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JOURNAL OF INDIAN SCHOOL OF POLITICAL ECONOMY

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All text, including block quotations, footnotes, and table headings, should be double-spaced and typed on one side. Use medium-weight, opaque, bond paper. All pages should be the same size, preferably 8-1/2" x 11", and unbound. Leave a minimum lefthand margin of one and a half inches, and a minimum righthand margin of one inch. Number all pages, including footnotes and/or references, consecutively.

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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].

The full name of any organization or government agency should be spelled out first if subsequent reference is to be by acronym.

MATHEMATICAL AND TABULAR MATERIAL

All tables, graphs, figures, and illustrations should be numbered and amply spaced on separate sheets of paper indicating in a marginal note in the text where such material is to be incorporated. Graphs should be on clean tracing paper. Mathematical equations should be typed on separate lines and numbered consecutively at left margin, using Arabic numerals in parentheses. Use Greek letters only when essential. The word *per cent*, not the symbol %, should be used in the text and the tables.

SALARIES OF CENTRAL GOVERNMENT EMPLOYEES IN INDIA

V.M. Dandekar and F.K. Wadia

The revision of salaries of Central Government officers and staff have been examined from time to time, both before and after Independence. The earliest revision took place in 1856, when the duties and responsibilities of each Office and the salaries that should be attached to them was spelt out. Since 1947, four Pay Commissions and a number of ad hoc committees have made recommendations on the basic salary, dearness allowance, city compensatory allowance, pensions etc., and on the streamlining of the various categories of service. As a result, we have now a well provided Central Government Service in India.

Before Independence

The matter of salaries of officers of the covenanted civil service of the British Government of India was examined by a Commission in March 1856 under the Chairmanship of Mr. Henry Rickets. The guiding principles were: 'Wherever the duties are the same in nature and extent, the salaries should also be the same; ... Where the duties vary, the difference of salary should correspond to the difference of duty. All salaries disproportioned to the duties to be performed, or which admit of reduction, should be prospectively reduced.' Accordingly, the Commissioner prepared a statement of duties and responsibilities of each office and the salaries that should be attached to them and expressed his confidence that his report would 'be as useful in 1958 as in 1858.'

Meston Committee, 1908

Fifty years later, in 1908, the Government appointed a Committee presided over by Sir James Meston to deal with the pay and prospects of clerks in the Secretariats of the Government of India and certain other offices. At that time, the clerical establishments of the Secretariat were divided into two divisions. In view of the cost of living and the need for attracting the proper type of men, the Committee fixed the initial pay for the first division clerks at Rs 140 to reach the maximum of Rs 400. They regarded the second division as standing on a different footing because its work was assumed to be of a simple or routine character. Its recruitment was therefore held to be subject to the ordinary laws of demand and supply. They therefore fixed the initial pay for this division at Rs 60 and the maximum at Rs 200, adding a personal allowance of Rs 25 or Rs 50 after the 28th and 30th year of service. They were

opposed to the incremental system and proposed that in each division there should be a considerable range of grades at short intervals of pay. Referring to Registrars and Superintendents, they said, 'It is a matter of high importance that both these classes of officers should be liberally paid not only on account of the responsibilities of their work but because these appointments are practically the only goals towards which the ambition of the first division can press.' They accordingly suggested Rs 800 for the Registrar and three grades of Rs 500, 600 and 700 for Superintendents. In recognition of the importance and responsibility of the work done by the Superintendents, the Committee recommended that they should be granted the rank of gazetted officers.

Report of Royal Commission on the Public Services in India, 1915 (Lord Islington)

The Islington Commission was appointed in September 1912 to examine and report on (i) methods of recruitment and systems of training and probation; (ii) conditions of service, salary, leave, and pension; (iii) such limitations as still exist in the employment of non-Europeans and working of the existing system of division of services into Imperial and Provincial; and (iv) generally to consider requirements of Public Service, and to recommend such changes as may seem expedient. The Commission submitted its Report on August 14, 1915.

The Commission limited its enquiry to the higher services and grouped them under three heads:- (i) those which required a preponderating proportion of British Officers (e.g. Civil Service and Police); (ii) those in which it was thought desirable that there should be an admixture of both Western and Eastern elements, (e.g. education,

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military, finance, medicine, telegraph, engineering, railways, and survey of India) and (iii) scientific and technical services where they held that there were no special reasons for having a large number of officers recruited from Europe. For the first, they decided that recruitment should continue to be made exclusively in England; for the second, they recommended that recruitment might be made both in England and in India; for the third, they were of the opinion that it should be the aim eventually to recruit in India for their normal requirements.

The Commission discussed at some length the question of salaries and laid down the broad principle that Government should pay 'so much and so much only to its employees as was necessary to obtain recruits of the right stamp and to maintain them in such a degree of comfort and dignity as would shield them from temptation and keep them efficient for the term of their service'. Regarding the salary differential between the European and Indian officers, they stated : The advantages of equal pay for all officers who do the same work are obvious. Under such a system, there can be no suspicion that Europeans are favoured at the expense of Indians, whilst the danger of racial friction in the services is reduced to a minimum. On the other hand, to set in India for the public services a standard of remuneration which is in excess of what is required to obtain suitable Indian officers is to impose for all time on the country a burden which she ought not to bear. The choice is thus between the two evils of inequality on the one hand and disregard of economy on the other. So far as the Indian Civil Service, the Indian Medical Service, and certain other Services were concerned, the Commission felt that they should take 'existing facts' into account and they accordingly allowed that members of these services should draw the same pay, whether they were Europeans or Indians. For the services to be recruited for in India, they drew up separate scales of pay for Europeans and Indians, respectively.

The Commission disapproved of the graded system of remuneration then in vogue and recommended substitution of an incremental system subject to the proviso that no increment should be

given as a matter of right. Even among timescales, they expressed a preference for what they called the compartment system under which 'separate scales are fixed for separate groups of officers in each department and a process of selection takes place before an officer can pass from one scale to another or from any scale into a selection post'. They suggested the following as reasonable scales of pay for Indians in the higher services:- Rs 250 - 40/3 - 450 - 50/3 - 500per month for all the higher services recruited from the average graduate class and Rs. 300 - 50/2- 500 - 50 - 1,050 for services requiring higher initial qualifications; beyond these, they provided selection scales or posts. Further, they recom-

selection scales or posts. Further, they recommended amalgamation of the Imperial and Provincial Sections into a single service and suggested that over and above the subordinate services there should be twoclasses in the services under the Government of India to be described as Class I and Class II.

The consideration of the Commission's report had to be deferred during the First World War, 1914-1918. Final orders on their proposals were passed only during 1919-20; and in doing so the authorities took into account the further rise in prices that had taken place between 1912 and 1920. The Commission's recommendations were mainly responsible for the system of classification and pay scales obtaining in the country at the time of Independence.

Report of the Royal Commission on the Superior Civil Services in India, March 1924

With the passage of the Government of India Act, 1919 and changes in the recruitment policy, it was hoped that the primary cause of unrest in India would be eliminated. However, unrest increased. Within four years from the passing of the Government of India Act, the Secretary of State and the Government of India were obliged to reconsider the whole question of the Services. Accordingly, in June 1923, a second Royal Commission on Superior Services in India was appointed to enquire into and make recommendations on : (i) organisation and general conditions of services; (ii) possibility of transferring immediately or gradually any of their present duties and functions to services constituted on a provincial basis; (iii) recruitment of Europeans and Indians respectively for which provision should be made under the Constitution established by the said Act, and the best methods of ensuring and maintaining such recruitment. The Commission submitted its Report in March 1924.

The Commission classified the superior civil services under three heads, viz., (i) Services operating in the reserved fields of administration, namely, Indian Civil Service, Indian Police Service, Irrigation Branch of Indian Service of Engineers (whole cadre of this service in Assam), and except in the Provinces of Burma and Bombay, Indian Forest Service. For all these Services, the Commission recommended that appointments should be controlled by the Secretary of State in Council such that 50 per cent of posts should go to Indians within 15 years in ICS and within 25 years in IPS. Apart from Indian Police Service and Indian Service of Engineers, the Commission did not recommend any increase in the basic pay of the Services. In Indian Police Service, the basic pay of the inferior scale was to be raised by Rs.25 a month and of the superior scale which began at the sixth year of service by Rs.50 a month up to the tenth year, then by Rs.75 a month to the thirteenth year of service, Rs.100 per month for the ensuing four years, then by Rs.75, Rs.50 and Rs.25 a month for the 18th, 19th and 20th year of service, thereafter remaining at the scale then prevailing. For Indian Service of Engineers, their technical pay of Rs.75 per month was to be included in the basic pay. (ii) Services operating in the transferred fields, namely, Indian Educational Service, Indian Agricultural Service, Indian Veterinary Service and Indian Forest Service (in Burma and Bombay) and Roads and Buildings Branch of Indian Service of Engineers (except in Assam). The Civil side of Indian Medical Service also fell within this category but was discussed separately. For all these services, the Commission recommended that Local Governments should have powers to recruit personnel in future. The Local Legislatures should pass Public Service Acts, setting up Public Service Commissions, for regulating selection to these services. The Commission did not recommend

any increase in the basic pay of these services, except for Women's Educational Service for which the Government of India was requested to give special consideration to enhance their emoluments and make necessary recommendations to the Secretary of State. (iii) Central Services, namely, appointments to Political Department, Imperial Customs Department and Ecclesiastical Department. All the appointments to the three Departments were to be made by the Secretary of State in Council. No revision in their basic pay was recommended.

The Commission recommended a number of concessions for Europeans Officers in the three groups mentioned above. These included (i) a rise in overseas pay from Rs.150 to Rs.250 a month until the twelfth year of service and from Rs.250 to Rs.300 a month thereafter; (ii) four return passages during their service, (iii) higher pensions and (iv) remittance of money to England at the rate of 2 shillings to a rupee.

Between 1908 and 1928, all classes of public servants under the Central Government had their emoluments increased, in some instances more than once. When the economic crisis of 1929-30 set in, Government had to review the whole position. To meet the immediate emergency, certain percentage cuts were made in the salaries of most public servants for four years. On the suggestion of a Retrenchment Advisory Committee, the question of revision of rates of pay for 'future entrants' was taken up. Recommendations on this behalf were made by certain subcommittees of the Retrenchment Advisory Committee; and Mr. (Sir Tenant) Sloan was placed on special duty to examine the subject and make proposals.

A uniform percentage reduction was considered undesirable; it was felt that it would be better to make heavier cuts at the top. Some coordination between the Central and Provincial Services was considered appropriate and a sub-committee of the conference of Provincial representatives concluded (May 1931) that pay of Class I Officers should be fixed at Rs.300 to 1,000 per month, that pay of administrative heads of the biggest departments should be fixed at Rs.1,600 to 2,000, pay of heads of other departments at Rs.1,450 to 1,750 and of deputy heads at Rs.1,250 to 1,500. departments was not considered practicable. In the light of these considerations, a revised scale of salary was drawn up involving a reduction of over 20 per cent in the minimum and of nearly 30 per cent in the maximum of the existing salaries.

Though the revised scales were settled only late in 1933, they were made applicable to all persons who had entered service after July 1, 1931. As regards persons already in service, the new scales were not made applicable to them. There thus came into vogue the system of two scales of pay - referred to as the old and new scales - according to which among two sets of persons working side by side and doing the same kind of work, one set of people had been drawing salaries according to the higher scale and the other set paid according to a lower scale.

With outbreak of the Second World War in 1939, prices particularly of foodgrains began to rise and, about the middle of 1940, the Government of India sanctioned a scheme of grain compensation allowance for their lower paid employees. In August 1942, this was replaced by a scheme of dearness allowance. The country was divided into three areas (A, B and C) in accordance with the difference in cost of living. The classification followed an existing arrangement adopted by the Posts and Telegraph Department for purposes of pay scales. Subsequently, a number of towns which showed a marked rise in cost of living were upgraded. The beneficiaries were divided into two classes, those receiving Rs.40 per month and above and those receiving less. In view of the difference in the wage and standard of living between the two categories, a slightly lower rate of dearness allowance was adopted for persons drawing less than Rs.40. The scheme was commended to the Provincial Governments and was in operation in 1946-47 with minor changes to suit local needs.

In the first instance, dearness allowance was granted only to non-gazetted employees. Later on, the rate of allowance as well as the maximum pay limits were raised from time to time but the increases sanctioned were in no way proportionate to the rise in prices. Later still, it was thought proper to grant some relief even to higher officers and a 'war allowance' equal to 17-1/2 per

Uniformity of scales as between different cent of pay was sanctioned with effect from July 1, 1944 for all married gazetted officers up to certain pay limits and for non-gazetted officers drawing pay above the maximum limits fixed for eligibility to dearness allowance. The rate of allowance was however restricted to 7-1/2 per cent of pay in the case of unmarried gazetted officers. The maximum pay limit up to which war allowance was granted to married officers was Rs 2,000 per month and in the case of single officers Rs 1,000. This allowance was subject to a minimum of Rs 50 per month and a maximum of Rs 263 per month in the case of married gazetted officers and a minimum of Rs 30 per month in the case of single gazetted officers.

> In Railways, officers drew dearness allowance on the scale of war allowance fixed for Governmentofficers. As regards subordinate employees, the Government of India, after consultation with the All-India Railwaymen's Federation, decided on the following scales:- Bombay and Calcutta including suburbs - Rs.3 to those drawing Rs.60 per month and below; Industrial Areas - Rs.2-8-0 to those drawing Rs.50 per month and below; and Other Areas - Rs.2 to those drawing Rs.30 per month and below. Certain grain shop concessions were also allowed to the subordinate employees of railways. Subsequent increases in the rates of dearness allowance were also made in consultation with the Federation on an ad hoc basis to meet the rise in prices. The rate of relief as well as the maxima of pay were raised from time to time. Similar changes were made in the scheme of dearness allowance for other employees of the Central Government. Arrangements were also made for the relief of employees in the Posts and Telegraph Department.

Report of the Central Pay Commission, April-May 1947

As conditions of life became more difficult during the later years of the war, claims, representations, and protests from several sections of the services increased. There were also threats of strike. Ultimately, on May 10, 1946, the Government of India set up a Central Pay Commission (hereafter referred to as the First Pav Commission) with Mr. Justice S. Varadachariar as Chairman. The Commission submitted its Report in April/May 1947. The Report was divided into three Parts. Part I was mainly historical. Part II dealt with the main aspects of the problem relating to conditions of service so far as they were common to all departments of the Central Services, Part III made detailed proposals in respect of salaries payable to and redress of grievances of employees of each of the principal sections of public service.

The Commission recommended change in the nomenclature of categories of Government servants from 'subordinate' and 'inferior' to Class III and Class IV. Thus four classes of Government servants were recommended - Class I. II. III and IV. The Commission presumed that cost of living

index would stabilize somewhere between 160 and 175 taking the pre-war index to be 100 and recommended a series of scales of salaries which could be common to all Central Departments. The Commission suggested that Rs.55 and Rs.90 were reasonable living wages for a working class family and a middle class family, respectively, at a cost of living index of about 260. Of these sums, Rs.30 and Rs.55 respectively were to be the basic pays and the balance the dearness allowance. The Government, while generally accepting the recommendations of the Commission, prescribed over 500 scales instead of the 156 recommended by the Commission. But more than 75 per cent of the staff were in about 30 typical scales (Table 1).

TABLE 1. TYPICAL PAY SCALES PRESCRIBED BY GOVERNMENT

(Rupees)

1. 1,800 - 100 - 2,000	16. 160 - 10 - 250
2. 1,600 - 100 - 1,800	17. 150 - 7 - 185 - 8 - 225
3. 1,300 - 60 - 1,600	18. 80 - 5 - 120 - EB - 8 - 200 - 10/2 - 220
4. 1,000 - 50 - 1,400	19. 100 - 5 - 125 - 6 - 155 - EB - 6 - 185
5. 600 - 40 - 1,000 - 1,000 - 1,050 - 1,050 - 1,100 -	20. 80 - 4 - 120 - 5 - 170
1,100 - 1,150	
6. 350 - 350 - 380 - 380 - 30 - 590 - EB - 30 - 770 - 40 -	21. 60 (or 64,68,72) - 4 - 120 - EB - 5 - 170
850	
7. 500 - 30 - 650 - EB - 30 - 800	22. 80 - 5 - 120 - 8 - 160
8. 275 - 25 - 500 - EB - 30 - 650 - EB - 30 - 800	23. 60 - 4 - 120 - 5 - 150
9. 160 - 10 - 300 - 15 - 450	24. 60 - 3 - 81 - EB - 4 - 125 - 5 - 130
10. 250 - 15 - 400	25. 75 - 3 - 105
11. 300 - 20 - 400	26. 55 - 3 - 85
12. 260 - 15 - 350	27. 60 - 5/2 - 75
13. 160 - 10 - 330	28. 40 - 1 - 50 - 2 - 60
14. 200 - 10 - 300	29. 35 - 1 - 50
15. 100 (124) - 8 - 140 - 10 - 200 - EB - 10 - 300	30. 30 - 1/2 - 35

The scales were all 'prescribed scales' and came living index for different cities in the country into force in or after 1947. Exceptions were made in the case of Indian Civil Service and Indian Police Service officers whose grades were kept higher than those recommended by the Commission.

To assess further rise in cost of living, the Commission suggested that the index should be an All-India number to be prepared by the Economic Adviser to the Government of India and that changes in the index should be reflected in dearness allowance every six months. The Commission recommended the following slabs of dearness allowance based on average cost of fell short of Rs.2,150

(Table 2).

