tractors and ancillary equipment, organising tractor stations, making arrangements for the distribution of tractors, agricultural machinery and spare parts, and training of tractor engineers and operators and encouraging and promoting research in the development of tractors and heavy agricultural

machinery.

Water conservancy

9.43 Apart from the measures described above for improving agricultural techniques, the Chinese authorities lay a very great emphasis on irrigation and drainage or what they call water conservancy. Water conservancy is nothing new in China. Some of the oldest systems of irrigation from rivers and reservoirs were developed in China about 2,000 years ago. The maintenance of soil fertility under irrigation for more than 20 centuries is a great accomplishment of the Chinese people. Some of the old irrigation works had, however, been neglected during the last few decades of political unrest. The present regime in China is making vigorous attempts for extending water conservancy projects as fast as possible. Works are in progress for the permanent control of the Huai river and four reservoirs are scheduled to be completed by 1957. Simultaneously, work is being carried on for controlling floods and water logging along the major tributaries of the Huai river. Similar work has also been started on the Yellow river. Dykes along both these rivers are being strengthened to bring them under permanent control. Preparations are also being made for harnessing other major rivers of which Yangtze river and its biggest tributary, the Han river, are the most important. A very great emphasis is also being put in China on small scale water conservancy projects, *e.g.*, digging of wells and ponds, the building of irrigation canals and dams, the harnessing of small rivers and water and soil conservation works to be carried out by local Governments and Agricultural Producers' Cooperatives. Under-ground water resources are also being developed on a large scale in North China. In China an irrigation project which covers more than 10,000 mous or about 1,700 acres is classified as a major project and anything smaller than that is classified as a minor project. We were told that since Liberation they had built more than 300 major projects and about 10 million minor projects, *e.g.*, dykes, canals, tanks, etc. Wells alone numbered 5.6 millions. The net irrigated area in China has increased from 50 million acres in 1949 to 64.5 million acres in 1955. Of this, more than 80 per cent is represented by minor projects. In 1956, it is proposed to bring under irrigation about 27 million acres of land.

9.44 Major water conservancy schemes in China are undertaken by the Ministry of Water Conservancy and its counterparts at the provincial level. There are special institutes under this Ministry for research and survey. For major river valley projects, special commissions are also set up under the Ministry. Minor projects are undertaken mostly by the cooperative farms and local authorities. Technical guidance is given by the Provincial Departments of Agriculture and Water Conservancy. If the cooperatives find any difficulty regarding finance, loans are made available according to need. The members of the cooperatives who work on these minor projects are usually paid by the cooperatives themselves on the basis of work points. The wages of technicians who may be recruited from outside and the cost of the equipment may be met through loans taken from Government. These loans are usually for three to five years. In deserving cases, the Government also gives subsidies. In each county, there is a section of water conservancy, the staff of which varies between 3 to 8 depending upon the extent of work. This section gives technical advice and other assistance to the cooperatives for minor water conservancy works. Targets for irrigation are fixed from above. Survey of ground water resources is carried out and technical help rendered by the water conservancy organisation at the various levels. The progress in irrigation is thus a joint effort from the State above and peasants and the Agricultural Producers' Cooperatives from below. There is no betterment levy in China for irrigation projects. In the case of major irrigation works undertaken by the Government, however, a water rate is charged for covering the cost of maintenance of the works and are based usually either on

(a) area irrigated, or
(b) production obtained, or
(c) water consumed.

In North-east China where the water rates are on the basis of output, they are usually about 7 per cent of the produce.

9.45 In the case of lift irrigation, the sources of power for lifting are usually human or animal. In some cases, diesel engines are also used. There is very little of rural electrification yet in China. A large number of water wheels have been manufactured and distributed to the farmers at a very low price. About one acre of land can be irrigated by these wheels, the price of which is about Rs. 200. During the First Five Year Plan, it is proposed to supply the farmers with 681,000 of such wheels.

9.46 The experts of the Water Conservancy Section at the County as also those of the Technique Popularisation Stations give all necessary assistance to the farmers. In particular, they give advice with regard to the frequency and amount of irrigation for different crops. This is a service which is proving very useful to the Chinese farmers. In India we have not yet got adequate information regarding amount and frequency of irrigation to be given to different crops as also the suitable cropping pattern for maintaining soil fertility. It is desirable that experiments should be conducted on a larger scale than is being done at present on this subject so that technicians and extension workers are armed with necessary data to advise the cultivators in irrigated tracts. This will help in the utilisation of water in the best possible manner for crop production.

Soil and water conservation

9.47 In China considerable emphasis is also being put on what they call soil and water conservation. This can be best illustrated by giving an account of the work that is being done in the Shensi Province which we visited. In this province, on the basis of the research work done in soil conservation, large scale soil conservation and extension work has been taken up since 1954. Soil conservation plans are drawn up for cooperative farms. The administrative work is done at the Provincial level by the Bureau of Water and Soil Conservation, and at the County level by the Bureau of Agriculture, Forestry & Water Conservancy. The Shensi Province have five Soil Conservation Stations with a staff of about 100 persons at each station. This staff work in close collaboration with the cooperative farmers and attend to soil conservation work in the small river valley and catchment areas. As regards the method of soil conservation, the treatment varies from area to area in accordance with the local climate, cropping pattern, topography, etc. Terracing of sloping lands is a common feature of soil conservation work in the Shensi Province. The terrace interval depends upon the nature of the slope and of the soil. It may vary from 33 ft. to 100 ft. Ridges are constructed at these intervals and raised every year as the soil accumulates. The dimension of the ridge depends upon the slope. At the top the width of the ridge may be about 18 inches. Special types of ploughs are used for cultivating terrace lands. We were told that terracing helps to increase yields by about 13 to 15 per cent. In the northern part of the Shensi province where water erosion is serious, special rotations are followed. These rotations are:

(1) Three years of millet or maize; one year soya-bean or other beans and two years of kaoliang (sorghum);
(2) Strip cropping of a close planted crop like wheat and alfalfa with crops like kaoliang and potatoes. Generally speaking, the strip may be of 65 to 100 ft. width.
(3) In central parts of Shensi Province, alfalfa is grown in dry lands and the rotation followed is three years alfalfa, three years wheat and one year peas followed by two years of wheat. But between three years of wheat and peas some cultivators can also grow millet or maize;
(4) In irrigated lands where cotton is grown, a five-year rotation is followed. Cotton is grown for three years and in the third year, after the harvest of the cotton crop, wheat is grown in the same year. Cotton is sown in April and harvested by the end of September. Wheat is sown in October after the cotton harvest in the third year and is harvested by the end of May. In the fourth year, summer maize is sown in the middle of June and is

harvested by the third week of September. In the 5th year, winter wheat is grown which is followed by summer black bean, sown in early June and harvested in October;

(5) Rotation for paddy fields is two years paddy followed by one year of wheat or rape seed or vetches. Rice is sown in early April in nursery, transplanted by the middle of May and harvested during the second fortnight of September; and

(6) In the southern part of the Province, maize intercropped with spring beans is raised for three years after which the land is left fallow for one or two years. Rainfall in such tracts is about 20 inches. Fallowing is necessary because of low fertility of soil. Where soil is fertile the crops grown are maize intercropped with beans followed by wheat.

Dry Farming Techniques

9.48 In the northern and central parts of Shensi province where annual rainfall is 12 to 20 inches, one of the main problems is the conservation of rain water, most of which is received in autumn. Here dry farming techniques are followed. Autumn ploughing is given the depth of about 7 inches. Ploughing is done in the month of November except for cotton when the ploughing is done in October. Subsequent operations consist of harrowing of sloping lands only. In central as well as in the northern parts of the Province where wheat is grown, preparation of the land consist of shallow ploughing of about 4 inches immediately after the harvest of the wheat crop followed by deep ploughing of about 7 inches after about a fortnight. In individual cases, ploughing to a depth of 11 inches is also given. This is followed after a month by shallow ploughing for harrowing to keep up the moisture. In the northern parts of Shensi Province, stubbles of kaoliang are allowed to remain in the field which help to hold up the snow.

Shelter belts

9.49 Apart from these methods large scale afforestation work and planting of shelter belts are being undertaken in China with a view to promoting soil and water conservation. Throughout our trip in China, we saw trees being planted on road sides and across the fields. We were told that there was a special campaign for the planting of trees and people not only from the farm but also from the cities go periodically to help in this work. Soil and water conservation is a very important problem in China and a number of experiments are being made there. Unfortunately, we did not have time to study these methods in any detail. We feel that it will be useful if a team went to China to make a special study of the soil and water conservation methods being followed there, especially the dry farming techniques.

Reclamation of virgin and waste lands

9.50 As has been mentioned in an earlier chapter, the distribution of population and cultivated area in China is a very peculiar one, most of these being concentrated in the south-east. The north-west is mostly barren and uncultivated. This has led to a widespread belief that there is considerable scope for land reclamation in China. Some of the experts, not only Chinese but also foreigners, believe that in China it will be possible to double the total cultivated area by reclamation. In fact, some of the Chinese authorities themselves told us that 250 million acres of land which is barren at present can be reclaimed and brought under cultivation. In the First Five Year Plan of China, however, the target is modest. The aim is to reclaim 6.4 million acres of land partly by organising peasants to reclaim small patches of waste land near village sites and partly by using machines to reclaim large blocks of barren lands. In the south-eastern areas of China which are very densely populated, every bit of land, which can possibly be cultivated, is being cultivated. By ploughing up, however, of some land which is at present being used as family graveyeard or by a rational planning of residences, etc., in cooperative farms it may be possible to get some additional land for cultivation in these parts but the scope of that cannot be very much. There is greater scope no doubt in north-western regions specially in areas which are easily accessible. But as Mr. Chou-end-Lai himself mentioned to us,

there is a limit to that set by the difficulties of communications, of colonisation and of cost. Besides, the effect of reclamation on soil erosion has also to be borne in mind. Any reclamation which may accentuate soil erosion cannot be desirable from the long-term point of view although it may give some additional production in the near future. This does not, however, mean that there is no scope whatever for the extension of cultivated area in China. Small extension of cultivated area by individual farmers in the village site itself is certainly possible and it may total up to a considerable figure too. In fact, between 1952 and 1955 the total cultivated area in China has gone up from 267 million acres to 272 million acres and most of it has been brought under cultivation by small farmers near the existing village sites. More of such reclamation will certainly be undertaken in future and there will be also possibility of some extension of cultivation in the north-western regions of China. It is, however, extremely doubtful if it will be really desirable, even if it were feasible, to carry reclamation to the extent that is now being advocated by certain Chinese authorities. Reclamation cannot only be costly but also harmful in the long run unless very carefully planned. China will have, therefore, to depend primarily on intensive cultivation measures for increasing her agricultural production and solving her food problem. These measures have been enumerated in Chapter V and some details of the more important of these measures have also been explained in the present Chapter. It will be seen that there is nothing very novel about any of these measures. All of them have been tried in one form or the other in India also. But the main characteristic of China is that whatever is being done there is being done on a very massive scale and with much greater drive than in India. If in India we want to increase agricultural production at the same rate at which the Chinese people are proposing to do, we shall have to implement various technical measures on the same massive scale as the Chinese are doing. This requires, on the one hand, a much larger technical set-up for research, extension, supplies and credit. In addition, it requires the same mobilisation of non-official effort as has been done in China. Technical measures can be developed by research institutes. They can be taken to the farmers' fields by the extension agency; credit and supplies may be made available to the farmers so as to make it possible for them to adopt the measures recommended. But it is not enough to bring water to the horse. The horse must have a will to drink it. That will can be created no doubt to some extent by the official extension agency but official agencies have also their obvious limitations. The non-official agencies of the country especially the political and social organisations have to take a much greater hand in it than has been done hitherto. Although in some areas of India, farmers are diligent and keen to adopt new techniques, it must be admitted that in many areas they are apathetic and much less hard working compared to the Chinese farmers. Our peasantry as a whole is not working hard enough nor is it always keen to work efficiently and adopt improved techniques. It is only our popular leaders and popular parties who can effectively revitalise our peasants and unless they do so we are bound to lag behind. On the other hand, if a mass enthusiasm is created by non-official workers and there are no extension agencies to follow up or supplies and credit are inadequate, there may be also serious frustration. It is, therefore, very important that some organisation like Technique Popularisation Stations of China should be set up at the block level in our national extension areas. These stations should not be multi-purpose agencies but should be technical agencies devoted only to agricultural extension work. These agencies should not also be burdened with the work regarding supply and credit. For supply and credit a separate organisation should be set up because it is our experience in India and that is also what we learnt from our visit to China that agricultural extension work requires whole-time attention and if it is tagged on to other work, the extension work invariably suffers.

CHAPTER X

RESEARCH, EDUCATION AND TRAINING

High Priority for Research

10.1 In China, a very great emphasis is being put on research and on training of technical personnel. It is recognised that these two are the very basis of technical progress. The First-Five-Year Plan of China gives a very high priority to research. "Efforts must be made", it says, "in this five-year period to lay a firmer foundation for Scientific Research, to improve the work of rallying the scientists together, to establish closer contacts between scientific research organisations and related departments, to improve scientific research and experimental work, to sum up constantly new scientific and technical experience, to master the latest achievements in Soviet science and technique, to promote step by step investigation and study of the national conditions of our country, its natural resources and social conditions and to raise stage by stage the level of research work in the fundamental branches of the natural science and in social sciences".

Academia Sinica

10.2 The Chinese Academy of Sciences-*Academia Sinica* - has been entrusted with the work of promoting and co-ordinating scientific research work in China. The Academy has under it at present 46 Research Institutes as against 23 in 1952. It is proposed to increase the number to 51 in 1957. The total number of research personnel in these 46 institutes is now about 4,000 as against 1,200 in 1952. The Academy has prepared a National Plan for the promotion of Scientific Research and has selected 11 fields to which particular attention will be paid during the First Five Year Plan period. The Academy gives necessary financial assistance to the various Universities and Colleges for promoting research work. It has under it a Science Publishing House which publishes 72 periodicals besides a number of scientific progress reports, pamphlets, etc., 43 of these periodicals are devoted to publishing original contributions made by Chinese scientists in various branches of science. The Academy has also a scientific abstract and translation service. Besides this Academy, there are a number of Scientific Societies of Agronomy, Entomology, Plant Pathology, Animal Husbandry and Veterinary, Agricultural Mechanisation, Water Conservancy, Soil Survey, etc. These societies also publish their own scientific journals. For the co-ordination of the research work relating to various agricultural sciences, it is proposed to establish shortly in Peking a Chinese Academy of Agricultural Sciences. This Agricultural Academy would be doing the same sort of work in the field of agricultural sciences as the *Academia Sinica* is at present doing in the field of general sciences. The Academy of Agricultural Sciences will control the existing research organisations in agriculture and will also set up specialised research institutes, *e.g.*, of Agricultural Plant, Soils and Fertilisers, Plant Protection, Agricultural Mechanisation, etc.

Regional Agricultural Research Institutes

10.3 At present there are 7 Regional Agricultural Research Institutes and 5 Specialised Agricultural Research Institutes in China. The former are:

(1) The East China Agricultural Scientific Research Institute, Nanking.
(2) The North China Agricultural Scientific Research Institute, Peking.
(3) The North-Eastern Agricultural Scientific Research Institute, Kirin.
(4) The Central Agricultural Scientific Research Institute, Hankow.
(5) The North-West Agricultural Scientific Research Institute, Wuking.
(6) The South-West Agricultural Scientific Research Institute, Chunking.
(7) The South China Agricultural Scientific Research Institute, Canton.

The 5 Special Agricultural Institutes are for-

(a) Sericulture.
(b) Farm implements.
(c) Tropical Plants.
(d) Animal Husbandry.
(e) Veterinary.

At present, there are no specialised institutes for crops. Crops are generally looked after by the regional institutes. The proposed new Institute on Agricultural Plants, to be set up by the Academy of Agricultural Sciences, will pay special attention to such crops as are not covered by the Regional Research Institutes. Besides these major research institutes, there are 154 research stations and experimental farms maintained by different provinces and autonomous regions. Each province has a few agricultural experimental farms to serve different tracts of the province. For example, there are six experimental farms in the Kwangtung province, 5 in Kwangsi and 4 in the Shansi province. These experimental farms in the provinces are under the administrative control of the Agricultural Scientific Research Institutes of that Region.

10.4 We visited the North China Agricultural Scientific Research Institute, Peking and South China Agricultural Scientific Research Institute, Canton. The North China Institute serves the four provinces of Shantung, Honan, Hopei and Shansi. The important crops of this region are winter wheat, cotton, millet, maize and sweet potatoes. Studies are being conducted in this Institute on these crops and also on Jute. The Institute has a number of divisions, *e.g.*,

(1) Agronomy, including breeding as well as agronomic work on the important crops of the region.
(2) Agricultural chemistry including study of soils and fertilisers and chemical insecticides.
(3) Horticulture including fruits and vegetables.
(4) Plant genetics and physiology.
(5) Plant Protection including pathology, entomology, and bioassay for detecting toxity of insecticides.
(6) Animal Husbandry.
(7) Biology.
(8) Veterinary Science.
(9) Manufacture of biological medicines.

Besides, it has a special section which studies the physical properties of soil as affected by cultivation by mechanical means and soil moisture under conditions of different treatments on different crops. Research workers of this section work in the villages, at tractor stations and on co-operative farms and make observations on root development of crops, study moisture variations and analyse the soils in the laboratory for physical and chemical properties as affected by the treatments. There is also another section which studies agricultural meteorology with special reference to micro-climate and a third section which prepares models of animals, plants, insects, etc., for purposes of education and propaganda. There is also a unit for translating scientific works. The total technical staff of the Institute consists of about 260 members. The area of the experimental farm attached to the institute is about 170 acres. In the South China Agricultural Scientific Research Institute which serves the two provinces of Kwantung and Kwangsi, there are 11 departments, *viz:*

(1) Food crops, *e.g.*, rice, seed potatoes, etc.
(2) Economic crops, *e.g.*, sugarcane, jute, peanuts, etc.
(3) Agricultural Chemistry including soil and fertilisers.
(4) Plant Pathology including entomology.
(5) Silk Worm.
(6) Horticulture
(7) Animal Husbandry and Veterinary.
(8) Farm Implements.
(9) Agricultural Meteorology.
(10) Agricultural Economics.
(11) Plant Physiology.

The total technical staff of this institute consists of about 170 members. The area of the farm attached to this Institute, is 150 acres. The Organisation of the other Regional Institutes is more or less similar. The standard varies considerably because some of the institutes have been only recently established. The standard of the better institutes is comparable with that of the Research Institutes maintained by our State Governments but will not come up to the standard of our Central Institutes.

Committee of Scientific Coordination

10.5 Pending the establishment of the Academy of Agricultural Sciences, a National Committee of Scientific Co-ordination has been set up for co-ordinating agricultural scientific research. This Committee consists of about 40 members

drawn from the senior staff of Research Institutes, specialists from the *Academia Sinica* and scientists from Universities. This Committee approves the programme of work submitted by the Agricultural Scientific Research Institutes and also discusses various scientific problems relating to agriculture. Evaluation of research work done at the Institutes is also carried out by this Committee. Prior to the setting up of this Committee, co-ordination was effected by the Bureau of Agricultural Propagation and Propaganda in the Ministry of Agriculture through meetings arranged with workers of different institutes. The programme of work at the Research Institutes is usually drawn up on the basis of concrete problems of the regions suggested by the Provinces. These problems are brought out at the meeting held each year, sometime in February, in the Capital of the respective Provinces, at which are represented the agricultural producers' co-operatives, model progressive farmers and eminent technicians and scientists in the field. These meetings usually last for about 15 days and there is a very detailed discussion of various problems. Similarly, the Ministry of Agriculture convenes meetings of research workers on special problems such as cotton, wheat, etc., and the recommendations made at these meetings, are taken note of and passed on to the Research Institutes for necessary action. The Agricultural Ministry also calls from time to time national conferences of agricultural workers-technical cadres, experts from colleges and research institutes, model farmers and specialists. These conferences usually last from 10 days to 2 weeks. The members report on the work done and express their personal points of view frankly so that the Government can take note of them in laying down the policies and programmes for Research. The local research stations and experimental farms in the Provinces also organise annual meetings to summarise their work and discuss problems that may arise in regard to particular crops. After these local meetings, the technical staff of the Provinces meet annually at the Regional Agricultural Scientific Research Institute for the purpose of exchanging views. At such meetings, the scientific workers in different fields, *e.g.*, Plant Protection, Agricultural Chemistry, Agronomy, etc., working on the particular crop under discussion are also invited to be present.

Liaison between research workers and farmers

10.6 Actual liaison between the research workers and the farmers is maintained by the Agricultural Scientific Research Institutes through sending out their research workers to the villages. These research cadres usually work with the co-operatives and stay at particular "points" selected specially for the purpose. One such "point" may include more than one co-operative farm. These cadres usually remain in the co-operative farm right from the sowing to the harvesting of the crop. From their headquarters at one "point", they often visit other "points". Simple tests such as varietal and fertiliser trials are conducted in agreement with the co-operatives. These research cadres also participate in the extension meetings arranged by the various Technique Popularisation Stations of the area. The Technique Popularisation Stations, in their turn, contact the nearest scientific workers in the field whenever any problem crops up which they themselves cannot tackle. On such occasions, research workers have frequently to study the problem on the spot and give their recommendations. This arrangement, we were told, ensures a very close contact between research, extension and field workers. Agricultural research work in China thus remains very close to the soil and has an essentially practical bias.

10.7 China has obtained the services of a number of Russian Agricultural Scientists on loan for assisting her in developing the programme of research in the field of agriculture. Delegates are being sent to attend scientific conferences which may be arranged by Peoples' Democracies or other friendly countries. When we were in Peking, a very large conference on Plant Protection attended by delegates from all the Peoples' Democracies was being held there. This conference seemed to be very well organised and well-attended. Such conferences provide an opportunity for the junior scientific workers to come in contact with experienced scientists from

other countries. Quite a large number of research workers are sent by China to other countries especially to U.S.S.R., and this not only helps exchange of scientific information but also helps considerably the development of Chinese research standards.

10.8 In the North China Agricultural Scientific Research Institute, we found quite interesting research work being carried on for the breeding of rust resistant varieties of wheat which are also able to stand shattering and lodging. These varieties are good yielders too. Yellow rust is one of the main problems of China although stem-rust is also there. Some of the improved varieties are 188-5, 672, 187 and 497, Pima I and Pima IV which are resistant to yellow rust and have stiff straw. They are not, however, hardy. The Chinese experts have developed other varieties, viz., 96, 918, 403, etc., which are intermediate between compactum and vulgare and are also rust resistant. American variety, namely, Early Premium which has been developed there, is found to be resistant to all the three rusts. We felt that it would be worthwhile to get samples of some of these varieties for trial and breeding in India. On the agronomy side, we found interesting investigations being carried out on the effect of winter watering, amount and frequency of irrigation, water requirements of wheat and suitable crop rotations. On the basis of these studies, the institute has recommended that only one winter irrigation of about 2.1/2" of standing water need be given. If, however, the autumn is wet, even this winter irrigation may not be necessary. We feel that we in India could profit by more intensive research work on the amount and frequency of irrigation and on crop rotations. Several varieties of irrigation and on crop rotations. Several varieties of cotton have been developed of which mention may be made of Long staple 1, Long staple 2, Ambassador Stone Ville No. 4, No. 5-A, No. 103, No. 58, No. 6, and No. 40. No. 103 is of staple length of 26 to 28 mm. and ginning percentage of 32 to 40 and gives 40 counts. No. 58 is of staple length of 32 to 34 mm. with a ginning percentage of 36 and gives 60 counts. No. 6 has a staple length of 25 mm. with ginning percentage of 34 and is a very heavy early maturing crop. No. 40 has 25.2 mm. with a ginning percentage of 32 but is a very high yielder. We feel that some of these improved varieties may prove to be of interest to us and it will be desirable to obtain some samples for trial and breeding in India. Several improved varieties of peanuts with high oil percentage have also been envolved by the Institute. One of the varieties is Changli. We were told that seed of this variety was supplied sometime back to Coimbatore. It would be interesting to watch the performance of this variety in India. It would be perhaps useful to try this variety at different centres and also to use it as one of the parents for breeding material. A number of crosses between Chinese and Japanese sweet potatoes have been evolved in the research institutes and these give very high yields. The important hybrids are Hopei 117 and 166. It will be desirable to secure samples of these improved varieties for trial in India. Improved varieties of millets, *e.g.*, 61 and bipa, cabbage and cucumber have been developed which also deserve to be tried in India. Considerable research work is also being carried out on fruits, *e.g.*, peaches. The problem in China is to develop varieties of peaches which will mature at an early date say by the end of July. A disc shaped variety of peaches has been evolved which is said to be not only a good yielder, but has a better taste too. The work that is being done in regard to soil survey and investigations on acidic and alkaline soil is also very interesting. On the whole, we found that agricultural research in China has made fairly good progress during the last few years although it has still to make up a long leeway. Although in regard to fundamental research work some of Indian Research Institutes must be considered to be better, the Chinese research institutes are much more close to the soil and their work is very intimately connected with the day to day work of the farmer. The relations between the Chinese research worker and the extension worker and the close contact which the research worker has to maintain with the farmer are worthy of emulation in India.

Need for trained personnel

10.9 The programme for development of agriculture as also for promotion of agricultural

research requires a very large number of trained personnel at various levels. China has therefore launched a very large programme of agricultural education and training. Agricultural education in China can be broadly divided into five categories:

(1) Higher education.
(2) Agricultural middle schools.
(3) Training of co-operative cadres.
(4) Training of technical workers.
(5) Training of cadres in their spare time.

Higher agricultural education

10.10 All the institutes of higher agricultural education in China are controlled by the Ministry of Higher Education. Altogether, there are 29 colleges of agriculture and forestry in the country with a total teaching staff of 3,000 inclusive of professors, instructors, etc., and 17,000 students. The capacity of these colleges is proposed to be expanded very considerably. They will admit 15,000 new students this autumn and 20,000 in the autumn of 1957. With the total planned enrolment, it is expected that the number of students would go up to 37,200 at the end of the First Five Year Plan. The output of agricultural graduates last summer was 3,400. It is expected to be about over 6,000 next year and 8,000 by 1959. The total number of students who are expected to graduate from these colleges during the five year period 1953-57 is 18,800.

10.11 The students admitted to the agricultural colleges are drawn from amongst the graduates of middle schools, secondary agricultural schools and also from amongst the cadres working in administration, business and agricultural organisations having necessary cultural and political background. All students to be admitted have to pass an entrance examination. This entrance examination is fairly stiff and eliminates the unfit so that the percentage of failures amongst those who are admitted is negligible.

10.12 Up to 1954, all the students admitted to agricultural colleges were given studentships, the value of which was about Rs. 24 per month. The students who were formerely cadres working in Government or other organisations, were given studentships of Rs. 64 per month, the actual amount depending on their grade. During the period of studentship, however, they are not entitled to draw their pay from their parent organisation. Since 1954, however, the studentship has been made flexible and is determined according to requirements of the individual cases. No tuition fee is charged from the students.

10.13 The course for agricultural graduates is at present of four-years' duration. There is, however, the proposal to increase it to five years. Specialised courses are given in-

(1) Agronomy.
(2) Horticulture.
(3) Agricultural Chemistry.
(4) Livestock breeding and animal husbandry.
(5) Veterinary science.
(6) Sericulture.
(7) Tea.
(8) Agricultural Economics.
(9) Agricultural Mechanisation.
(10) Agricultural Water Conservancy.
(11) Plant Protection.
(12) Land Use Planning and Farm Management.

It is proposed to set up more specialised courses in the future as the need for them develops. The general course includes the common lessons *e.g.*, mathematics, physics, chemistry, certain basic technical lessons with special emphasis on agricultural problems and specialised lessons on the different special courses. Common lessons are given to all the students in the first year. The basic technical lessons are given in the first and second year, and the specialised course begins from the second year. Emphasis is given on practical training alongside theoretical training on the farms and laboratories attached to the colleges. In the last two years of the course, practical training is given on State farms or co-operative farms and students are required to go through the whole process of agricultural production. Four months are exclusively reserved for this work in the last year of the course. Students are examined at the end of each college term and also at the end of the final year. Not more than five subjects are to be offered at a time so that the burden on the students may not be too great. The percentage of failure is very small, usually 1 to 2 per cent and in no case

more than 5 per cent.

10.14 Most of the professors and other teachers in these colleges do undertake research work under the guidance of the research institutes. They constitute the main research force in China. There is a close relationship between the research workers in the *Academia Sinica* and the research workers in the Agricultural institutes and colleges. It is felt in China that no professor can do his job well unless he spends some time in research work and, hence, in arranging the teaching programme, care is taken that there is a proper balance between teaching and research work.

Secondary agricultural education

10.15 As a result of the rapid development of agricultural co-operatives since the latter part of 1955, a great shortage of agricultural technicians is being felt. Large scale measures have, therefore, been taken to expand facilities for secondary agricultural education. By the end of 1955, there were 94 secondary schools of agricultural education with 44,000 students and the teaching staff of 3,500. On an average, there were three to four such secondary schools in each Province. Kwangtung province has as many as 9 such schools. Most of the existing 94 schools are being expanded and 60 new schools are proposed to be established later in 1956. During the year 1956, about 8,000 students graduated from the secondary agricultural schools. The number of enrolment in 1956 was 70,000 as against 44,000 in 1955. It is expected to go up to 98,800 in 1957. The total number of students to be graduated from the Secondary Agricultural Schools during the Five-Year period 1953-57, is estimated 82,900.

10.16 Students who have passed through the Junior Middle Schools or persons who have got general education of that standard can apply for admission to Secondary Agricultural Schools. Most of the students come from peasant families and have a village background. The training lasts for three years and includes the following specialised course:

(1) Raising of Crops.
(2) Production of fruits and vegetables.
(3) Plant Protection.
(4) Animal Husbandry.
(5) Veterinary science.
(6) Sericulture.
(7) Tea.
(8) Agricultural Machinery.
(9) Agricultural Accountancy.
(10) Agricultural Statistics.

In these courses, relatively greater emphasis is put on practical training than in the agricultural colleges. Each student is required to work for a certain minimum period in a farm during the period of training. The students are being given studentships of the value of Rs. 24 per month to defray their expenses on food. Besides training regular students, the secondary agricultural schools also organise short courses for the benefit of cadres actually working in co-operative farms.

10.17 In implementing their programme for expanding the existing secondary agricultural schools and starting new ones, the Chinese authorities are experiencing great difficulty in securing sufficient number of qualified teachers. They are trying to solve this problem by recruting, for this purpose most of the new graduates from agricultural colleges and also drawing upon Government agricultural departments and institutions, although the latter are themselves short of staff. They have somehow managed during the current year but they envisage considerable difficulty during the next two or three years. There is a much greater demand for training facilities than the Government are able to provide even with this expansion programme. They are, therefore, arranging to provide refresher courses to the technical staff of Government departments, State farms, co-operative farms, etc. For this purpose, more than 10 schools for training of technicians attached to State farms have been started. In addition, special courses of practical training are being arranged by rotation at different Technique Populatrisation stations and on bigger co-operative farms. The Technique Popularisation Stations had a staff of over 50,000 last year. In 1956, the number has become more than 100,000. For these personnel also, lectures and special

courses are being arranged by the Provincial Agricultural Departments. The Technique Popularisation Stations have trained, by May 1956, as many as 580,000 cadres of the co-operative farms. The trainess included directors of co-operative farms accountants, agriculture and animal husbandry technicians, etc.

Training cooperative cadres

10.18 Special schools for training co-operative cadres have also been started to give training of three to six months duration, depending upon the subject of specialisation. In the current year, 83 such special schools are being set up and it is proposed to increase the number to 118 next year. It is estimated that 300 to 400 thousand cadres of co-operative societies will be trained next year and about 2 million cadres within a period of five years. The aim is to provide 4 to 5 trained cadres for each co-operative farm within a period of five years. In addition to this programme for the training of cadres of co-operative farms, there are also special institutions run by the Supply and Marketing co-operatives for the training of their staff. These co-operatives at present run the co-operative college, 30 co-operative schools and 33 short term training courses on co-operative marketing. 72,000 people received training in various short term courses in 1955. In addition, spare time vocational study is strongly encouraged among the staff of these co-operatives. There are now 546 full time and 1,317 part-time teachers employed in 430 counties of 12 provinces who make regular lecturing tours of the lower level co-operative societies with a view to training their regular cadres. Besides this, correspondence courses are organised for such cadres as cannot attend even the short course or the part-time course.

Training of personnel for research work

10.19 In addition to the training facilities described above, for agricultural cadres, extension workers, etc., special facilities have been provided for the training of research personnel. The total number of scientific research personnel in the field of agriculture is at present 2,700 in the Senior Grade and 1,700 in the Junior Grade. According to the twelve-year programme for 1956-67, these numbers will go up to 29,000 in the Senior Grade and 15,000 in the Junior Grade. These personnel will work in agricultural research institutes both at the Centre and in the Provinces. There is, therefore, considerable need for training of personnel for this work. This function has been entrusted to the *Academia Sinica*. The Academy selects suitable agricultural graduates for higher training both in the country as well as abroad, sends experienced scientists on short visits to foreign countries and also arranges for the visit of eminent experts from foreign countries and organises short-term seminars or training courses on specialised subjects. In the five-year period 1953-57, about 10,100 students will be sent abroad for study of whom 9,400 will go to the U.S.S.R. In addition, about 11,300 students will be sent to the U.S.S.R. and the Peoples' Democracies for practical training. Quite a large proportion of these scholars and trainees will specialise in subjects relating to agriculture and animal husbandry. All students who graduate from agricultural colleges or schools are assured of employment. In fact, even while the student is in the final year, a decision is taken as to where he will be posted on graduation so that there is no waste of time after a student graduates.

10.20 On the whole, we found that steps were being taken in China in a very big way for the development of research and for the training of technical personnel so necessary for national re-construction. The Chinese authorities emphasise that nothing is more valuable for the purpose of economic development than trained personnel and hence they are taking the greatest care to see that requisite number of technicians are trained well in time and that whoever has received training is not wasted even for a short period.

CHAPTER XI

CONCLUSIONS AND RECOMMENDATIONS

11.1 Our detailed comments regarding various aspects of agricultural planning and techniques in China have been given in the previous chapters and we do not think it is necessary to recapitulate them. We propose, therefore, to confine ourselves

in this chapter to bringing out some of our main conclusions and recommendations and to preface them by a few general observations only.

11.2 From what we saw in China, it appears to us that she has not only been able to restore during the last seven years all the damage caused by a long period of civil war but has also exceeded the pre-war levels of production in many directions. It is true that yields per acre of several important crops may be still lower than the figures of pre-war yields as given in estimates by Buck and others on the basis of sample surveys and special studies. But the over-all increase in agricultural production during the last seven years both by intensive cultivation and by extension of area under crops has been indeed considerable. It is significant that China has been able to create conditions which, given peace, are likely to make for a greater rate of progress in the future. In her First Five Year Plan she had aimed at an increase of industrial production by 98.3 per cent and of agricultural production by 23.3 per cent over the base year 1952. The Chinese authorities are of the view that most of these targets are likely to be over-fulfilled and hence, in the Second Five Year Plan, China would be aiming at increasing production at an even higher rate, *viz.*, by 100 per cent in the field of industry and 35 per cent in the field of agriculture over the base year, 1957.

11.3 It is important to note that the main emphasis in Chinese planning is on industrialisation, especially on the building of heavy industries. As China's First Five Year Plan puts it:

"The purpose of adopting a positive policy of industrialisation, that is, a policy which gives priority to the growth of heavy industry, is to provide a material basis on which to strengthen our national defence, meet the needs of the people and bring about the socialist transformation of our national economy. That is why, in drawing up the First Five Year Plan for Development of the National Economy, we emphasise heavy industrial capital construction and centre our efforts in the first place on building the 156 projects which the Soviet Union is helping us to design; it is on this main ground-work that we shall continue to use, restrict and transform the capitalist sector of the national economy, and ensure the progressive consolidation and expansion of the socialist sector."

11.4 But while giving priority to the development of heavy industries, the Chinese authorities have taken care not to neglect other important sectors of the economy. The main principles which they have laid down in this regard deserve to be quoted in this context:

"Firstly, while giving priority to the development of heavy industry, it was laid down that efforts should be made to maintain a proper ratio of development between the various branches of the economy - particularly between industry and agriculture, and between heavy industry and light industry, thus preventing their development being thrown out of balance.

"Secondly, efforts should be made to adopt construction plans to the available funds, that is, to our investment capacity, and to give proper consideration to the question of technical personnel.

"Thirdly, local plans should be co-ordinated with those of the various ministries, and, with the central authorities co-ordinating and leading the work, ensure in the first place that major projects be built and at the same time bring the local initiative and creativeness into full play.

"Fourthly, measures should be taken in the course of construction to combine the rational utilisation of the existing industrial bases with the energetic construction of new bases, so that the originally uneven economic development of our country can be corrected step by step and the geographical distribution of economic construction is gradually brought to suit the security needs of national defences.

"Fifthly, consideration should be given to both the accumulation of funds and improvement of the people's livelihood. That is, on the one hand we should pay due attention to increasing the rate of accumulation of funds for national construction so as to lay the material basis for a steady rise in the level of the people's standard of living; and, on the other hand, on

the basis of increased production and productivity of labour, we should gradually improve the material well-being and cultural standard of the people and reduce un-employment."

11.5 From what we saw in China, we thought that the Chinese authorities had been able to achieve several of their objectives and China has today a much stronger economic base than could have been anticipated a few years ago. This base has enabled her to aim at a much more accelerated rate of progress during the Second Plan period in the field of both industry and agriculture. Although so far the bulk of China's requirements of agricultural requisites, *e.g.*, chemical fertilisers, insecticides and pesticides, agricultural machines, etc., have been imported, China's own production of these requisites is making rapid headway and helping considerably to increase agricultural production. There is no doubt that China has been helped to a considerable extent by the assistance, material as well as technical, that she is receiving from Soviet Russia and other countries of eastern Europe, assistance which the Chinese readily acknowledge and greatly value. It is, however, the drive and ability of the Chinese Government and the Communist Party and the labour and diligence of the Chinese people which constitute the two most important factors in the progress of China.

11.6 Provision of the necessary finance for agriculture, price policy, technical assistance, supply of producers' goods like fertilisers, etc., in accordance with the approved plan for production, and in some cases contracts for purchase of the produce at a pre-determined price and supply of requisites against that contract are the principal means through which the Chinese authorities are inducing Chinese farmers, now organised in producer's cooperatives, to conform to the national plan.

11.7 As a result of almost complete control by the State over the entire economy, China has been able to raise within the country itself, very large resources for financing the Five Year Plan - mostly through profits of state-owned industrial and trade enterprises and taxes. The revenue raised by the state is much larger per capita in China than it is in India. These resources are employed in a concentrated manner, aspects such as production receiving special attention and the provision of many elementary amenities being left to local effort or being relegated to the future. These two features have considerable relevance when we consider the effort which we in India are putting forward. By and large, as has been suggested elsewhere in the report, in China, the total investment by the Government in agriculture is larger, agricultural loans are made available on a much greater scale and what may be described as 'private investment' is more effectively mobilised through cooperatives than in India. This means that a much larger supply per acre of chemical fertilisers, improved implements, good seeds and technical services and credit has been available to the Chinese farmer.

11.8 In China, the State purchases all the surplus produced by the farmers at pre-determined prices and there is a definite relationship established on an economic basis between the prices so fixed for competing crops. These prices are revised periodically according to changes in economic conditions, changes in the relative emphasis placed on the production of different crops and the incentives felt to be necessary for the attainment of planned targets. Conscious of the relative role assigned to peasants and industrial workers in the doctrines of Chinese communism as well as in the actual tasks of reconstruction, the authorities are careful to ensure that in respect of agricultural prices farmers are given sufficient incentives. We were told that between 1950 and 1955 purchase prices were increased by 15.7 per cent for grains and 15 to 45 per cent for hemp, silk, cocoon, tea, oilseeds and cotton. During this period, the index number of wholesale prices was however, kept at a more or less stable level. Farmers have been told that there will be a further increase in prices during the Second Five Year Plan period. Although, the problem of maintaining a stable or a minimum price and offering an assured demand at a rising level of production is different in some ways in the conditions of a market economy from that in a controlled economy, our observations in China suggest that it is of the utmost importance in accordance with our own conditions also to ensure the fulfilment of these two desiderata of agricultural progress.

11.9 There is a large and fast expanding technical staff working in China for the development of agriculture. The Technique Popularisation Stations alone maintain a technical staff in rural areas which appeared to us to be much more intensive than the staff provided in India. These extension staff in China perform specialised tasks and are not multipurpose in character.

11.10 The agricultural extension structure in a country has two components, namely, the services provided by the administration and those provided by non-official workers, cooperatives, etc. In both respects a comparison between China and India would suggest that, at present, a more intensive and on the whole a more adequate service is available to the Chinese farmer. Thus, the Technique Popularisation Stations, whose number is being steadily increased from year to year, can render more effective service than is possible for our block level agricultural and animal husbandry officers supported by multipurpose village level workers each of whom covers an area of 10 villages. Secondly, the organisation of peasants into cooperatives has helped to train local semi-skilled cadres for different purposes within each cooperative to multiply quickly the improved varieties of seed needed, to adapt technical improvements and to utilise agricultural loans efficiently for production. As against this, the emphasis on cooperatives in India has not been sufficient and cooperative institutions at the village as well as higher levels are weak. The need for the strengthening of the cooperative structure in India is, however, well recognised and some steps are being taken. On the other hand, there is not yet sufficient appreciation of the fact that the national extension service pattern, while being basically sound, needs to be greatly strengthened if the results hoped for by way of increase in agricultural production are to be realised. This is necessary, in particular, in four directions:

(a) Besides the extension staff at the block level, there should be agricultural, animal husbandry and cooperative personnel at the level of a group of, say, 15 to 25 villages;

(b) The present jurisdiction of the multi-purpose village level workers, namely, about 10 villages is, on the whole, too large for the purposes which we have in view. By training more workers we should try as early as possible to reduce the area of the village level worker by, say, one-half;

(c) There is need for well-organised demonstration and training centres at the block level. These centres would provide services similar to those rendered by Technique Popularisation Stations in China. Further, in each block the demonstration centres at the block headquarters should be supported by smaller centres for demonstration, teaching and exchange of experience among farmers in each group of 15 to 25 villages. Such a group may also have a cooperative seed store and arrangements for the supply of fertilisers and agricultural accessories as well as more effective coordination between agricultural credit and marketing; and

(d) While a multi-purpose village level worker has much value as an extension agent working with peasants and cooperatives, the need for strong technical cadres at all levels in agriculture, animal husbandry, etc, and for research and experiment on local problems should receive much greater recognition than at present.

11.11 There is a large programme in China for supplying materials like fertilisers, insecticides, good seeds, improved implements, etc., to agriculturists. For instance, the supply of chemical fertilisers has been increased from 3 lakh tons in 1952 to 17.3 lakh tons in 1956 as compared to 8 lakh tons in India. Besides this, a large volume of night soil, animal manure and green manure are used and these constitute a valuable feature of Chinese agriculture which impressed us. The supply of improved ploughs has been increased from 2.39 lakh in 1952 to 15 lakh in 1956. The Chinese have also a fairly large programme of irrigation and drainage. Between the years 1949 and 1955, they have brought about 14 million acres of additional land under irrigation. This has now expanded greatly because of the organisation

of rural labour through cooperatives. The irrigation target of the First Five Year Plan which stood at 12 million acres has been already fulfilled more than twice over. Minor irrigation works in China, when supported by community labour, are completed at relatively lost costs. About 80 per cent of the irrigation in China comes from small works.

11.12 The organisation of cooperatives is the key stone of the scheme of agricultural development in China. The State-cum-cooperative system of supply and marketing and the organisation of credit cooperatives have been described earlier in the report. The elimination of the merchant, the moneylender and the landlord together with the very small holdings created as a result of land reforms made the organisation of agricultural producers' cooperatives both urgent and essential. The Communist Party and its cadres at all levels have played a fundamental role in the organisation of producers' cooperatives as they did earlier in land reforms. They provide the core of the organised effort in every local community and in the future also the success or failure of cooperatives will turn largely on their performance, behaviour and leadership. In the detailed application of general ideas for the organisation of agricultural producers' cooperatives set out in model regulations framed at different stages by the Central Committee of the Communist Party, there is evidence of considerable local adaptation and adjustments having been made to suit local conditions. To a visitor from abroad, apart from statistics which may be provided, the visible tests of the effectiveness of cooperatives in China are the crops in the fields and the manner in which the labour force of the village is engaged in work. There is little doubt that on these tests as well as on the information furnished, the Chinese cooperatives are at present working successfully and, organisationally, conditions have been created for rapid progress in agriculture in the coming years.

11.13 Besides mobilising rural manpower for works of benefit to the entire community, cooperatives are developing cadres of local leaders, farm managers, accountants and other technicians. In each group of villages, men and women with a sense of responsibility of leadership, the 'elites' as it were of a new society, are coming forward and are likely to prove of great assistance to the State in implementing future plans for rural development. There may be a view that in China the rural leaders lack flexibility and depend more on directions from the Party as well as from the Government than on their own initiative or on the support of the people. If this occurred, they would not compare favourably with rural leaders in countries with a long history of economic development on democratic lines, and in the long run this may prove to be a serious handicap and may limit the degree of technical as well as social progress which is achieved by the rural population. But in the short period and for a country like China, which has so far been backward both economically and socially and which wants to make up the leeway as quickly as possible, there can be little doubt that the organisation of cooperative farms has proved to be an effective way of mobilising rural manpower and other resources and throwing up a number of local leaders. It is not unlikely that with the progress that is being made in China in adult education, the careful measurement of work points and frequent meetings and discussions which are a common feature of cooperative organisations, local sanctions and pulls may also be expected to develop in course of time.

11.14 The fact that in these cooperative farms all the manpower is organised through working teams and production brigades, each with its definite area to look after and its tasks prescribed and distributed between individuals and small groups, and that remuneration is directly related to the amount of the work done, means that the indolent and inefficient farmer cannot go his own way and has to put in hard work. Thus, the setting up of cooperative farms has, enabled China to mobilise and draw upon human and natural resources of the countryside in a much more effective way than might have been otherwise possible for her. It has also facilitated the implementation of crop plants effectively. It is claimed that the formation of cooperative farms has by itself, increased agricultural productivity by 15 to 20 per cent. It is difficult to say how far this claim is correct because seasons have varied and cooperatives have not been at work for a sufficient period. But there can be no doubt that

the organisation of millions of Chinese peasants into cooperative farms has enabled China to lift her agriculture from the ruts into which it had fallen and that cooperatives bear promise for the future. The Chinese, however, recognise the limitation of the successes they have achieved in this field and know that difficult problems lie ahead.

11.15 But behind this organisation of the Chinese farmers into cooperatives and the mobilisation of the resources of the entire nation, there is a force which should not be lost sight of. It is the Communist Party of China which has 10.7 million well-organised, disciplined and hard-working members. It is the members of the Party working in the remotest villages who have brought about a fundamental change in the rural structure of China within a short period of seven years. It is also these party members who provide the necessary drive for increasing production and ensuring that the targets are fulfilled. There are writers on China who have spoken of the ruthlessness which might have marked the early phases of the new regime as a factor in the subsequent transformation from individual to cooperative cultivation. This may or may not be so, but we cannot comment on the suggestion from our own direct observations. But we should doubt if the effort and hard work which are now being put in by peasants could be attributed, to any appreciable extent, to force, compulsion and the like.

11.16 In Indian villages in areas where development programmes are undertaken and the right kind of leadership is forthcoming, there is perhaps more voluntary effort, local initiative and general awareness than we were able to observe in China. But what may be lacking in these directions appears to be more than made up through better organisation, fuller mobilisation of manpower resources for works benefiting the community as a whole, more hard work and, on the whole, a more concerned rural leadership. The need for our peasantry and our entire administrative machinery to work harder than at present cannot be too much stressed. A considerable part of the activity of the administrative machinery even in the districts is not to-day sufficiently constructive or development minded and in one way or other the ideals for which the administration and the country should be working all the time are not sufficiently kept in the forefront. Positive programmes of development which involve intensive effort among the people cannot be undertaken without the full support and participation and a sense of common purpose on the part of popular parties and popular leaders in each district. A democratic country which seeks to eliminate poverty has to evolve arrangements and conventions by which, over a large area, differences of political party or affiliation do not come in the way of cooperative community effort and, in the field of development, the administration can enjoy the support of all men with public spirit and goodwill. These conditions do not at present exist in sufficient degree. This is perhaps one of the two or three major lacunae in our conditions when compared to those which are making rapid progress possible in China.