Government sanctioned dearness allowance on the basis of the Commission's recommendations as from August 16, 1947. In addition, they extended the dearness allowance scheme to pay ranges above Rs.1,000 and up to Rs.2,150 on the following basis:

Rs.1,001 - 2,000 ... 10 per cent of pay subject to a maximum of Rs.150

 $Rs.2,001 - 2,150 \dots$ the amount by which the pay

(Rupees)

Pay Range			Cost of Livin	g Index (Base	1939 - = 100)		
Rs.	280	260	240	220	200	180	160
Upto Rs. 50	30	25	20	15	10	5	
51 - 100	40	35	30	25	15	10	
101 - 150	45	40	35	30	18		
151 - 200	55	45	30	30	20		
201 - 250	60	50	40	30	20		
251 - 300	75	60	45	30	25		
301 - 500	85	70	55	40	25		
501 - 750	105	85	60	40	••		
751 - 1,000	125	100	75	50			

TABLE 2. DEARNESS ALLOWANCE BASED ON COST OF LIVING

For unmarried gazetted officers, the dearness allowance was fixed at 10 per cent of pay for salaries below Rs.1,000 subject to a minimum of Rs.40 and a maximum of Rs.75 per month; and for the pay range Rs.1,001 - 1,075, by the amount by which the pay fell short of Rs.1.075. The Commission had recommended a six-monthly review of dearness allowance and for a revision of the slab rates upward or downward, as the case might be, if the cost of living index number for the last three months for which the information was available, showed a variation of 20 points. Instead, the Government granted an ad hoc increase of Rs.10 in January 1949 and of Rs.5 in June 1951 to all persons whose pay did not exceed Rs.250 per month. On account of some marginal adjustments, employees in the pay ranges of Rs.251 - 300 also got the increase on both these occasions. By 1952, the dearness allowance payable to the lowest pay group of employees (Rs.30 - 35) was Rs.40 per month.

Report of the Dearness Allowance Commission, 1952

In July 1952, the Government of India set up a Committee to advise on the 'percentage of the dearness allowance now given to Central Government servants which should be allowed to be treated as pay for all purposes in future provided that, by doing so, the present total of pay and dearness allowance is not enhanced'. The Committee recommended that for employees up to a pay of Rs.750 p.m., 50 per cent of the dearness allowance drawn at present should be treated as pay. It also made recommendations of the manner in which computation of pension, house rent

allowance, leave salary, etc., could be made with the inclusion of half the dearness allowance with pay. Government accepted the recommendations, and from April 1, 1953, half the dearness allowance payable to persons whose pay did not exceed Rs.750 per month was treated as pay for certain purposes.

In August 1957, the Government of India set up the Second Pay Commission called the 'Commission of Enquiry on Emoluments and Conditions of Service of the Central Government Employees'. The Commission submitted an Interim Report in December 1957 and, accordingly, an increase of Rs.5 per month to all employees drawing pay of not more than Rs.250 per month was granted with effect from 1st July 1957. As on two previous occasions, the benefit was extended to employees in the pay range of Rs.251-300.

Report of the Second Pay Commission, August 24, 1959

The Commission submitted its final Report in August 1959. It referred to the structure of emoluments built up over the years based on the First Pay Commission's recommendations. That Commission had "introduced a principle that, as a matter of social policy, the lowest rate of remuneration should not be lower than a 'living wage' and the highest salaries should also, as a matter of social policy, be kept down as far as possible, consistent with the essential requirements of recruitment and efficiency. The minimum and maximum having been so determined, the intermediate salaries were fixed largely on considerations of maintaining or establishing

or a hierarchy of services, and horizontal relativities between one set of services and another." Hence, the Commission opined that "until the economy develops, no substantial improvement in the standard of living of ... the great majority of Government servants (was) possible". But then it hastened to add that "Development planning does not, however, postulate a general reduction in the standard of living, ... while thinking of investments and development, it is well to remember that our Plan has social as well as economic objectives, and that investment in human beings is not the one that is least important,

satisfactory vertical relativities within a service or one that brings no return" [Jagannadhadas, 1959, Pp 18-19,45].

> The minimum remuneration of a Central Government employee then was Rs.75 which the Commission thought was reasonable in view of the minimum wages fixed (between Rs.30 and Rs.52.50) under the Minimum Wages Act, 1948. The minimum remuneration had risen from Rs.55 in 1947 to Rs.75 in 1958. The Commission compared this rise with the all-India Working Class Consumer Price Index and computed the minimum emoluments which would be necessary for full neutralisation at different dates (Table 3).

Year	Average Minimum Remuneration Including D.A.	Average Consumer Price Index	Index of Real Minimum Remuneration (a) Jan 47 = 100 (Col 2/55)/(Col 3/80)	Minimum Remuneration Including DA required for full neutralisation (a) 55 x (Col.3/80) (Rs.)
	(1(3.)	(Base: 1)49=100)	(00.2/33)(00.3/00)	(10.)
1947	55	87	92	60
January	55	80 (b)	100	55
1948	55	97	82	67
1949	65	100	95	69
January	65 (c)	100	95	69
1950	65	101	94	69
1951	68	105	94	72
hune	70(d)	106	96	73
1952	70	103	99	71
1953	70	106	96	73
1954	70	101	101	69
1955	70	96	106	66
1956	70	105	97	72
1957	73	111	95	76
hilv	75(e)	113	97	78
1958	75	116	94	80

TABLE 3. MINIMUM EMOLUMENTS BASED ON ALL-INDIA WORKING CLASS CONSUMER PRICE INDEX

(a) Calculated on the assumption that the minimum remuneration of Rs.55 corresponds to consumer price index of 285 with August 1939 as base, or 80 with 1949 as base. (b) Index for January 1947 was assumed, on the limited information then available, to be 285 with August 1939 as base. More reliable information since available places the index for January 1947 at 289 with August 1939 as base. However, for the purpose of this table, the figure of 80 is retained. (c) An increase of Rs. 10 in deamess allowance was allowed with effect from 1st January 1949. On the basis of average consumer price index for preceding 12 months (data for 6 months were not available), minimum remuneration would be Rs.67. (d) An increase of Rs.5 in dearness allowance was allowed with effect from 1st June 1951. On the basis of average consumer price index for preceding six months (which was 108), minimum remuneration would be Rs 70. (e) The interim increase of Rs.5 in dearness allowance was allowed with effect from 1st July 1957. On the basis of the average consumer price index for the preceding 6 months (which was 108), the minimum remuneration would be Rs.74.

remuneration of Rs 80 would restore the real income of the employees, on the lowest pay, to the level at which it was in 1947. Hence, the Commission recommended that the minimum 1:5.1, or taking a married IAS Officer from 1:7.4 remuneration payable to a Central Government to 1:5.5. ... If the lowest scale of pay" was "raised employee should be increased to Rs.80 per month. to 70-1-85, with a dearness allowance of Rs.10/-

Thus, with consumer price index at 116, a As regards the highest salary scales, the Commission pointed out the significant reduction in disparity between the starting salary of an IAS Officer and a peon since 1947-48, "from 1:6.9 to

(Rupees)

..... the disparity both at the starting and maximum levels would be further reduced" [Jagannadhadas, 1959, Pp.79-80]. Therefore, "keeping in view the necessity of maintaining a high standard of recruitment to the superior services, and the erosion of the real income which had taken place", the Commission did not recommend any reduction in the salaries prescribed for the highest grades [Jagannadhadas, 1959, p.576].

Having recommended the lowest and highest scales of pay for Central Government employees. the Commission worked out in all about 140 scales and fixed rates of pay for Classes I, II, III and IV employees. These scales were determined with reference to the requirements of different services, grades and occupational groups and were generally accepted by the Government. Regarding dearness allowance, the Commission recommended that it should continue as a separate element in remuneration of Central Government employees whose salaries were below Rs.300 per month. In future adjustments of dearness allowance to meet rise in prices, the case of employees in pay-range of Rs.300-400 should be grouped with those in pay-range below Rs.300. Should consumer price index continue to rise, the case of employees in pay range of Rs.400-1,000 for grant of dearness allowance may be considered. There should not be an automatic adjustment of dearness allowance with price index. Nevertheless, it should be Government's endeavour not to allow the standard of living of their employees in lower range of remuneration to fall.

For the employees drawing pay below Rs.300 per month, the Commission recommended the following rates of dearness allowance:

(a) basic pay below

Rs. 150 ... Rs. 10 per month. (b) basic pay of Rs. 150

or above but below

Rs.300 ... Rs. 20 per month. There should be marginal adjustments for employees drawing a basic pay of Rs.300 or above but below Rs.320 per month.

The rates of dearness allowance recommended by the Pay Commission were accepted by the Government of India and they were brought into force from July 1, 1959. With rise in working class consumer price index, rates of dearness allowance were revised from time to time (Table 4).

Pay Range	From 1-7-1959	From 1-11-1961	From 1-7-1963	From 1-2-1964	
Below 110 110 and above but below 150 150 and above but below 210	10 10 20	15 15	17 20	20.50 25.50	
210 and above but below 210	20	30	30 40	42.00	
300 and upto 320	Amount by which pay falls short of 320	Amount by which pay falls short of 330	Amount by which pay falls short of 340		
300 and upto 315				Amount by which pay falls short of 350	
321 and upto 380 381 and upto 390	•• 	10 10	20 Amount by which pay falls short of 400	•••	
391 and above		Amount by which pay falls short of 400	Amount by which pay falls short of 400		
<u>Pay Range</u> 316 - 384			From 1-2-1964 35		
385 and upto 400 401 - 580	Amount	by which pay falls sho 20	ort of 420		
D81 and above		Amount by which pay falls short of 600			

TABLE 4. RATES OF DEARNESS ALLOWANCE

It may be noted that while increasing the rates of dearness allowance from 1st July 1963, Government split up the two categories of employees drawing pay below Rs.300, into four categories as indicated by the Pay Commission: (a) Below Rs.110; (b) Rs.110 and above but below Rs.150; (c) Rs.150 and above but below Rs.210; and (d) Rs.210 and above but below Rs.300.

The marginal adjustments were continued upto Rs.399 except that, for the pay range of Rs.316 to Rs.384, a sum of Rs.35 was fixed as dearness allowance from February 1, 1964 with a marginal adjustment between Rs.385 and upto Rs.400, and, for the pay range of Rs.401 to Rs.580, a sum of Rs.20 was fixed as dearness allowance with a marginal adjustment in the pay range of Rs.581 to Rs.600. In other words, Government not only gave effect to the recommendations of the Pay Commission that benefit of dearness allowance should, in future adjustment, be extended to all employees drawing basic pay below Rs.400 per month but also granted dearness allowance to employees drawing pay upto Rs.599.

After World War I, compensatory allowances were granted to All-India Service Officers working in a number of high-cost cities like Bombay, Calcutta, Karachi, Madras and Rangoon. Following the fall in prices and the introduction of revised scales of pay subsequent to 1931, these allowances came under review and were either withdrawn or reduced. By the time the First Pay Commission was appointed (1947) compensatory allowance was allowed to gazetted officers as also non-gazetted staff of certain organisations in Bombay and Calcutta. In its Report that Commission recommended that local allowances at the following rates might be paid to all non-gazetted staff serving in Bombay and Calcutta(Table 5).

TABLE 5. CITY COMPENSATORY	ALLOWANCE FOR BOMBAY AND CALCUTTA
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	Amount of Allowance			
r ay				
Not exceeding 35	5.00			
35-60	7.50			
61-80	10.00			
81-140	12.50			
141-200	15.00			
201-300	17.50			
301-500	20.00			

The First Pay Commission had also suggested extended to staff serving in those cities. The that Government should make a review of conditions prevailing in other high-cost cities and decide to what extent similar benefits may be

Second Pay Commission recommended modified rates of city compensatory allowance as given in Table 6.

TABLE 6. CITY COMPENSATORY ALLOWANCE

	Class of Cities				
	Α	В	C		
Below Rs. 150	10% of pay subject to a mini- mum of Rs. 7.50 and a maxi- mum of Rs. 12.50	5% of pay subject to a mini- mum of Rs. 5 and a maxi- mum of Rs. 10 for all persons drawing below Rs. 500 per mensem	Nil		
Rs. 150 and above but below Rs. 300	8% of pay subject to a mini- mum of Rs. 12.50 and a max- imum of Rs. 17.50				
Rs. 300 and above	6% of pay subject to a maxi- mum of Rs. 75				

A:- Bombay & Calcutta; B:- Cities with Population over 5 lakh; C:Cities with Population over 1 lakh.

(Runees)

Higher allowances were recommended for Simla and Shillong and other hill stations.

One-Man Independent Body to Enquire into the question of Dearness Allowance Payable to Central Government Employees, January 1965

Certain associations of Government employees represented to Government that the increase of dearness allowance which Government had sanctioned from time to time was not adequate. Accordingly, on August 27, 1964, Government appointed Justice S.K. Das as an Independent Body to examine the question. Justice Das submitted his Report on January 1, 1965. He referred to the dearness allowance formula as recommended by the Second Pay Commission

and accepted by the Government which considered revision of dearness allowance if the average cost of living index, over a period of twelve months, rose or fell by ten points. Justice Das opined that, in the context of the rise in prices since 1958, the formula did not fulfil its primary purpose; (a) it did not ensure a just compensation for a substantial fall in their real income; and (b) it delayed the consideration over an inordinately long period; hence, as long as prices did not stabilise, some modification of the formula was necessary to deal with abnormal situations. The consumer price index (1949 = 100) had reached 145 in September 1964 and Justice Das recommended the following dearness allowance with effect from October 1, 1964 (Table 7).

	Pay Ranges	Neutralization for each pay range on the basis of the lowest paid employee in the range	Dearness allowance Recom- mended as from October 1, 1964
	(Rs.)	(per cent)	(Rs.)
1.	70 - 109	90	28
2.	110 - 149	85	42
3.	150 - 209	80	54
4.	210 - 399	70	66
5.	400 - 599	40	70
6.	600 - 799	30	80
7.	800 - 999	24	85
8.	1,000 - 1,200	20	90

TABLE 7. DEARNESS ALLOWANCE RECOMMENDED BY JUSTICE DAS

The Government accepted the recommendations in toto in respect of pay up to Rs.600 per month. But, the consumer price index continued to rise. When, in February 1965, it reached 155 and later, in November 1965, reached 165, the Government revised the rates of dearness allowance by neutralisation upto 75 per cent of the increase in index in respect of pay ranges Rs.70-109, Rs.110-149, Rs.150-209 and, for pay range Rs.210-399, 70 per cent neutralisation at the average Index 155 and 60 per cent neutralisation at the average Index 165. Government also sanctioned with effect from March 1, 1965 dearness allowance for those employees who drew pay in the salary range of Rs.600-1,000. A year later, dearness allowance at an ad hoc rate of Rs.100 p.m. was granted to employees drawing pay between Rs.1,000 and Rs.2.250.

The revision of dearness allowance did not satisfy the employees and on their behalf a persistent

demand was made for due revision of dearness allowance at least according to the pay ranges recommended by Justice Das. Government therefore appointed another Commission on July 26, 1966 to examine the question and, specifically, to report on the following issues :- (a) Considering that the non-plan Revenue expenditure of State Governments gets reflected in the financial assistance given by the Centre on the recommendations of the Finance Commissions and in the annual plan allocations, and having regard to the existing disparities between the pay scales of Central and State employees, is it justifiable to follow a different policy at the Centre from the States and to treat the employees of the former more liberally in the matter of dearness allowance; (b) Any relief which the Central Government gives to its employees entails a burden on the rest of the community, particularly other vulnerable sections with fixed incomes. To what extent should Government give preferential treatment to that section of the community which is directly under its employ? (c) Is it justifiable to compensate Government employees for rise in prices due to taxation and other policy-induced causes, or to occasions such as severe crop failure or a threat to national security necessitating higher levels of expenditure? (d) Should the capacity of Government, and therefore of the community, to pay be the determining factor for granting relief to Government employees? To what extent can this be reconciled with the concept of dearness allowance as a device to protect, to a varying degree, the real income of salaried employees from the effects of rise in prices?

The Commission submitted two reports: One on October 8, 1966 which referred to the question of adequacy of dearness allowance admissible to Central Government employees as from 1st December 1965; the other on May 29, 1967 relating to the question of the grant of dearness allowance to Central Government employees in future.

The Commission could not agree with the Government's contention that the rates of neutralisation of every 10 point rise in the All-India Working Class Consumer Price Index (Base 1949) = 100) should be lower than that recommended by Justice Das. It was also unable to accept the contention of the employees' associations of cent per cent neutralisation. The Working Class Consumer Price Index had reached the level of 165 in November 1965 and 175 in July 1966. The Commission recommended that dearness allowance be paid to the employees drawing pay below Rs.400 per month at the rates specified by the Das Commission from 1st December 1965 for the entire rise of 65 points and from 1st August 1966 for the entire rise of 75 points. This was accepted by the Government and given immediate effect. In its second Report, the Commission recommended: (i) that compensation to the employees for future rise in prices should be given in the form of additional dearness allowance, as no alternate form of assistance was feasible and practicable: (ii) that for determining the additional dearness allowance admissible from time to time, the All-India Working Class Consumer Price Index

(1949 = 100) be used until such time as the All-India Working Class Consumer Price Index (1960 = 100) was prepared, published, and accepted, with a suitable linking factor; (iii) that increases in additional dearness allowance be made with reference to every ten-point rise in the twelve-month average of the said Index; (iv) that additional dearness allowance be paid to such employees as draw basic pays ranging from Rs.70 to Rs.575 per month, as set out in the Table 8; (v) that in the event of a fall in prices, reduction in dearness allowance be made at the same rates and under the same conditions as for the rise in prices; (vi) that any upward or downward adjustment in regard to dearness allowance, as specified in clauses (iv) and (v) above, should be automatic; (vii) that the aforesaid recommendations should remain in force until the expiry of two years from the date of their acceptance or until the twelvemonth average of the All-India Working Class Consumer Price Index (1949 = 100) reaches 245, whichever is earlier; (viii) that at the expiry of two years as aforesaid or immediately after the twelve month average of the Index (1949 = 100) reaches 245, whichever is earlier, the Government should undertake the revision of pay scales of all the employees, and sanction suitable interim relief pending such pay revision; (ix) that recommendations (i) to (viii) above were and formed part of an integrated scheme (Table 8).

Government granted additional dearness allowance to its employees in February 1967 when the average index stood at 185 and again in June 1967 (195), November 1967 (205) and September 1968 (215).

Third Central Pay Commission, 1973

In April 1970, the Government set up the Third Pay Commission. Among other things, it was asked to examine the Central Government employees' demand for a need-based minimum wage recommended by the 15th Indian Labour Conference. The Commission was to make its recommendations having regard, among other relevant factors, to the economic conditions in the country, the resources of the Central Government and the demands thereon such as those on account of developmental planning, defence, and national security, the repercussions on the finances of the local bodies, etc. State Governments, public sector undertakings,

Pay Range (Basic Pay without	Percentage of Neutralisation for	Amount of Deamess	Dearness Allowance	Addi futur	tional De e when th	earness A ne averag	llowance e of the	e to be pa Index rea	id in ches
Allowance)	in the average of the Index above 175	for a 10-Point rise	paid at Index 175	185	1 95	205	215	225	235
(Rs.)	(%)	(Ks.)	(Rs.)	(Ks.)	(KS.)	(Ks.)	(KS.)	(KS.)	(KS.)
70 - 109	90	6	47	6	12	18	24	30	36
110 - 149	60	7	70	7	14	21	28	35	42
150 - 209	55	8	90	8	16	24	32	40	48
210 - 399	45	9	110	9	18	27	36	45	54
400 - 449	25	10	120	10	20	30	40	50	60
450 - 499	24	11	120	-	-	33	44	55	66
500 - 575	24	12	120	-	-	-	-	60	72

TABLE 8. DEARNESS	ALLOWANCE RECOMMENDED,	1967
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The average consumer price index (base 1949) = 100) for the twelve month period ending June 1970 was approximately 218. Hence, pending the submission of its final report, the Commission, in September 1970, recommended interim relief (Table 9).

TABLE 9. INTERIM RELIEF, SEPTEMBER 1970

Pay Range	Amount of Interim Relief per			
(Rs.)	(Rs.)			
Below 85	15			
85 - 209	25			
210 - 499	30			
500 - 1250 (with suitable marginal adjustments)	45			

The interim relief was to be given with effect from 1st March 1970. The overall financial implications were estimated at Rs.102.90 crore per annum. The Commission pointed out "that it would be an exercise in futility to keep on increasing the emoluments of Central Government employees, if these" were "largely wiped out soon afterwards by increases in prices of goods and services". There was therefore paramount need to maintain price stability. Government should take "fiscal, monetary and other measures, including control over production and distribution, to maintain the price line. ... If, however, the price situation remains intractable despite all the measures the Government" might take, "a review" would be called for by the Commission "when the 12-monthly average of

p.171]. Government accepted the recommendations of the Commission and issued necessary orders.

The 12-monthly average index ending September 1971 reached 228 and on November 27, 1971, the Commission recommended the grant of additional interim relief with effect from 1st October, 1971 (Table 10).

Pay Range	Amount of Interim Relief per			
(Rs.)	(Rs.)			
Below 85	7			
85 - 209	8			
210 - 499	10			
500 - 1250 (with suitable marginal adjustments)	15			

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The additional interim relief was estimated to cost Rs.37 crore for a full year. A review would be necessary if the Index average reached 238. Government accepted these recommendations.

The monthly index of the All-India Working Class Consumer Price Index (1949 = 100) rose to 249 in July 1972 and the index average for 12 months reached 238.58. The Commission pointed out that the price rise had been of such an order that grant of further interim relief to lower paid Government employees was desirable. However, if the Government were "of the view that having regard to the Government's own finances and to the need to restrain inflationary pressures, no the index reached 228" [Raghubeer Dayal, 1973, further interim relief should be granted ... then ...

the freeze in wages should be of general applicability and not confined to Government employees." The Commission referred to the various factors responsible for the spurt in prices which had placed a heavy burden on finances of the Central Government. In the circumstances, while being "fully conscious of the difficulties of Government employees ... a certain measure of austerity (was) called for." The Commission therefore, recommended that the upper pay limit for the grant of the third interim relief be fixed at Rs.575 p.m. instead of Rs.1,250 p.m. and that the maximum amount of relief be brought down from Rs.15 to Rs.10 p.m. The additional interim relief was to be paid with effect from 1st August 1972 (Table 11).

TABLE 11. INTERIM RELIEF. AUGUST 1972

Pay Range	Amount of Interim Relief per month				
(Rs.)	(Rs.)				
Below 85	7				
85 - 209	8				
210 - 575 (with suitable marginal adjustments)	10				

The additional interim relief was estimated to cost Rs.35.93 crore for a full year in respect of the Central Government employees including Armed Forces personnel and employees in Union Territories. The recommendations were accepted by the Government [Raghubeer Dayal, 1978, Pp. 177-178].

Report of the Third Pay Commission, March 31, 1973

The Commission submitted its main Report on March 31, 1973. It reviewed the increases in the wage bill of the Government of India since the sixties. The continuous pressure exerted by the rise in prices on the cost of living was such that from 1959 to date Government had to grant additional D.A./Interim relief as many as 16 times and refer the D.A. issue for review first by the Das Body in 1964, and second by the Gajendragadkar Commission in 1966. The present Pay Commission had also to recommend three interim reliefs during a span of two years. Table 12 shows the dates from which additional D.A./Interim relief

1-7-1959 1-11-1961	115	
1.11.1961	. 115	31.74
1 11 1/01	125	16.14
1-7-1963	ad hoc	10.85
1-2-1964	135	17.36
1-10-1964	145	36.38
1-3-1965	155	25.21
1-12-1965	165	24.90
1-12-1965	165 (Revised)	10.60
1-8-1966	175	28.60
1-2-1967	185	29.05
1-6-1967	195	29.05
1-11-1967	205	30.00
1-9-1968	215	30.00
1-3-1970	218	97.43
(Order issued in September 1970)		(Interim Relief)
1-10-1971	228	37.08
(Order issued in December 1971)		(Interim Relief)
1-8-1972	238	35.93
		(Interim Relief)

TABLE 12. GRANT OF ADDITIONAL DA/INTERIM RELIEF, 1959-72

Besides these, the quantum of compensatory city allowance and house rent allowance also rose due to changes in classification of cities and conversion of major part of D.A. as dearness pay for calculation of such allowances. Other concessions granted included revision of daily allowance in 1971, enhancement of night duty allowance and running allowance for railway employees in 1970-72, etc.

The wages and salaries bill of the Central Government in respect of regular employees alone had increased from Rs.417 crore in 1960-61 to Rs.1,186 crore in 1970-71. This was largely due to improvement in wages and salaries, but partly also due to an increase in the number of employees. Between 1960-61 and 1969-70, for

example, the number of employees increased from 20.94 lakh to 28.51 lakh; an increase of about 36.2 per cent over nine years, while the increase in the wages bill was 152.8 per cent.

The increase in the wages and salaries bill was viewed by the Commission, against growth of receipts and total expenditure. Table 13 shows the trends in the growth of wages and salaries bill of the Central Government from 1960-61 to 1987-88 and its relationship with growth of revenue receipts and expenditure.

(The Third Pay Commission covered the period from 1960-61 to 1970-71. We have extended the table upto 1987-88 for ready reference and comparison.)

Year	Revenue Budget		Wages & Salaries Bill	Wage Bill as percentage of		
	Total Revenue Receipts (a)	Total Revenue Expenditure (b)	Amount Value (c)	Revenue Receipts	Revenue Expendi- ture	
	(Rs. Crore)	(Rs. Crore)	(Rs. Crore)			
1960-61	1,297	1.246	417	32.2	33.5	
1961-62	1.488	1.363	445	29.9	32.6	
1962-63	1,930	1.817	492	25.5	27.1	
1963-64	2,381	2.193	581	24.4	26.5	
1964-65	2.617	2,343	663	25.3	28.3	
1965-66	3.022	2 703	754	25.0	27.9	
1966-67	3 280	3 051	856	26.1	28.1	
1967-68	3 358	3 2 5 4	940	28.0	28.9	
1968-69	3 671	3,500	1 007	27.4	28.1	
1969-70	3,008	3 873	1.053	263	272	
1970-71	4 354	4 101	1,186	27.2	283	
1971-72	4 028	4 1 28	1,100	27.2	20.5	
1072.73	4,528	4,120				
1073.74	5 073	4,352				
1074 75	6 558	5 702				
1974-75	8.075	7 1 90	1 097	22.4	262	
1975-70	8 720	7,107	1,00/	23.4	20.5	
1970-77	0,739	0,440	1,920	22.0	2.2.0	
1977-70	9,792	9,304	2,019	20.0	21.0	
1978-79	11,240	10,948	2,153	19.2	19.7	
1979-80	11,340	12,034	2,427	21.4	20.2	
1980-81	12,829	14,544	2,/61	21.5	19.0	
1981-82	15,5/4	15,868	3,183	20.4	20.1	
1982-83	18,091	19,346	3,594	19.9	18.6	
1983-84	20,493	22,890	4,421	21.6	19.3	
1984-85	24,384	27,881	4,646	19.1	16.7	
1985-86	29,207	34,772	5,262	18.0	15.1	
1986-87	34,768	42,554	5,914	17.0	13.9	
1987-88	40,208	48,705	6,945	17.3	14.3	

TABLE 13. WAGES AND SALARIES BILL OF CENTRAL GOVERNMENT EMPLOYEES

(a) Include Defence, Railways and P & T. (b) Excludes payment of Central taxes to States and certain other adjustments (c) Excludes Casual labour.

Sources: 1. 1960-61 to 1970-71 Ch IV, Third Pay Commission Report.

2. Wage Bill for 1975-76 to 1983-84, Brochure on Pay and Allowances of Central Government Employees, Department of Expenditure, various issues.

3. IV Pay Commission 1975-76 to 1983-84 data. Department of Expenditure, Ministry of Finance.

Thus over the years, both revenue expenditure and revenue receipts increased faster than the wages and salaries bill. From 1960-61 to 1970-71, the wages and salaries bill increased by 184.7 per cent, when revenue receipts went up by 235.7 per cent and revenue expenditure by 236.4 per cent. From this, the Commission concluded that there was "some leeway for raising the wage and salary levels without placing an undue strain on the exchequer."

The Commission also analysed the increase in emoluments vis-a-vis the increase in per capita national product during the interval between the

Second and Third Pay Commissions and commented that "a large section of the Government employees had not received their due share of the increase in the national product. When per capita national income at current prices increased by 95.2 per cent, the Class IV employees alone received an equivalent increase of 95 per cent. The emoluments of all the other categories had lagged far behind. The increase in their monetary emoluments ranged from 51 to 74 per cent for clerical categories, 25.4 per cent for Class II and 11 to 16.7 per cent only for Class I employees" (Table 14).

TABLE 14. INCREASE IN EMOLUMENTS OF CENTRAL GOVERNMENT EMPLOYEES, 1960-61 - 1970-71

1	1960-61 (Rs.) 2	1970-71 (Rs.) 3	Percentage Increase of (3) over (2) 4
Per Capita National Product at Current Prices	306.1	597.4	95.2
Class IV	80	156	95.0
L.D.C.	171	298	74.3
U.D.C.	220	347	57.7
Assistant	345	521	51.0
Class II	650	815	25.4
Class I A	1,250	1,395	11.6
Class I B	2,250	2,500	11.1
Class I C	3,000	3,500	16.7

The erosion in real earnings of a few selected during 1960-72 was worked out (Table 15). categories of Central Government employees

										-				
Sa	lary *	1960	1961	1962	1963	1964	1965	1966	1967	1968	1 96 9	1 9 70	1971	1972
Peon:	Salary(Rs.)	80	80	85	85	90.5	103	111	123	135	141	156	156	170
	Index	100	96	99	97	91	94	92	89	95	101	106	103	105
LDC :	Salarv(Rs.)	171	171	181	181	193	216	229	249	265	273	298	298	314
	Index	100	96	99	96	90	92	89	85	88	91	95	92	91
UDC:	Salary(Rs.)	220	220	230	230	242	265	276	298	314	322	347	347	363
	Index	100	96	98	95	88	88	84	79	81	84	86	83	82
Asst:	Salary(Rs.)	345	345	355	355	380	426	441	464	482	491	521	521	541
	Index	100	96	96	94	88	90	85	78	79	81	82	80	78
Class	Salary(Rs.)	650	650	650	650	650	740	755	770	770	770	815	815	830
11	Index	100	96	94	91	80	83	77	69	67	68	68	66	63
Class	Salary(Rs.)	1250	1250	1250	1250	1250	1250	1350	1350	1350	1350	1395	1395	1395
IA	Index	100	96	94	91	80	73	72	63	61	62	61	59	56
Class	Salary(Rs.)	2250	2250	2250	2250	2250	2500	2500	2500	2500	2500	2500	2500	2500
IB	Index	100	96	94	91	80	81	74	65	63	64	60	59	55
Class	Salary(Rs.)	3000	3000	3000	3000	3000	3000	3500	3500	3500	3500	3500	3500	3500
IC	Index	100	96	94	91	80	73	77	68	66	67	63	61	58

TABLE 15. EROSION IN EARNINGS OF CENTRAL GOVERNMENT EMPLOYEES, 1961-72

* Salary includes basic pay and D.A. only (for the years 1970 onwards it includes interim relief also)

The Commission emphasized that the analysis had "clearly shown how a large section of Government employees ha(d) suffered a grievous fall in real wages and their position vis-a-vis the employees in the organised private and public sectors ha(d) deteriorated considerably. The disparities ha(d) widened to such an extent that" the

Commission could "not hope to bridge the gap at one step. But a fair deal to Government employees demand(ed) that the gap should be narrowed to the extent that the finances of Government would permit" [Raghubeer Dayal 1973, Pp. 20-24].

At the same time, the Commission was aware of the repercussions of a rise in salaries bill on TABLE 16. ADDITIONAL ANNUAL LIABILITY

m. C----

increases in dearness allowance and interim relief, in the context of rising prices, produced

resources available for development. The addi- repercussions on the State Governments, public tional annual burden on the Centre on account of enterprises and local bodies, as will be seen from Table 16.

			(Rs. Crore)
Year of	Extra Annu	al Liability	Total Extra
Revision	For Centre on Account of D.A. Revisions and Grant of Interim Reliefs **	For all States Together on account of Revision of Pay and Allowances	Liability for Centre and States
1959-60	31.74	-	31.74
1960-61	-	13.24	13.24
1961-62	16.10	10.79	26.89
1962-63	-	6.87	6.87
1963-64	28.21	1.73	29.94
1964-65	36.38	57.08	93.46
1965-66	60.71	58.58	119.29
1966-67	57.95	97.85	155.80
1967-68	59.05	103.92	162.97
1968-69	30.00	70.92	100.92
1969-70	-	50.64	50.64
1970-71	97.43	85.16	182.59
1971-72	37.08	116.96	154.04
1972-73	35.93 (a)	54.23 (b)	90.16
Total 14 years	490 58*	727 97*	1 218 55

* This does not take into account the annual growth subsequent to each revision as a result of increase in the number of employees.

** Excludes additional burden on account of increase in other allowances.

(a) Full year effect of third interim relief sanctioned in Septemberr 1972.

Additional liability in 1972-73 is only Rs.20.96 crore.

(b) Revisions made upto 15th September 1972.

Note:- In all cases where revisions have been effected during the course of the year, the full year effect has been shown for that year in this table.

Further, the Commission recognized : "The revision of salaries and D.A. by the State Governments, ha(d) to some extent, recoiled on the Central Governments' resources position as it became incumbent on the Centre to grant special accommodation to some States for meeting non-Plan gaps, to sanction ways and means advances to States for clearing their overdrafts with the Reserve Bank of India, and to make a larger devolution of funds under the Finance Commission's awards - from Rs.240 crore in 1960-61 to Rs.1,325 crore in 1973-74. The decade" was thus "one of continuous stresses and strains on the finances of the Central Government" [Raghubeer Dayal 1972, Pp. 26-27].

Minimum Salary

the state of finances of the Central Government and the likely repercussion of a high minimum wage on the finances of the State Governments" the Commission considered "it to be supremely important that the maximum restraint should be exercised in devising a new pay structure." The Commission examined a number of approaches "and keeping in view the various limiting factors, it seemed to them "that a minimum remuneration of Rs.185 p.m. for the lowest paid full time adult employee of the Central Government, at the All-India Consumer Price Index of 243 points (1949 = 100) or 200 points (1960 = 100), being the average of 12 months ending 31st October 1972, would be compatible with general economic conditions in the country and one that the tax-payer could be reasonably called upon to bear. This level of minimum remuneration secure(d) to "Having regard to the low per capita income of the Central Government employees not only full the country, the acute unemployment situation, neutralisation over the figure recommended by

the Second Pay Commission, but also a reasonable share of the increase in per capita income. This would also compare quite favourably with the trend in the earnings of factory workers earning less than Rs.400 p.m." Accordingly, the Commission recommended that the minimum remuneration for the whole time Central Government employee at the start of his career should be fixed at Rs.185 per month and that the revised scale for employees drawing pay in the scale of Rs.70 - 1 - 85 should be Rs.185 - 2 - 193 - 3 - 220 (14 years), except where otherwise recommended for any particular category. This scale was inclusive of the dearness pay, dearness allowance, and interim relief admissible at that time.

With regard to Class I Services, the Commission commented that "over the years, service under the Government ha(d) lost much of its old glamour and prospective candidates for employment have now many more alternatives to choose from". Further, "there had been an unduly sharp decline in the number of first-class graduates taking the competitive examinations, even though the output of such graduates had been steadily increasing". The Commission opined that Government should strive to "attract a fair share of the outstanding talent from the universities into the higher services" in view of its expanding role and "increasing responsibilities for planned social and economic development". Nevertheless, the Commission thought, the starting salary of Class I Services, should not exceed the then prevailing ratio of 1:4 to the starting salary of Class IV services. Accordingly, the Commission recommended that the starting salary for entry into the Class I Services, including the all-India Services, should be Rs.700 per month.

Maximum Salary

As regards maximum salaries, the Commission referred to the following changes made by Government in 1965 and suggested that no change need be made in the ceiling of Rs.3,500 per month.

	From	To
Joint Secretary	Rs.2,250	Rs.2,500 - 125/2,750
Addl. Secretary	Rs.2,750	Rs.3,000
Secretary	Rs.3,000	Rs.3,500

In reaching this conclusion," the Commission "kept in view the social desirability of reducing disparities in the levels of income generally and in the Government in particular." As a result of these recommendations "the disparity ratio between the minimum remuneration and the pre-tax prescribed maximum salary under the Government" would be reduced from 1:20.6 to 1:18.9 [Raghubeer Dayal, 1972 Pp 66-72].

Scales of Pay

The Second Pay Commission had recommended 140 scales in all. But, there were already over 500 scales by January 1971. Table 17 gives the extent of proliferation, by different classes, that had occurred since the Report of the Second Pay Commission made in August 1959.