11.17 The Indian Cooperative Delegation which has studied the working of cooperatives more fully than we have done will no doubt make its recommendations on this subject. The policy in respect of cooperative farming and the objective of cooperative village management have been set out in our Second Five Year Plan. We have accepted the target that over a period of 10 years or so a substantial proportion of the agricultural land in India should be cultivated on cooperative lines. It may be that with the experience of cooperative farming in China, solutions of certain problems may become easier. We should profit from the Chinese experience and continue to study developments in China in this field, deriving such lessons as we can from their successes and failures. It will, however, be necessary for us to evolve our own solutions which fit better into our conditions as also democratic tradition and are in accord with the needs of our villages. The progress of cooperatives in India is likely to be more gradual than that in China, and we should expect an 'individual peasant' sector to continue along with a growing cooperative sector. For this there are good reasons, but this does not mean that the overall rate of agricultural development need be slower or that we should proceed with unnecessary hesitation towards the reorganisation of our rural economy

in a democratic manner on cooperative lines. Cooperatives will certainly help agricultural development in many ways. But if we consider that the problem of landless labourers, which is acute in several parts of the country, may not be solved expeditiously except through cooperative village development, the organisation of agricultural producers' cooperatives assumes even greater urgency. Chinese experience shows that, given certain conditions, it is possible through cooperatives to organise rural manpower resources so as to ensure a high level of employment for all members of the community and not merely for those who happen to have fair sised agricultural holdings. This is significant for our future rural development.

11.18 The method of organisation had undoubtedly considerable bearing on the levels of agricultural production which may be reached, but organisation by itself can only make a limited amount of difference. Large increases in agricultural production come from technical reforms, such as, improved seeds and implements, the provision of fertilisers and insecticides, the utilisation of local manurial resources including night soil and the supply of credit, supported by efficient agencies for supply and marketing and competent administrative and technical services. In the course of this report, on the basis of our study and observations in China considered with reference to our knowledge of conditions in India, we have referred to a number of steps which would be useful and should enable us to increase our agricultural production at the desired rates. Our main recommendations may be set out briefly under three heads - (i) organisational measures, (ii) economic and financial measures and (iii) technical measures.

I. ORGANISATIONAL MEASURES

(i) On the whole, in India progress in land reform in recent years has been relatively slow, especially in some States. We consider that the land reform programme set out in our Second Five Year Plan should be carried out speedily so as to create the conditions necessary for the rapid development of the agriculture.

(ii) Similarly the early implementation of proposals relating to co-operation in the Second Five Year Plan is essential. The building up of strong multi-purpose cooperatives is an important condition for the successful implementation of the agricultural production programme. In the National Extension and Community Development programmes, cooperation should be given the central place. A major test of progress in the N.E.S. and Community Development Blocks should be achievements in the development of genuine cooperatives through the voluntary participation by peasants. A bold programme of experiments in cooperative farming of different types should be organised, the details being worked out after the report of the Indian Cooperative Delegation to China has been received.

(iii) It would be useful to workers engaged in developing cooperative farming in India if accounts of individual agricultural producers' cooperatives in China which have been studied by members of the Agricultural and Cooperative Delegations are brought together as case studies in a single volume and made generally available.

(iv) The multi-purpose village level worker has, no doubt, considerable value as a means of reaching villagers. Emphasis on the role of the multi-purpose village level worker has, however, led to some neglect of the need to have strong technical cadres in agriculture, rural engineering, animal husbandry and cooperation at different levels. Technical functions in these fields have tended to be subordinated to administrative and other considerations. It is important that, within the general National Extension Service pattern, technical staffs should have specific responsibilities and should be assisted in discharging them fully.

(v) In addition to the technical extension service at the block level, there should be agricultural, animal husbandry and cooperative personnel also for each group of, say, 15 to 25 villages.

(vi) There should be well-organised demonstration and training centres at the block level rendering services similar to those performed by Technique Popularisation Stations in China.

These centres at the block level should be supported by similar centres for demonstration, teaching and exchange of experience among farmers in each group of 15 to 25 villages. At this level, there should also be a cooperative seeds store and arrangement for the supply of fertilisers and agricultural accessories.

(vii) The agricultural extension staff at the block level should be strengthened by the addition of an engineer who will assist village cooperatives in working out schemes for minor irrigation, drainage and water and soil conservation which can be carried out with local participation and labour. There should also be a plant protection assistant.

(viii) For each group of 15 to 25 villages, there should be agricultural, animal husbandry and cooperative personnel.

(ix) The jurisdiction of the multi-purpose village level worker, which is now about 10 villages, should be reduced, possibly to about one-half and the training programme for village level workers should be stepped up accordingly.

(x) The programme of technical training for agricultural and animal husbandry personnel in the Second Five Year Plan should be reviewed with a view to substantial expansion being organised at an early date.

(xi) We should not feel unduly concerned if in the beginning the standards appear to fall somewhat as a result of this expansion. The inadequacy of training can be made up through in-service and part-time training. In-service training and short-term courses should be organised as a matter of normal practice for existing personnel as well.

(xii) As recommended in the Second Five Year Plan, every State should take early steps to enact suitable legislation so that in each area minimum standards of management and efficiency for cultivation can be prescribed. No one should have the right to mismanage land which is a scarce national asset. It is, therefore, essential that minimum standards of cultivation should be prescribed and enforced especially at the village level. The measures necessary for this purpose should be taken.

(xiii) In addition to setting targets of additional production potential for the country as a whole and for individual States as is being done at present, targets of yield per acre should be fixed by the local authorities concerned for individual districts, National Extension Blocks and villages. The local people and representative farmers should be closely associated with this work. The help of the best farmers in each area should be taken and they should be used as a cadre of non-official agricultural leaders for the purpose of helping farmers in the area to adopt better methods and reach higher targets.

(xiv) Awards and citations to farmers and to villages which do well in the agricultural production programme should be given. The exchange of visits by leading farmers, especially small peasants, exhibitions, discussion groups, conferences, etc., should be organised as a regular feature in different localities. The experience of model farmers in increasing crop yields should be collected and made available by each State Government with a view to spreading the knowledge as widely and rapidly as possibly.

(xv) Popular leaders and popular parties, irrespective of the question of affiliation, should be urged to regard the rural community development, cooperation and agricultural production programmes as areas of common action. Popular parties should train their own non-official workers to work in villages along with panchayats, cooperatives and extension personnel. They can do much to supplement personnel and enable local institutions such as panchayats and cooperatives to take over functions which now take up much of the time of the government personnel, thus leaving the latter free for the more specialised work.

(xvi) An important difference between Indian and Chinese agriculture is due to the fact that, on an average the Chinese peasant works much harder. Conditions should be created in which the bulk of farmers in India will work hard in the manner that only a small proportion do at present.

II. Economic and Financial Measures

(i) Cooperation in China could not have succeeded to the extent it has in its initial stages but for the liberal provision of short-term and medium-term agricultural loans through the agricultural bank and credit cooperatives. The targets for agricultural credit proposed tentatively in the Second Five Year Plan need to be revised upward in substantial measures and early steps should be taken to ensure an adequate provision of credit through cooperative channels whenever possible and through government agencies elsewhere. The administrative procedures relating to the grant of credit by cooperatives as well as by government agencies should be re-examined so that farmers can receive financial assistance within a week or at the most two weeks and without having to depend upon the favour of petty officials.

(ii) In the interest of agricultural production, it is essential that there should be guaranteed minimum prices for the principal agricultural crops such as foodgrains, cotton, jute, etc., with an assurance that the Government would be prepared to purchase quantities offered at these prices. The minimum prices should be sufficient to induce farmers to put in increased doses of labour, fertilisers, insecticides, etc., and to use better seeds and better implements. Minimum prices for different agricultural products should be fixed in relation to one another and in such a manner that production is encouraged in accordance with the planned targets. In dealing with this most important issue, there need be no fear that price stabilisation operations will be too risky for us. Like China our surplus is marginal, temporary and manageable. If China can handle this problem, there is no reason why we should not be able to do so. As long as our problem continues to be one of shortages and our main problem is to organise for increasing production, we should not be worried that the policy of price stabilisation will lead to over-production. Even when prices are temporarily stable or rising, an assurance regarding minimum prices is helpful as it allays the fear of an abnormal downward swing.

(iii) For the marketing of agricultural produce, co-operative institutions by themselves may not be sufficient. The principle of state partnership in cooperative marketing societies has been accepted already. It may be necessary, however, for the State to play a larger role in the organisation of rural supply and marketing than has been contemplated so far.

III. Technical Measures

(i) With increase in the area under irrigation, there should be targets in every State, district, etc., for area to be put under two or three crops during the year.

(ii) The multiplication and distribution of improved seeds should be given the highest priority so that during the period of the Second Plan, the areas under rice and wheat and as far as possible under millets, maise and other crops are brought under improved strains.

(iii) Research work on crops for which improved strains have not yet been evolved should be intensified in each State and for this purpose funds should be made available.

(iv) An all-out effort should be made to develop local manurial resources such as farm yard manure, night soil, composting and green manuring as well as the utilisation of chemical fertilisers on a much larger scale than at present. With the object of evolving cheap methods for deodorising and disinfecting night soil so as to make it acceptable to Indian peasants, large scale pilot projects should be undertaken in every state.

(v) Manurial schedules should be worked out for each types of soils and crops. Experiments to study the effect of different types of fertilisers on the cultivators' fields should be undertaken.

(vi) Research on the usefulness of bacterial fertilisers under Indian conditions should be organised and the use of nodule bacteria for inoculating seeds of leguminous crops should be practised.

(vii) Advice to cultivators for the use of proper rotations on the basis of soil types and their economic needs should be provided.

(viii) Much greater attention than hitherto should be given to dry farming methods which have been found successful. These should be

popularised and, as suggested earlier, adequate staff assistance should be made available to enable village communities to have their own dry farming and soil and water conservation programmes.

(ix) Planting of high yielding crops, such as, maize, potatoes, sweet potatoes and high yielding varieties of paddy should be encouraged. Investigations into the possibilities of developing the Japanese method of cultivation for potatoes should be carried out. Research in the economic of 'close planting' *vis-a-vis* the 'Japanese method' should be undertaken with reference to different crops and in different areas.

(x) The engineering sections of the agricultural departments of State Governments should be strengthened. Sufficient attention is not being given at present to the design of improved implements which our cultivators can afford to buy. Arrangements for the sale of improved implements and supply of spare parts and repair services have to be improved.

(xi) Village level workers should be provided with light plant protection, soil testing and soil temperature equipment.

(xii) Various measures should be organised in each area for the destruction of pests and animals which destroy crops. Indiscriminate legislation passed recently by some States banning the slaughter of useless cattle should be reviewed.

(xiii) State Governments should strengthen their research organisations and increase their research staffs to meet the demand for improved agricultural techniques which has arisen and is likely to develop further in all areas.

(xiv) Arrangements for liaison between research and extension workers should be strengthened. Annual or half-yearly meetings should be held in the States between the senior research workers and the senior extension workers to discuss such problems as may require attention. The research staff should be given an opportunity to tour the villages and understand problems of the cultivators first-hand so as to take up research on problems which have a direct bearing on the needs and demands of the latter. The extension workers should be put in direct touch with research workers in institutions in the neighbourhood. Instructions should be given that whenever the extension worker calls upon the research worker for consultation or requests the latter to accompany him to some farm, the latter should help to the maximum extent possible. The travelling and other costs incurred by the research worker for this purpose should be reimbursed by the Government.

(xv) Improved seeds and plant material should be imported from China for trial and breeding in India especially in regard to cotton, rice, groundnut and green manure seeds.

11.19 In conclusion, we would like to reiterate that the most important thing for us is to create conditions in our own country in which the average peasant will work much harder than at present, the manpower and other resources of each local community are more fully mobilised in the interest of all, the village community develops a quality of leadership and responsibility for the welfare of all its members, large numbers of non-official workers are drawn actively into the task of rural development and the administration can render effective service to the people. In some measure, each of these things is no doubt being done, but not enough, not together, and not in all places. The study of agricultural programmes in China has helped us to see our own programmes, institutions and administrative arrangements from a fresh angle, and we have tried to draw up a series of tentative conclusions and recommendations. They are generally in the nature of improvements on what we are already attempting and achieving and of steps related to the assessment of our own experience and the working of our own programmes under the First and the Second Five Year Plans, further reinforced by our study of Chinese experience and development. We must emphasise, however, that any measures that we may adopt for economic development or technical progress should be fully in accord with our democratic institutions.

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October, 1956.

REPORT OF THE INDIAN DELEGATION TO CHINA ON AGRARIAN COOPERATIVES MAY, 1957

CHAPTER XII

SUMMARY AND RECOMMENDATIONS

CHINA

12.1 In 1951, there were only a few agrarian co-operatives in China. By the time of our visit in July, 1956, the Chinese had already accomplished the task of organising 92 per cent of their rural households in one million agrarian co-operatives, and a process of their consolidation and development was in progress. Over 30 per cent, households were members of primary co-operatives and 62 per cent, were members of co-operatives of the advanced type. The distinction between the two is that in the former individual ownership is retained, and there is a return for ownership as well as labour. In the latter, individual ownership is surrendered to the co-operative and there is only a return for labour.

12.2 During our two months stay in China, we visited in all 19 co-operatives in different parts of China. We are satisfied that our tour was not a conducted one and that we saw a fair cross section of representative co-operatives in China, good, bad and average. The time at our disposal was too short for us to observe the detailed day to day work in the co-operatives, which alone could give a clear idea of the human relations subsisting between the members and the management. Even so, from what we saw of them, we feel that the Chinese co-operatives have evolved a firm basis for co-operative work and have brought about a sense of oneness and unity among their members.

12.3 In the co-operatives visited by us, the area pooled by members ranged between 60 to 6000 acres. The average area per member household ranged from 1.2 to 2.5 acres. Out of 19 societies, 18 had registered an increase in their overall production as well as yield per unit. The main causes of this increase are:

(i) increase of irrigation facilities,
(ii) measures for land improvement and reclamation,
(iii) better seeds,
(iv) intensive use of manures and fertilisers, and
(v) improved cultural practices.

Irrigation works had been developed and pumps worked by steam engines had been set up. The increase in irrigated area during 1955-56 exceeded the aggregate increase in the previous four years. Schemes of land reclamation and land improvement had been executed, which necessitated joint labour and, in some cases, adversely affected other cultivated lands and the rights of their owners. Co-operatives were able to set up special teams for the collection of manure, which helped to increase the manure supply. Improved ploughs and harvesting machines which required more animal power and larger area to operate upon had been brought into use. The whole labour force had been put to work in the execution of the improvements and intensification of agriculture. Much of it would not have been possible without pooling of land and labour under joint management. We, therefore, consider that while a part of the increased production could be attributed to settled conditions, fixed prices, and liberal loans granted by the Government, a substantial part could not have been available in the absence of co-operatives. In this connection, it may be mentioned that prior to Liberation, China was an importer of foodgrains to the extent of 2,000,000 tons. It also imported large quantities of cotton. Today it is exporting foodgrains and is self-sufficient in cotton. We did not notice any signs of malnutrition or starvation and people appear to be well off. We consider that not only have the co-operatives succeeded in increasing production but that their members are working enthusiastically without any inhibitions.

12.4 The success of the co-operatives in China is due to the efforts of the people supported by the entire machinery of the Government and the Party. Individual and group incentives have been preserved by evolving a system of work evaluation known as 'norms', which enables a fairly accurate assessment of the quality and quantity of every type of agricultural work put in by a member. Every co-operative has its own norms, which are fixed on the basis of experience of the average output of an average worker. Every worker is allotted a number of points for the work he does every day. Ten points make a 'workday'. At the end of the season, the produce is valued, production expenses are deducted and the net

value is distributed among the members in proportion to the workdays contributed by each. In addition to work on the farms, every member of a co-operative has a kitchen garden, where he can grow what he likes. This is usually attached to his house, or close to the village site.

12.5 Each co-operative has an elected chairman, some vice-chairmen, an accountant and a managing committee. Invariably either the chairman or one of the vice-chairmen is a woman. We were greatly impressed with the leadership of the co-operatives, which appears to achieve results by persuasion and conviction rather than by the use of authority. We also noticed that the leadership was mostly of young men and women in their twenties and thirties. Members also elect a supervision committee which is distinct from the managing committee. Members participation and democratic working are secured by organising members into production teams which serve as the basic units for labour organisation. Where a team is large, it is sub-divided into groups. The leader of the production team or group is selected by the managing committee with the consent of the members of the team or group, and he is responsible for organising production. It is the responsibility of the team leader to see that every member of the team is assigned a proper job. To prevent bureaucratic tendencies, each office-bearer of the co-operatives is generally required to put in a minimum number of work days in agricultural operations; for the time he spends in supervision and management he is given additional wage units. His earnings are not generally higher than those of best workers. The model regulations further require that the cost of management should not exceed 1 per cent of the total annual value of production in the case of primary co-operatives and $^1/_2$ per cent in the case of advanced co-operatives.

12.6 Every co-operative has an annual plan and a long range plan of 3 to 5 years. This is worked out in terms of physical layouts, employment of the labour force, requirements of finance as well as supplies. The plan indicates to the members and to the society the period for which employment will be available. The object of every co-operative is to increase the income of 90 per cent of its members year after year. The co-operatives receive liberal loans from the Government for the fulfilment of their programme. During 1956 alone a sum of Rs. 640 crore was planned of which Rs. 560 crore had been advanced by the time we visited China. The Government declares the prices of agricultural produce in advance of sowings. This enables co-operatives to plan their production on a stable basis. Production requisites and consumer goods are also made available to the co-operatives at fixed prices, and the State endeavours to maintain a parity between prices of agricultural produce on the one hand and production requisites and consumer goods on the other.

12.7 The achievements in China have been largely influenced by the character of the land reforms which abolished the vestiges of their Kulak economy; land was given to all those who wanted to work on it and the maximum holding was reduced to double the average area available per household. However, the land reforms only provided a climate. The co-operatives would not have been formed but for a deliberate policy of the Chinese Government and the Communist Party to promote and strengthen this form of organisation. In the first instance, co-operatives were formed by the active members of the Peasants' Associations and the Communist Party through whom the land distribution was carried out in the villages. After an initial period of successful demonstration a campaign for co-operativisation was launched and large bodies of peasants joined motivated as much by considerations of increased production and a higher standard of life as by a patriotic urge for rapid industrialisation and development of socialism. The movement succeeded because at about the same time a socialist transformation was taking place in all the important sectors of the national economy.

12.8 We feel that the masses of cultivators have joined the co-operatives voluntarily. The model regulations of co-operatives lay down that they must on no account resort to coercion in dealing with the peasants who are outside the co-operatives. In fact, admission to co-operatives was considered a privilege to be regulated. Initially the landlords and the rich peasants were

excluded from the co-operatives and only the poor peasants and the middle peasants were entitled to join. Later, as the co-operatives became stabilised the landlords and the rich peasants were admitted as candidate members. We saw no signs of suppression or helplessness among the cultivators. On the other hand we noticed considerable enthusiasm among the members of the co-operatives, which had been harnessed for rapid agricultural development. The co-operatives would not have succeeded in increasing production if the members were not working enthusiastically without inhibitions. We noticed that a revolution was afoot in the country-side, the dominant motive of which was not fear but ferment in the people's minds, which no administration by itself could have brought about.

JAPAN

12.9. In Japan there is a very well developed movement for service co-operatives. More than 95 per cent. of the total farm households are members of co-operative societies which supply 39 per cent of the total agricultural finance and hold 65 per cent of the total savings of farm households. 96 per cent of the surplus rice and 85 per cent of the surplus wheat and barley are marketed through co-operatives. There are, however, no agrarian co-operatives. The climate in Japan is not conducive to the development of agrarian co-operatives. Unlike the Chinese, the Japanese economy is based on the system of free enterprise and individual initiative. One of the impelling factors for the development of agrarian co-operatives, *e.g.*, the desire to proceed towards socialism in the agrarian sector is absent.

12.10 In spite of the fact that Japan is the most highly industrialised country in the East, the availability of land per agricultural household is about the same in Japan as in China, rather it is slightly less. Even in its hey-day of economic expansion, Japan did not succeed in diverting people from agriculture to industry. It took Japan nearly 50 years to stabilise the pressure on land. Since 1920 it has been able to absorb in non-agricultural sectors only the additions to the population and no more. Most of the holdings continue to be small.

12.11 The small farmer in Japan is in a bad shape. He gets only part-time employment in agriculture and spends more than half of his time on work outside the farm. There is a tendency among this class of farmers to leave the farming work to women and go out in search of other occupation in commerce and industry which is invariably outside the village. Therefore, in spite of the assistance provided by service co-operatives, the small cultivator is gradually losing his position as a farmer. The number of applications for selling land is reported to be increasing every year. Things would have been much worse, but for the spurt in the national economy during the Korean War. The agrarian co-operatives may have helped better. However, as Japanese agriculture is well developed there would be relatively less scope for additional work on land for the labour force organised into co-operatives.

12.12. The internal price of rice in Japan is very high, being Rs 33 per maund. The Government, therefore, prefer to import cheap rice from abroad, rather than increase its production at home at a higher cost. They feel that the same investment will yield better results if utilised in trade and industry than in agriculture. The problem in India is essentially different. There is a large scope for raising production by intensive methods. There is a large area to be developed. There is sufficient scope for reclamation. Unlike Japan, there is need for increasing agricultural production not only for improving living standards but also for export to pay for machinery for industrial expansion.

INDIA

12.13 In spite of the emphasis on co-operative farming in the first and the second five-year plans very little has been done in most States for a planned development of co-operative farming, the reason being that there is a lack of fuller understanding and realisation on the part of both the leadership and the administration of the importance of co-operative farming for the development of agrarian economy and the rural well being. Grave doubts have been expressed in influential quarters about the utility and practicability of such a programme. We, therefore, propose to examine in the following paragraphs why we consider that co-operative farming is

necessary from economic as well as social considerations.

12.14 That there is an excessive pressure on land is admitted on all hands. It is becoming increasingly apparent that there are remote chances of this pressure relaxing in the near future. In fact the estimates of employment opportunities offered by the projects included in the Second Five-Year Plan indicate that in terms of absolute numbers, there will be further additions to the number of workers dependent on agriculture by a few million at the end of the second plan period. Even if the employment opportunities in the non-agricultural sectors expand more rapidly than can be anticipated at this stage, it seems that a further increase in the number of people depending on agriculture for employment and subsistence cannot be avoided. It may take quite some time before the trend could be halted. This is also borne out by the experience of Japan to which we have referred earlier.

12.15 The situation arising out of the overcrowding on land is further aggravated by the disparities in the size and distribution of land holdings. The data collected in the course of the Agriculture Labour Enquiry indicate that less than 5 per cent people cultivate more than one-third of the total area. On the other hand about two-thirds people cultivate less than 15 per cent of the total area. About 19 per cent whose main profession is agriculture, do not hold any land and another 48 per cent who hold less than 5 acres each, depend on employment as agricultural labourers. It has been estimated that about 40 per cent of the agricultural population (i.e., about 30 per cent of the rural population) consists of agricultural workers depending wholly or mainly on hiring out their labour, and that they get work only for a part of the year.

12.16 While a large under-employed population subsists on land, there exists, side by side, a large work potential. At present less than one-fifth of the total cultivated area receives irrigation from State or private works. There is plenty of scope for the extension of irrigation by the provision of more wells, tanks, embankments, etc. Tanks constructed in the past have to be repaired. For conservation of moisture, bunds have to be constructed. Large areas have gone out of cultivation due to soil erosion. These are to be reclaimed. In many places, erosion of soil has to be checked. There are areas which suffer from water-logging and need drainage. Most of these improvements, being of labour intensive nature, require investment mainly in the form of human labour. Production could also be stepped up considerably by the intensive application of labour. How is it that all these improvements have not been carried out or agriculture intensified? More than two-thirds of the total area is comprised in holdings exceeding 10 acres, which, in the Indian conditions, should provide fairly good units of cultivation. There may have been difficulties in finding finance and other equipment. We do not, however, think that this has been the only hurdle. The difficulties arise mainly out of the limitations inherent in family farming which is characterised by considerations of money cost (outlay) and benefit (return) to the individual farmer rather than social costs and social benefits. A cultivator takes up only such improvements as are sufficiently remunerative for him except where the work can be carried out by self-labour or the labour of family members. Now it so happens that in agriculture, within a given price and wage structure, many improvements are not sufficiently remunerative.

12.17. Considerations of outlay and return apply equally to the intensification of cultivation. It has been observed that small farmers with abundance of self labour or family labour are frequently able to obtain comparatively higher yield per unit in spite of the various disadvantages which beset them. However, where a farmer has to depend on hired labour, he will employ labour to the extent he can get in return a little more than his investment on wages. In agriculture a limit is soon reached beyond which a cultivator does not get back even his investment on wages. As stated above, the bulk of the area is held by farmers cultivating more than 10 acres, who have generally to depend on hired labour in varying degrees. Thus in family farms due to considerations of outlay and return cultivators could not go far in undertaking improvements and intensified cultivation through hired labour even if all the supplies and finance required for the purpose were provided.

12.18 Besides, there are financial limitations. Most of our funds have been committed for programmes of industrialisation and development of communications, which place a heavy strain on the available resources. For a rapid development of agriculture resources have, therefore, to be increasingly found from the savings in the agricultural sector itself. Most holdings in India show little surplus. It is only in the comparatively larger holdings that some savings are effected. An important factor responsible for the low return is that draught animals and implements which together account for the bulk of the investment, remain idle over a considerable period.

12.19 Service co-operatives are helpful in providing supplies and funds where land is abundant and holdings are cultivated for considerations of net money return rather than gross productivity. In India, both land and capital are scarce and labour is plentiful. The emphasis in India has, therefore, to be not only on net return, but more so on increased productivity over the total area through intensified cultivation by making the fullest use of the available manpower. This calls for the pooling of land, manpower and capital resources by co-operative action so that it may be possible to fully utilise the available resources and also to obtain economies of large scale production. In a co-operative farm considerations of outlay and return apply over a much larger area. The pooled area constitutes a single farm and the pooled labour a single family for purposes of management and it becomes possible to intensify agriculture over the entire area of the farm and undertake improvements of labour intensive nature without considerations of cost.

12.20 Co-operative farming will enable the fuller utilisation of the capital resources, reduction of cost, and mobilising savings and capital formation. It will also offer opportunities for utilising a part of the surplus labour force for improving village communications and housing and for the provision of other social amenities. Planning at the village level will become possible. Besides, it will provide opportunities of working together for the various groups of people now held apart by social and communal divisions and thus bring about increasingly an emotional integration of the people into a living entity.

12.21 In countries like Japan, the economic development took place during a period of colonial expansion and a comparatively monopolistic access to raw materials and markets. At that time, social conscience had also not advanced so that internal exploitation could go on unhindered. Thus, through internal and external exploitation large stocks of capital were created which formed the basis of their industrial and economic prosperity. In India we have to depend mainly upon our internal resources. 'Welfare State' concept is today well advanced. Any large scale capital formation based on exploitation in any sector has, therefore, to be ruled out. Our internal resources are limited. Incomes are low. Most of the people live just on the margin of subsistence. Their standard of living has to be raised and at the same time savings effected for investment and development. The agrarian cooperatives indicate the way for mobilising the national resources in which manpower plays the most dominant part. They offer a new hope for the millions of landless families. To us, it seems that they are today an historical necessity.

12.22 Will the adoption of co-operative farming affect our democratic institutions? In our view it is the climate prevailing in a country that ultimately governs the character of its institutions, whether it is centralised or decentralised, democratic or totalitarian. It is independent of the manner of the cultivation of land, whether in family farms or co-operative farms. In fact, co-operative farming, as any village organisation, should promote rather than retard the growth of democratic institutions at the base and at all levels.

12.23 We realise, however, that a transformation from family farming to co-operative farming is no easy task. In accepting co-operative farming, a farmer has to change over to a new way of life. He has to subject himself to a group discipline and to that extent he does suffer from a certain loss of individual freedom. In fact every group activity involves subordination of the individual liberty to group discipline and every planned development involves a measure of compulsion. On the other hand, improved economic conditions resulting from co-operative farming will enlarge

the freedom for the whole group and individuals who are now denied opportunities. The real issue, therefore, is, shall we sacrifice some of our individual freedom in the interest of our economic development and the well-being of the nation? On balance of considerations, we feel that the advantages of co-operative farming are greater and far out-weigh the losses that may be involved.

12.24 We feel very much strengthened in our views after a perusal of an article written by the Father of the Nation, Mahatma Gandhi, in the "Harijan" of Fenruary 15, 1942, out of which we produce extracts below:-

> "I firmly believe too that we shall not derive the full benefits of agriculture until we take to co-operative farming. Does it not stand to reason that it is far better for a hundred families in a village to cultivate their lands collectively and divide the income therefrom than to divide the land anyhow into a hundred portions? And what applies to land, applies equally to cattle. It is quite another matter that it may be difficult to convert people to adopt this way of life straightway. The straight and narrow road is always hard to traverse .... But only by surmounting difficulties can we hope to make the path easier"

12.25 We are confident that a change from family farming to co-operative farming can be brought about in a peaceful and democratic manner. China has succeeded in bringing about this transformation in a few years time. We are aware that the political system obtaining in China has a certain advantage in influencing a particular pattern of behaviour from the people. It can ensure that a single point of view reaches the people. India has parliamentary institutions and a multiplicity of parties. Our task will therefore, be comparatively much more difficult.

12.26 The steps which should be taken to develop co-operative farming are described in the following paragraphs. State participation and support are, in any case, necessary for the development of the co-operative movement in general. Their importance in a programme of agrarian co-operatives is greater still. They will be forthcoming in the necessary measure if there is a conviction on the part of the national leadership about the need and urgency of this programme as well as about its practicability.

12.27 The movement for co-operative farming can grow in a particular atmosphere. We have no doubt that in accepting this new way of life, the peasants have to make a sacrifice, which they would be willing to make as part of a national sacrifice in which all sections of the population join. Such an atmosphere is, therefore, one in which social values and outlook will progressively change to more egalitarian non-exploitative social and economic order, in which human capacities, physical and mental, will have a higher return than inherited or accumulated wealth. There should be a realisation in all sections of society that, in the larger national interest, individual income and purchasing power have to be restricted so that the more backward sections of the community may receive greater attention. Briefly, it should be the atmosphere of patriotism, socialism, democracy and planned economy. In the agrarian sector it will be influenced by the nature of land reforms. Our proposals for land reform follow mainly our analysis of the agrarian situation. We recommend that cultivation through hired labour should be discouraged. A farmer should be entitled to retain for personal cultivation only so much land as he can cultivate by his family labour. The surplus land should be available for cultivation by co-operative groups of landless agricultural workers and the farmers who agree to pool their own lands with the surplus. Rent should be payable for the surplus land taken over from the substantial farmers. In order to secure their participation in co-operatives, the resident owners, may be paid rent at a somewhat higher rate than the one prescribed for leased lands.

12.28 These fundamental changes in the land sector cannot be carried out unless a sound village leadership is developed. Political parties will have to be better organised for work in the villages. At the same time administration has to be made much more effective than it is today. Action in the direction mentioned above is necessary quite apart from a programme for agrarian co-operatives. In the context of agrarian co-operatives they assume added importance.

12.29 In developing co-operative farming two principles have to be kept in view. Firstly, the principle of voluntariness should be scrupulously

adhered to. Secondly, a member should be free to leave a co-operative at the end of the season should he so desire. If the cultivators have to be persuaded to join agrarian co-operatives voluntarily, it will be necessary to convince them through successful demonstration that such a programme is practicable and justifies all the claims made for it. In any democratic system, it is the people's reaction to the programme that will govern not only its actual progress but also affect the intensity of conviction of the National Leadership; hence the great importance of a demonstration programme on which the whole success of a National programme would depend.

12.30 For the next four years, we suggest that a programme of organising about 10,000 co-operative farming societies should be drawn up. The objective should be to have at least one co-operative farming society for a group of 50 villages by 1960-61. In this connection the performance of existing societies will be a determining factor and every effort should be made to make them models of ideal working. The responsibility for planning and promoting programmes of co-operative farming at the national level should be entrusted to the National Co-operative Development and Warehousing Board, and a Standing Committee of the Board should deal with the subject. The appointment of a Special Officer in the Ministry of Agriculture for Co-operative Farming and assisted by subject matter specialists is also recommended. In the States a committee under the Minister for Co-operation should be constituted for the same purpose. The State Committee should be assisted by a Sub-Committee of which the Development Commissioner may be the Chairman. A Special Officer and subject matter specialists as at the Centre, should be appointed in the States. At the district level a Sub-committee of the District Development Board should be established for promoting co-operative farming.

12.31 In order to explain the programme of co-operative farming to the people and provide leadership for future co-operatives, a programme of training two lakh youngmen (village organisers) in the course of the next four years has been recommended. The cost of the training programme should be borne by the Centre and the States in the proportion of 3 to 1. The village organisers will not be paid salaries. They are expected to disseminate knowledge of co-operative farming on the basis of the training received by them. They will work in close liaison with the Village Level Workers. The Central Government may set up half-a-dozen regional training institutes to train instructors and other personnel.

12.32. The main recommendations discussed in the report, are set out below:-

Programme

A well laid demonstration programme of co-operative farming societies should be worked out with the object of having at least one society in every group of 50 villages in the next four years. This would mean roughly 10,000 societies.

2. An effort should be made to organise as many societies as may be possible in Community Project areas and the National Extension Blocks which have been in existence for 2 years.

3. The principle of voluntariness should be scrupulously adhered to. A person should be free to leave a co-operative society whenever he chooses to do so, but this should be permissible at the end of a season.

4. Wherever a sizable area of Government land is available in which rights have not accrued to individual peasants, it should be settled with co-operatives consisting of landless agricultural workers for co-operative farming. Small owners and tenants should also be admitted to these co-operatives wherever they agree to pool their lands.

5. A quick survey of the existing societies may be undertaken so that only the genuine societies are retained and are properly helped to serve as useful demonstration centres. The suggestions made by us regarding State assistance, internal organisation and management, etc., should be tried out in the first instance in these societies so that experience may be gained immediately and suitable techniques and methods evolved.

Organisation and Management

6. Co-operative farming implies pooling of land. Wherever lands are pooled by individual cultivators, joint farming be encouraged. On Government lands or surplus lands it will be desirable to organise collective farming societies.

7. Only such persons as agree to participate in

the day-to-day work of the society should be admitted as members of co-operative farming societies.

8. For curbing a tendency towards bureaucratisation, the office bearers, managers and other employees of the society should be required to participate in the farm work for a minimum number of days.

9. Depending on the pattern of crops, co-operative farming societies in rice tract should have an area of about 35 to 50 acres of land whereas in cotton and wheat zones the area may be 60 to 100 acres. The minimum number of members should be 7 to 10.

10. In the early stages of the programme, there may be more than one society in a village. Wherever two or more societies are formed in a village they should be encouraged to have a joint committee for securing services and supplies at the cheapest rates.

11. Some of the Chinese Co-operatives seen by us were cultivating more than 5,000 acres and had a membership of 1,000. Management of such large units tends to become complicated and active participation of members gets reduced. The optimum size of a co-operative farm in India will have to be evolved carefully on the basis of the experience gained in demonstration programme.

12. Each co-operative farming society should prepare a detailed five year plan, also indicating the targets to be reached each year. The plan should be based on estimates of manpower and capital resources available to the society, the capital which could be obtained from outside, the estimates of increased production and the stages of repayment.

13. Where draught cattle are retained by individual members the society should determine the number of cattle required for the working of the lands of the society. A mutually agreed hire should be paid for the use of the cattle. If draught cattle are pooled they should be valued on a fair basis and the amounts should be credited to the share capital or taken as deposit refundable in suitable instalments. Similarly the implements pooled by each member should be valued on a fair basis and the valuation should form part of the share money to be credited to the members.

14. Ownership dividend should be fixed on the basis of productivity of land as it stood at the time of pooling of land. This is necessary to ensure that the entire increased production is shared by the members in proportion to the work put in by them.

15. Development of suitable techniques of work distribution and work supervision which are of the greatest importance to co-operative working should receive the highest priority. The Chinese methods of group and team working could be adopted wherever possible. Alternatively, it may be possible to centralise the principal operations, subsidiary operations being carried out in small groups or on family basis.

16. In evaluating the daily performance of each member, the quality and quantity of work put in by him should be taken into account and objective standards for assessment of work should be laid down. At the end of a season, the net produce (i.e., the gross produce minus expenditure and the ownership dividend) should be distributed among the members as payment for labour in proportion to the work put in by each.

17. The Government might arrange exchange of practical farmers between India and China. A dozen workers of co-operative farming societies might be sent to China for a period of six months to study all aspects of internal organisation and management of co-operatives. Similarly Chinese farmers might be invited to visit India and assist some of the co-operative farms in this country.

18. (a) Wherever operations relating to consolidation of holdings are undertaken, lands of the cultivators who have formed or agree to form themselves into co-operative farming societies, and the lands that may be available with the Government, should be consolidated at one place.

(b) Lands held by all small cultivators should be consolidated at one place and should be located contiguously to the lands of the co-operative farm if any. It will facilitate the co-operative activity among the small farmers and will enable those who may stay out of the co-operative farm at the commencement, to join it at a later date.

(c) The surplus lands, as soon as they are determined, should be consolidated and located contiguously to the lands of the small farmers.

State Assistance

19. The State should ensure that co-operative farming societies get the assistance which is available to individual farmers or other types of agricultural and industrial co-operative societies.

20. The principle of State partnership should be applied to co-operative farming societies and all

facilities given to large-sized credit societies, marketing societies, etc., by the National Co-operative Development and Warehousing Board should be extended to them.

21. In some States, co-operative farming societies are subject to agricultural income-tax. This puts the member-cultivators who would not be liable to such taxation individually, at a great disadvantage. These and similar handicaps should be removed.

22. The policy of State purchase and guaranteed prices has helped the agrarian co-operatives in China and unit co-operatives in Japan. Similar measures are necessary in our country. In case, however, this cannot be immediately adopted on a large scale for all co-operatives, the Government should agree to purchase the produce of co-operative farming societies at a minimum price which should be indicated in advance.

Training, Education and Publicity

23. For spreading the knowledge and information about co-operative farming among the villagers, about two lakh youngmen should be selected and trained in the techniques of co-operative organisation and management and planning production programmes in the next four years.

24. For ensuring follow up action and exchange of experience, a refresher course should be organised at the end of each year.

25. As the bulk of the membership of co-operatives is likely to come from the small farmers and landless agricultural workers, it would be desirable to take as many trainess from among them as possible. While selecting candidates for training, preference should be given to members of genuine co-operative farming societies which are already in existence.

26. Village level workers and other members of the National Extension Service should be given training in matters relating to co-operative farming.

27. The training centres should be located in areas where co-operative farming societies exist so that it may be possible to impart training in practical working.

28. As trained instructors for co-operative farming may not be readily available their training should receive first attention. The Government of India should, therefore, set up half a dozen regional training centres for training instructors.

29. The programme of training various categories of workers should be drawn up in consultation with the Central Committee for Co-operative Training.

30. The Government of India should bear the entire cost of running the six regional training institutes. For training centres organised by the State, 25 per cent of the cost may be borne by the State Government and the remaining 75 per cent by the Central Government.

31. The subject matter of co-operative farming should be freely discussed by all important public institutions, the Parliament, State legislatures, universities, local bodies, panchayats, co-operative institutions and of the farmers' organisations so that attention may be focussed on the basic issues. Co-operation of various non-official organisations working in the social and political fields, may also be enlisted in promoting the programme. For mobilising public opinion full use may be made of the radio, the press and the audiovisual aids, seminars, etc.

Administrative Machinery

32. At the national level, the responsibility of planning and promoting programmes of co-operative farming should be entrusted to the National Co-operative Development and Warehousing Board. There should be a standing Committee of the Board to deal with matters relating to co-operative farming.

33. The Government of India may increase its contribution to the Board, if necessary so that the programme can be implemented on the scale suggested.

34. To assist the Board and for advising the State Government in the formulation of programmes for co-operative farming, the Ministry of Agriculture should have a special officer for co-operative farming who should be helped by subject matter specialists.

35. For planning and executing programme of co-operative farming each State should have a committee under the chairmanship of the Minister incharge of Co-operation.

36. The State Committee should have a sub-committee of which Development Commissioner may be the Chairman.

37. Each State may consider appointment of a special officer for co-operative farming and

subject matter specialists. He will also need the assistance of special auditors for co-operative farms and a few assistants who could go round and guide the work in the field. The cost of this staff may be shared equally between the Centre and the States.

38. The work at district level should be co-ordinated by a committee which may be presided over by the District Officer. This committee may be a sub-committee of the District Development Board and should include, among its members, representatives of Co-operative farming societies, other co-operative societies and panchayats.

Land Reforms

39. The pattern of land reforms should be based on the principles that cultivation through hired labour should be discouraged and land should be made available to those who want to work on it. Every family should, therefore, be entitled to retain only so much land which it can cultivate through its family labour. The excess land should form part of a pool, which should be cultivated co-operatively by groups of landless workers and small farmers who agree to bring into the pool their own lands.

40. Rent should be payable for the surplus lands. The resident cultivators may be paid rent at a rate higher than the one prescribed for leased lands.

41. The rent should be determined either in cash or as a fixed quantity of produce on the basis of the existing productivity of land so that the benefits of increased production obtained as a result of investment of the co-operative should be available wholly to the co-operative. The State should accept responsibility for the payment of rent and interpose itself between the owners and the Co-operatives The State may utilise the village agency for discharging this obligation.

Other Matters

42. The Japanese farmer does not sell paddy. By using a small husking machine he converts paddy into brown rice (unpolished); this reduces the cost of packing, transportation and warehousing by approximately 50 per cent. This practice could be usefully adopted by the large sized societies organised in our country. Before their introduction, the machines should be tried and tested by the Agricultural Engineering Sections of the Central and State Governments.

43. Instead of jute, cotton or paper bags, the Japanese use extensively rice straw bags as packing material. These are made by the farmers with the help of a simple machine without much expense during their leisure season. The Agricultural Engineering Sections of the State Governments and Central Government may order a few machines of this type and investigate the possibilities of introducing them in India. If necessary, the services of a Japanese expert may also be obtained.

44. The primary co-operatives in Japan operate warehouses with a total storage capacity of 4.2 million tons. They mainly utilise local material for construction. The large warehousing programme will be successful in India if structures suitable to local conditions are devised and costs are kept low. Experienced Japanese engineers might be of help in this task.

45. A third of the primary co-operatives in Japan were not able to make the two ends meet mainly due to the fact that their membership and volume of turnover were small. This has a lesson for India, *viz.*, small co-operative units are likely to become uneconomic.

BOOK REVIEWS

Ben Crow, *Sharing The Ganges- The Politics and Technology of River Development*, Sage Publications, 1995, Pp. 272, Price: Rs 185.

This book, by an Acting Associate Professor teaching courses in Third World Development at the Stanford University, is more about politics than technology, even though the technological aspects of the issue have also been adequately discussed. The term politics is of course to be taken in the widest sense- all processes helping in the management of the determinants of a community's life. The book also goes beyond the question of the Ganges waters and discusses the question of development of all the related river basins.

The point of diversion is the sharing of the Ganges or, more particularly, the Government of India's decision to put up a barrage at Farakka and to divert some of the water for the flushing of the Hooghly river for washing away the silt brought in by the tidal action of the sea. This was considered necessary to keep the navigational channel up to Calcutta Port free. This led to a dispute with Pakistan/ Bangladesh which faced a depletion of its water resources in the dry season.

Dr. Crow shows how the decision to put up a barrage lacked strong technological justification. Was the Hooghly really going to be blocked up by silt? The technological answer was an ambiguous 'perhaps'. Was flushing by fresh water an adequate remedy for the silting? Most of the experts said 'yes'. But two experts, Ippen and Wicker, opined that it would actually worsen the problem since the denser sea-water would creep under the lighter fresh water to a greater length. This opinion was rebutted by the theory that the turbulence caused by flushing would mix up the two waters. In this atmosphere of technological ambiguity, what decided the issue was the anxiety felt by the business community and the pressure exerted by it through political institutions. Did then the barrage improve the Hooghly river and save Calcutta Port? Again the answer is an ambiguous 'can't say'. The effect on the Hooghly doesn't seem to have been studied and, in any case, other factors intervened which led to a decline of Calcutta Port. Heavier ships which couldn't enter the Hooghly came into vogue and West Bengal itself declined industrially giving less business to Calcutta Port.

The Farakka Barrage however started a process, first of conflict and then, hesitatingly, of co-operation between India and Pakistan/Bangladesh- The present book is really a study of how the political processes forwarded or thwarted from time to time a move towards realising the full potential of the three rivers- the Ganges, the Brahmaputra and the Meghana- for the benefit of the 400 million people living in their basins.

Initially, the political processes concentrated on protecting Bangladesh's historical uses and further needs for Ganges waters. The deleterious effects of the Farakka barrage on Bangladesh's economy were exaggerated by Bangladesh. Even a myth was created in that country that the barrage was put up by India solely to harm Bangladesh. India played down the harmful effects on Bangladesh. Each side supported its argument by giving technical data but technical ambiguities led each side to take one extreme of the technological possibilities. The structure of the political power in each country aggravated the process. The weaker a government was on the home front, the harder it became on the external front. Even the personal ambitions of a few political actors in Bangladesh made a difference.

An agreement on the sharing of the existing flows in the Ganges was signed in November 1977. In the opinion of a secretary in India's Ministry of External Affairs, this agreement became possible because the new Janata Party Government in India was willing to give more concessions to Bangladesh for creating an image that it was more successful in foreign policy. Thus, this was a political breakthrough and not a technological one.

That agreement committed the two countries to trying and resolving the long term problem of augmenting the dry-season flows in the Ganges. Bangladesh proposed that the augmentation be done by constructing reservoirs in the Nepalese portion of the Ganges basin. India proposed the transfer of some Brahmaputra water to the Ganges basin through Bangladesh territory. Each country rejected the other's proposal. Bangladesh wanted its riparian rights in the Ganges water unconditionally. It did not see why it should provide land for the transfer of Brahmaputra waters and give India the control of the head-works of such a system. India did not want to bring in a third party,

Nepal, into the discussions out of fear that it would loosen India's control on the Ganges. Underlying these positions were the mistrust and occasional hostility between the two countries.

Rajiv Gandhi was the first person from the Indian side inclined to make the issue trilateral. His advisers however persuaded him away from that line (Pp. 194-195). By this time Bangladesh was also convinced that inclusion of Nepal would not be very fruitful. Nepal needed to be convinced that such an arrangement would be beneficial to it. Big dams were getting unpopular and there was no saying when such a large dam could be completed. Bangladesh, therefore, formulated new proposals for a bilateral solution of the dispute. In these new proposals, India was to assure Bangladesh a fixed share of all the common rivers and then leave the latter free to develop its own water-management within its own territory. This new proposal also involved a construction of a link canal from the Brahmaputra to the Ganges and looked so like the earlier Indian proposal that, because of the internally built up opposition to such a proposal, Bangladesh could not even put that proposal formally and openly on the negotiating table. There was no question of any progress on it.

The author notes that previously 'Progress in river negotiations... frequently occurred in the early months of new governments.... the mandate (electoral or military) of a government is least questionable in the months after its accession and the capacity of political leaders to support innovation is undepleted' (p. 232). As for the discussions themselves, the author notes that '... politics not only found their way into the discussion but the two parties' schemes were principally moulded by their political objectives. A political discussion was hidden under the technical language' (p. 184). The reasons for the lack of progress in the negotiations have, therefore, to be looked for in the political situation. As late as in 1987, the new line of Bangladesh had not been approved by their own cabinet. Thereafter, 'Rajiv Gandhi was becoming increasingly more preoccupied with domestic issues. In Bangladesh too political developments (...the growing difficulties of President Ershad in the context of the movement for a return to democracy and the attendant uncertainties) made it difficult...' (p. 216). The governments of India as well as Bangladesh have been in political difficulties ever since.

While in these circumstances the author does not see grounds for immediate optimism he recognises that some movement has taken place towards realising the need for a many-sided development of the entire basin. He welcomes the increase in communications between non-governmental organisations. He also welcomes the non-official studies by people like B.G. Verghese.