TABLE 17. NUMBER OF SCALES

	As Recommended by 2nd Pay Commission	As on 1-1-1971	Percentage Increase
Class I	25	117	368
Class II & III	106	395	273
Class IV	9	24	167

Thus, as on January 1, 1971, there were in all 536 scales. But, only 35 scales accounted for nearly 92 per cent of the 29.82 lakh employees while the remaining 8 per cent were spread over 501 different scales. Clearly, a very large number of scales were created to suit individual requirements. It was found that "among the civilian personnel above, the various standard clerical

categories" were "borne on as many as 9 scales of pay, with their supervisors accounting for another 24 scales. Storekeepers" were "on 42 scales. Stenographers and Stenotypists on 19, Draughtsmen on 30, Library staff on 38, and Drivers on motor vehicles on 21 scales. Many of the scales" were "only marginally different from others" [Raghubeer Dayal, 1973 p. 50].

In devising the pay structure, between the recommended maximum and minimum, the Commission "had to balance various considerations some of which" were "mutually conflicting." The Commission examined the various aspects of pay fixation and scales, including common categories of posts, time scales, length of scales, efficiency

bars, increments, overlapping scales, pay fixation on promotion, special pay, deputation allowance, etc. and recommended eighty scales of pay along with the incremental steps and the efficiency bars and suggested that these should be made applicable from 1st March 1973 (Table 18).

TABLE 18. PAY SCALES RECOMMENDED BY THIRD PAY COMMISSION

(Rupees)

- 50 -

			(TO 00 THO 05 000 EP 10 0/0
1.	160 - 2 - 170	41.	650 - 30 - 740 - 35 - 880 - EB - 40 - 960
2.	185 - 2 - 193 - 3 - 205 - EB - 3 - 220	42.	650 - 30 - 740 - 35 - 880 - EB - 40 - 1040
3.	190 - 3 - 208 - 4 - 220 - EB - 4 - 232	43.	650 - 30 - 740 - 35 - 810 - EB - 35 - 880 - 40 - 1000 -
			EB - 40 - 1200
4	190 - 3 - 208 - 4 - 220 - EB - 4 - 240	44	700 - 30 - 760 - 35 - 900
5	200 - 3 - 212 - 4 - 240 - EB - 5 - 260	A5	700 - 40 - 900 - FB - 40 - 1100 - 50 - 1300
∠.	200 - 3 - 212 - 4 - 240 - 153 - 3 - 200	45.	700 40 000 ED 40 1100 50 1250 ED 50
0.	200 · 5 · 212 · ED · 4 · 240 - EB · 5 · 280	40.	100 - 40 - 900 - EB - 40 - 1100 - 30 - 1230 - 128 - 30 -
_			1600
1.	225 - 5 - 260 - 6 - 290 - EB - 6 - 308	41.	740 - 35 - 880
8.	225 - 5 - 260 - 6 - 326 - EB - 8 - 350	48.	775 - 35 - 880 - 40 - 1000
9.	260 - 6 - 326 - EB - 8 - 350	49.	775 - 35 - 880 - 40 - 1000 - EB - 40 - 1200
10.	260 - 6 - 290 - EB - 6 - 326 - 8 - 366 - EB - 8 - 390 -	50.	840 - 40 - 1040
	10 - 400		
11.	260 - 8 - 300 - EB - 8 - 340 - 10 - 380 - EB - 10 - 430	51.	840 - 40 - 1000 - EB - 40 - 1200
12	260 - 8 - 300 - FB - 8 - 340 - 10 - 360 - 12 - 420 - FB	52	900 - 40 - 1100 - FB - 50 - 1400
12.	10 - 480	54.	00 - 40 - 1100 · LD - 50 1400
12	-12-400 200 6 206 ED 9 260	50	1050 50 1200
13.	290 - 0 - 320 - ED - 8 - 330	33.	1050 - 50 - 1000 1050 - 50 - 1600 FFF - 60 - 1800
14.	290 · O - 326 · 8 - 350 · EB - 8 - 390 - 10 - 400	54.	1050 - 50 - 1500 - BB - 60 - 1800
15.	290 - 8 - 330 - EB - 8 - 370 - 10 - 400 - EB - 10 - 480	55.	1100 - 50 - 1500
16.	290 - 10 - 350 - EB - 12 - 410 - EB - 15 - 500	56.	1100 - 50 - 1600
17.	290 - 8 - 330 - 10 - 380 - EB - 12 - 500 - EB - 15 -	57.	1100 - 50 - 1500 - 60 - 1800
	560		
18.	320 - 6 - 326 - 8 - 390 - 10 - 400	58.	1200 - 50 - 1600
19.	330 - 8 - 370 - 10 - 400 - EB - 10 - 480	59	1200 - 50 - 1700
20	330 - 10 - 380 - FB - 12 - 500 - FB - 15 - 560	60	1200 - 50 - 1500 - 60 - 1800
21	380 - 12 - 500 - 15 - 520	<u>6</u> 1	1200 - 50 - 1300 - 60 - 1600 - 17R - 60 - 1000 - 100 -
£•1.	300 - 12 - 300 - 13 - 330	01.	1200 - 50 - 1500 - 00 - 1000 - 150 - 00 - 1500 - 100 -
22	200 12 600 ED 16 600	~	2000
22.	380 - 12 - 500 - EB - 15 - 560	62.	1300 - 50 - 1700
23.	380 - 12 - 440 - EB - 15 - 560 - EB - 20 - 640	63.	1500 - 60 - 1800
24.	425 - 15 - 530 - EB - 15 - 560 - 20 - 600	64.	1500 - 60 - 1800 - 100 - 2000
25.	425 - 15 - 560 - EB - 20 - 640	65.	1650 - 75 - 1800
26.	425 - 15 - 500 - EB - 15 - 560 - 20 - 700	66.	1800 - 100 - 2000
27.	425 - 15 - 500 - EB - 15 - 560 - 20 - 640 - EB - 20 -	67.	1800 - 100 - 2000 - 125/2 - 2250
	700 - 25 - 750		
28.	425 - 15 - 500 - EB - 15 - 560 - 20 - 700 - EB - 25 -	68.	1850 Fixed
	800	00.	1050 1 1.000
20	440 - 15 - 515 - FB - 15 - 560 - 20 - 700 FB - 25 -	60	2000 125/2 2250
<i></i>	750	09.	2000 - 123/2 - 2230
20	ASS 15 SKO ED 20 700	70	2000 1250 2500
21	$453 \times 15 \times 500 \times 155 \times 20 \times 700$	70.	2000 - 125/2 - 2500
21.	470 - 15 - 560 - 20 - 580	/].	2250 - 125/2 - 2500
32.	4/0 - 15 - 530 - EB - 20 - 650 - EB - 25 - 750	72.	2250 - 125/2 - 2500 - EB - 125/2 - 2750
33.	500 - 20 - 700 - EB - 25 - 900	73.	2500 Fixed
34.	530 - 15 - 560 - 20 - 620	74.	2500 - 125/2 - 2750
35.	550 - 20 - 650 - 25 - 700	75.	2500 - 125/2 - 3000
36.	550 - 20 - 650 - 25 - 750	76.	2750 Fixed
37.	550 - 20 - 650 - 25 - 800	77	3000 Fixed
38	550 - 25 - 750 - EB - 30 - 900	78	3000 - 100 - 3500
39	600 - 25 - 750	70	2250 Eirod
40	650 - 30 - 710	19.	2500 Fixed
τυ.	010 - 01 - 010	ðU.	JJUU Pixea

Dearness Allowance

VOL. 2 NO. 1

pay, and interim relief admissible to Government employees in various pay ranges at the time of submission of the Pay Commission's report

The amount of dearness allowance, dearness (1973) were as in Table 19.

				(Acapters)
Pay Range	Dearness Pay	Dearmess Allowance	Interim Relief	Total
- 85	47	24	29	100
85 - 109	47	24	41	112
110 - 149	70	28	41	139
150 - 209	90	32	41	163
210 - 399	110	36	50	196
400 - 449	120	40	50	210
500 - 542	120	AS of 663	70	AS + 70
543 - 575	120	-	70	190
@				
576 - 999	120	-	60@	180
1000 - 1250#	**	100	60#	160
1251 - 2250##	*	100##	-	100

TABLE 19. ALLOWANCES ADMISSIBLE TO GOVERNMENT EMPLOYEES

AS = Amount Short of

** = except for marginal adjustments up to Rs.119

= with marginal adjustments up to Rs.1,310

= marginal adjustments up to Rs.2,350 @ = except for marginal adjustments up to Rs.645

As for the future, the Commission recommended the continuance of the formula for adjustments in dearness allowance except that adjustments should be made when twelve monthly average of the index (1960 = 100)changed by 8 points rather than 10 points as before. The pay structure recommended by the Commission was related to index average of 200

points for the twelve months ending October 1972 (1960 = 100). It was accordingly recommended that the various categories of employees be brought within the purview of the dearness allowance scheme as given in Table 20. The dearness allowance was to be granted in the future on the basis of the formula given in Table 21.

TABLE 20. EMPLOYEES TO BE COVERED BY D.A. SCHEME

Rise in Prices over the Base Period Adopted for Devising the Pay Structure	Employees to be Covered		
For the price rise of first 8 points in the 12-monthly average of the 1960 basic index On the index average rising by 16 points	All employees drawing revised pay up to Rs.900 per mensem with suitable marginal adjustments All employees drawing revised pay up to Rs.1,600 per mensem with suitable marginal adjustments		
On the index average rising by 24 points	All employees drawing revised pay up to Rs.2,250 per mensem with suitable marginal adjustments		

	TABLE 21. DEARNESS ALLOWANCE RECOMMENDED
Pay Range (Rs.)	Amount of D.A. admissible for an increase of 8 points in the index average (1960 basis)
Up to 300	3.5 per cent of pay subject to a minimum of Rs.7 per mensem and a maximum of Rs.10 per mensem.
Above 300	2.5 per cent of pay subject to a minimum of Rs.10 per mensem and a maximum of Rs.20 per mensem.

(Runees)

Should the price level rise above twelve-monthly average of 272(1960 = 100), it was recommended that the Government should review the position and decide whether the dearness allowance scheme should be extended further or pay scales themselves should be revised.

Compensatory City Allowance

Table 22 gives the rates of City Compensatory Allowance in force in 1973, when the Commission submitted its report.

Class of City	Pay per month (Rs.)	Rate of Allowance		
A				
(Population above 16 lakh)	Below 150	10% of pay subject to a minimum of Rs.7.50 and a maximum of Rs.12.50		
	150 and above	8% of pay subject to a minimum of Rs. 12.50 and a maximum of Rs. 75.00		
B-1				
(Population above 8 lakh but not exceeding 16 lakh)	Below 250	7-1/2% of pay subject to a minimum of Rs.6.00 and a maximum of Rs.15.00		
	250 and above	6% of pay subject to a minimum of Rs. 15.00 and a maximum of Rs. 50.00		
B-2				
(Population above 4 lakh but not exceeding 8 lakh)	Below 620	5% of pay subject to a minimum of Rs.5.00 and a maximum of Rs. 10.00		
	620 and above	Amount by which pay falls short of Rs.629		

TABLE 22. CITY COMPENSATORY AL	LOWANCE, 1973
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In view of the revised pay scales recommended, the Commission felt that these would generally compensate for the increase in cost of living and hence that there was no need to increase the existing quantum of city compensatory allow-

absolute quantum of compensatory city allowance that employees were already receiving should generally be protected. Accordingly, the Commission recommended the following revised schedules of compensatory city allowance rates ance; all that was necessary was to ensure that the in conformity with the new pay scales (Table 23):

Class of city	Pay per month (Rs)	Rate of Allowance
A	Below Rs.250	6.5% of pay subject to a minimum of Rs. 12
	250 and above	6% of pay subject to a maximum of Rs.75
B-1	Below Rs.330	5% of pay
	330 and above	4.5% of pay subject to a maximum of Rs.50
B-2	Below Rs.750	3.5% of pay subject to a maximum of Rs. 10
	750 and above	Amount by which pay falls short of Rs.759
С	(Population above 0.5 lakh	No allowance.
	but not exceeding 4 lakh)	
С	750 and above (Population above 0.5 lakh but not exceeding 4 lakh)	Amount by which pay falls short of Rs.759 No allowance.

TABLE 23. CITY COMPENSATORY ALLOWANCE FOR NEW PAY SCALES

Implementation of the Third Pay Commission's ommended by the Commission were also modi-Recommendations

While implementing the recommendations of the Third Pay Commission, the Government ab initio raised minimum remuneration from Rs.185 to Rs.196. The rates of dearness allowance rec-

fied by the Government ab initio, as indicated below, after discussion with representatives of Staff Side in the National Council of Joint Consultative Machinery, set up in October 1966, comprising recognized staff unions/associations and the Government.

Pay Range	Additional D.A. for every 8 point increase in average cost of living index
Upto Rs.300	4 per cent of pay.
Above Rs.300	3 per cent of pay subject to a minimum of Rs.12/- and a maximum of Rs.27/- per month.

Dearness allowance at the above rates was paid up to index average 272. Subsequently, the rates were revised in August 1974 and dearness allowance at the rates recommended by the Third Pay Commission was paid up to index average

312. Later, after discussion with the Staff Side in the National Council, the rates were further revised in March 1979; the revised rates were as follows:

Pay Range	Rate for every 8 point increase
Upto Rs.400	4 per cent of pay.
Above Rs.400	3 per cent of pay subject to a minimum of Rs.16/- and a maximum of Rs.30/- per month.

The above rates provided a neutralisation of 100 per cent to employees drawing pay up to Rs.400/per month and 75 per cent to those drawing pay up to Rs.1,000/- per month after which the neutralisation went on decreasing.

The salaries of posts at the level of Joint Secretary and above and equivalent thereto were revised in 1965 and the Third Pay Commission suggested no change therein. Initially they were given an ad hoc dearness allowance of Rs.150/- with effect from December 1, 1978 which continued thereafter for every rise of 24 points in index average. Since this was much less than the rise in prices, Government decided, in March 1982, as a one time measure, to raise the level of neutralisation to about 45 per cent for the level of Joint Secretary and equivalent posts. This resulted in raising the dearness allowance payable to officers drawing pay of Rs.2,750/- and above from Rs.900/- to Rs.1,500/- with effect from January 1, 1982. The above level of neutralisation for senior officers was maintained by granting suitable increase in dearness allowance subject to a maximum of Rs.150/- on every increase of 24 points in index average.

Government decided on three occasions to treat part of dearness allowance as dearness pay for certain purposes more particularly to provide relief in the matter of death-cum-retirement benefits to retiring employees. The first 9 instalments of dearness allowance paid upto index average 272 were treated as dearness pay with effect from September 30, 1977 to be reckoned as pay for retirement benefits only. Subsequently, 6 more instalments of dearness allowance upto index average 320 were treated as dearness pay

with effect from January 31, 1982 for retirement benefits. Government also decided that the above dearness pay would count as pay for purposes of grant of house rent allowance and city compensatory allowance from February 1, 1982. Later, Government decided to treat 31 more instalments of dearness allowance granied upto index average 568 as pay with effect from March 31, 1985 for retirement benefits only.

Since January 1, 1973, that is, the date from which the revised pay scales recommended by the Third Pay Commission were implemented, 51 instalments of dearness allowance fell due and were "paid covering price rise upto index average 608 which was reached with the twelve-monthly average for December 1985". The percentage of neutralisation provided to government employees under the then existing dearness allowance scheme for an 8 point increase in index average was as follows:

Pay (Rs.)	Percentage of Neutralisation
196	100
300	100
400	100
1,000	75
2,250	45
2,750	45
3,500	35

Each instalment of dearness allowance to Central Government employees cost the Government about Rs.72 crore per annum. The total expenditure "on 28 instalments of dearness allowance which fell due during the Sixth Plan was about Rs.5,200 crore for the Centre" [Singhal 1986, p218].

JAN-APRIL 1990

Report of the Study Group on Wages, Incomes, and Prices, May 1978

In October 1977, the Government of India set up a Study Group on Wages, Incomes, and Prices to undertake a comprehensive study on wages, incomes, and prices policy with the following Terms of Reference:

(i) What should be the minimum wage and what should be the norms with reference to which the minimum wage should be determined.

(ii) Whether the minimum wage should be uniform or could be different as between (a) Agriculture, Industry and Services, (b) Organised and Unorganised Sectors, (c) Urban and Rural Sectors, (d) Different States/Regions, (e) Different employers in the organized sector.

(iii) What should be the relevant criteria for determining differentials between minimum wage and maximum wage and whether the ratio between minimum and maximum wages should be uniform.

(iv) What should be the criteria for determining maximum income and what relationship should exist between maximum income and maximum wage.

(v) What should be the linkage between wages, incomes, and prices, and to review in this connection existing arrangement for regulation of dearness allowance in private and public sectors. (vi) What fiscal, economic and other policies should be adopted for achieving objectives of proposed policy on wages, incomes, and prices. (vii) Whether any legislative changes would be required for implementing the proposed policy on wages, incomes, and prices.

The Study Group submitted its Report in May 1978.

Referring to the higher range of salaries in Government, the Study Group pointed out that by and large, they were not raised much for a considerable time, and no dearness allowance was given to those in receipt of more than Rs.2,400 per month. As a result, the ratio between the post-tax salary income of the lowest and the highest was around 1:9. If perquisites were taken into account, this range might widen slightly. On the other hand, higher salaries and perquisites accrued generally to older persons with greater length of service. When comparisons were made between the more experienced persons in the lowest and highest categories, the range was considerably narrowed. Thus, the differential" was "already a little narrower than what had been "envisaged as the goal ten years hence." There was therefore the question whether there should not be some upward revision of salaries in the higher ranges in order to continue to attract persons of requisite caliber. The Study Group recommended that the problem may be referred to the National Pay Commission.

The Study Group had "found that anything between 2.5 and 5.5 per cent increase in the annual wage bill in Government as well as nongovernment organisations" was "accounted by the prevalence of longish pay scales. This part of the increase in wage bills" was "usually ignored when wage revisions" were "undertaken. There" were "no valid reasons why this should be so. Some progression may be justified on account of improvement in the quality of work as a person acquires experience. At lowest levels, a long scale may also have its merit if opportunities for promotion are limited and prolonged stagnation is to be avoided. But. generally speaking, rationalisation requires very considerable shortening of the existing scales and eliminating them where possible at the higher, middle and top levels '

With regard to dearness allowance, the Study Group felt that there was "need for a single national corrective formula to compensate for the rise in cost of the essential consumption basket."