The author suggests a new approach to the problem, taking it beyond the classical concepts of sovereignty, riparian rights, etc., and beyond the myths and prejudices which have vitiated the atmosphere so far. The new approach is an exchange oriented approach. The author lists eight types of exchanges among India, Bangladesh and Nepal, as also the countries which would provide finance and technical expertise. Some of these exchanges like water storage benefits for India against hydro-electric power for Nepal can be thought of as commodity exchanges and monetised and brought under a market system of contracts, pricing, banking facilities, marketing facilities, information exchange, etc. The first steps in such an approach would be:

(1) More discussion on power pricing;

(2) Investigating the expansion of power market;

(3) Evaluating the benefit streams of water-storage and flood mitigation; and

(4) Investigating (suitable forms of) institutions and financial contracts.

These are only the first steps but have to be taken urgently because 'any large scale development of the major rivers would need a period of about 50 years for design, construction and use' (p. 188).

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R. Venkataraman, *My Presidential Years*, Indus, Harper Collins Publishers, India, New Delhi, 1994, Pp. xii+ 671, Price Rs. 395.

My Presidential Years written by former President of India, R. Venkataraman as his autobiography during his tenure as the President of India from 1987 to 1992 gives a very complete and detailed information as to the role he played as the head of the State.

This book can be broadly divided into two parts, (A) President and his role in the parliamentary form of government or R. Venkataraman as the President of a parliamentary democracy; (B) President and his foreign visits which, in their own way, are more than mere formal visits, with the President enlightening and explaining the Indian government policies on certain major issues to the foreign governments and its officials involved.

(A) President and his role in the parliamentary form of government or R. Venkataraman as the President of a parliamentary democracy

The President in his book deals with the relationship between his predecessor, President Zail Singh, and Prime Minister Rajiv Gandhi which was plagued with tension, bitterness and controversy during the last few months of President Zail Singh's tenure. The issues of discord were that the Prime Minister did not call on the President regularly to brief him, that the Prime Minister ignored and slighted the President, and that the Prime Minister did not clear the President's state visits abroad. Also, it was felt that the Prime Minister had violated Article 78 of the Constitution when the Home Ministry did not furnish him a copy of the Thakkar Commission Report on the assassination of Prime Minister Indira Gandhi, in spite of repeated requests. President Zail Singh was further irked when the Prime Minister answered the Press query regarding it thus: 'I have departed from convention in hundreds of things' (p. 4). But in the Parliament he said that he was regularly meeting the President and briefing him on all important issues. This statement was challenged by the President. It was published in the Indian Express of March 13, 1987. President Venkataraman has no observations to make on this crisis of relationship between the President and the Prime Minister in a parliamentary democracy and adopts a very non-committal stand which cannot be easily digested from a President who was a lawyer too by qualification. And when this issue was raised in the Parliament, he as the Chairman of the *Rajya Sabha* ruled out any discussion on the subject, allegedly to uphold the principle of confidentiality of communication between the President and the Prime Minister. According to him, it was a significant constitutional precedent to be adhered to. In the Indian democracy, Parliament is supreme and, for the smooth functioning of the state, should be allowed to discuss the exact constitutional relationship between the two heads of the polity, if not their confidential communication. Interestingly, when Rajiv Gandhi along with Kamalapati Tripathi and others informed him of the decision of the Congress to nominate him as the party's candidate for the Presidency, Venkataraman replied that 'I will not dismiss the Constitution', as Kamalapati Tripathi quipped: 'I hope you will not dismiss the Prime Minister' (p. 8). At that time there were rumours that President Zail Singh might dismiss Prime Minister Rajiv Gandhi on charges of corruption (p. 8).

During his tenure as the President, Venkataraman gave assent to some important legislations, such as the Sati Prevention Act, 1987. Earlier during his days as a member of Parliament from 1950 to 1957, he moved an amendment to the Special Marriage Bill of 1954 to provide for divorce by mutual consent on a petition presented to the district court. He totally supported Nehru on the reform of Hindu Law and passing of the Hindu Code Bill for which he was called a Nehruite. Nehru also sent him to the United Nations General Assembly as an Indian delegate for seven sessions from 1953 to 1961.

As far as the Indian Post Office (Amendment) Bill is concerned, Venkataraman told Rajiv Gandhi that one way of solving the issue of assent to this Bill would be to obtain the opinion of the Attorney General and act accordingly. But he frankly conveyed to Rajiv Gandhi that the Bill was not necessary at all.

As regards the Constitution (59th Amendment) Bill, the President could have referred the matter to the Supreme Court for its advice under Article 143 of the Constitution. The Bill provided for declaration of emergency in respect of the whole of Punjab, or such part of Punjab as may be specified, if the President was satisfied, *inter alia*, that the integrity of India was threatened by internal disturbance in the whole, or any part of the territory of Punjab. However, he gave his assent to the Bill much against his will as Article 368 Clause (2) states that when a bill amending the Constitution is passed by Parliament, it shall be presented to the President who shall give his assent to the bill. According to Venkataraman, the aforesaid Article does not give a President any discretion in the matter relating to an amendment of the Constitution. Rightly here, the President should have upheld the spirit rather than the letter of the Constitution as the Bill was draconian for reasons, like providing for declaration of emergency on the grounds of 'internal disturbance' and suspension of the right to life under Article 21 of the Constitution. The President himself had cautioned the Prime Minister against introduction of emergency provisions in Punjab; instead he had suggested amendment to Article 356 of the Constitution for assuming powers to extend the President's rule beyond one year to a maximum of three years as a more appropriate course. In fact in 1975, Venkataraman, who later became the President of India, had gone on record for writing an editorial in *Swarajya* criticising the Emergency of 1975. He should have given a very progressive import to his statement, 'I will not stray beyond the powers enshrined in the Constitution' (p. 147). Ultimately, V.P. Singh's Government had to repeal the Amendment.

On the subject of land reforms, the President gave a significant piece of advice to Prime Minister Rajiv Gandhi that, in order to stop the evil practice of recognition of 'benami' ownership of any property by courts which also led to tax evasion, what was needed was an enactment barring the plea of benami ownership before courts. Several months later, the Benami Transactions (Prohibition of the Right to Recover Property) Ordinance was passed which was widely welcomed. Likewise, in view of the mounting terrorism in Punjab, an Ordinance to check the misuse of religious institutions for political and criminal purposes was promulgated under his seal on May 26, 1988.

In the customary address to both Houses of Parliament that is prepared by the Cabinet and forwarded to the President for information and suggestions, President Venkataraman, as a constitutional interpreter and head of the Indian Republic, changed the expression, 'My Government'- which had been inherited from the British Crown- into 'The Government' (p. 149). It was a significant change.

On education, while participating in the function of the Sankara Higher Secondary School in Madras, the President condemned the practice of charging capitation fees for admission to schools and colleges. He said, 'If I had the authority of a dictator, I would have abolished all schools which collected capitation fees' (p. 160). He further added, 'It is far better to have fewer schools with better standards than institutions thriving on immoral behaviour. ... Most of the schools have become business houses' (p. 160). The point is that the President did not dilate on the role the Government should play to solve these problems, and the remedy to get out of this degraded situation which has become a reality.

On September 1, 1988 Rajiv Gandhi Government introduced the Defamation Bill in the Lok Sabha in the face of violent opposition. The President showed his great concern and advocated that although some kind of restraint was certainly called for, a legislation was to him the very last measure. He opined very strongly that some spadework by way of consultation with the opposition, the press and eminent people was necessary. He remarked that Rajiv Gandhi's experience with Parliament and its reaction was rather limited and his close associates were also novices in Parliament; they could not properly judge the strong public reactions which compelled the Prime Minister to defer the bill and not proceed with it. One important observation to make here is that the President had worked with Prime Minister Nehru as a member of Parliament and supported his policies and programmes so wholeheartedly, that he was called a Nehruite. He had admired Prime Minister Indira Gandhi for

her extraordinary courage in the face of crisis, her stand in the liberation of Bangladesh, and hailed her policies like bank nationalisation, the 20 point programme, etc. Thus, being brought up in the Nehruite tradition and having affinity with Indira Gandhi, in addition to himself being a statesman, legal expert and politician, he found the younger generation of politicians like Rajiv Gandhi inexperienced. That is why he remarks that experience is a much greater guide than knowledge and wisdom, more so often when one is dealing with fellow-men on social issues. Yet, from the beginning he had very cordial and close relations with Rajiv Gandhi, who also sought his advice on many issues like Sri Lanka, Bofors, etc. This speaks of the President as an upright statesman and responsive to public reactions.

When Kehar Singh's case came before the President seeking clemency under Article 72 of the Constitution, Venkataraman acted as bound by law and Article 74 of the Constitution. Article 74 provides that the President is bound by the advice of his Council of Ministers even when dealing with mercy petitions. But the President could have accepted Jethmalani's request for an oral hearing and stood by his decision and not looked into the past practices relating to oral hearing on mercy petitions. For, the past does not reveal any instance of such magnitude and complexity. The President could have, under Article 72, executed his authority positively and properly; it made a senior advocate of the Supreme Court, Jethmalani, challenge the Presidential Order. Jethmalani contended that the President had failed to exercise his jurisdiction by declining to hear representation on behalf of the prisoners and, thus, refusing to go beyond the decision of the Supreme Court on facts. The Supreme Court, though granted interim stay to the execution, did not advert to the issue whether the President had discretion in exercising powers under Article 72, independent of the advice of the Council of Ministers. For, the Supreme Court had earlier already decided in Shamsher Singh's case that the President was bound by the advice of the Council of Ministers in exercising the power of pardon. The President again referred the whole matter to the Home Ministry for a thorough examination of all aspects. Not being satisfied, he altered the draft of the order as given by the Home Ministry and the Law Officer of the Government as follows : 'I have perused the records. In accordance with the advice of the Council of Ministers, the mercy petitions of the condemned prisoners for any relief under Article 72 of the Constitution are hereby rejected' (p. 249). On January 6, 1988 Satwant Singh and Kehar Singh were executed. In Kehar Singh's case, the President raised some important queries for national debate: (1) Should not the President have discretion to examine any extenuating circumstances and alter the death sentence without the advice of the Government? (2) How else can prejudice and partisanship be prevented? This needs to be debated in public and also legally and constitutionally.

On the Bofors issue which had become very controversial, President Venkataraman advised the Prime Minister to make a statement containing a simple denial of receipt of any consideration by the Prime Minister and members of his family and that, if it was proved that any person had received any illegal gratification, the Prime Minister would take stringent action. The Prime Minister adhered to his advice and made the statement in the Lok Sabha, which should have been made much earlier. On July 5, 1988 the opposition parties in Parliament presented a memorandum to the President demanding a fresh probe into the Bofors gun deal in the light of certain startling disclosures appearing in the *Hindu*. They totally contradicted the contention of Bofors that no 'commissions' were paid and that only winding charges were paid to some of its agents. The President here records that he politely accepted the memorandum, read its contents and reminded them of the limitation of his office. This was too simplistic an answer to the scandal of such magnitude. J.R.D. Tata also raised the matter with the President during his meeting, that it would be difficult to deny the receipt of commission by the Congress Party, if not by Rajiv Gandhi and his family. He also pointed out that since 1980 industrialists had not been approached for political contribution, and that the general feeling among them was that the party was financed by commissions on deals.

On May 11, 1989 the President received an undated letter from Shanti Bhushan, former Law

Minister in the Janata Government and a senior advocate of the Supreme Court, requesting sanction for the prosecution of Prime Minister Rajiv Gandhi under the Prevention of Corruption Act. After a lot of legal inquiry, the position was as in Karunanidhi's case, that the President must be deemed to be the authority competent to sanction prosecution of the Prime Minister and that, as in the *R.S. Nayak* v *A.R. Antulay's case*, the President or the Governor should act in his discretion without the aid and advice of the Council of Ministers in matters relating to sanction of prosecution. After studying the papers carefully, the President came to the conclusion that there was no evidence and all arguments were merely based on surmise; the Bombay High Court had also held the same view, i.e., newspaper reports are hearsay and not evidence, and rejected the permission. Here too, the President could overcome the controversy legally but not in the minds of the public. The President exposes well the helplessness and limitation of the President's power and office in dealing with such matters involving the head of a government and his Council of Ministers which must be taken note of.

Helplessness of the constitutional head can also be seen when important advice given to the Prime Minister is not heeded by the Prime Minister and his Council of Ministers. When the President advised the Prime Minister to keep the Comptroller and Attorney General's (CAG) report on Bofors on the table of the Houses of Parliament, to skip the monsoon session and go straight for general elections around October-November, instead of waiting for the expiry of the term, Rajiv Gandhi did not adhere to the advice. The CAG report on Bofors had indicted the Government on procedural lapses and failures, and had also found that commission agents were employed and paid. Ultimately, when the Opposition insisted upon a debate in Parliament, the Government conceded the same. Correct procedures were not followed that led to chaos, and the treasury bench attacked the CAG which pained the President. 106 Members of Parliament resigned on this issue. C. Subramaniam advised that the President, as the Supreme Commander of the Armed Forces, had the authority to examine the report outside the purview of Article 74(1) of the Constitution and act on his own independent conclusions based on the report of the CAG. Here too, the President showed his inability stating that the President is only a titular head of the Armed Forces and cannot issue any direction to the Forces except through the Ministry of Defence. Also, the Constitution did not envisage the President as an appellate authority over the Government but only as a symbol of state with defined powers. Here, the President could have taken some legal action and set a precedent in a parliamentary democracy when the public support was also there and left it to the court of law to take its course and decide.

Another turbulent time for the President was when in the 9th Lok Sabha elections, no party got the absolute majority to form the Government. There was the 'hung' Parliament. The question before the President was as to which party was to be called to form the government. He referred to the British precedents when in 1923, the Conservative Party lost its majority in the general elections but remained the largest single party. The Crown invited its leader, Baldwin, to form the government, and when that party was defeated in the House, the next largest party, i.e., the Labour Party was invited to form the government. Again in 1929, when the Conservative Party lost, the Labour Party being the largest single party was called to form the government. So the British precedents were that the largest single party was invited to form the government since the hereditary monarch was least connected with parties. President Venkataraman being elected by the then majority party, that is, the Congress, deviated from the British practice. The Congress, though being the largest single party with 205 members including its allies the AIADMK and the National Conference, decided not to stake its claim to form the government. President Venkataraman wanted Rajiv Gandhi to arrive at the same decision. He had conveyed to Rajiv Gandhi through Deshmukh and Karunakaran his desire to that effect. Thus, the next largest party, the National Front, supported by the BJP with 85 members and the Left Front with 52 members, was invited to form the government, with V.P. Singh as the Prime Minister and Devi Lal as the Deputy Prime

Minister. This reveals the experience, statesmanship and concern and recognition of the people's mandate on the part of President Venkataraman.

The vital issue of reservation for Backward Classes, that is implementation of the Mandal Commission's recommendations under V.P. Singh's Government, exposed the President's limited powers as the head of the State and not of Government. Being concerned about the growing violence over the issue, the President cautioned the Prime Minister that his proposal for additional reservation would carry the total reservation beyond the 50 per cent limit set by the Supreme Court. Therefore legal opinion would become necessary. About the increasing lawlessness, self-immolation of students, police firing and the death of students, the President showed his distress and was quite unpalatable in his remarks.

Subsequent to the Mandal issue, was the BJP leader's, L.K. Advani's, *rath yatra* from Somnath in Gujarat to Ayodhya in Uttar Pradesh. Along with Vishwa Hindu Parishad, it announced its decision to go ahead with the construction of the temple. The President deals with this matter in detail. Following the arrest of L.K. Advani, a delegation of the BJP led by Atal Bihari Vajpayee presented to the President a letter of withdrawing its support to the V.P. Singh Government- the consequence was reduction in the strength of the ruling party and the ball fell in the President's court. The President fixed November 7 as the date for the V.P. Singh Government to move a motion for the vote of confidence. The National Front had a strength of 146 members and the BJP and the Left Front 86 and 52, respectively. When the President asked Rajiv Gandhi whether he would allow V.P. Singh to continue in office by abstaining from voting on the confidence motion, he said he had not thought of such a course and added that he was thinking aloud but, quickly with a mischievous glint in his eyes, said that he preferred V.P. Singh to take that 'Odium' (p. 430). Consequent to the loss of confidence, V.P. Singh and his colleagues resigned. The important point was that V.P. Singh resigned but did not recommend the dissolution of the House. After a lot of efforts in finding an alternative, Chandra Shekhar managed to form the government with the 'defectors' for which the President was criticised. The President demanded in writing that the Congress, the majority opposition party, would give unconditional support to the Chandra Shekhar Government. This shows the active interest that the President took in preventing another Cabinet from falling and averting of a constitutional crisis. But this Government was also short-lived. This made the President fed up with all experiments of running minority governments and sick of the promises of support from outside to them. In March 1991, Prime Minister Chandra Shekhar and his Council of Ministers resigned and advised dissolution of the Lok Sabha as it was necessary to seek a fresh mandate from the people. The President was concerned because a number of financial measures had to be adopted, otherwise there would be financial chaos. So, the President accepted his resignation and requested his Council of Ministers to continue in office till another government was formed. The President did not base the decision of dissolution of the Lok Sabha solely on the recommendation of the outgoing Prime Minister but also on another factor: no political party had come forward to form a government. The President laid a healthy convention of handling the budgetary and financial process not by ordinance, but through Parliament. There were views in support of ordinance as it was co-extensive with the power of legislation and there was no bar against an ordinance on a vote on account.

When Chandra Shekhar Ministry resigned, the President called some constitutional experts to advise him on following points:

1) whether the advice of the Chandra Shekhar Government for dissolution of Lok Sabha was binding on the President;

(2) whether the Prime Minister, after acceptance of his resignation, but continuing in office, was competent to pilot any legislation in the House. On this, there was a British precedent and the Crown had asked the Prime Minister to continue in office, so he had the power to function in legislative as well as administrative matters;

(3) what could the President do to ensure financial provision for carrying on administration in the event of Parliament not passing the financial business?

There were the views by Muslim League Leader Ibrahim Sulaiman Saif, Banatwala and Abdul Samad according to whom it should then be from the Consolidated Fund of India to which the President did not agree, as no expenditure can be incurred without it being passed by Parliament. The President was also of the view that if it came to worst, he would request both Chandra Shekhar and Rajiv Gandhi to cooperate to pass a vote on account in the interest of the nation. The point is that if the President was keen on using his good offices to prevent this constitutional crisis, then why did he not make the same attempts with the Congress Party when V.P. Singh's Government had to face the vote of confidence. All this constitutional hustle could have been avoided. This is not clear from the book (p. 430). It appears that he had discussed only with Rajiv Gandhi what line of action his Party would take, rather than using the opportunity to save the situation.

In all the constitutional crises, right from the 9th Lok Sabha to the election of the 10th Lok Sabha, the President has not used his discretion. He had taken all steps according to law and the Constitution and also the British precedents and opinions of constitutional experts like P.N. Bhagwati, Dr. Singhvi, S. Balakrishnan, a constitutional advisor in the Home Ministry, Parasaran, former Attorney General, K.K. Venugopal, F.S. Nariman, Attorney General G. Ramaswami, etc. It shows that the seat of the constitutional head is not easy, it is one of great responsibility.

During these constitutional crises, when no party was able to get clear majority or when political instability was caused by the multi-party system, the President promoted the idea of a National Government. Some parties, like the BJP, and the Janata Party leaders, V.P. Singh, Bommai, and Bengal Chief Minister Jyoti Basu were in favour of the proposal. When the question arose as to who would head the National Government, the President said if the parties wanted someone from outside the ranks of political parties, he would suggest Dr. Shankar D. Sharma, the then Vice President, a matured, learned and non-controversial statesman. Here it is noticed that the President was too optimistic about the idea of a National Government. Experience of such a National Government in the form of coalition of parties in the past has not been successful, or a National Government in the form of partyless government is too novel and simplistic an idea for the utterly complicated 'Indian politics'. Moreover, the President does not discuss in detail the nature, power and formation of such a National Government. Above all, a national debate and national consensus would be required.

In the 10th Lok Sabha election, when no party got an absolute majority, as per the convention Venkataraman had established since 1989 and as per the Constitution, the President called P.V. Narasimha Rao as the leader of the largest single party to form the government. The President addressed both the Houses of Parliament on July 11, 1991. It was his third address prepared by three different Governments in the 19 months. On December 29, 1989 he delivered the address prepared by the V.P. Singh Government, on February 21, 1991 by the Chandra Shekhar Government, and on July 11, 1991, by Narasimha Rao's Government. In this way, during his tenure as the President, he had the experience of four Prime Ministers with their different policies and temperaments. Yet, during the constitutional crises and dilemmas the President went according to the law and precedents, not by his discretion and whims.

Besides, these periods of constitutional crises, which made the President's tenure turbulent, were marked with such issues as the Cauvery river water dispute between Karnataka and Tamil Nadu, Rajiv Gandhi's assassination, incidents relating to Om Prakash Chautala, former Minister of Haryana, and Devi Lal, the Ayodhya affair, the President's rule in states under Article 356- whether the President had *suo moto* powers- as in Tamil Nadu, Karnataka, etc.

The President's views on the Press can be seen from his remarks made on the occasion of felicitation to honour Russi Karanjia on his completion of 50 years of service as the editor of *Blitz* organized by the R.K. Karanjia Felicitation Committee in Bombay. The President said that

the Press in India had been well established and that its very strength added responsibilities to it to preserve high standards. While the Press could play a major role in cleansing public lives, it should also see that if the pen should write and if the broom should clear, it must itself be free from all impurities. He also cautioned that care should be taken to see that 'gossip does not pass for news and slander for views', and that the journalistic profession should attach 'as much value to integrity as it did to journalistic independence' (p. 152).

In this book, the President has also not spared T.N. Seshan, the Chief Election Commissioner, for his keeping an unnecessarily high profile, holding conferences, giving his views on all issues and hurting people by his brashness, and committing an indiscretion in participating in a television programme on election right in the midst of raging controversies and making a statement that the Government dictated the dates of the adjourned polls after Rajiv Gandhi's assassination. Despite slips, the President found him firm, strict, impartial and totally dedicated to the conduct of fair elections, and has referred to him as 'a pot of milk spoilt by a spot of filth' (p. 545).

On Kashmir, the President recalls that way back as Defence Minister, he had suggested to Indira Gandhi in 1983 that Ladakh could be made a Union Territory as demanded by the local people, Jammu given the status of a state and the valley dealt with as a separate entity. This stand, which is supported in many quarters, is the most practical one.

On the burning Indo-Sri Lankan issue over LTTE, though the President had supported Rajiv Gandhi's idea of an Indo-Sri Lankan accord to solve the Tamil problem, he had also suggested that an interim government for the merger of Northern and Eastern provinces could be formed with the LTTE, if possible, and without them, if necessary. He further explained the advantages of implementing the Indo-Sri Lanka Agreement, by forming an interim government and allowing it to assume responsibility for law and order. In his view, the LTTE would stand isolated if they did not join the interim administration, while all the other parties came together. But this advice was not carried out.

(B) President and his foreign visits, enlightening and explaining the Indian government policies on major issues to the foreign governments and its officials

Normally, the President's visit to foreign countries is thought of only as ceremonial, but this book reveals the important role these foreign visits by a President of a parliamentary system can play in explaining and highlighting issues of bilateral, multinational or international relations during such visits. For example, President Venkataraman complimented the Soviet authorities on their new economic policy, radical policies of Perestroika-Glasnost and Afghanistan; he regretted Pakistan's military support to the Mujahideen rebels, in spite of the Geneva Agreement on non-intervention in a country's internal affairs by other countries; he referred to India's concern about the supply of arms and assistance to terrorists by Pakistan in Punjab and Kashmir; welcomed the Intermediate Range Nuclear Forces Treaty (INF treaty) between the United States and the Soviet Union, December 1987, etc. The Soviet mass media considered this visit as a milestone in the ever-growing friendship between India and the Soviet Union. On global issues, like nuclear disarmament, there was an identity of views.

On August 20, 1988 President Zia-ul-Haq was given a memorable state funeral which was followed by a meeting with Ishaq Khan, the acting President. According to the *Telegraph* of Calcutta, it was the longest meeting Ishaq Khan had with the visiting foreign dignitary. President Venkataraman as the representative and head of the State, stressed that India desired to live in peace and amity with Pakistan and that a weak and unstable Pakistan was not in India's interest.

The President's foreign visits are Important not only for making India's stand on its foreign policies clear, but also for elucidating certain issues. He explained to the Queen of Netherlands that the reason why India was not signing the Nuclear Non-Proliferation Treaty was because of

the nuclear programme of Pakistan and China. Also it was illogical to permit vertical proliferation of nuclear weapons by the members of the Nuclear Club and prevent horizontal proliferation by the have-nots. In Finland too, while speaking on India's achievements and challenges to the Paasikivi Society, a prestigious institution of intellectuals, the President highlighted on India's democracy, culture, India's progress in agriculture, industry, science and technology since Independence.

The President's visit to Japan to attend Emperor Hirohito's funeral gave him an opportunity for bilateral meetings with heads of states like Indonesia, Philippines, Egypt, Germany, Portugal and Zambia, and also personalities such as the King of Bhutan and the Vice-President of Yugoslavia.

In his talks with President Bush, the President conveyed India's anxiety over America's supply of sophisticated arms to Pakistan and the clandestine assistance rendered to terrorists and militants in Kashmir and Punjab by Pakistan. America's assistance in the transfer of items of high technology and super computers to India was acknowledged.

During President Venkataraman's visit to the United Kingdom he informed the British Prime Minister, Mrs. Thatcher, that barring a few incidents of violence, the last general elections were free and fair in which 300 million people voted. The President mentioned that India had three million scientists and technologists, the third largest in the world, which made Mrs. Thatcher gasp and remark 'You beat us' (p. 369). Dealing with the sensitive issues of Kashmir and Punjab, the President condemned Pakistan's support to terrorists in Kashmir and Punjab, and asserted that all issues with Pakistan could be settled bilaterally through the Simla Agreement. When Mrs. Thatcher intervened to impress her concern at the growing tide of terrorism and fundamentalism all over the world, the President seized the opportunity to point out that India was a secular democratic state and could not agree to the formation of a state on the basis of religion. Similar visits were also made by the President to places like China, Cyprus, etc.

Conclusion

This book is not only an autobiography describing the tasks attended to by the President but also an important account of all the constitutional crises right from the period prior to the 9th Lok Sabha to the 10th Lok Sabha. In this, it reveals action taken by the President under parliamentary democracy, as well as, in a systematic, orderly and composite manner, the events of concern to India that took place at the local, national and international levels. One gets all the political information in one place which would otherwise be so difficult to trace. This is an important book not only for politicians, journalists, lawyers, etc., but also for the students and researchers in Constitutional Law and Politics, to seek guidance over the role, powers and limitations on powers of the President and the precedents set by the President in times of constitutional crises. President Venkataraman has during his tenure raised many questions with regard to limitations of the President's power in such significant matters as dissolution of the House, power of pardoning, 'hung' Parliament, rule by majority party when no single party gets absolute majority, and so on. In spite of his tenure being turbulent, he worked according to the Constitution and defined the power of the President in a parliamentary democracy as follows: 'I compare it to an emergency lamp, which came into operation when power failed and became dormant when power was restored' (p. 651). In the farewell address which was read by the Speaker of the Lok Sabha, Shivraj Patil, he stated: 'Never before in the history of the Indian Republic has the President been faced with so many crises and situations as you were called upon to tackle during your tenure. ... we will remember you for your statesmanship, your humanity, your friendliness and winning informality' (p. 650).

On writing such a book, the President needs to be complimented.

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*A Sujata Patel and Alice Thorner, (Eds.), *BOMBAY - Metaphor For Modern India:* Oxford University Press, Bombay, 1995, Pp. xxxiii + 298, Price Rs. 495/-.

*B *BOMBAY - Mosaic Of Modern Culture:* Oxford University Press, Bombay, 1995, Pp. xxxiii + 235, Price Rs. 495/-

These two books contain the collection of papers prepared for the Workshop held in Bombay from 16 to 19 December, 1992, under the auspices of the SNDT Women's University, Bombay, and the Maison des Sciences de l'Homme, Paris. Of interest for this Journal is the history of Bombay city which is traced in all its facets through the two books and is reproduced below.

I HISTORY OF BOMBAY

Bombay was handed over by the Portuguese to the English Crown in 1665, under the terms of the marriage treaty between the English King Charles II and Catherine of Braganza, sister of the King of Portugal [EB Vol. 3, p. 13]. At that time, Bombay was 'composed of seven islands surrounded by unhealthy marshlands' (B, p. 77)*. 'As early as 1687 the city having been improved through drainage and reclamation.....was chosen to succeed Surat as the (East India) Company's headquarters in Western India' (B, p. 77). From 'a conglomeration of fishing villages and agricultural hamlets in the 17th century' it 'had grown into a port town in the 18th and a port city of consequence in the 19th century. With the acquisition of the Peshwa's territories in the Deccan after the Third Anglo-Maratha War in 1819, Bombay had become the seat of British power in Western India' (A, p. 90). Although 'Bombay island measured no more than 18 square miles in the early 19th century, control over its space was crucial to the establishment of British hegemony in Western India and the Indian Ocean' (A, p.91). During this period, 'the "urban" parts of Bombay island were the Fort (or "European Town") and the Native Town. The remaining localities were known as individual "villages" or "towns". It was only in 1864, that Bombay city was made officially co-extensive with Bombay island, although it still contained large rural tracts' (B, p.9).

At the time when the East India Company shifted its headquarters to Bombay (1687), the population of the city was around 50,000. The city grew steadily during the 18th century and services and communication to mainland India and Europe were extended. In 1857, the first spinning and weaving mill was established and by 1860, Bombay had become the great cotton market of Western and Central India. These activities brought in its fold population from different parts of the country. Merchants and financiers came from Gujarat, artisan groups and people in the informal trade from Deccan, Konkan and Gujarat (A, p.91). Surveys conducted in the 1800s showed the rapid rise in Bombay's population. 'In 1827 the population stood at approximately 230,000. By 1850 it had touched the half million mark and in 1885.....the population peaked at 816,000.' However in 1872, when the first Census on an all-India basis was conducted, 'the population of Bombay had levelled off to around 645,000' (A, p.90) The 1881 Census revealed a population 773,196 (B, p. 7). By 1991, the population had increased to 9.9 million in the Municipal Corporation area.

With the increase in population, the area covered by Bombay city began to expand, partly into the hinterland, and partly by reclamation from the sea. The old city comprised of the two revenue districts of Bombay island and Mahim districts (A, p. 94). Land was first dredged up from the sea in 1865 to extend the Bombay-Baroda and Central India Railway upto to Colaba to serve the Cotton Green merchants in their auctions and export activities (A p.103). The Bombay Municipal Corporation was set up in 1865; the Corporation regularized the earlier take-overs of extensive plantation lands from local owners in the southern coastal areas for building purposes and other profitable uses. In 1903, the Tata's proposed the reclamation of the Mahim woods but this was rejected by the Corporation; in 1914 however the Mackinson Plan for the same purpose was accepted. By the early 20th century,

* For facility of referencing, the books have been marked A and B.

extension through reclamation of land from the sea became a major feature of Bombay's growth (A Pp. 102-103). This reclamation programme, popularly known as the Backbay Reclamation (BBR) Scheme, was an extension of the earlier action taken in 1865. The second phase of the Reclamation Scheme was initiated in 1913 and the third phase in 1922. The Scheme was divided into eight blocks with areas reserved for parks and playgrounds, public buildings, recreational purposes and for educational use. Before the entire Scheme could be completed, leakages developed in the sea wall which was being constructed to enclose and reclaim an area of 1,300 acres. The costs escalated thereafter, and a Committee was appointed to examine the feasibility of the project. By that time, two Blocks lying between Chowpatty and the new Sachivalaya and two Blocks covering the present Navy Nagar and the Tata Institute of Fundamental Research had already been reclaimed. The cost-benefit ratio turned out to be uneconomic and the rest of the Scheme was abandoned in 1930 (A, p. 104).

'In 1958. a one-man committee appointed by the Bombay State Government recommended the completion of the abandoned BBR Scheme in order to create additional land resources close to the Central Business district (A, p. 104). In the same year, a Study Group appointed by the State Government under the Chairmanship of Shri. S. G. Barve recommended the reclamation of the Bandra-Kurla Complex located at the centre of the metropolis in preference to enlarging the BBR area. The Study Group had also suggested the shifting of Office complexes to the suburbs (A, p. 105). The Barve Study Group's recommendations for the development of the Bandra-Kurla belt as a new industrial complex, took off at an accelerated pace, 'especially with small scale industry, and the area around Trombay continued to attract large-scale public sector units in the fertiliser and oil industries. The extended suburbs provided the space needed for engineering, chemicals and pharmaceuticals, mainly on the eastern railway route, but also increasingly around Andheri in the west' (A, p. 159).

During this period, Bombay expanded northward with the inclusion of Salsette island in 1950. A number of suburban municipalities - including Bandra, Kurla, Andheri, Juhu, Ghatkopar, Malad and Mulund - and some villages of Thane were also incorporated into Greater Bombay by 1957. The area of the city had by then increased from 18 square miles (46.42 sq. km.) in the 1800s to 169 square miles (or 437.71 sq. km.) by the late 1950s [EB, Vol. 3, p. 15].

In 1966, the Gadgil Planning Committee recommended the abandonment of the BBR Scheme and stopping any further commercialisation of south Bombay. The Committee strongly argued in favour of a multi-nuclear growth of the Bombay Metropolitan region to be achieved through building of new towns. For this purpose the Committee recommended the creation of a Regional Metropolitan Board which was constituted in 1967 (A, p.105). At the same time, the Metropolitan Transport Team appointed by the Planning Commission, criticized the BBR Scheme on the grounds that it would increase the localization of commerce in southern Bombay, thereby exerting pressure on water and other supplies and services, and straining the public transport system (A, p.105).

The Bombay Metropolitan Regional Planning Board (BMRPB) which had been set up in 1967, appointed two Study Groups to examine the problem further. Both recommended (a) the creation of a new town on the mainland across Thane Creek, and (b) restructuring of Bombay by developing the suburbs. Both expressed strong reservations about pursuing the BBR Scheme in particular, because of its bias towards commercial land use. In 1970 the BMRPB recommended the abandonment of the BBR Scheme. However, the State Government approved the Scheme, which was then implemented. 'As predicted, this extremely concentrated commercial development in the southern tip of Bombay resulted in congestion, overcrowding and enormous pressure on road and suburban rail transport, water supply, sewerage and electricity. For workers, jobs in the business district, meant long hours and high cost of commuting. The abnormal rate of increase of real estate values resulted in a distorted land and housing market' (A, p.106)

While the BBR Scheme was being implemented, the State Government had already started planning a satellite township across the Thane

Creek on the mainland. By the early 1970s a bridge across the Thane Creek linking the island with the mainland had been built and work on the New Bombay project had also progressed. The Government of Maharashtra set up the City and Industrial Development Corporation (CIDCO) in 1970 for the purpose of developing the new town. Later, CIDCO was made the New Town Developing Authority (NTDA) and later again the Special Planning Authority (SPA) of New Bombay. 'In the development strategy of New Bombay (1971-91), the structural plan had envisaged a balanced urban development through a nodal pattern strung along a mass rapid transport line. Each of these nodes was expected, in the ultimate stage of development, to become independent and self-sufficient, with a strong economic base. In the course of 20 years, from 1973 to 1993, only seven of the originally planned 20 nodes were actually developed.' CIDCO's major objectives in developing New Bombay were '(i) to reduce concentration of population and economic activities in Greater Bombay; (ii) to furnish physical and social services to New Bombay residents, raise the standard of living and reduce disparities in the availability of amenities to different sections of the population; (iii) to provide better environment to the residents of New Bombay; (iv) to rehabilitate the local population adequately and integrate them in the planned urban development by employing them in various organisations run by CIDCO; and (v) to support the state industrial policy' (A, p. 111).

However, what was achieved later was far from the planned objectives. There was much deviation from the original objectives. For example, the aim of rehabilitation of the indigenous displaced population was simply dropped in 1981, ...With a population of nearly 200,000 in the early nineties, the city does not have a single public hospital or health centre, municipal or government school, or even a properly maintained public playground or recreational centre..... The land use policy also has undergone a change. Some northern areas located very close to the NOCIL Chemical Plants earlier declared as environmentally unsuited for residential use, have been offered for sale to private cooperatives. Similarly, certain vital facilities like sewage farming and parks or playgrounds were removed from the 1981 land use plan (A, p. 113). New Bombay has functioned, to a large extent, 'as a satellite centre for the finance and industrial capital of Bombay and as a dormitory suburb. The indigenous population has been pushed to the periphery, both culturally - by displacement from their old settlement, and economically - by acquisition of their cultivable land' (A, p. 114). Thus the new city was unable to provide space for the poor and middle class from the saturated Bombay city, and also left the indigenous population high and dry.

A third area considered for development to ease the population pressure of Bombay city, was the Vasai-Virar sub-region. Bulk of the development undertaken in this area was by private developers and builders after obtaining dereservation of agricultural land. Infrastructure development of roads, transport, supply of water and electricity was left unplanned and in government hands. The State asked the local civic bodies to bear the cost of supply of services, resulting in taxes being levied on the new residents. Thus, despite pitfalls of improper planning, the Bombay city expanded. By 1991, the Municipal Corporation area covered 603 sq. km. having a population of over 9.9 million persons. More than half of this population lived in slums or pavements in different parts of the city. What was (and still is) the attraction of the city which brought people to Bombay?

(a) *Economic Development*

In the initial years of its occupation by the East India Company (and later the British Government) it was trade and commerce with the available port facilities. Bombay's natural harbour made it advantageous for ships coming from Europe to berth. With the opening of the Suez Canal in 1869, the distance between Europe and Bombay also became shorter. Trade was mainly in the export of cotton and opium in the early 1800s. But, by 1870 'Bombay's export trade suffered from the gradual disappearance of opium as an export commodity, from a fall in foreign demand for the short fibre cotton grown in the Deccan, and from an increasing diversion of the export trade of Sind and the Punjab to Karachi'

(A, p. 32).

However, 'in 1853 was inaugurated the very first railway track in India - the 20 mile stretch from Bombay to Thana - soon to develop into a wide network radiating from Bombay to all the major cities in the sub-continent (B, p. 6). The railways 'reinforced Bombay's links with its hinterland, facilitating the expansion of its commercial net-work' (A, p. xvi). 'Bombay's sphere of influence increased spatially' and 'during the first phase of the railway era, c. 1860-1900, there occurred a certain redefinition in the hinterlands of the various ports and Bombay managed, thanks to the railway, to capture trade flows which were previously channelled through Calcutta.....- Bombay increased its share of the United Provinces and Hyderabad State' (A, p. 34). A change in the size of (its) hinterland enlarged its share of India's import trade in the 1871-1901 period (A, p. 34). The pattern of railway development favoured Bombay, 'and it had a greater impact on imports than on exports because the former were not subject to the kind of physical constraints which largely influenced the location of export crops' (A, p. 34).

With commerce and trade came the establishment of industry. As mentioned earlier, the first cotton 'extile mill was set up in 1857 at Tardeo. Subsequently, the 'growth of the industry covered the area from Byculla to Parel with 82 mills employing 73,000 men by 1900, constituting 40 per cent of the city's workforce' (A, p. 144). By the late Nineteenth century, the textile industry had taken precedence over trade (A, p. xvi). However, 'after 1922 the Bombay cotton-textile industry ceased to grow'; 'between 1920 and 1939, Bombay's share in India's cotton-textile industry fell from 43.9 to 28.3 per cent in spindles and from 51 to 33.2 per cent for looms' (A, p. 36). There was some expansion of the cotton textile industry after Independence and by 1982, the industry was employing over 240,000 workers (A, p. 64). Following the labour strike in the industry in that year, a decline set in. By 1990-91, the number of cotton mills functioning in Bombay city stood at 54, with an installed capacity of 3,004 spindles and 493 looms, and employment to 133,933 workers [Maharashtra, 1993, p. 80].

While the textile industry was the first of the industries set up in Bombay city, following the Second World War, capital-intensive manufacturing industries, light and medium engineering works, pharmaceuticals and petro-chemical industries also got established in the city (A, p. xiii). Establishments of importance, even today, include general engineering, printing and the production of automobiles, chemicals and paints, fertilisers, food products, silk and artificial fibres, oils and soaps, metals and plastics. By 1990-91, Greater Bombay had 7,832 factories employing 4,47,492 workers daily [Maharashtra, 1993, p. 75]. In addition, the city contains the Atomic Energy Commission's establishment, including nuclear reactors and plutonium separators [EB, Vol. 3, p. 16]. The seat of the Government of Maharashtra is also situated at Bombay.

On the commercial side, Bombay houses the headquarters of the Reserve Bank of India, and the nation's leading banking institution, the State Bank of India - There were over 1,000 offices of different banks in Bombay by 1991 - The Head Offices of the Life Insurance Corporation of India, the Bombay Mints, Air India and a number of private commercial houses are also located in the city. By March 1993, Greater Bombay housed 50,153 Joint Stock Companies [Maharashtra, 1993, Pp. 85-86]. The Bombay Stock Exchange, the country's leading stock and share market which is considered the financial barometer of the country, is also situated in the City.

(b) *Problems of Housing*

'The burgeoning economic activities of the city attracted migrants from nearby rural districts and eventually from the whole country. Nineteenth century newcomers hailed principally from the areas today included in Maharashtra and Gujarat. Workers from the coastal Konkan strip and the Western Ghats manned the docks and cotton textile mills. Most of business and trading groups came from Gujarat. In the twentieth century and particularly after Independence, new waves of migrants arrived from both north and south India' (A, p. xiii).

With the arrival of these hordes of people and establishments there was need for accommodation for offices, homes, factories, institutions, etc.

Having grown 'from a small fortified trading settlement into a sprawling commercial metropolis,' the requirements of accommodation also grew. 'The original nucleus of settlement.....was a walled town built on the eastern side of the island adjacent to a quadrangular stronghold called the Castle. This fortified settlement included both Indian and British inhabitants. The southern half comprised European residences, public offices and buildings, military barracks, shops for the sale of European goods, offices and warehouses, the docks and law courts. The northern half was occupied by Indian houses, offices and shops, belonging primarily to the Parsi, Borah and Bania communities. Indian buildings in Bombay reflected the original vernacular adopted to congested urban conditions. Houses tended to be tall, occupying narrow street frontages, with verandahs in front and courtyards at the rear of the lot. The most striking feature of Indian building.....was its decorative carving, a quality that linked it with traditional Gujarat architecture' (B, Pp. 165-166). Even in the nineteenth century, the houses were four, five and six stories high, their facades broken with airy balconies enriched with graceful carving and painted with all the colours of the rainbow (B, p.166).

(c) *Slums*

As population grew, land values rose and complaints about both the cost and scarcity of the housing became frequent. With industrial prosperity, overcrowded dwellings became common and every inch of space, including verandas, were rented out as sleeping place for labourers - 'A single chawl, five to seven storeys high might have from five hundred to one thousand inhabitants crowded into dark and unventilated rooms' (B, p.167). Bombay started to encompass 'dramatic contrasts of opulence and squalor' (B, p.168). Important commercial structures and institutional buildings in the Victorian and Gothic style with elements of physical grandeur were juxtaposed with congestion and dilapidation (B, p. 173).

Government set up in 1898, the Bombay City Improvement Trust for the creation of new streets, opening up congested areas, reclaiming land and construction of new housing. Because its activities involved the compulsory acquisition of property for demolition, it was often unpopular with both landlords and tenants. By the time the Trust was absorbed by the Bombay Municipal Corporation in 1933, it had demolished 36,317 dwelling units and constructed 61,868 new units, created over 61 miles of roads, planted 12,000 trees, provided parks and gardens and undertaken various land-filling operations (B, p. 173). The housing crisis, however, continued with workers preferring to remain near their areas of employment. 'One factor in lowering housing standards in Bombay was a continuing predominance of single men in the working population. Most of these men lived as cheaply as possible in order to remit money to families elsewhere, and would tolerate the most minimal housing..... In 1911 it was reported that 80 per cent of the people of Bombay lived in single-room tenements' (B, Pp. 173-174).

In 1920, the Improvement Trust was supplemented 'by the Development Directorate which was created to construct working-class housing, develop new industrial sites outside the central areas, augment communication between the city and suburban districts, and improve the supply and transport of building materials. The most ambitious work of the Development Directorate, however, was the reclamation of the Back Bay area' in the 1920s (B, p.174). 'The expansion of Bombay by means of reclamation areas resulted in the creation of districts that were remarkably unified in terms of architectural style' (B, p. 175). But this again was the fashionable side of Bombay; the slum areas continued to proliferate.

The first official enumeration of slum dwellers was undertaken in 1976, although a Development Plan was launched by the Municipal Corporation in 1967 with the hope of clearing the major part of the slums then existing, during 1971-91. Principal reliance for fulfilment of the programme was placed on construction by public agencies with efforts by the private and corporate sectors. But the plan was not realised and the slums persisted. The Maharashtra Slum Areas Improvement, Clearance and Redevelopment Act of 1971, 'laid down criteria according to which the competent authority was to declare specific

areas as unhealthy or otherwise unfit for human habitation. At that time the City's slum population was conservatively estimated at 1.3 million'. An enumeration of slum dwellers, undertaken by the government in 1976, identified 2.8 million persons in 1,680 settlements. In 1983, the total number of settlements had risen to 1,930. 'The population, including the natural increase in the 1976 pockets, was estimated at 4.3 million persons in 924,572 households.' If the 700,000 pavement dwellers were added, there were 'nearly 5 million persons living on the streets or in the slums, approximately half the city's population' (A, p. 122).

From 1943 to 1956 the then Bombay government disbursed scanty grants to various municipal bodies for improving unauthorised areas. Bombay was also one of the six pilot cities taken up for slum clearance by the central government under the Slum Areas Improvement and Clearance Act, 1956 (as amended up to 1964). Under the State Act of 1971, a Slum Improvement Board was set up in February 1974. As central assistance was discontinued in April 1974, the Board was merged with the Maharashtra Housing and Development Authority in 1977 (A, p. 123). In that year, 'the state government appointed a Controller of Slums with the rank of a Collector. His charge was to prevent proliferation of slums, to protect existing colonies from being encroached upon by new entrants, to protect vacant lands required for public purposes, and to coordinate the programmes of the various concerned authorities. He was provided with adequate staff for the management of slum colonies, for patrolling open areas, and for recovering compensation, service charges and other dues' (A, p. 124).

A project for upgradation of slums with World Bank assistance was taken up in 1985. This project called the Bombay Urban Development Programme (BUDP), with an outlay of Rs. 282 crore, had provision for a Slum Upgradation Programme (SUP) amounting to Rs. 53 crore (A, p. 125). The SUP intervention was to be taken up in only those settlements enumerated by the state government in 1976 and 1983, referred to earlier.

This programme was not 'satisfactorily implemented' due to bureaucratic bungling, discrepant orders, political interference, stay of implementation by courts and frequent changes of policy decisions. With the new BJP-Shiv Sena Government in power since March-April, 1995, new development programmes are being considered for slum dwellers. One hopes that they will succeed!

This skewed development of the city, with nearly half the population continuing to live in the slums, has had its effects on the health and mortality of the people. Bulk of the slums, even in the late nineteenth century, had no water or sewerage connections; the mortality rates in these areas were higher than in other areas. In 1889-90, the tuberculosis rates were twice as high in Khara Talao, Kamathipura and Nagpada areas then elsewhere. Poverty explained these mortal differentials, reflected in both lower nutritional status and more densely packed living conditions which aided the transmission of the disease (A, p. 147). Plague struck the city in 1896; the deleterious effects of poor sanitary environment, deteriorating housing, undrained swamps and presence of waste matter ensured the reproduction of the rat population. The crude death rates as a result of plague could be gauged with 'the European population suffering a rate of one per thousand, the Brahmins 13 per thousand, and the low caste Hindus 22 per thousand' (A, p. 149). The state of affairs has not changed very much. If any thing, the health and living conditions of slum and pavement dwellers continue to remain as bad as hitherto.

Suggestions have been made that land be 'given to cooperatives of slum-dwellers' so that 'the people can decide on more appropriate housing and development programmes.' This would 'allow for individual freedom and expression of housing, resulting in tremendous variety of form, structure and colour in the framework of an ever-evolving and living aesthetic' (A, p. 173). Further, 'finance from the various government and semi-government agencies should be given directly to societies and cooperatives of the people. The societies' could 'then appoint architects and project managers, who....in turn' could 'assist the society in the selection and appointment of contractors. The entire work'

could 'be undertaken and executed in such a way as to provide appropriate and effective housing' (A, p. 174). It is doubtful if the suggestion would work: 'The poor spend almost all their meagre income on food and only secondarily on health and education of their children. Very little is left for housing. It is essential, therefore, that the government subsidize housing' (A, p. 176). If there is 'very little left for housing' one wonders how the poor would be able to pay up even the non-subsidized amount!