"The question arises as to the price index to which the dearness allowance should be linked. The widely adopted index is the All-India Consumer Price Index for Industrial Workers. It is based on a consumption pattern which existed about 20 years back but is now largely obsolete, and this may be true even of the revised 1971 series likely to be introduced shortly. The consumption basket which it represents contains several less essential items; for example, dry fruit, ghee, liquor, cigarette, cosmetics, ornaments and air and taxi fare. Such items, as a matter of policy, do not need to be compensated at the present stage of development of our economy. For regulating dearness allowance a new index covering only the basic consumption items should ideally be utilised. But till such an index can be constructed and brought into use, the Consumer Price Index for Industrial Workers, which has the merit of general acceptance, may continue to be used in spite of its deficiencies." The Study Group further recommended "that the periodicity of dearness allowance revision should be on a quarterly basis for all sectors with reference to the index average of the preceding quarter." As regards the extent of neutralisation, the Study Group considered "that dearness allowance should compensate for the rise in price of the essential items in full only at low salary levels and go on tapering towards the top," It recommended the "adoption of the per point formula uniformly for future revisions" of dearness allowance, "the value per point being around Rs.1.30. (The rate of Rs.1.30 per point allow(ed) full neutralisation at the basic pay of Rs.260 related to the CPI level 200). The same amount of dearness allowance would be admissible to everybody above the line. Since D.A.

under this system is not related to salary, it will be admissible to all irrespective of salary drawn" [Bhoothalingam 1978, Pp 48-75].

Fourth Central Pay Commission

On July 29, 1983, the Government of India appointed the Fourth Central Pay Commission. While making its recommendations, the Commission was asked to bear in mind, among other relevant factors, prevailing pay structure in Public Sector Undertakings, State Governments, etc., economic conditions in the country, the resources of the Central Government and the demands thereon such as those on account of developmental planning, defence and national security. Within the week, that is on August 2, 1983, because of an 8 point increase in cost of living index average, another raise in dearness allowance had become due which the Government sanctioned as interim relief 'pending the recommendations of the Fourth Pay Commission'.

	Gro	up A	Gro	up B	Gro	ар С	Gro	up D	To	tal
Departments	Numbers	Per cent Increase								
Railways										
1971 ⁻	37		38		5,914		7,997		13,986	
1984	77	108.1	36	(-)5.3	8,144	37.7	6,790	(-)15.1	15,047	7.6
Posts and							-			
Telegraph										
1971	11		30		3,081		751		3,873	
1984	36	227.3	99	230.0	5,410	75.6	1,247	66.0	6,792	75.4
Defence										
1971	67		63		2,336		3,506		5,972	
1984	117	74.6	88	39.7	3,419	46.4	3,611	3.0	7,235	21.1
Others										
1971	226		330		4,119		1,121	48.2	5,796	
1984	450	99.1	577	74.8	5,896	43.1	1,661		8,584	48.1
TOTAL										
1 9 71	341		461		15,450		13,375		29,627	
1984	680	99.4	800	73.5	22,869	48.0	13,309	(-)0.5	37,658	27.1

TABLE 24.	CATEGORIES	OF POSTS IN	CENTRAL	GOVERNMENT,	1971, 1984
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Group A : Posts carrying pay/scale of pay with a maximum of not less than Rs. 1300/-.

Group B : Posts carrying pay/scale of pay with a maximum of not less than Rs. 900/- but less than Rs. 1300/-.

Group C : Posts carrying pay/scale of pay with a maximum of over Rs.290/- but less than Rs.900/-.

Group D : Posts carrying pay/scale of pay, the maximum of which is Rs.290/- or less.

Pay Commission, March 29, 1985

The Commission submitted an interim report on March 29, 1985 recommending an interim relief at the rate of 10 per cent of basic pay subject to a minimum of Rs. 50 p.m. The expression basic pay

Report on Interim Relief of the Fourth Central may not include special pay, deputation pay, special allowance or any addition to pay under any other nomenclature. It may be taken into account for determining the retirement benefits but not for any other purpose. The interim relief was to be paid with effect from March 1, 1985 and was estimated to cost about Rs.327 crore in a full year inclusive of expenditure on Armed Forces personnel and the employees in Union Territories.

Fourth Central Pay Commission Report Part I, June 1986

The Commission submitted Part I of its final report in June 1986 and Part II in December 1986. In its report the Commission referred to the increase/decrease that had taken place in the various categories of posts in the Central Government between 1971 and 1984 (Table 24).

It will be seen that the number of Group 'A' posts in 1984 was almost twice the number in 1971. Departmentwise, the number of Group 'A' posts in Railways and in other ministries/departments more than doubled during the period 1971 to 1984 while the increase in P & T was more than 200 per cent. The increase of 74.6 per cent in the case of Defence was somewhat lower. The number of Group 'B' and 'C' posts in the Central Government also increased by 73.5 and 48.0 per cent respectively. In absolute terms, while majority of the increase in group 'B' posts was accounted for in other ministries/departments (other than Railways, P & T and Defence), P & T accounted for the major increase in group 'C' posts, followed by Defence. However, the maximum percentage increase in both group 'B' and 'C' posts was registered by P & T, and the minimum by Railways. Inspite of an overall reduction in Group 'D' posts, the number of such posts in P & T and other ministries registered sizeable increase of 66 per cent and 48.2 per cent respectively. The increase in Group 'D' posts for Defence was 3 per cent. However, these increases. steep in the case of P & T and other ministries and marginal in the case of Defence, were more than offset by substantial decrease in the number of group 'D' posts under the Ministry of Railways,

primarily due to reviews of group 'C' and 'D' cadres between 1971 and 1984 resulting in large-scale conversion/upgradation of group 'D' posts into group 'C'. In the overall, the number of posts in Railways increased by 7.6 per cent, P & T by 75.4 per cent, Defence by 21.1 per cent and other ministries by 48.1 per cent.

Regarding the salaries, the Commission pointed out that "the maximum pre-tax salary in our country in 1947-48 (First Pay Commission) and 1969-70 (Second Pay Commission) was Rs.3,000 in the case of Central Government employees. It was raised to Rs.3,500 in 1965 and that was maintained by the Third Pay Commission. The minimum salary was Rs.55, Rs.80 and Rs.196 on implementation of the reports of the previous three Pay Commissions. The disparity in pay (post-tax) which was 41.2 in 1947-48, 28.5 in 1959-60 and 11.9 after the Third Pay Commission report" was expected to "be reduced to 9.15" on the recommendations of the Fourth Pay Commission.

The Commission had recommended, in its interim report, relief at the rate of 10 per cent of basic pay subject to a minimum of Rs.50 to be granted to all government employees with effect from March 1, 1985. Taking into account the dearness allowance and instalments of interim relief, the minimum remuneration of a government employee was Rs.691.70 at index average of 608 (1960 = 100). The Commission indicated "the value of the minimum remuneration recommended by the previous Pay Commissions at index average 608 (1960 = 100)" as given in Table 25 and opined: "The existing minimum emoluments of about Rs.692 at index average 608 not only provide(d) full neutralisation of the price rise since the report of the Third Pay Commission but also a further increase in emoluments" [Singhal, 1986, p 51].

Minimum Remuneration Index to which related (In terms Value at Index average 608 of Current index with 1960 = 100) $(1960 \approx 100)$ (Rs. p.m.) (Rs. p.m.) First Pay Commission 55 65 95 514 Second Pay Commission 80 512 Third Pay Commission i) As Recommended 185 200 562 ii) As Modified by Government 196 200 596

TABLE 25. VALUE OF MINIMUM REMUNERATION AT INDEX AVERAGE, 608

There were 153 pay scales in existence when the Fourth Pay Commission was appointed. The Commission suggested their rationalisation in the following manner: There were 44 scales in Group A which should be reduced to 15 scales; there were 89 scales in Groups B and C which should be reduced to 18 scales; and there were 17 scales in Group D which should be reduced to 3 scales. Besides, there were 3 fast-track scales in the Atomic Energy Commission; the Pay Commis-

sion did not think they were necessary. Thus, there were left only 36 scales which the Commission believed reflected "the distinct differences in responsibility at various levels in Government and it should be possible to place any post created in future in one or the other scale recommended by" them" and thus "avoid any proliferation of scales in future" [Singhal, 1986 p111]. The 36 scales recommended by the Commission are shown in Table 26.

TABLE 26. SCALES OF	PAY RECOMMENDED BY 1	FOURTH PAY COMMISSION
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Group 'A' (Rs.)	Group 'B' & 'C' (Rs.)	Group 'D' (Rs.)
2,200 - 4,000	825 - 1,200	750 - 940
3,000 - 4,500	950 - 1,400	775 - 1,025
3,000 - 5,000	950 - 1,500	800 - 1,150
3,700 - 5,000	975 - 1,540	
4,100 - 5,300	975 - 1,660	
4,500 - 5,700	1,170 - 1,500	
5,100 - 5,700	1,200 - 1,800	
5,100 - 6,700	1,200 - 2,040	
5,900 - 6,700	1,320 - 2,040	
5,900 - 7,300	1,350 - 2,200	
7,300	1,400 - 2,300	
7,300 - 8,000	1,400 - 2,600	4
7,600	1,600 - 2,660	
8,000	1,640 - 2,900	
9,000	2,000 - 3,200	
	2,000 - 2,120	
	2,000 - 3,500	
	2,375 - 3,500	

Compensation for Price Rise:

The pay structure recommended by the Commission was based on the index average 608(1960 = 100) for the 12-monthly period ending December 31, 1985. The Commission recommended that compensation for price rise should be sanctioned only twice a year, payable with the salary for March and September. For purposes of compensation, the increase in 12-monthly average of index for the periods ending December and June over the index average of 608(1960 = 100)should be taken into account. The compensation should provide full neutralisation of price rise to

employees drawing basic pay upto Rs.3,500, 75 per cent to those getting basic pay between Rs.3,501 and 6,000 and 65 per cent to those getting basic pay above Rs.6,000 subject to marginal adjustments. The compensation may continue to be shown as a distinct element of remuneration.

City Compensatory Allowance:

The Commission recommended that City Compensatory Allowance may be paid to government employees in the various pay ranges at the fixed rates mentioned below:

Pay Range (Basic Pay)	Amount of CCA in Class of Cities (Rs. per month)		
	А	B1	B2
Below Rs.950 Rs.950 and above but below Rs.1500 Rs.1500 and above but below Rs.2000 Rs.2000 and above	30 45 75 100	25 35 50 75	20 20 20 20

TABLE 27. CITY COMPENSATORY ALLOWANCE RECOMMENDED BY FOURTH PAY COMMISSION

Other benefits

Among the benefits to which the Central Government employees are entitled are House Rent Allowance, Children's Education Allowance, Health Service, and Pension and Death-benefits. In the following, we shall briefly describe how they have developed over the years.

House Rent Allowance

During the War, Government had given certain housing facilities by means of requisition of property and housing allowances in major cities at the rate of ten per cent of salary. The First Pay Commission were informed that such assistance was given in areas where there was shortage of accommodation and that Government had not as

a general policy accepted liability to furnish residential accommodation for all classes of their employees. Nevertheless, it was represented to the Pay Commission by all sections of the service that Government should (i) provide free quarters for certain grades and categories of public servants and (ii) give house-rent allowance to other categories of public servants in places where it may not be found possible to secure reasonable accommodation within the ten per cent of the salary which was supposed to represent houserent. In response, the First Pay Commission recommended a house-rent allowance with certain restrictions as regards pay limits and areas and further that, in case the Government undertook a building programme, priority should be given to schemes for housing employees in the lower grades of the services (Table 28).

			(Rupees)
Pay of Officers (Rs.)	Cities with Population of over 1 lakh	Cities with Population of over 5 lakh	Bombay and Calcutta
Below Rs.55 Rs. 55 - 100 Rs.101 - 250	5 7	7 10 15	10 15 20
Over Rs. 250		7-1/2% of pay	10% of pay

TABLE 28. HOUSE RENT ALLOWANCE RECOMMENDED BY FIRST PAY COMMISSION

The Second Pay Commission recommended gested that, for other areas, house rent allowance revised rates of house rent allowance and sug- could be considered on merit (Table 29).

TABLE 29. HOUSE RENT ALLOWANCE RECOMMENDED BY SECOND PAY COMMIS	SION
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		Class of Cities		
	A (Bombay & Calcutta) (Rs.)	B (Pop. exceeding 5 lakh) (Rs.)	C (Pop. exceeding 1 lakh) (Rs.)	
Below Rs.75 Rs.75 and above but below Rs.100 Rs.100 and above but below Rs.200	10 15 20	7.5 10.00 15.00	5.00 7.50 7.50 (for those drawing below Rs.150)	
Rs.200 and above	10 per cent of pay	7-1/2 per cent of pay	Nil	

Government accepted the recommendations of the Second Pay Commission except that the rate of house rent allowance for A class cities would be 15 per cent of pay subject to a minimum of Rs.20 for the pay range Rs.100 - 499 and 12-1/2 per cent of pay for the pay range Rs.500 - 999. Subsequently, in 1963, the B class was divided into B-1 and B-2 and the rates of house rent allowance applicable to the erstwhile B class

cities were continued for B-2 cities with some modifications, while higher rates were prescribed for A and B1 classes of cities.

At the time of the Third Pay Commission's Report, the cities were classified by population as follows: (A) over 16 lakh; (B1) 8-16 lakh; (B2) 4-8 lakh; and (C) 0.50-4 lakh. The house rent allowance prevailing at the time was as given in Table 30.

TABLE 30. HOUSE RENT ALLOWANCE IN 1972-73

Class of City	Pay (Including Dearness Pay)		House Rent Allowa	nce
A & B-1	Below Rs.100 Rs.100 - 3,000	Rs.15 flat 15% of pay subject Rs.300	to a minimum of Rs.2	0 and a maximum of
	Above Rs.3,000	10% of pay		
B-2	Below Rs.100	Rs.10 flat		
	Rs.100 and above	10% of pay subject	to a minimum of Rs.1	5 and maximum of
С	Below Rs.620 Rs.620 and above	Rs.300 7.5% of pay subjec Amount by which i	t to a minimum of Rs. pay falls short of Rs.66	7.50 55
Type of Accommoda- tion to which entitled	Pay Range in Proposed Scales for entitlement	Amount of House Rent Allowar		Payable (Rs)
	(Ks)	A, BI & B2 Class Cities	Cities	Places
A	750 - 949	150	70	30
В	950 - 1499	250	120	50
С	1500 - 2799	450	220	100
D	2800 - 3599	600	300	150
Е	3600 - 4499	800	400	200
E1 E2 E3	4500 - 6699 } 6700 - 7299 } 7300 + }	1000	500	300

The Commission was aware of inadequate government housing and the inadequacy of existing house rent allowance and recommended that Government should take houses on long lease and make residential accommodation available to its employees on payment of 10 per cent of their pay; or, should lay down appropriate house rent allowance rates in different cities and towns based, not on population criteria but, on an actual assessment of prevailing levels of rent. Alternatively, certain notional rents for different types of accommodation meant for officers and personnel of specified pay groups should be laid down for particular cities after studying the actual conditions in that city. The difference between the actual rent paid and 10 per cent of pay should be reimbursed subject to a maximum of the difference between the notional rent and 10 per cent of the pay; the verification of rent receipts should be

made compulsory. Till Government was able to make such arrangements, rates of HRA should be : For class A, B-1, and B-2 cities/towns, 15 per cent of pay subject to a maximum of Rs 400; for class C towns, 7.5 per cent of pay subject to a maximum of Rs 200. In hill-stations and unhealthy and remote localities where house rent allowance was admissible under special orders, it should continue to be paid. Government may decide upon the appropriate rates.

Government accepted the recommendations which continued until the Fourth Pay Commission's report in 1986.

The Fourth Pay Commission recommended the following amounts of House Rent Allowance in lieu of government accommodation for Central Government employees (Table 31).

They also recommended the creation of a Central Government Employees Housing Fund whereby employees are encouraged to become members of the fund and make some savings for acquiring a house over a period of time.

Children's Education Allowance

The First Pay Commission had suggested that a beginning should be made with a scheme for helping members of subordinate grade services in the matter of the education of their children. Persons drawing a salary of Rs.100 or less per month may be paid by the State a contribution of 75 per cent of tuition fee in the case of children of Class IV and 50 per cent of the fee in the case of children of Class III employees. The contribution might be given upto the higher secondary stage or a corresponding stage of technical education.

The Government did not accept these recommendations on grounds that '(a) spread of education should be uniform among all classes of population, and children of Government servants should not be treated as a privileged class; (b) there would be numerous practical difficulties in successful working of the recommended scheme; (c) schemes of educational assistance had been tried and abandoned in other countries such as the United Kingdom; (d) grant of an allowance might encourage employees to send their children to more expensive schools; and (e) in some places when there were no schools no benefit could be derived' [Das, 1959, p. 479].

The Second Pay Commission referred to the educational assistance given by the Railways to its employees who were compelled to send their children to boarding schools from the stations where they were posted because of absence of school facilities or due to linguistic or other reasons; and recommended that a similar scheme be introduced for such Central Government employees whose salary did not exceed Rs.300 per month [Das, 1959, Pp 480-481].

The Third Pay Commission recommended that the children's educational allowance should be admissible to employees only if a school of the requisite standard did not exist at the station where an employee was posted or on account of nonavailability of accommodation in such a school. The Commission noted that the bulk of non-gazetted employees either did not have a transfer liability or have such a liability within a particular zone or area only and it was mainly

Class II and Class I Officers who had transfer liability throughout the country. The Commission therefore recommended that children's educational allowance should be paid to Central Government employees drawing pay up to Rs.1,200 per month at Rs 15 per month per child for primary classes and at Rs 20 per month per child for secondary and higher classes subject to a maximum of Rs 60 per month per employee.

The Fourth Pay Commission recommended reimbursement of children's tuition fees as defined under the Central Civil Services (Educational Assistance) Order 1983 under which 'children's educational allowance is admissible to a government employee when he is compelled to send his child to a school away from the station at which he is posted/residing owing to the absence of a school of requisite standard at that station or when the child is denied admission in such a school due to their being no vacancy or for any other reason. The Commission recommended that the allowance be paid at Rs 20 per month per child for classes X and below and Rs 25 per month per child for classes XI and XII so long as the same is payable and actually paid by a government employee for the education of his children in a school under the recognised open school system. In the case of physically handicapped or mentally retarded children of government employees, the ceiling of Rs.20 per month where applicable may be raised to Rs.50 per month.