II CIVIC ADMINISTRATION OF BOMBAY

Civic governance of Bombay commenced in 1793. Between 1793 and 1845, the main functions of the civic administration 'related to police, administration of justice and collection of taxes. The creation in 1845 of a civic heptarchy representing diverse interests loosely blended into an executive body marked the beginning of the second phase (1845-72). An attempt to improve the administration was made in 1858 by providing for the appointment of three commissioners. All members of this triumvirate had equal powers, so, in the exercise of their divided responsibilities, they often obstructed each other's functioning. The need for a single, strong executive authority was increasingly felt and voiced. An Act of 1865 created the office of a single Municipal Commissioner, whose powers steadily increased with the passage of time. The Act of 1865 also created a body corporate of the Justices of Peace with powers to impose rates and taxes and to assume full control of the municipal funds. The people's voice was, however, not heard in this set-up. The demand for a responsible representative municipal body began to gain momentum.....' (A, Pp. 248-249).

'The introduction of an elective element in the municipal body in 1872 marked the beginning of the third phase (1872-88). The Act of 1872 granted franchise to certain classes of rate payers and created representative assemblies'. In 1882, Lord Ripon, the then Viceroy of India, called for the creation of municipal and district government boards in which at least two-thirds of their members should be elected non-officials. 'Lord Ripon's pronouncement..... gave an impetus to the demand for extension of self-government to the municipal administration of Bombay' (A, p. 249).

The Act of 1988 'recognized the Corporation as the supreme governing body of the city, and the Municipal Commissioner as its chief executive authority, responsible for carrying out its will..... The Act specifies seven statutory collateral authorities, each charged with certain responsibilities: the Corporation, the Standing Committee, the Improvements Committee, the Bombay Electric Supply and Transport Committee, the Education Committee, the Municipal Commissioner, 'and the General Manager of the Bombay Electric Supply and Transport Undertaking. The first five of these are deliberative bodies with powers to sanction funds; the last two are executives. The Act envisages a clear demarcation of functions between the executive wing (the Municipal Commissioner) and the deliberative Wing (the Municipal Corporation). The Municipal Commissioner, drawn from the civil service cadre, is a government appointee for a renewable term of three years. He attends and participates in discussions at meetings of the Corporation and its Committees but does not have the right to vote. The exercise of some of his powers, such as awarding contracts and purchase and disposal of property, involving huge amounts of money need the sanction of the Corporation and some of its Committees. He can be removed from office by the State Government, if at a meeting of the Corporation not less than five-eighths of the total number of councillors vote for such a proposal, and also if it appears to the state government that he is incapable of performing his duties or has been guilty of misconduct or neglect' (A, Pp. 249-250).

The Corporation consists of representatives of the citizens elected for a term of five years on the basis of adult franchise. Since 1952, the Corporation has become a purely elective body. Over the century, the number of councillors has increased from 72 in 1922 to 221 in 1992. The nature and number of votes have changed from a few thousand ratepayers, some nominees of Government and Justices of Peace, to an adult franchise electorate numbering 6,700,000 in the last election held in 1992 (A, p. 249).

'The Standing Committee is elected by the Corporation from among its members. The main functions of this Committee are to sanction contracts, scrutinize estimates of income and expenditure framed by the Municipal Commissioner and frame the budget from these estimates, frame service regulations and sanction investment of funds' (A, p. 250).

'The manifold functions of the Corporation include the provision of maintenance of medical relief, education, water supply, fire services, markets, gardens and engineering projects such as drainage development and the improvement of roads and street lighting. The municipal corporation operates the bus transport system inside the city and the supply of electricity as public utilities. Electric energy is obtained from a grid system supplied by state government, and privately owned agencies and is then distributed throughout the city. The water supply, also maintained by the municipal corporation, comes from lakes on Salsette Island [E. B., Vol. 3, p. 16].

III THE POLITICAL LIFE OF THE CITY

Being a city with a large number of industrial workers Bombay has a strong trade union movement. Between 1917 and 1920, trade unions were organised in Bombay in the textile industry, among dock workers, tramway labour, G.I.P. railwaymen, and among printers [Mehta, 1991, p. 41]. The All-India Trade Union Congress (AITUC) was formed in 1920, to coordinate the activities of labour unions in the country, and to channelize the labour activities or to represent the labour problems. Most of the unions in Bombay had joined the AITUC. Government of India had enacted the Indian Trade Unions Act in 1926, to permit the unions to register with the government so as to confer on them certain rights and privileges. During the 1920s, strikes were resorted to by the unions under trying circumstances created by recession, unemployment, withdrawal of bonus, food allowances and wage cuts The labour unrest that occurred between 1927 and 1929 was of great intensity, had militant overtones and was long drawn out. The unions most affected in the city were those in the cotton textile industry and the GIP Railwaymen's Union. In the post-Independence era, a plethora of trade unions came into existence and also organisations like INTUC, HMS, UTUC, BMS, HMP, etc.

Individual organisers of trade unions also appeared on the scene. Of prominence in Bombay was Dr. Datta Samant who organised one of the longest textile workers strike in 1982-83. This strike which commenced on January 18, 1982 'lasted 18 and a half months and involved 240,000 workers' (A, p. 64). 'Monetary gains were the main strike objectives of the workers but the struggle was also directed against the official representative union in the textile industry, the Rashtriya Mill Mazdoor Sangh (RMMS). The workers were disillusioned with the programme of the RMMS and turned *en masse* for leadership to an outsider, Dr. Datta Samant. Dr. Samant at that time, had a reputation both for success and militancy and the workers wanted him to lead them in the struggle. For that purpose, Samant founded a new union, the Maharashtra Girni Kamgar Union (MGKU), in October 1982' (A, p. 64). In the course of the struggle, triggered off by a bonus dispute, approximately 75,000 workers finally lost their jobs and a number of textile mills closed down.

While these organised workers could be registered and be accountable for, Bombay has a large number of petty self-employed and the casually employed who remain outside the pale of all records and registers; their numbers have never been accurately determined (A, p. 5). They practice various occupations, from menial and physical tasks to occupations that are constantly shifting. Their economic conditions vary from extreme destitution, to bare sustenance. Their lives 'are further characterized by an absolute lack of essentials for decent human survival' (A, p. 9). The impact of this miserable existence has resulted in communal strife and political alignments in the city. An 'underworld' of extortion, smuggling, drug trafficking and contraband peddling also emerged (A, p. 186).

One of the political parties which capitalised on this existence was the Shiv Sena. 'When the Shiv Sena was launched in 1966 it had a simple programme and a limited constituency; the reservation of jobs and new economic opportunities

for Maharashtrians mainly in the lower echelons of white-collar employment' (A, p. 186). Its support base was therefore largely of the upper caste, white-collar workers and professionals, mainly Maharashtrians in Bombay. But 'the Sena needed an army of activists to give credence to its name. The most obvious constituency, spanning the class and locational divide, was that of unemployed and under-employed youth' (A, p. 195). These activists underwent training in the Sena's *Shakhas* and performed activities which ranged from 'burning and looting restaurants and hounding hawkers' to 'that of paving roads and providing food, shelter, water or latrines..... With the adaptability and acquiescence of the weaker minority communities, the threat of attacks on property were easily transformed into a protection money racket and were made a source for financing many a *Shakha* activity (A, p. 195).

The Sena's political programme also changed, from anti-non Maharashtrians in the 1960s to anti leftists during the 1970s. 'By the early eighties, the most characteristic feature of the Sena was its image as nothing more than a network of gangs which thrived on extortion of protection money from hawkers, businessmen and shopkeepers. It also became known for extortion from and actual involvement in the various illegal deals in the larger construction, contraband and drug-trafficking industries (A, p. 199). By the nineties, the Shiv Sena had established its political alliance with the Bharatiya Janata Party (BJP) and its political theme turned to '*Hindutva*' which helped it win the State elections in 1995.

'The Bombay Shiv Sena is the oldest and the best structured of the organisations' set up in different parts of the country. 'It organises presently some 40,000 hard-core activists and perhaps 20,000 sympathizers through 210 *Shakhas* (urban branches) and about 1000 *sub-Shakhas* (gate shakhas) and several mass organisations, especially trade unions, the Women's Front (*Mahila Aghadi*) and the *Sthanya Lok Adhikar Samity* that tries to procure jobs for the educated unemployed. Created in June 1966 it has been for 'long a very specific contribution of the metropolis to the political and social scene' (A, p. 214). In addition to the above mentioned bodies, the Shiv Sena have organised cultural groups or clubs called *mitra mandals*. Many of these *mandals* are strictly committed to sports, leisure or community service; a large number of them are 'polarised by preparations for the great Hindu festivals - Durga Puja, Ganesh Chaturthi and Shivaji Jayanti essentially. They seem entirely unable and disinclined to develop a secular culture' (A, p. 220).

As mentioned in the foregoing, in the Shiv Sena's early phase, action took the form of a campaign for the sons of the soil, that is Maharashtrians, as against South Indians, blamed for monopolising the clerical jobs and petty commerce in the city. A subsequent programme in favour of a clean and green city targeted slums and slum-dwellers. In the violent aftermath of the demolition of the Babri Masjid, the Sena organised physical attacks on the homes and work premises of Bombay's Muslim community. The Sena called upon the Hindus to attend *maha aartis* (mass public prayer sessions occupying city roads) as a response to the overflow into adjoining streets from mosques of congregations offering their Friday *namaz*' (A, p. xxv). Thus, throughout its existence, the Sena has managed to retain its appeal to a sizeable section of the population in Bombay. Today it has become a significant political force in the city.

The Shiv Sena was able to wrest control of the Bombay Municipal Corporation, for the first time, in the 1985 civic elections. It was thus, able to dominate the city's life during the period 1985-90. 'It rapidly increased the number of its *shakhas* (branches) and enrolled scores of young people.' By 1993, 'the membership of the Shiv Sena exceeded the strength of the Bombay police force of 300,000 men. In this five-year period, the Shiv Sena also successfully extended its power base from just Bombay to the rest of the State. In the 1989 parliamentary and state elections, it formed an alliance with the Bharatiya Janata Party (BJP) and they emerged, as a block, as the largest opposition grouping in the State even though the 'Congress remained in power'. (A p.273). In the 1995 state elections, the BJP-Shiv Sena combine were able to wrest power from the Congress party.

IV SOCIAL AND CULTURAL LIFE OF BOMBAY

'Bombay is less widely known for its contributions to letters and arts..... From its seventeenth century beginnings, Bombay has been a city of many tongues..... Distinctly different languages, religions, caste hierarchies, kinship structures, naming patterns, festival calenders, domestic rituals, forms of public worship, modes of dress and cuisine coexist separately, yet in close proximity' (B, p.xi).

In the 1800s, the city 'straddled two regions: its commercial hinterland, Gujarat, to which it was bound by close coastal links, and its geographical hinterland, Maharashtra' (B, p. 4). As a result, Gujarati and Marathi were the two major languages of the city. 'The linguistic profile of Bombay's population revealed by the 1881 Census, 'showed that 50 per cent spoke Marathi as their mother tongue, 28 per cent spoke Gujarati (including Kutchi), 12 per cent Urdu (the language of North Indian Muslims) and only one per cent English' (B, Pp. 7-8). 'Classified by religion, 66 per cent were Hindus, 20 per cent Muslims, 7 per cent Zoroastrians (Parsis), 4 per cent Indian Christians, 1 per cent European/Eurasian Christians and 2 per cent Jains' (B, p. 5). At the same time, the British were concerned with the improvement of the 'administration, as well as its society, especially through the introduction of general education, using Bombay as the obvious launching pad' (B, p. 10). The then Governor of Bombay Presidency (Elphinstone, 1819-1827), stressed the need for indigenous learning emphasising at the same time the need for western scientific and vocational education. Elphinstone 'established a Marathi printing press facilitating Marathi translations of useful English books on scientific subjects and a Marathi grammar. The Elphinstone Institution inspired the opening of Marathi schools by the Government and was instrumental to the rise of the Marathi language' (B, p. 19).

Between 1822 and 1857 'almost all the pioneering educational, social and political institutions which contributed to making Bombay an urban centre of enlightenment and learning were established' (B p.61). These included the 'Bombay Native School Book and School Society (1822) renamed the Bombay Native Education Society (1827); Elphinstone Institution and College (1836); Engineer Institution (1823); Bombay Medical School (1831); Free General Assembly Institution; Wilson Institution (1832); Bombay Medical and Social Society (1835); Bombay School of Industry (1835); Board of Education (1840); Native General Library (1845); Grant Medical College (1845); Bombay Mechanics' Institute: David Sassoon Library (1847); Paramahansa Sabha (1847); Students Literary and Scientific Society (1848) and its two branches: Marathi and Gujarati Upayukta Jnyan Prasarak Sabhas (1849); Sir Jamshetjee Jeejeebhoy Parsi Benevolent Institution (1849); Buddhi Vardhak Hindu Sabha (1851); Juvenile Improvement Library (1852); Petit Institute: The Philosophical Institute (1855); Fort Improvement Library (1856); Sir J. J. School of Art (1857) and the University of Bombay (1857). Each of these has contributed in some measure to the enrichmet of Bombay's life and toward giving the city a distinct identity' (B, Pp. 61.62)

By 1993-94, Bombay had two Universities - Bombay and SNDT University for Women. There was free primary education in the city, and the Government as well as private institutions ran a number of educational institutions. There were 1,072 secondary schools and 239 higher secondary schools. The city had 77 and 13 senior colleges affiliated to Bombay and SNDT Universities, respectively. There were 13 degree colleges of education and 15 junior colleges of education: Among the junior colleges four imparted instructions in Marathi, two in Gujarati, four in Urdu and two in Hindi. There were nine medical colleges, two homeopathy colleges, three ayurvedic colleges, 20 engineering colleges, one catering college, one social work college, one management college and two other professional colleges in the city. Bombay had four research institutes and six fine arts and cultural institutes too [CRD, 1993-94, p. 69]. Thus Bombay has come a long way in its education field from the years of 1822 to 1857, even though the foundations to the present day education were laid in those years.

Together with education, came various writers of

prose and poetry, both in the Gujarati and Marathi language and also in English. These writings encompassed a wide field - 'The blatant contrasts between the rich and poor' (B, p. vii), the need for social reforms, cultural revivalist movements, and of course in the era before Independence, the fight for freedom. The later year writers like Salman Rushdie, Rohinton Mistry and Fridaus Kanga, discuss the 'multifaceted nature of the city' (B, p. xxi). The first school of Arts and Painting was set up in 1857. In 1888 the Bombay Art Society was set up. Today, Bombay has art galleries and well known painters in nearly all parts of the city.

Bombay is often called the "Bollywood of India" as the cinema industry has flourished in this city from 1921. The film industry has catered to most tastes from the 'avant-garde' to the 'down to earth', and to the dream world of songs and dances. The theatre groups and stage artists have also flourished with plays in Gujarati, Marathi, Hindi and English.

Thus, Bombay has come a long way from the marshlands of 1665 to the financial city of 1995.

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ANNOTATED INDEX OF BOOKS AND ARTICLES IN INDIA

EDITOR'S NOTE

These abstracts are prepared by the author of each book/article sent to us voluntarily in response to our invitation through the Economic and Political Weekly. These cover publications after 1st January 1986. Only abstracts of books/articles so received are published. The index, therefore, is not exhaustive and complete.

The limit of 250 words and 100 words for abstracts of books and articles, respectively, is strictly enforced. Only a minimum amount of copy editing is done in order to bring the abstracts within the prescribed limits. The readers should approach the author of the abstract, not this Journal, for any clarifications.

BOOKS

1992

Samal, Kishor C., *Tax Structure and Budgetary Trends*, Manak Publication Pvt. Ltd., Delhi, 1992, Pp. 276+xii.

The book deals with the problems of tax incentive, Centre-State financial relations, black money and individual taxes like sales tax, octroi, value added tax, consignment tax and brain-drain tax. The analysis of the Central budgets from 1977 to 1992 is with special reference to equity, centre state finance, and various pressure groups. It also examines how different classes such as rich peasants, traders, industrialists, agricultural labourers, organised and unorganised workers and common men are affected-benefited or have suffered by the steps taken by the central government in their annual budgets. A brief history of tax system in India is discussed and general problems relating to tax since independence are analysed. How far have the various tax measures taken by the Government of India to boost export, employment, investment, etc., been effective and what changes are needed? What is the parallel economy? Problems and controversies around individual taxes, like sales tax, octroi, consignment tax are discussed in the book.

ARTICLES

1994

Samal, Kishor C., 'Budget Presentation in India: Political Intention and Interest Groups', *Vision*, Vol. XIV, No. 1-2, July-Dec., 1994, Pp. 11-28.

To distinguish the influence of the various interest groups on the budgets of the Government of different political parties at the Centre, the paper analysis the union budgets of 1976 to 1982 and 1989 and 1990. It also deals with a brief history of taxation in pre-independent-India and explains budgets during the emergency period. It concludes that the tax system of a nation develops in response to many influences-economic, political and social and to many pressures from various interest groups.

Samal, Kishor C., 'Drought and Its Toll in Kalahandi', *Mainstream*, Vol. XXXII, No. XIV, February 19, 1994, Pp. 24-26.

The paper analyses the causes of recurring drought in Kalahandi and Bolangir regions of Orissa which has attracted attention of international media, politicians and research scholars and the consequent poverty and out-migration from the region. It also critically examines various

policy measures taken by both state and central governments to combat drought and suggest various steps to tackle it.

Samal, Kishor C., 'Role of NALCO in Orissa's Industrialisation', *Yojana*, October 15, 1993, Pp. 22-25.

The paper mainly analysis the economic impact of National Aluminium Company Limited (NALCO) in Orissa. It shows the scope of setting up of different units in Orissa, due to both forwad and backwad linkages of NALCO.

Samal, Kishor C., 'Linkages of Urban Informal Manufacturing Sector', in M. Koteswara Rao (Ed.), *Growth of Urban Informal Sector and Economic Development*, Kanishka Publisher, New Delhi, 1992, Pp. 151-163.

The major aspects covered in this paper are structure and operation of informal manufacturing sector and the pattern of linkages between the informal and formal manufacturing sector in the steel city of Rourkela (Orissa). The paper comes to the conclusion that the relationship between the two sectors is complementary, though in cases of regular arrangement and sub-countracting, element of exploitation exists. It suggests that policies may be undertaken to encourage the linkages between the two sectors but not under integrated condition.

Samal, Kishor C., 'Growth of Informal Sector in India: A Speculative Argument', *Orissa Economic Journal*, Vol. XXIII, No. 1 & 2, January-June and July-Dec. 1991.

On the basis of both indirect evidence and field study, the paper examines the urban size class hypothesis. It concludes that in the development process in India, there is every possibility of growth of informal sector in both urban and rural areas.

Samal, Kishor C., 'Workers in Urban Informal Sector : Are They Poor and Slum Dwellers', *Nagarlok*, Vol. XXIII, April-June 1991, Pp. 62-69.

The paper mainly examines two issues. Is the informal sector mainly composed of the poor? Do the migrants in the informal sector create slums leading to health hazards. On the basis of the field study in Sambalpur (Orissa), the paper concludes that poverty is neither a distinguishing characteristic of workers in the urban informal sector, nor is it a special characteristic of the wage earners alone in that sector. The notion that migrants in the informal sector are solely responsible for slums in the urban centres is not found valid,since the proportion of workers living in slums is higher among native workers, than among migrant workers.

The Journal will publish in each issue Annotated Bibliography of Books and Articles on Indian Economy, Polity and Society, published after January 1, 1986. Authors are requested to send their entries with full details of publication and annotation not exceeding 250 words for books and not exceeding 100 words for articles. Use separate sheet for each entry.

BOOKS RECEIVED

Currently, a large number of books are being published on Indian economic, political and social problems and developments. We give below a list of books we have received with a request for a review. For want of editorial resources, it is not possible to review all of them though many deserve a critical review. Interested readers are requested to write to the editor indicating which of the following books he would like to review or write a full review article on. We shall be glad to do the needful. Readers are also welcome to review books recently published, but not appearing in the following list. As the contributors to this Journal are aware, all contributions published here are adequately remunerated.

Alternative Survey Group, *Structural Adjustment in India: An Assessment*, New Age International Ltd. and Wiley Eastern, Ltd., New Delhi, 1995; Pp. xi+249, Price: Rs 175.

The material in this collection has been taken from a limited paperback edition, entitled *Alternative Economic Survey 1994-95*. *Alternative Economic Surveys* embody an on-going annual exercise since 1992-93 by those who believe that the official annual *Economic Survey* gives an overly rosy, simplistic and partial picture of the state of the Indian economy. *Alternative Economic Surveys*, on the other hand, provide a more realistic, more people-centered review of the plans, policies and performance, in particular, of the impact of Fiscal Stabilization and Structural Adjustment Programme (FISSAP) on the Indian economy, its various sectors, social groups, its long-term development including the state of its natural resources.

The Alternative Survey Group criticises the official optimism about the economic development and the reform programme implemented since 1991 for various reasons, some of them being as follows: (i) With the help of seven successive good monsoons the production of foodgrain is 185 million tonnes and foodgrain stocks at 31 million tonnes. Yet food prices have sky-rocketed; even the Public Distribution System (PDS) issue prices are an all time high, with the PDS offtake at an all time low and the unsold stock again at an all time high. Still, exports of wheat and non-*basmati* rice are allowed at subsidised rates. (ii) The industrial growth of 8.7 per cent indicates a turn around from the recession of the early 1990s. Also, a small number of corporate companies account for it, in fact, make up for the remaining public and small and unorganised sectors, which seem to be stagnant or contracting. A sample of 1,685 companies indicates their registering in the six months of 1994-95, a 26 per cent growth over the corresponding period in 1993-94, implying a real growth of upwards of 16 per cent. (iii) This pattern of growth indicates decline in the small scale and unorganised sector, and consequent less generation of employment. For, this sector employs six times more people for the same amount of output than the large scale sector.

The performance since 1991 of many more indicators adversely affecting the masses is discussed in the collection, in order to question the advisability of the economic policies followed in the country. Further, utter lack of attention to infrastructural and social services sectors is pointed out. Regarding the public sector reforms, it is maintained, that the privatisation of public sector would effectively ensure privatisation of profits and nationalisation of losses. In support of its manifold arguments, the Alternative Survey Group provides the *Economists' Statement on Economic 'Reforms'* at the end of the collection. All the articles in the collection indicate negative consequences of the economic policies and programmes implemented since 1991. Yet, there is only a single solitary article suggesting alternative strategy based on the Directive Principles of State Policy in the Constitution. Devolution of authority and decentralisation in planning, use and control of resources are recommended and empowerment of the Panchayats and the Municipalities through the Seventy-third and Seventy-Fourth Amendments to the Constitution is expected to achieve them. Widening of the tax base and increasing exports of manufactured products are also proposed.

Basu, Anuradha, *Public Expenditure Decision Making: The Indian Experience*, Sage Publications, New Delhi, 1995; Pp. 287, Price: Rs 350.

This study throws light on the observed trends of public expenditure in India in terms of various theories of decision making- traditional and alternative. All traditional theories treat the government as a single decision making unit acting for society as a whole. They are also based implicitly or explicitly on the postulate of substantive rationality, which may be defined as appropriateness of decision (behaviour) to the achievement of given goals within the given limitations and constraints. Further, these theories concentrate on explaining decision outcomes, rather than examining how decisions are made. Thus, these theories presume that the government allocates public expenditure among alternatives by maximising a well-defined social welfare function and responding optimally to the environment. They regard government decisions as representing the collective will of rational individuals who maximise stable and comprehensive utility functions. Consequently, they have limited relevance in explaining some of the trends in the pattern of public expenditure and growth. Hence, an alternative theoretical framework, adopted from various essays of Nobel laureate Herbert Simon on procedural rationality and information processing, and modified in the context of public expenditure decisions, is used to examine public expenditure decision making processes in India. Procedural rationality is the effectiveness of the procedures followed in arriving at a decision, in the light of human cognitive limitations- conditions of imperfect information and uncertainty.

The actual working of the public expenditure machinery and the system, as well as the conspicuous divergence between the prescribed and the actual procedures are investigated in this empirical study, also the behavioural and institutional characteristics of government decision making are analysed. It is based on interviews with government officials and ministers involved in public expenditure decision making. The findings are substantiated by case studies of public spending decisions in the fertiliser, irrigation and education sectors.

Chandhoke, Neera, *State and Civil Society: Explorations in Political Theory*, Sage Publications, New Delhi, 1995; Pp. 266, Price: Rs 325.

This monograph reconsiders the concept of 'civil society' which is viewed today as the salvation of both socialist and capitalist societies. It is a peculiarly modern concept associated with notions of the rational human subject, human rights, impersonal state based on the rule of law, and of a universal public discourse which is forged against particularistic loyalties. Reasoned debate, accommodation and tolerance are related with it. The history of this concept is traced from its inception, that is, since the birth of the bourgeois world, to date. The Hegelian, the Marxian and the Gramscian perceptions of the concept are focused in detail. In spite of all the interpretations, it is argued, the concerns of our age prompt a fresh definition of civil society, which is presented in this volume. It is positioned against the state-centric theories of political explanation, as also against those using the concept of civil society in isolation, without considering how the state fashions many of the processes in this sphere. Civil society can be comprehended only by referring to the politics of the state and vice versa. Finally, not only the significance of civil society for democracy is pointed out but also it is stressed that civil society itself can be in profound danger, as the arena of democratic dialogue and contestation.

Echeverri-Gent, John, *The State and the Poor: Public Policy and Political Development in India and the United States*, Indian Edition, Vistaar Publications (A Division of Sage), New Delhi, 1995; Pp. 312, Price: Rs 550.

This monograph analyses the politics of rural poverty alleviation, illuminates state-society relations, and offers a new strategy for ameliorating the plight of the poor. Especially, the social and institutional constraints affecting the

effective implementation of rural poverty alleviation programmes are examined- how such programmes can alter the constraints created by rigid social structures and promote more equitable development, whether state agencies would rationally implement policies if they were insulated from political pressures, and whether political conflict is inevitably detrimental to effective public policy. Three different poverty alleviation programmes are used as case studies- Resettlement Administration and the Farm Security Administration during the New Deal in the American South, the Employment Guarantee Scheme in Maharashtra and the National Rural Employment Programme in the West Bengal, both in India. Three recent centrally funded programmes, the *Jawahar Rozgar Yojana*, the Employment Assurance Scheme and the Local Area Development Programme are discussed peripherally in the Preface.

Jha, Dayanatha and others, *Research Priorities in Indian Agriculture*, Policy Paper Series, 3, National Centre for Agricultural Economics and Policy Research in collaboration with Indian Agricultural Institute, New Delhi, 1995; Pp. ix+84.

This normative study tells how research resources in agriculture ought to be allocated if the objectives of growth, equity, sustainability, etc., are to be maximised. As Indian agriculture moves beyond the narrow confines of domestic consumption towards aggressive participation in the world trade, a restructuring of the research portfolio is inevitable.

The study attempts to identify commodity and regional (state-wise) priorities for investment in agricultural research. Data centered round 1990 on output, prices and values for 68 commodities (57 crops, 8 livestock, 2 fisheries, 1 agro forestry) in the 25 states were collected as the benchmark for further analysis. The results provide research administrators and planners broad guidelines for improving their research resource allocation.

Maji, C.C. and A. Bhattacharya, *GATT and Agricultural Exports- Hopes and Realities*, Policy Paper Series 4, National Centre for Agricultural Economics and Policy Research, New Delhi, 1995; Pp. 16.

The probable impact of the Market Access Commitment of GATT on the Indian agricultural export is analysed in this paper. The analysis indicates that the assumptions underlying the optimism about the GATT provisions related to Market Access *vis-a-vis* exports of farm products are not in consonance with the ground realities, as they exist today. Market Access clauses of GATT *per se* do not ensure an automatic increase in exports. It is necessary to suitably change the existing conditions by conscious policy decisions and their expeditious implementation in the strategic areas of trade. Domestic issues concerning Indian agriculture must be squarely addressed to in a meaningful way. Measures are suggested in this paper to increase agricultural exports by (a) increasing productivity and quality through higher investment in agricultural research, (b) strengthening infrastructural facilities, especially transport, storage and marketing, and (c) ensuring remunerative price to producers through public intervention in the market.

Ministry of Planning and Programme Implementation, *Enterprise Survey 1988-89: Report on Hotels and Other Lodging Places and Restaurants, Cafes and Other Eating and Drinking Places*, Department of Statistics, Ministry of Planning and Programme Implementation, Government of India, New Delhi, 1994; Pp. iii+170.

This Enterprise Survey, conducted by the Central Statistical Organisation, provides detailed information on the nature of activities, employment and emoluments, and the financial particulars for enterprises belonging to the service sector- hotels and restaurants. This sector covers the following enterprises: restaurants, cafes and other eating and drinking places; hotels and other lodging places; and Dharamshala type lodging places. The field work for the Survey was carried out during October 1988- September 1989. A

total sample of 16,828 at all-India level was covered, as compared to 11,291 in 1983-84. Distributions of enterprises are given by location (rural-urban, also state/union territory-wise), by type of activity (restaurants, other eating and drinking places, hotels and lodges, etc.), by type of drink and food served (tea/coffee, soft drinks or alcoholics, and vegetarian, non-vegetarian, etc.), by number of years in operation, by type of enterprise (house-hold enterprises, without hiring any worker, establishments with hired workers on a regular basis, etc.), and also by type of ownership (proprietary, partnership, private limited, public limited, cooperative, also public sector-private sector). Regarding employees, sex-wise break-up, number of workers hired, emoluments, and other details are provided. Regarding visitors in lodging places, such details as whether nationals or non-nationals and number of guest nights spent are furnished. The financial details given include expenditure, receipts, working capital, inventory of fixed assets, rent on assets not owned, working capital, stock of stores, outstanding loans, depreciation, gross and net value added, and profit.

Ministry of Rural Development, *Concurrent Evaluation of Jawahar Rozgar Yojana (JRY), January-December 1992: A Report*; Department of Rural Development (Monitoring Division), Ministry of Rural Development, Government of India, New Delhi, 1994; Pp. iii+107.

Jawahar Rozgar Yojana (JRY), one of the major poverty alleviation programmes of the Government of India, aims at improving the quality of life in rural India by generating sustained additional employment and income for the unemployed and underemployed and creation of community and social assets for the rural poor. This is the first evaluation, undertaken during 1992 by the Ministry with the help of 33 reputed research institutions.

The main positive findings include (i) nearly 73 per cent of the funds available under JRY were spent for undertaking community development projects; (ii) roughly 57 per cent of the assets completed, provided to the village community infrastructure facilities, like rural link roads, panchayat garh, school buildings, centres, etc.; (iii) in almost all the states and union territories, except Punjab, the unskilled workers were paid minimum wages prescribed under the Minimum Wages Acts of the various states. The areas of concern mentioned in the Report include: (i) heads of village panchayats were not exposed to training and orientation for handling JRY works (only 39 per cent of 3,081 exposed); (ii) the share of women in the total employment generated was only 20 per cent, as against the prescribed 30 per cent in the Guidelines; also there was disparity in the average wages paid to a male and a female; (iii) though the Guidelines demanded rural poor below the poverty line to be the target group, roughly 57 per cent of the total JRY workers belonged to the ineligible category; (iv) locally available material for various works undertaken was not used appreciably, as was required under the Guidelines. Recommendations have been made for curtailing the lacunae and for the successful working of JRY in future.

National Bank for Agriculture and Rural Development, *Inland Fishery Schemes in Azamgarh and Deoria Districts, Uttar Pradesh: An Ex-Post Evaluation Study Report*, Evaluation Study Series No. Lucknow R.O.-3, Regional Office, Lucknow, 1994; Pp. vi+38.

In this Report, investments in the development of ponds for pisiculture under two inland fisheries schemes in Azamgarh and Deoria districts are evaluated for the year November 1991 to October 1992. Loans were advanced to the beneficiaries at subsidised rates by the Gorakhpur Kshetriya Gramin Bank and the Union Bank of India (Rs 27.60 lakh and Rs 18.33 lakh, respectively, during the period 1984-85 to 1987-88. Of the 65 selected ponds, 53 were leased from *Gram Sabhas*. The villagers' customary right of using the pond for washing of clothes and animals and allowing cattle to drink water, remained intact in the ponds leased from *Gram Sabhas*. The customary rights infringed on practising fish culture on scientific lines and resulted in low productivity of the ponds.

Nayak, P., *Role of Orissa Khadi and Village Industries Board in Rural Transformation*, Nabakrushna Choudhury Centre for Development Studies, Orissa, Bhubaneswar, 1993; Pp. xii+210.

The Orissa Khadi and Village Industries Board (OKVIB) is a statutory board which renders assistance to village artisans through cooperative societies, with a view to promoting khadi and village industries in Orissa. The objectives of this study are: (i) to review the nature and extent of help given to village industries by the OKVIB; (ii) to examine the growth of employment, output and productivity of the village industries receiving assistance from the OKVIB; (iii) to examine the mode of production and technology of selected units with a view to assessing their response to modernisation; and (iv) to focus on the socio-economic cultural fabric of the artisans engaged in these industries and indicate the impact on their attitudes and affiliations. The hypotheses to be tested include the following: assistance by the OKVIB is inadequate and ineffective; no satisfactory change has taken place in the productivity, profitability and technology of production of the units receiving assistance; and so on. The major findings are: (i) Financial assistance by OKVIB, though meagre, improved some industries and bettered the living conditions of those engaged in them. Its geographical coverage was remarkably extensive. However, irregularity, ad-hocism, favouritism, tokenism crippled the OKVIB activity. Also, cumbersome procedures combined with involvement of multiple agencies resulted in inordinate delays. (ii) Supply of raw materials, the crucial factor for any village industry, was not attended to by OKVIB. (iii) No new village units emerged as a result of positive intermediation by the OKVIB, though the existing traditional units benefited. (iv) Village industries being labour intensive and absorbing household workers rather than hired ones, there was concentration of labour in units without any increase in production. Moreover, the government recommended wage patterns were not observed. (v) The unsystematic organisation and traditional mode of production also affected the labour productivity. Some units ran in the uneconomic zone of production function. And (vi) there was increasing tendency to close down the household unit and work in the same industry as hired labour, on account of diminishing profitability of the unit.

Some of the suggestions made in the Report to overcome the drawbacks and improve the working of the OKVIB are: (i) The organisational structure of the OKVIB needs to be more broad based, target oriented and accountable. Dependence on other agencies should be minimised. (ii) Cooperative societies, especially single purpose cooperative societies, should be assigned the role of an effective link between the OKVIB and artisans. Their structure and activities should be streamlined and regulated by an uniform procedure. (iii) Local politics and identification of artisans for assistance should maintain a safe distance. Projects should be appraised on the basis of employment potential, profitability and suitability to the locality. Subsidies should be given on the basis of economic base of a unit. (iv) The loan recovery system needs a total overhaul. (v) Technological upgradation should be based on the traditional know-how and its practicability and suitability. No technology or production system should be imposed. And (vi) there should be facilities for proper training for artisans, not merely technical training but also general education and training in simple accountancy and modern management.

Oldenburg, Philip (Ed.), *India Briefing: Staying the Course, India Briefing Series, 8*, Deborah Field Washburn (Series Ed.), The Asia Society and M.E. Sharpe, New York, 1995; Pp. x+242.

This is the eighth volume in the *India Briefing Series*, continuing from *India Briefing, 1993*. The objective of this series is to increase American understanding of Asia, with a view to broadening the dialogue between Americans and Asians.

The special focus in this volume is on the state level Indian politics, state governments, their chief ministers and the importance of grass-root forces- political awakening, institutional decay and also the accommodative skills of lower-level political activists to operate constructively. Because of these skills, reasonably adequate

governance has been possible, in spite of the absence of strong party organisations in nearly all states. The weakening of the Hindu nationalist upsurge, owing to the effective functioning of elections, indicates the deep and broad foundations of governance. Further, the working of the Indian democracy with its self-correcting mechanism aids in checking political and ideological excesses. Gujarat is surveyed as the laboratory for events with national implications, events such as Hindu-Muslim antagonism and violence, the criminalization of politics, the advancement of backward castes, and the environment and development, which have been at the core of Gujarat's politics of late. It is opined that because of its social, economic, and political modernising proclivities, what Gujarat deals with today, India may have to confront tomorrow.

The process of opening the economy to market forces is changing the fundamental logic of Indian politics. Prospects for the economic reform programme set in motion in the mid-1990s are studied in the light of voters' concern for inflation, a populist competition among parties, each trying to be more pro-poor than the next, also the organised labour's protests against the economic reform, and other related issues.

Pal, Sasanka Sekhar, *Impact of Tenancy Reforms on Production and Income Distribution- A Case Study of Operation Barga in West Bengal*, (Eds.), C.C. Maji and Rasheed Sulaiman V., Policy Paper Series, 1, National Centre for Agricultural Economics and Policy Research, New Delhi, 1995; Pp. xiii+80.

This is an abridged version of the detailed project report (1985-1992) on *Operation Barga*, undertaken by the Indian Council for Agricultural Research. In order to implement the post-Independence land and tenancy reform measures, *Operation Barga* was launched in 1978 by the Left Front Government of West Bengal. It is a crash programme for recording *bargadars* (tenants and share-croppers) under the Share Tenancy Act. It bestows on them the legal protection against eviction by landlords and also entitles them to a fair share of the produce. The Act provides that 50 per cent of the gross produce of a *barga*-operated farm should go to the *bargadar* for his manual labour, 25 per cent to the landlord as rent, and the remaining 25 per cent to both, in proportion to their share in cost of material inputs. Over 14 lakh *bargadars* have been recorded so far out of an estimated 20 lakh. *Bargadars* are, in addition, provided with a package of economic assistance.

The report concludes that the Share Tenancy Act requires to be amended keeping in view the cost structure and resource productivity of different crops.

Pant, S.P., *Production prospects and Constraints to Higher Productivity of Pulses in Madhya Pradesh*, (Eds.) C.C. Maji and Rasheed Sulaiman V., Policy Paper Series, 2, National Centre for Agricultural Economics and Policy Research, New Delhi, 1995; Pp. xi+48.

India is the largest producer of pulses in the world and yet presently she is one of the largest importers of pulses. The net per capita per day availability of pulses has fallen from 60.7 grams in 1951 to 33.4 grams in 1992, in spite of increases in area, production and yield of pulses during the same period. This study diagnoses the problems inhibiting production and productivity of pulses in Madhya Pradesh (M.P.). They include the following: Pulses were neglected earlier by the research and extension systems. Only during the last decade they began to get attention. The input and the institutional support in pulses continues to remain weak. Pulse farming is still in its initial phase of technological change. Also, pulse processing continues to be inefficient and costly, without any tangible improvements in its technology. Dearth of support in terms of cheaper pest control measures in pulses, price incentives, effective market information, etc., dampens farmers' interest in pulse farming.

Parikh, Kirit S., *Strategies for Agricultural Liberalization: Consequences for Growth, Welfare and Distribution, Report prepared for the World Bank*, Indira Gandhi Institute of Development Research, Bombay, 1995; Pp. viii+154.

The purpose of this study is to examine the direct and indirect effects of the economic reforms begun in June 1991 on agriculture. The study uses the applied general equilibrium model, Agriculture, Growth and Redistribution of Incomes Model, with 11 sectors (9 agricultural, 1 non-tradeable nonagricultural and 1 tradeable nonagricultural). The explorations are related with trade liberalisation in agriculture which is defined here as setting up target prices to be world prices and removal of trade quotas, with the exception of rice. The specific questions analysed are (i) Should agriculture be liberalised? If so, at what speed, i.e., over how many years? Should all commodities be liberalised or only selected ones? Should rice be liberalised, in view of its thin global market? (ii) What would be the impact of liberalisation on economic growth- on sectoral outputs, allocative efficiency and real investment? And on prices, domestic as well as world market prices? In the near future and over 5-7 years? (iii) How would it affect welfare in terms of calorie intake, average equivalent incomes of different expenditure classes in both rural and urban areas? And (iv) how to compensate welfare loss? What would be the net impact of liberalisation and of such compensating welfare measures on economic growth, agricultural sector and welfare? These and other questions are studied through seven sets of policy simulations.

Shah, Tushaar, *Making Farmers' Cooperatives Work: Design, Governance and Management*, Sage Publications, New Delhi, 1995; Pp. 275, Price: Rs 325.

The book analyse the working of cooperatives to assess the reasons for the variance in their performance. The conceptual framework used for evaluating organisational performance of a cooperative enterprise treats it as a live entity embedded in its particular social context. It is viewed as a system, with five interactive subsystems. Their key features, themselves influenced by four sets of factors, like the federal cooperative system, macro policy and legal requirements, etc., shape the internal dynamics of any cooperative, and its success, either at the village level or the federal level depends upon how effectively it serves purposes central to its user members; and how effectively it does this depends critically on how well it gets *designed* to do so. Thus, here an attempt is made to evolve and test a theory of linkage-dependent cooperatives. About 100 case studies of village cooperatives affiliated to federal cooperatives, and covering 14 districts from seven states are used for the purpose. They include several sectors, like dairy, oilseeds, credit, handloom, jaggery, cotton, etc.

Sharma, K.L., (Ed.), *Social Inequality in India: Profiles of Caste, Class, Power and Social Mobility*, (Essays in Honour of Professor Yogendra Singh), Rawat Publications, Jaipur, 1995; Pp. xiv+491, Price: Rs 600.

This is the first of the five volumes contemplated as a festschrift to honour Prof. Yogendra Singh. They are to be devoted to subjects in which Prof Singh contributed significantly, that is social stratification, social change and modernisation, village community, concept of man and theory, and method in Indian sociology. The contributions in this volume critically focus on the theory, structure and process relating to social stratification- the shaping of social stratification in terms of its dialectics, layers and levels of social relations, that is, social hierarchy and inequality.

Since Independence, the state as well as various organisations have undertaken the mission of restructuring the Indian society by transforming the inegalitarian social order into one based on equality- political, economic and social. Caste, class, family and individual are profiled not merely as units of social ranking but also as a value-frame for guiding and shaping of consciousness and social relations. It is observed that among the upper and middle levels of the social hierarchy in India, caste is no longer an instrument of social placement nor of social control; it not even the main obstacle to achievement of equality, but family is. Relations between family and social mobility, also interrelationship between caste and class, continuity of tradition and simultaneous emergence of modernity in the

realm of social inequality; social mobility as an asset and its realisation, the role of education and occupation in social mobility, legitimization of dominance, the power elites and their status-identification; the Marxian perspective of class stratification, green revolution and inequalities, impact of capitalism on agriculture, control over resources and privileges, social relations as determined by the nature and direction of social change, village and tribal communities and other similar questions are analysed in this volume. It is inevitable that the Scheduled Castes (SC) and the Scheduled Tribes (ST) are discussed in such a volume. The nature and level of their social mobility is delineated, particularly in view of the emergence of a salaried SC middle class due to the state policy of affirmative action.

Upendranadh, C., *Growth of Education in Andhra: A Long Run View*, Occasional Paper Series, Centre for Development Studies, Trivandrum, 1994, Pp. (xi)+158, Price: Rs 135.

This book, a revised version of the author's M.Phil. dissertation, analyses the growth of education in Andhra Pradesh from the perspective of human capital formation. The basic premise underlying this analysis is that historical and contemporary economic developments of any region influence its educational growth and explain the rate and type of its educational progress, and also the disparities- regional, sub-regional, district-wise and other. The conclusions reached are substantiated with a number of tables.

While recapitulating the history, the author observes that whereas from the late eighteenth century Sanskrit and village schools were on the decline due to the unfavourable political climate, the decaying economy during the early nineteenth century was not in a position to sustain the evolution of modern education. In village schools education was costly and, owing to poverty and the subsistence nature of the economy, not many could avail of educational facilities. Further, discrimination practised in the indigenous educational system deprived certain sections of population of educational facilities. Even in the Nizam's dominion, there was no formal system of education during the period. The Christian missionaries were the pioneers in establishing modern educational institutions in Andhra region.

During the second half of the nineteenth century, and with the advent of irrigation in the delta districts of coastal Andhra, an urge for education was induced among the enterprising middle peasantry with surplus agricultural income. A system of schools, known as the Rate Schools emerged. They depended on the support from the village community. Growing monetization, spread of Railways and increase in cash crops for markets were the positive factors which accelerated the growth of education in coastal delta districts, whereas poor soil, uncertain rainfall and crops, and shortages in Rayalaseema region impeded not only commercialisation of the economy, but also spread of education. In addition, the powerful landlord-moneylender axis in the feudal set-up of the rural economy operated to the detriment of educational progress. In 1871, the Rate Schools were merged with local board schools because the community, burdened with high assessment of land, found it impossible to support them, and also because official interest was lacking. In the twentieth century, the number of educational institutions as well as the enrolment increased considerably. In addition to commercialisation, social and political reforms and changes in governmental policies contributed to the advance of education, both spatial and vertical.

In the post-Independence period, there was initially expansion in enrolment, particularly primary enrolment, until the sixties. It was followed by periods of decline until the mid-seventies, and then of recovery. Also the educationally backward districts were attended to through governmental initiative. By 1986, the disparities in access to primary education in the State were eliminated. All these developments are expounded in detail. Also, the progress of higher education in the State is traced in a similar manner. Other education-related problems, such as wastage, non-participation, drop-outs, retention-ratio, stagnation, gender-disparity, and the factors responsible for these problems are too discussed.

CORRIGENDUM

In Vol. VII No. 2, April-June 1995 issue of the Journal of Indian School of Political Economy, the heading of Table 17 on pages 243-247 should read as follows:

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Page 247: TABLE 17. ESTIMATES OF MONTHLY PER CAPITA CONSUMER EXPENDITURE BY SELECT DECILE GROUPS: ALL-INDIA URBAN (CONCLD.)

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VINAYAK MAHADEO DANDEKAR

JULY 6, 1920 - JULY 30, 1995

Vinayak Mahadeo Dandekar, the founder of the Indian School of Political Economy and the founder editor of this journal, passed away in the early hours of July 30, 1995 after a very brief illness. He was 75. He joined the Gokhale Institute of Politics and Economics, Pune in 1945, after securing an M.A. from the University of Calcutta, and worked as its Director during 1966-68 and 1970-80. On retirement from the Gokhale Institute in 1980, he was made Professor Emeritus of the Institute. In 1986 the University of Poona appointed him Professor Emeritus.

In his professional career, spanning over fifty years, Professor Dandekar produced a prodigious amount of work on a variety of subjects. Although a statistician by training, he did bulk of his work in economics - especially rural economics. He was responsible (along with N. Rath) for the seminal work, *Poverty in India*, which opened up a whole new area for others to study. His contribution to data collection in the Poona Schedules of the National Sample Survey and the first All India Rural Credit Survey were equally pioneering and distinguished. He also did a great deal of work on problems of Maharashtra. His contribution in the fields of Regional Imbalances in Maharashtra, land reforms and irrigation is particularly notable.

Being an incisive and enquiring mind, he never respected conventional wisdom and brought to bear a fresh viewpoint on a variety of problems such as: food aid and development, transformation of traditional agriculture, unemployment and employment, crop insurance, the cattle problem in India, the central budget and Gandhian Economics. He also turned his enquiring mind to the examination of such non-economic areas as education, worker management of industry, decentralisation, nutrition, and role of women in development.

His work was characterised by three attributes: (i) firm footing on data; (ii) application of rigorous analysis; and (iii) fearlessness in promoting conclusions arrived at in this way. He upset many by his uncompromising views on such issues as Gandhian economics, land reforms, the use of water in Maharashtra, and poverty alleviation programmes.

Professor Dandekar was no ivory tower scholar. He felt strongly that whatever wisdom he had should contribute to the good of Indian Society. He therefore was a participant in innumerable Government bodies set up to examine and reform this or that aspect of society. He also sought to promote debate and a re-examination of popular ideas through his public speeches. Although he sometimes gave the impression of being an acidic critic he was essentially motivated by a concern for public good.

When he died he was engaged in the preparation of a three volume collection of his writings, which was to be a kind of statement of his updated thinking on the country's economic problems. The first volume has been published and the second one is in the press. It is most unfortunate that he could not do much work on the third volume.