Besides reimbursement of tuition fees, the Educational Assistance Order of 1983 provided for children's educational allowance, subsidy for purchase of books, and hostel subsidy. The Commission recommended that, in case of transfer from one station to another, if the employees have to keep their children at the old station for board examination in the interest of continuity of their studies, they may be paid children's educational allowance without insisting on any other condition. Again, for administrative convenience and simplicity in accounting. children's educational allowance may be paid at a uniform rate of Rs.50 per month per child for primary, secondary, and higher secondary classes. The hostel subsidy paid for children in residential schools, on transfer of the government servant, was recommended to be increased from Rs.60 to Rs.150 per month per child. Subsidy for purchase of new books on transfer of the government servant, and admission of children to new

schools should be raised to Rs.120 for secondary/higher secondary classes, and to Rs.50 per child for other classes. The Commission recommended that the benefit of all the schemes of educational assistance, whether separately or in conjunction, may be admissible for two children only as this would be in consonance with the national objective of a small family.

Contributory Health Service Scheme, July 1954

A contributory health service scheme for Central Government servants in Delhi and New Delhi was introduced with effect from July 1, 1954. The Armed Forces personnel and those employed in the Railway Services were excluded from the scheme. Prior to the introduction of the Scheme. Central Government servants and members of their families were entitled to free medical aid with many reservations. Under the old system, they had initially to incur expenditure on their medical treatment under advice of authorised medical attendants and later get reimbursed from Government to the extent admissible under the rules. This system of reimbursement was a great handicap, especially for low paid Government employees, who could ill afford to incur initial expenditure. Besides, it involved considerable clerical labour causing delays in the settlement of claims. Moreover, the system of allowing the authorised medical attendants, who were mostly working on a part time basis, to charge fees, was unsatisfactory and led to many malpractices. The need for better arrangements for medical attendance of Union Government servants was, therefore, felt and a compulsory Contributory Health Service Scheme was introduced.

The scheme extended the benefit of free medical service to all classes of Central Government servants as well as to their families (other than Armed Forces and Railway Services). The facilities provided under the scheme included: (i) Free medical attendance by authorised medical attendant, both in hospital and at the residence of the patient provided the authorised medical attendant was satisfied that this was necessary owing to lack of hospital facilities or to severity of the illness; (ii) Free medical treatment in hospitals, including free service in respect of diagnostic, medical, and surgical facilities available in the institution. Hospital accommodation suited to the status of the Government

servant was also provided without payment. In the case of Government servants drawing pay less than Rs.100 p.m., diet charges were also borne by Government; (iii) All medicines, special or ordinary, that are considered necessary by the medical attendant were supplied free of cost; (iv) Facilities for treatment of diseases of eye, ear, nose and throat as well as for dental ailments were provided and arrangements made for the treatment of special diseases like Tuberculosis, Cancer, Poliomyelitis, etc. both in Delhi as well as outside. Dispensaries were opened in different parts of Delhi and New Delhi to cater to the requirements of the Central Government servants. For such improved medical service, Government servants were required to pay monthly contributions at rates noted in Table 32.

TABLE 32. MONTHLY CONTRIBUTION FOR HEALTH SERVICES (Rupees)

Gradation according to pay	Rate of monthly con- tribution
2,000 and above	12
From 1,500 to 1,999	9
From 1.000 to 1.499	6
From 750 to 999	5
From 500 to 749	4
From 250 to 499	2.5
From 151 to 249	1.5
From 76 to 150	0.75
Upto 75	0.50
-	

The Fourth Pay Commission recommended revision of the rates of contribution for the Central Government Health Scheme. These rates were to apply to pensioners too (Table 33).

 TABLE 33. MONTHLY CONTRIBUTION FOR HEALTH SERVICES (Rupees)

Pay Range	Rate per month
5,100 and above	25
2,800 and above but less than	20
Rs.5,100	_
1,900 and above but less than	15
Rs.2,800	10
P _a 1 000	10
1 100 and above but less than	5
Rs.1.400	5
Below Ra.1,100	2

The Fourth Pay Commission made a number of other recommendations for Central Government servants including those for medical facilities, special compensatory allowances, risk allowance, non-practising allowance, travel allowance, and leave travel concession, general provident fund, etc.

Age of Retirment

The First Pay Commission recommended the age for compulsory retirement uniformly at 58 years for all permanent pensionable employees, and permanent non-pensionable employees who are entitled to alternative retirement benefits, e.g. a Contributory Provident Fund and/or special contribution or gratuity, with an option to Government to retire an employee on ground of loss of efficiency at 55 years. But this was not accepted and the age of retirement remained unchanged at 55. The Second Pay Commission reiterated the recommendations of the First Pay Commission that the age of superannuation should be raised from 55 to 58 years for all classes of public servants, including those for whom the retirement age was 60. The Government raised the age of superannuation to 58 from December 1962. The Third Pay Commission recommended that the age of retirement for the Central Government employees should continue to be 58 years. The Fourth Pay Commission agreed that at the present stage of development of the Indian economy there was no need to change the existing age of retirement of 58 years though it had to be appreciated that in a developing economy there was need to provide employment opportunities to a growing number of educated and skilled personnel.

Pension and Gratuity

Pensions of Central Government employees were dealt with by provisions contained in (a) Superior Civil Service Rules, (b) Civil Service Regulations, (c) Civil Pensions (Commutation) Rules, 1925, and (d) Central (Class IV) Services (Gratuity, Pension, and Retirement) Rules, 1936.

The retirement benefits admissible to civilian central government employees mainly consist of superannuation or retiring pension, death-cumretirement gratuity (DCRG), encashment of earned leave, and facility to commute a portion of pension. The main features of the system of superannuation/retiring pension are: (i) that pension is non-contributory; (ii) it is liable to be withheld in certain circumstances; and (iii) it is subject to future good conduct of the pensioner. Main elements which go into computation of pension are length of qualifying service of the retiring employee, his reckonable emoluments, and pension formula. There are also orders prescribing a minimum pension. The rules and regulations governing these have been modified from time to time mainly for improving pensionary benefits. These changes have been made by Government on its own or on the recommendations of Pay Commissions.

The First Pay Commission recommended that the rate of earning pension be reduced from 1/60to 1/80 per year of service subject to a maximum of 35/80. To compensate the reduction in pension, a gratuity of half a month's pay per year of service subject to a maximum of 15 months' pay was recommended 'as a retiring gratuity or death benefit, as the case may be'. The Commission did not favour extension of the Railway provident fund scheme to other Government servants. They were also opposed to extension of commutation of pension rules and grant of commutation amounts without medical examination. In the case of non-pensionable employees, compulsory insurance could take the form of an option to take an annuity for a given period instead of a pure life insurance cover. The retiring benefit for every public servant should consist of two components: (i) a recurring monthly pension and (ii) an insurance cover, the premia for which would be found by Government by making a reduction of 25 per cent in the amount of pension. The Commission further recommended that if a Government servant should die in harness, after completing 25 years of service, or shortly after retirement, the widow and dependent children of the deceased should be allowed to draw a portion of the pension limited to half of the pension earned subject to a maximum of Rs.150 per month for a maximum period of say five years.

While accepting pension at 1/80 of average monthly emoluments for each completed year of qualifying service, Government reduced the maximum to 30/80 as against the Commission's recommendation of 35/80. Gratuity was made available at 9/20 of monthly emoluments for each completed year of service, subject to a maximum of 15 times the emoluments, and to a ceiling of Rs.24,000.

As a result of the recommendations of the First Pay Commission, the Liberalised Pension Rules, 1950 were notified with option to those who had entered permanent pensionable service before October 1, 1938 to come over to those rules or to continue under the earlier regulations and orders. The Liberalised Pension Rules were in the nature of modifications to earlier Civil Service Regulations and instructions; executive instructions continued to be issued under these Rules following the recommendations of the later Pay Commissions and other decisions of Government. Ultimately a single set of rules called the Central Civil Services (Pension) Rules, 1972 were issued and came into effect from June 1, 1972. The Civil Pensions (Commutation) Rules, 1925 were replaced by Central Civil Services (Commutation of Pension) Rules, 1981 and came into force from July 1, 1981.

Rule 2 of the Pension Rules of 1972 apply to government employees, including civilian employees in the Defence Services, appointed substantively to civil services and posts in connection with the affairs of the union which are borne on pensionable establishments including employees of Union Territories, but do not apply to (a) railway servants, (b) persons in casual and daily rated employment, (c) persons paid from contingencies, (d) persons entitled to the benefit of Contributory Provident Fund, (e) members of the All-India Services, (f) persons locally recruited for services in diplomatic, consular or other Indian establishments in foreign countries, (g) persons employed on contract except when the contract provides otherwise, and (h) persons whose terms and conditions of service are regulated by or under the provisions of the Constitution or any other law for the time being in force.

Prior to coming into force of Liberalised Pension Rules, 1950 (LP Rules), only permanent service was treated as qualifying service. However, in the light of the recommendations of the First Pay Commission, it was provided under these rules that half the temporary service and full quasi-permanent service, if followed by permanent service, would also count for pension. This position was further liberalised from April 22, 1950 when the entire temporary service which was followed by confirmation was allowed to be treated as qualifying service for pension. Under the LP rules, only periods of earned leave taken by the employee counted for pension. This position was again liberalised from April 1, 1963 and it was decided that periods of leave for which the employee was paid leave salary would count as qualifying service. In 1968 and 1976 even extraordinary leave granted on medical certificate or for prosecuting higher technical and scientific studies etc., was allowed to count as qualifying service.

Prior to April 17, 1950, employees of 'inferior services', that is, Grade IV were eligible for pension only after completion of 20 years qualifying service, while other employees qualified for pension on completion of 10 years of service. This disparity was removed in the LP Rules and all employees were made eligible for pension after completing 10 years qualifying service.

Earlier, pensions were determined with reference to the average emoluments drawn during the last 36 months of the employee's service. The position was liberalised with effect from February 29, 1976 when the period of 36 months was reduced to 10 months. As regards the elements of pay to be included in emoluments, provision in the LP rules was that only pay drawn against a substantive post was treated as emoluments. However, the rules in this regard were liberalised twice, once from April 22, 1960, when substantive pay and the pay actually drawn in officiating or temporary appointment was reckoned as emoluments, and again from June 15, 1968 when all types of pay (including officiating pay) was reckoned as emoluments.

The Second Pay Commission recommended that the rate of gratuity should be changed so that the maximum permissible amount becomes available on completion of thirty years' qualifying service. Government accepted this recommendation; the rate of gratuity was accordingly increased from 9/20 of a month's emoluments to 10/20 of a months emoluments for each completed year of qualifying service. The Commission had recommended higher scales of pay in its report, which would automatically raise the retirement benefits of the employees concerned. In view of this, and also keeping in view interests of tax payers, the Commission did not recommend any increase in the pensionary benefits.

The Third Pay Commission agreed with the views of the Second Pay Commission that no change was necessary in the prevalent formula for computing pension except that the maximum qualifying service for pension should be increased from 30 to 33 years. The death-cumretirement gratuity should also continue to be calculated on the prevalent basis except that the qualifying years should be increased from 30 to 33 years, and the upper pay limit from Rs.1,800 to Rs.2,500 per month. Also, the maximum amount of gratuity for purposes of tax liability should be increased from Rs.24,000 to Rs.30,000.

A major change in the rules governing grant of pension was the introduction of the slab system for calculation of pension with effect from March 31, 1979 whereby a distinction was made between employees in different pay slabs by prescribing three different rates of pension, viz. 50 per cent, 45 per cent, and 40 per cent of the average emoluments. Like all previous improvements in the pensionary benefits, it was intended to be given effect from a prospective date. But the matter went before the Supreme Counrt and by its judgement dated December 17, 1982, the Supreme Court held that all Central Government pensioners governed by pension rules were entitled to pension with effect from April 1, 1979 as computed under the liberalised pension formula irrespective of the date of their retirement. This was the first time that benefit of certain improvements in pensionary benefits was extended to pensioners who had retired prior to the date from which improvements became effective. In terms of this judgement, the following improvements in pensionary benefits were extended by Government to all existing pensioners: (i) application of slab system for calculation of pension; (ii) calculation of average emoluments over the preceding ten months instead of thirty-six months; (iii) benefit of qualifying service up to 33 years instead of 30 years; and (iv) raising the ceiling on pension to Rs.1,500 per mensem. Government also extended the benefit of minimum pension to existing pensioners. The minimum pension fixed from time to time was as follows: Rs 25 (January 1, 1964); Rs 40 (March 1, 1970); Rs 60 (March 1, 1980); Pension plus relief to be not less than Rs 150 (April 1, 1982); Pension plus relief to be not less than Rs 160 (April 1, 1983).

The slab system introduced by Government in March 1979 referred to the then prevailing pay structure. The Fourth Pay Commission, in view of the revisions in salaries recommended by it and also to simplify and rationalise matters, recommended that pension may be calculated at 50 per cent of the revised pay for all categories of Central Government employees. The Commission further recommended that the basic pension for government employees may not exceed Rs.4,500 per month. No change was recommended by the Commission in the rules governing Death-cum-Retirement Gratuity (DCRG). The ceiling on gratuity was revised by Government in March 1985 and raised to Rs.50,000. The same could also be treated as retirement gratuity. Temporary employees who had rendered continuous satisfactory service for long periods should be given the benefits of pension and DCRG as available to permanent employees on superannuation. The required period of service for them could be reduced from 20 to 10 years. In the case of employees whose total temporary service was less than 10 years at the time of retirement, terminal gratuity could continue as prevalent. Minimum pension should be fixed at Rs.300 per month.

The Commission recommended revision of family pension at the following rates: For Basic Pay in the revised scale (a) Rs 1500 and below -30 per cent of pay subject to a maximum of Rs 300; (b) Above Rs 1500 - 15 per cent of pay subject to a minimum of Rs 450 and a maximum of Rs 1000. Further, it recommended the fixation of minimum pension for past pensioners also at Rs.300 per mensem.

The Commission recommended grant of relief to all past pensioners, as also to those who retired in the future, for price rise over index average of
608. These increases were to be based on the four future - and the death-cum-retirement benefits tables being used by the disbursing authorities for determination of graded relief on the pensions being disbursed by them.

In the Part II of its report submitted in December 1986, the Fourth Pay Commission considered the pension structure for pensioners - both past and

including improvements in the rates of family pension, extraordinary pension, terminal benefits to temporary employees, etc. The Commission estimated the likely additional costs on account of their recommendations (Table 34).

TABLE 34. LIKELY ADDITIONAL	Costs on Payment of Revised
and the second state of the se	

Item	Estimate	ed Expenditure per A (Rs. in Crore)	nnum
	Civilian Employees including U Ts	Armed Forces Personnel	TOTAL
1. Retiring pension and gratuity	10	15	25
2. Ex-gratia payment to retirees under Contributory Provident			
Fund Scheme	27		27
3. Rationalisation of Pension Structure -			
(i) for pensioners	73	114	187
(ii) for family pensioners	21	14	35
4. Improvement in the Disability Element and Constant Atten-			
dant Allowance		24	24
TOTAL	131	167	298
· · · · · · · · · · · · · · · · · · ·		Say Rs. 300 Crore	

Of the estimated annual expenditure, improvements in retirement benefits for future pensioners were to cost about Rs.25 crore. The remaining 90 per cent was in respect of rationalisation of the existing pension structure and much needed relief for past pensioners and retirees and was justified for meeting their genuine needs.

The Commission recommended that death-cum-retirement benefits for Central Government employees including employees of Union Territories, personnel belonging to

all-India services and armed forces personnel and the rationalised pension structure for pensioners proposed by them may be made applicable with effect from January 1, 1986.

Additional cost of Pay Commissions' Recommendations.

The Second Pay Commission had estimated the additional annual cost of their recommendations, including the cost of interim relief recommended by them, at Rs. 39.62 crore (Table 35).

	Rs. in Crore Per Annum
Revised Scales of Pay and Dearness Allowance	22.30
House Rent Allowance	1.12
Compensatory Allowance	0.12
Improved Family Pension Scheme	1.00
Extension of the Contributory Health Service Scheme	3.40
Educational Facilities	0.18
Canteen Facilities	0.50
Interim Relief	11.00
TOTAL	39.62

TABLE 35. ESTIMATED ADDITIONAL EXPENDITURE OF SECOND PAY COMMISSION'S RECOMMENDATIONS

made applicable from 1st March 1973.

interim relief sanctioned on the recommendations estimated at Rs. 144.60 crore (Table 36).

The Third Pay Commission suggested that the of the Third Pay Commission amounted to about scales of pay recommended by them should be Rs.175.91 crore. The immediate cost of the recommendations in its final report relating to the The additional cost of the three instalments of scales of pay, pensionary benefits, etc., was

		Rs. in Crore Per Annum	
 Proposed Scales of Pay for Civilian Employees House Rent Allowance Compencetory City Allowance Retiring Pension and Gratuity 	ΤΟΤΑΙ	60.50 22.00 2.38 11.80 96.68	
5. Plus 10% for Union Territory Employees 6. Armed Forces Personnel	GRAND TOTAL	9.67 38.25 144.60	

TOUL & FURDER OF THE DE TARD DAY COMMENDATIONS RECOMMENDATIONS

additional cost of major items of their recommendations as under. These estimates did not

include structure the pension or The Fourth Pay Commission estimated the death-cum-retirement benefits mentioned earlier (Table 37).

TABLE 37. ESTIMATED ADDITIONAL EXPENDITURE OF FOURTH PAY COMMISSION'S RECOMMENDATIONS

	Rs. in Crore Per Annum	
A. Civilian Employees including U.T.		
1) Fixation of Pay in Proposed Scale of Pay	450	
2) House Rent Allowance	387	
3) Compensatory (City) Allowance	28	
4) Other Allowances and Facilities	100	
	965	
B. Armed Forces Personnel		
1) Fixation of Pay in Proposed Scale of Pay	215	
2) Compensation in Lieu of Quarters	68	
3) Compensatory (City) Allowance	9	
4) Other Allowances and Facilities	25	
	317	
Grand Total A + B	1,282	

Closing Remarks

It is thus that we have now in Indiaa well provided Central Government Service with salaries protected by dearness allowance and supplemented by House Rent Allowance, Children's Education Allowance, Health Service, and Pension and Death-benefits. The credit is due to the four Pay Commissions and other commissions and committees appointed in the same connection. The commissions and committees, manned as they were mostly by government employees, represented the case of the employees better than their associations or unions could have done. On the whole, they gave the employees not only a fair but a generous deal.

It was implicit in the appointment of these commissions and committees that they would take a wider view of the problem and place the government employees within the limits of the national economy. Sometimes, this was made explicit and specific in their terms of reference. For instance, the forth term of reference of the Dearness Allowance Commission (1966) reads as

follows:

(4) Specifically, to report on the following : (a) Considering that the non-plan Revenue expenditure of State Governments gets reflected in the financial assistance given by the Centre on the recommendations of the Finance Commissions and in the annual plan allocations, and having regard to the existing disparities between the pay scales of Central and State employees, is it justifiable to follow a different policy at the Centre from the States and to treat the employees of the former more liberally in the matter of dearness allowance ? (b) Any relief which the Central Government gives to its employees entails a burden on the rest of the community, particularly other vulnerable sections with fixed incomes. To what extent should Government give preferential treatment to that section of the community which is directly under its employ ? (c) Is it justifiable to compensate Government employees for rise in prices due to taxation and othr policy-induced causes, or to occasions such as a severe crop failure or a threat to national security necessitating higher levels of expenditure? (d) Should the capacity of Government, and therefore of the community, to pay be the determining factor for granting relief to Government employees? To what extent can this be reconciled with the concept of dearness allowance as a device to protect. to a varying degree, the real income of salaried employees from the effects of rise in prices?

These are the pertinent questions. The Dearness Allowance Commission got round them by declaring that "these issues have lost their meteriality and even their relevance having regard to the fact we have adopted the narrower construction of the concept of dearness allowance" (para 5.1)

The preamble to the Government Resolution appointing the Study Group on Wages, Incomes and Prices (1978) reads as follows : "Serious distortions have crept into the structure of pay, DA, and other compensatory allowances of employees in public and private sector. These distortions have been largely the result of *ad hoc* approach followed in the past to the problem of periodical revision of emoluments in public enterprises and in organised private industry. Moreover, a major part of the employment in the country is in the rural sector. The incomes of the vast majority of the people in agricultural sector are low and are also liable to serious fluctuations. Any rationalisation of the existing pattern of wages and incomes in different sectors can however be attempted only as an Integrated Policy on Wages, Incomes, and Prices." But the members of the Study Group belonged to the high income and top salaried class. Naturally, the Study Group, among other things, raised the question whether there should not be some upward revision of salaries in those ranges in order to continue to attract persons of the requisite calibre to those posts.

The Royal Commission on the Public Services in India(1915) was more circumspectand laid down the broad principle that the Government should pay 'so much and so much only to its employees as was necessary to obtain recruits of the right stamp and to maintain them in such a degree of comfort and dignity as would shield from temptation and keep them efficient for the term of their service' and opined that 'to set in India for the public services a standard of remuneration which is in excess of what is required to obtain suitable Indian officers is to impose for all time on the country a burden which she ought not to bear'. Earlier, the Meston Committee (1908), referring to the subordinate clerical services suggested that the recruitment to these services should be 'subject to the ordinary laws of demand and supply'. That the remuneration to government servants in India is in excess of what the market demands is obvious from the fact of over-supply; for each one admitted into the service, there are at least a hundred, probably a thousand, who are turned back. It is not clear whether the remuneration is adequate or right to 'obtain recruits of the right stamp'. In fact, it is not clear whether a higher remuneration ensures better quality; experience shows that remuneration in excess of what the market demands not only creates excess supply but also generates pressures and influences pushing recruits of the wrong type. In any case, no remuneration seems to be enough to maintain the government employees 'in such a degree of comfort and dignity as would shield them from temptation and keep them efficient for the term of their service'. Undoubtedly, in their number

and remuneration, the government employees are proving a burden which the country 'ought not to bear'. The previous Planning Commission, in its document 'Eighth Plan : Perspective and Issues' had the following to say : "Between 1980-81 and 1985-86, the wage bill in public administration and publicly provided services has doubled. If the average compensation per employee in these sectors had increased only as much as the consumer price index and if the total number of employees had remained constant the total wage bill for these employees would have been lower by about Rs.4,500 crore. Roughly one-third of this amount is accounted for by the increase in the real compensation per employee. A similar pattern holds for commercial enterprises in the public sector. We must recognise that high wage public employment could well limit our ability to sustain a more broad based programme for employment generation and poverty alleviation" (Planning Commission, 1989 Pp 21-22]. We should await the approach of the new Planning Commission to this central question.

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D D0	3041		1 100	1 1.00						
ray kange	30th June	Ist Dec.	30th June	31st March						
(Rs.)	1948	1951	1953	1954	1955	1956	1957	1958	1959	1960
1	2	ę	ষ	S	6	7	œ	6	10	11
- 50	941.9	901.10	814.99	876.26	913.97	960.79	962.41	1,009.26	1,035.89	990.55
51 - 100	368.9	427.03	420.84	435.23	461.77	499.75	506.89	520.29	534.15	558.22
101 - 150	64.7	96.24	103.22	115.50	126.09	132.45	148.53	168.37	181.11	215.29
151 - 200	31.8	54.95	53.26	57.20	55.36	57.36	62.67	67.84	73.93	83.58
201 - 250	12.5	17.43	20.24	21.92	23.05	24.73	25.78	28.56	30.72	37.47
251 - 300	6.4	8.58	9.74	11.59	12.04	12.51	14.99	16.35	17.79	19.66
301 - 350	10.6)	6.51	6.81	6.85	7.28	8.47	9.34	9.96	10.90	11.83
351 - 500	0.0}	8.50	8.70	69.6	9.82	10.34	11.15	11.90	13.79	15.40
501 - 750	3.7	4.48	4.72	4.99	5.18	5.49	6.18	6.64	7.13	7.45
751 - 1,000	1.3	2.23	2.12	2.27	2.45	2.52	3.01	3.15	3.48	3.70
,001 - 1,500	1.1	125	1.14	1.30	1.37	1.55	1.74	1.79	2.01	2.16
,501 - 2,000	0.4	0.44	0.50	0.53	0.54	0.57	0.65	0.69	0.73	0.77
,001 - 2,150	0.3)	0.08	0.38}	0.18	0.18	0.19	0.21	0.22	0.22	0.21
,151 - 3,000	0.0}	0.29	0.00)	0.19	0.18	0.16	0.16	0.16	0.16	0.13
,001+	0.1	0.06	90.06	0.07	0.06	0.07	0.08	0.08	0.08	0.08
OTAL	1,443.7	1,529.18	1,446.72	1,543.76	1,619.35	1,716.96	1,753.79	1,845.27	1,912.09	1,946.50
			(113.907)	(68.790)	(66.946)	(74.206)	(83.619)	(68.512)	(76242)	(78.737)

VOL. 2 NO. 1

STATEMENT 1. CENSUS OF CENTRAL GOVERNMENT EMPLOYEES IN DIFFERENT PAY RANGES

SALARIES OF CENTRAL GOVERNMENT EMPLOYEES

Figures in brackets are for work-charged personnel, contingency staff and locally recruited staff in Indian Offices Abroad whose break-up pay-wise is not given. Source: "Census of Central Government Employees" CSO, Cabinet Secretariat, Government of India, New Delhi (various issues).

(Rs.)						As	on 31st Ma	uch					
	1961	1067	1963	1964	1065	1046	1047	1068	1040	1070*	1071#	1077#	1073*
1	7	3	4	ŝ	6	2	80	6	10	11	12	13	14
- 75	541.48	399.90	415.50	422.30	481.04	464.33	469.64	455.78	425.87	90.0	0.08	0.10	10.0
75 - 100	532.53	723.66	783.45	848.79	839.11	872.29	873.64	883.88	893.68	3.19	2.61	2.49	1.89
100 - 150	481.11	461.84	483.61	532.85	521.50	553.79	560.09	571.15	592.45	1,313.59	1,314.63	1,295.41	1,345.59
150 - 200	242.22	266.79	288.14	320.37	313.02	331.73	330.49	339.78	343.86	470.62	475.93	490.66	503.12
200 - 300	118.09	123.56	141.89	151.41	160.46	176.05	189.13	202.11	210.19	493.70	517.76	552.70	572.09
300 - 400	34.13	34.56	40.88	45.17	48.14	53.49	58.31	63.07	67.79	212.44	220.27	230.39	236.84
400 - 500	16.78	18.08	20.74	22.12	22.95	25.12	25.92	27.63	30.20	77.29	82.44	88.10	98.20
500 - 750	11.22	13.02	15.07	17.03	19.07	20.77	21.83	22.70	25.80	49.25	54.31	58.83	64.32
750 - 1,000	4.77	5.23	5.90	6.67	7.55	8.01	8.93	10.45	10.26	15.46	16.04	17.43	19.43
1,000 - 1,500	2.94	3.44	3.90	4.52	4.89	5.06	5.39	6.03	623	10.24	11.36	11.91	12.52
1,500 - 2,000	0.83	0.84	0.98	1.20	120	1.31	1.51	1.73	1.55	224	2.05	2.10	2.30
2,000 - 2,500	0.25	0.33	0.36	0.45	0.48	0.39	0.43	0.47	0.47	0.60	0.65	0.67	0.79
2,500 - 3,000	0.09	0.07	0.07	0.08	0.11	0.22	0.25	0.29	0.28	0.33	0.35	0.36	0.38
3,000 +	0.14	0.13	0.14	0.14	0.15	0.17	0.17	0.17	0.16	0.19	0.18	0.16	0.17
TOTAL 1,5	986.57	2,051.44	2,200.64	2,373.09	2,419.65	2,512.71	2,545.72	2,585.21	2,608.78	2,649.21	2,698.66	2,751.31	2,857.64
3	(606'.001	(104.653)	(148.038)	(163.349)	(217.819)	(197.115)	(200.118)	(207.907)	(198.603)	(201.909)	(221.909)	(304.616)	(300.832)

STATEMENT 2. CENSUS OF CENTRAL GOVERNMENT EMPLOYEES IN DIFFERENT PAY RANGES

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* Pay includes part of dearness allowance (dearness pay) merged with the basic pay in pursuance of the decision of the Ministry of Finance.

Source: As in Statement 1.

									(thousand)
Pay Range				As c	n 31st March				
(Rs.)	1974	1975	1976	1977	1978	1980	1981	1982	1983
1	6	¢1	4	5	6	7	8	6	10
- 200	342.04	249.75	203.44	185.98	179.23	188.2	194.2	196.7	215.3
200 - 249	954.33	1,023.17	1,107.36	1,141.17	1,156.27	1,202.5	1,225.5	1,235.6	1,204.0
250 - 299	514.79	515.97	503.55	507.43	514.51	557.6	574.4	594.7	614.4
300 - 349	361.08	331.20	347.33	360.09	368.73	392.1	399.9	407.9	424.0
350 - 399	279.24	312.41	302.53	304.83	309.13	291.7	298.6	305.1	309.6
400 - 499	214.68	242.80	260.08	264.21	279.11	291.7	306.4	315.5	327.5
500 - 599	111.89	132.02	148.44	155.26	168.11	178.8	183.5	189.7	192.6
669 - 009	53.05	63.74	61.19	71.02	74.77	79.2	81.4	83.9	94.2
700 - 799	29.90	39.40	39.64	41.18	44.49	49.3	51.3	52.9	58.3
800 - 899	18.69	20.98	20.64	21.77	23.49	25.5	27.2	28.5	30.3
900 - 1199	16.56	20.10	23.52	25.46	28.28	31.6	34.0	35.6	37.9
1200 - 1499	9.33	10.64	11.64	12.79	13.54	14.7	16.0	16.7	17.6
1500 - 1999	4.29	5.38	6.37	7.05	7.85	8.7	9.5	10.2	11.1
2000 - 2499	1.37	1.77	2.05	2.16	2.62	2.9	3.2	3.3	3.3
2500 - 2999	0.43	0.57	0.70	0.76	0.90	1.0	1.1	1.1	1.1
3000 +	0.20	0.23	0.22	0.23	0.27	0.3	0.3	0.3	0.3
TOTAL	2,911.87	2,970.12	3,044.69	3,101.38	3,171.29	3,321.1	3,406.6	3,477.9	3,541.5
	(308.023)	(302.166)	(298.530)	(291.446)	(306.009)				

STATEMENT 3. CENSUS OF GOVERNMENT EMPLOYEES IN DIFFERENT PAY RANGES

Figures in brackets: As in Statement 1.

Data for 1979 not available. Source: As in Statement 1.

VOL. 2 NO. 1

SALARIES OF CENTRAL GOVERNMENT EMPLOYEES

Name of Ministry / Office		As on Dec. 1, 1951			As on June	: 30, 1953	
	Non - gazetted	Gazetted	TOTAL	Non - gazetted	Gazetted	Works charged	TOTAL
1	7	£	(- 4 - 4	Ş	9	7	8
1. Commerce & Industry	6,461	440	6,901	5.718	458	194	6.370
2. Communications	1,71,202	1,466	1,72,668	1,76,462	1,572	6,754	1,84,788
3. Defence (Civilians)	2,60,387	2,101	2,62,488	1,92,377	2,216	61,003	2,55,596
4. Education	2,692	250	2,942	1,915	248	961	3,124
5. Extemal Affairs	5,059	563	5,622	5,447	517	3,022	8,986
6. Finance	81,848	2,929	84,777	56,671	2,396	2,283	61,350
7. Food & Agriculture	12,570	727	13,927	9,073	686	1,136	10,895
8. Health	2,501	185	2,686	2,769	212	24	3,005
9. Home Affairs	3,209	237	3,446	3,753	300	49	4,102
10. Information & Broadcasting	4,776	366	5,142	4,649	412	329	5,390
11. Labour	5,012	488	5,500	5,193	491	39	5,723
12. Law	388	62	450	465	71	7	543
13. NR & SR	3,687	505	4,192	4,550	403	161	5,114
14. Railways	9,00,751	2,378	9,03,129	8,96,173	2,430	22,598	9,21,201
15. Rehabilitation	3,245	353	3,598	1,965	118	20	2,103
16. States	3,485	56	3,541	3,356	54	113	3,523
17. Transport	3,464	187	3,651	4,137	234	157	4,528
18. Works, Housing and Supply	43,130	948	44,078	17,121	885	12,746	30,752
19. Miscellaneous offices	983	108	1,091	1,421	196	19	1,636
20. Irrigation & Power				1,748	222	1,011	2,981
21. Production				11,197	121	1,229	12,547
22. Comptroller & Auditor General				25,644	674	52	26,370
of India							
23. Community Development							
24. Iron and Steel							
25. Cabinet Secretanat						200 01 1	
TOTAL	15,14,850	14,349	15,29,199	14,31,804	14,916	1,13,907	12,60,627
\$ Work Charged Personnel, Staff Paid fi Source: As in Statement 1.	rom Contingencies	and Locally Recruited	in Offices Abro	p			
							(conta.)

STATEMENT 4. CENTRAL GOVERNMENT EMPLOYEES IN DIFFERENT MINISTRIES

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		As on June	30, 1954			As on Jun	e 30 1955			As on June	: 30, 1956	
su y/Outled	Non- gazetted	Gazetted	Work charged	TOTAL (9 + 10 +	Non- gazetted	Gazetted	Work charged	Total (13)+ (14)+(15)	Non- Gazetted	Gazetted	Work charged	TOTAL (17 + 18 +
-	6	10	etc.5 11	11) 12	13	14	etc. 3 15	16	17	18	etc. \$	5 <u>6</u>
1. Commerce & Ind.	5,514	459	157	6,130	5,504	526	55	6,085	6,483	682	67	7,232
2. Communications	1,94,358	1,684	4,417	2,00,459	2,04,622	1,681	4,483	2,10,786	2,05,675	1,745	9,246	2,16,666
3. Defence (Civilians)	2,31,582	2,231	15,181	2,48,994	2,54,398	2,197	9,523	2,66,118	2,54,973	2,341	8,003	2,65,317
4. Education	3,103	338	1,026	4,467	3,643	371	1,006	5,020	4,272	453	753	5,478
5. External Affairs	6,734	577	2,292	9,603	6,415	653	2,033	9,101	6,868	697	2,414	616,6
6. Finance	59,510	2,449	2,394	64,353	61,795	2,900	2,280	66,975	66,595	3,027	2,736	72,358
7. Food & Agriculture	9,665	177	1,111	11,547	13,701	874	720	15,295	15,040	975	594	16,609
8. Health	3,141	280	92	3,513	4,220	441	204	4,865	5,109	488	85	5,682
9. Home Affairs	4,008	329	46	4,383	5,239	453	58	5,750	9,048	648	94	9,790
10. Inform. & Broad.	4,985	442	316	5,743	5,461	473	449	6,383	6,249	577	498	7,324
11. Labour	4,857	501	65	5,423	5,461	530	82	6,073	2,889	299	94	3,282
12. Law	477	82	×	567	487	79	٢	573	583	114	9	703
13. NR & SR	4,712	413	69	5,194	5,580	543	264	6,389	6,199	580	210	6,989
14. Railways	9,25,679	2,514	17,855	9,46,048	9,55,019	2,631	18,263	9,75,913	1,018,770	3,113	22,659	1,044,542
15. Rehabilitation	2,425	230	18	2,673	3,526	290	31	3,847	6,086	422	38	6,546
16. States	3,279	51	128	3,458								
17. Transport	3,549	259	166	4,805	4,008	297	1,258	5,563	7,443	346	587	8,376
18. Works, Housing, etc.	18,258	1,033	13,375	32,666	20,471	1,350	14,896	36,717	21,610	1,411	11,480	34,501
19. Misc. offices	1,581	233	41	1,855	1,242	136	3	1,381	2,035	252	1	2,287
20. Irrigation & Power	2,900	338	6,742	9,980	3,908	504	10,136	14,548	4,020	510	14,570	19,100
21. Production	9,566	133	2,399	12,098	14,310	161	1,154	15,616	15,002	180	-	15,183
22. Compt.& Audit.Gen.	27,793	739	61	28,593	28,481	807	50	29,338	31,032	822	4 9	31,903
23. Com. Develop.									320	62	•	382
24. Iron and Steel									432	73	6	514
25. Cabinet Secretariat									1,258	68	13	1,339
TOTAL	15,27,676	16,086	68,790	16,12,5521	6,07,491	17,899	66,946	16,92,336	16,97,991	19,885	74,206	17,92,082

STATEMENT 4. (Concld.)

VOL. 2 NO. 1 SALARIES OF CENTRAL GOVERNMENT EMPLOYEES

ATTO / Institut to Attack		ul no sA.	ne 30, 1957			As on Ju	ne 30, 1958	
	Non - gazetted	Gazetted	Work charged etc.\$	TOTAL (2 + 3 + 4)	Non - gazetted	Gazetted	Work charged etc.\$	TOTAL (6 + 7 + 8)
-	7	£	4	νΩ ,	6	٢	xo	, 6
1. Commerce & Industry	9,541	868	757	11,196	11,080	1.063	774	12.917
2. Community Develop.	382	69		451	402	61	19	500
3. Defence (Civilians)	239,825	2,427	21,195	263,447	258,022	2,417	5,473	265,912
4. Education & Scientific Research (a)	10,272	902	1,154	12,328	2,168	226	27	2,421
5. External Affairs	6,840	796	2,951	10,587	6,884	818	3,985	11,687
6. Finance	72,377	3,298	2,943	78,618	73,503	3,361	2,979	79,843
7. Food & Agriculture	16,203	1,062	732	17,997	19,447	1,161	809	21,417
8. Health	5,307	536	150	5,993	5,617	564	197	6,378
9. Home Affairs	14,721	811	211	15,743	14,841	780	324	15,945
10. Information & Broadcasting	7,048	999 999	467	8,181	7,824	682	639	9,145
11. Irrigation and Power	3,791	515	4,411	8,717	4,117	566	4,526	9,335
12. Labour and Employment	3,678	391	170	4,239	3,665	415	183	4,263
13. Law	651	119		770	629	120	L	756
14. Railways	1,042,567	3,736	31,614	1,077,917	1,094,158	3,863	26,400	1,124,421
15. Rehabilitation	8,956	641	112	601,6	7,865	527	101	8,493
16. Steel, Mines and Fuel	3,500	382	30	3,912	5,632	732	456	6,820
17. Transport and Communications	225,455	2,418	5,784	233,657	231,904	2,447	8,615	242,966
18. Works, Housing and Supply	25,392	1,561	10,879	37,832	26,428	1,624	11,743	39,795
19. Indian Audit & Accounts Deptt.	32,323	872	33	33,228	34,447	916	30	35,393
20. Cabinet Secretariat	1,544	89	25	1,658	1,734	66	25	1,858
21. Miscellaneous offices	2,055	281		2,337	3,669	671	23	4,363
22. Scient. Res. & Cult. Affairs					7,811	491	1,051	9,353
TOTAL	1,732,428	22,470	83,619	1,838,517	1,821,847	23,622	68,512	1,913,981

STATEMENT 5. CENTRAL GOVERNMENT EMPLOYEES IN DIFFERENT MINISTRIES

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JOURNAL OF INDIAN SCHOOL OF POLITICAL ECONOMY

(Contd.)

Name of Ministry/Office		As on Ju	ne 30, 1959			As on Ma	rch 31, 1960	
	Non - gazetted	Gazetted	Work charged etc.\$	TOTAL (10+11+12)	Non - gazetted	Gazetted	Work charged etc.\$	TOTAL (14 + 15 + 16)
-	10	11	12	13	14	15	16	17
1. Commerce & Industry	11,125	1,275	338	12,738	11,444	1,368	331	13,143
2. Community Develop.	402	19	19	500	669	129		828
3. Defence (Civilians)	262,218	2,469	4,929	269,616	262,218	2,554	4,429	269,201
4. Education & Scientific Research (a)	2,532	246	20	2,778	2,736	241	45	3,022
5. External Affairs	9,511	1,120	4,724	15,355	9,309	1,048	3,295	13,652
6. Finance	76,059	3,503	3,328	82,890	75,054	3,616	3,312	81,932
7. Food & Agriculture	21,414	1,393	2,055	24,862	23,537	1,497	2,944	27,978
8. Health	6,294	622	198	7,114	6,983	734	60	
9. Home Affairs	15,209	864	284	16,357	18,424	958	305	19,687
10. Information & Broadcasting	8,162	709	775	9,646	8,324	694	874	9,892
11. Irrigation and Power	4,007	625	7,242	11,874	4,149	610	7,568	12,327
12. Labour and Employment	3,856	478	337	4,671	3,986	488	331	4,805
13. Law	661	127	16	804	675	138	13	826
14. Railways	1,129,718	4,303	20,731	1,154,752	1,144,787	4,297	19,929	1,169,013
15. Rehabilitation	8,813	526	221	9,560	9,289	511	584	10,384
16. Steel, Mines and Fuel	6,447	855	2,478	9,780	4,900	778	1,462	7,140
17. Transport and Communications	240,767	2,826	15,595	259,188	253,856	2,933	16,423	273,212
18. Works, Housing and Supply	27,517	1,709	11,471	40,697	25,763	1,390	13,984	41,137
19. Indian Audit & Accounts Deptt.	36,461	971	50	37,482	37,593	1,002	89	38,684
20. Cabinet Secretariat	2,090	110	30	2,230	2,015	116	28	2,159
21. Miscellaneous offices	4,574	116	189	5,740	5,243	1,285	184	6,712
22. Scient. Res. & Cult. Affairs	8,377	555	1,212	10,144	8,540	589	2,547	11,676
TOTAL	1,886,214	26,342	76,242	1,988,798	1,919,524	26,978	78,737	2,025,237
(1) E 1068 20 O-1. E4	In Dara Accord	tion Affairs	Minister					

STATEMENT 5. (Concld.)

VOL. 2 NO. 1

SALARIES OF CENTRAL GOVERNMENT EMPLOYEES

(a) For 1958-60, Only Education. Scientific Research and Cultural Affairs, new Ministry.
 \$ Work Charged Personnel, Staff Paid from Contingencies and Locally Recruited in Offices Abroad Source: As in Statement 1

Non - gazetted Gazetted 6 7 6 7 11,997 1,302 11,997 1,302 3,713 2,952 3,713 2,04 9,334 9,80 8,9,316 3,773 25,948 1,699 7,598 8,51 25,078 1,027 8,911 8,25 3,408 581	Work charged etc.\$ 387 8 387 9 5,820 1,826 6 1,826 923 9 2,226 1 42	TOTAL (6 + 7 + 8) (6 + 7 + 8) 13,68 88; 3,01,006 3,925 86,715 86,715 8,499 8,499
6 7 7 11,997 1,302 12,972 1,302 3,713 2,952 3,713 2,04 9,334 2,952 9,80 9,334 9,80 9,334 9,80 82,016 3,773 7,598 8,51 7,598 8,51 7,598 8,51 25,078 1,027 8,911 8,25 8,911 8,25 8,511 8,25 8,511 8,55 1,002 8,55 1	etc.5 8 8 8 387 8 6 1,826 1,826 1,826 9 23 8 2,226	(6 + 7 + 8) 9 13,68 887 887 13,146 12,146 86,715 86,715 86,715 86,715 26,498
6 7 7 11,997 1,302 126 161 292,234 2,952 3,713 2,04 9,334 980 9,334 980 9,334 980 7,73 2,048 1,699 7,598 851 2,5,948 1,027 8,911 825 3,408 581	8 2 387 2 5,820 6 6 0 1,826 3 923 6 22226 1 42	9 13,68 3,01,006 3,01,006 12,146 86,717 8,499 8,499 26,498
11,997 1,302 726 161 292,234 2,952 3,713 2,04 9,334 980 9,334 980 9,334 980 7,598 1,699 7,598 851 7,598 851 25,078 1,027 8,911 825 3,408 581	387 5,820 1 5,820 1 1,826 9 23 9 23 1 2,226	13,68 3,01,008 3,920 3,920 12,14(8,49 8,49 26,490
726 161 292,234 2,952 3,713 2,04 9,334 980 82,016 3,773 25,948 1,699 7,598 851 25,078 1,692 8,911 8,25 3,408 581	 5,820 1,826 1,826 923 2,226 42 	88; 3,01,006 3,925 12,146 86,715 8,49; 8,49; 26,496
292,234 2,952 3,713 2,04 9,334 980 82,016 3,773 25,948 1,699 7,598 851 25,078 1,027 8,911 8,25 3,408 581	5,820 1 5 1,826 1,826 2,226 1 42	3,01,000 3,922 12,14(86,712 8,49 8,49 26,490
3,713 204 9,334 980 82,016 3,773 25,948 1,699 7,598 851 25,078 1,027 8,911 8,25 3,408 581	6 1,826 923 923 923 1 2,226	3,92, 12,140 86,715 8,49 8,49 26,490
9,334 980 82,016 3,773 25,948 1,699 7,598 851 25,078 1,027 8,911 8,25 3,408 581) 1,826 923 923 1,923	12,14(86,715 29,877 8,49 26,49
82,016 3,773 25,948 1,699 7,598 851 25,078 1,027 8,911 8,25 3,408 581	923 923 1 2,226	86,71 29,87 8,49 26,490
25,948 1,699 7,598 851 25,078 1,027 8,911 8,25 3,408 581) 2,226 I 42	29,87 8,49 26,49
7,598 851 25,078 1,027 8,911 8,25 3,408 581	1 42	8,49 26,49
25,078 1,027 8,911 825 3,408 581		26,490
8,911 825 3,408 581	385	
3.408 581	5 763	10,49
	1,705	5,694@
4,337 541	1 695	5,57:
731 144	11 1	88
1,175,125 4,842	23,293	1,203,200
8,113 400	0 1,173	9,68
9,155 601	1 2,573	12,32
5,879 818	348	10,1
270,506 3,431	1 53,068	327,00
31,211 1,625	5 8,997	41,83
36,610 1,040	0 65	37,71
2,020 119	9 25	
7,046 1,825		2,16
	5 322	2,16 9,19
	2,8/9 811 270,506 3,43 31,211 1,62 36,610 1,040 2,020 11	3,879 818 348 270,506 3,431 53,068 31,211 1,625 8,997 36,610 1,040 65

STATEMENT 6. CENTRAL GOVERNMENT ËMPLOYEES IN DIFFERENT MINISTRIES

JOURNAL OF INDIAN SCHOOL OF POLITICAL ECONOMY

JAN .- APRIL 1990

Name of Mi	nistry / Office		As on Ma	rch 31, 1963			As on Mar	ch 31, 1964	
		Non - gazetted	Gazetted	Work charged	TOTAL	Non - gazetted	Gazetted	Work charged	TOTAL
	-	10	11	12	11 + 17	14	15	ecc 9	(01 + C1 + 10)
1. Commerce & Indus	try	11,969	1,348	396	13,713				
2. Community Develo	p.(a)	812	187	9	1,005	661	172		116
3. Defence (Civilians)		3,48,864	3,353	9,565	3,61,782	4,26,914	4,499	10,008	4,41,421
4. Education		5,605	229	'n	5,837	16,784	606	4,724	22,417
5. External Affairs		9,499	1,120	2,455	13,074	10,699	1,229	2,024	13,952
6. Finance		89,712	4,214	1,297	95,223	98,172	4,609	1,410	1,04,191
7. Food & Agriculture		29,166	2,032	2,446	33,644	31,289	2,124	1,639	35,052
8. Health		9,115	962	197	10,274	9,192	1,046	109	10,347
9. Home Affairs		28,975	1,066	395	30,436	31,053	1,128	389	32,570
10. Information & Bros	adcasting	8,599	1,486	1,174	11,259	8,895	1,531	1,088	11,514
11. Irrigation and Powe	н	3,629	402	1,130	5,468	3,951	871	1,827	6,649
12. Labour and Employ	/ment	4,883	623	518	6,024	5,332	680	546	6,558
13. Law		745	160	11	916	772	179	16	196
14. Railways		12,23,645	5,123	51,571	12,80,339	12,74,879	5,837	53,027	13,33,743
15. Scientific Research	& Cultural Affairs	10,102	624	3,075	13,801				
16. Steel, Mines and Fu	uel (b)					7,454	1,109	253	8,816
17. Transport and Com	munications	2,90,118	3,694	60,162	3,53,974	24,069	1,678	623	26,370
18. Works, Housing an	d Supply (c)	33,265	1,658	12,849	47,772	34,805	1,702	14,017	50,524
19. Indian Audit & Acc	counts Deptt.	36,941	1,108	22	38,141	37,803	1,174	105	39,082
20. Cabinet Secretariat		2,351	126	3 9	2,516	2,292	130	46	2,468
21. Miscellaneous offic	CCS	7,031	1,846	322	9,199	13,679	2,692	335	16,706
22. Economic and Defe	ence Coordination	5,602	730	93	6,425				
23. Mines and Fuel		5,677	915	239	6,831				
24. Steel and Heavy In-	dustries	951	68	£	1,022				
25. Industry						5,894	609	136	6,639
26. International Trade						5,055	634	6	5,779
27. Petroleum & Chem	icals					188	45		233
28. Department of Post	s & Telegraphs					2,86,226	2,309	70,937	3,59,472
TOTAL		21,67,256	33,381	1,48,038	23,48,675	23,36,196	36,896	1,63,349	25,36,441
(a) For 1964(a) includes C	Community Developn	nent and Cooperatic	n. (b) includes	Steel, Mines and H	leavy Industries. ((c) For 1963 and 19	64(c) includes \	Vorks, Housing an	i Rehabilitation.

STATEMENT 7. CENTRAL GOVERNMENT EMPLOYEES IN DIFFERENT MINISTRIES

VOL. 2 NO. 1

SALARIES OF CENTRAL GOVERNMENT EMPLOYEES

(a) For 1964(a) includes Community Development and Cooperation. (b) includes Steel, Mines and Lis & Work Charged Personnel, Staff Paid from Contingencies and Locally Recruited in Offices Abroad Source: As in Statement 1

Name of Ministry / Office	As a	n March 31, 196:	2			As on March 31, 1	966	
	Non - gazetted	Gazetted	Work charged etc.\$	TOTAL (2+3+4)	Non - gazetted	Gazetted	Work charged etc.\$	TOTAL (6+7+8)
-	2	3	4	5	6	L	00	6
1. Cabinet Secretariat	2,189	158	31	2,378	2,258	190	21	2,469
2. Civil Aviation	10,632	1,004	62	11,698				
3. Commerce	5,654	743	121	6,518	6,028	834	232	7,094
4. Communications	2,93,322	2,744	1,21,089	4,17,155	3,15,504	3,018	1,01,001	4,19,523
5. Community Develop.& Cooperation (a)	824	186	ę	1,013				
6. Defence (Civilians)	4,27,033	5,063	10,452	4,42,548	4,38,920	4,920	11,562	4,55,402
7. Education	18,469	950	4,186	23,605	20,705	1,000	5,101	26,806
8. External Affairs	12,141	1,000	1,549	14,690	10,711	915	2,404	14,030
9. Finance	97,551	4,746	1,272	1,03,569	1,00,525	5,019	366	1,06,510
10. Food and Agriculture (a)	32,076	2,195	2,457	36,728	33,296	2,474	1,467	37,237
11. Health (b)	9,784	1,121	116	11,021	10,476	1,210	148	11,834
12 Home Affairs	30,607	1,119	461	32,187	35,802	1,316	598	37,716
13. Indian Audit & Accounts Depti.	38,262	1,258	123	39,643	39,807	1,328	81	41,220
14. Industry and Supply (c)	12,092	1,493	308	13,893	5,157	561	183	5,901
15. Information and Broadcasting	9,705	1,618	1,131	12,454	10,259	1,654	1,165	13,078
16. Imigation and Power	5,073	1,051	3,252	9,376	5,851	1,208	4,219	11,278
17. Labour and Employment (d)	5,641	741	554	6,936	14,601	1,194	2,074	17,869
18. Law	863	204	16	1,083	1,923	341	25	2,298
19. Petroleum & Chemicals	194	50		242	721	50		112
20. Railways	13,08,671	6,236	55,080	13,69,987	13,44,391	6,439	49,696	14,00,526
21. Rehabilitation	6,998	354	1,501	8,853				
22. Social Security (e)	866	76	67	1,171	181	LL LL	31	895
23. Steel and Mines (f)	261,1	1,188	267	9,248	766	74	9	846
24. Transport (g)	3,837	570	405	4,812	15,450	1,714	489	17,653
25. Work and Housing (h)	29,441	1,396	12,372	43,209	31,577	1,524	13,307	46,408
26. Miscellaneous Offices	9,992	2,547	914	13,453	11,357	2,949	1,747	16,053
27. Mines and Metals					7,214	1,244	462	8,920
28. Supply, Tech.Develop.& Mat. Planning					6,941	931	117	7,989
TOTAL	23,79,842	39,811	2,17,819	26,37,472	24,70,527	42,184	1,97,115	27,09,826
For 1966, (a) includes Ministry of Food, Agricultu and Rehabilitation: (e) includes Social Welfare: (f	tre, Community Devel 0 includes Iron and St	opment and Cool sel only: (g) inclu	peration; (b) include ides Transport and /	* Health and Far Aviation: (h) inch	mily Planning; (c) in udes Works, Housin	icludes Industry o g and Urban Deve	nly; (d) includes Lal	oour, Employment
\$ Work Charged Personnel, Staff Paid from Conti	ngencies and Locally I	Recruited in Office	ces Abroad			5		
Source: As in Statement 1								

STATEMENT 8. CENTRAL GOVERNMENT EMPLOYEES IN DIFFERENT MINISTRIES

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JOURNAL OF INDIAN SCHOOL OF POLITICAL ECONOMY

JAN .- APRIL 1990

DIFFERENT MINISTRUES
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Name of Ministry / Office		As on Mar	ch 31, 1967			As on Mare	ch 31, 1968	
	Non - gazetted	Gazetted	Work charged etc.\$	TOTAL (10 + 11 + 12)	Non - gazetted	Gazetted	Work charged etc.\$	TOTAL (14 + 15 + 16)
1	10	11	12	13	14	15	16	17
1. Cabinet Secretariat	2,340	219	2	2,583	2,421	218	22	2,661
2. Commerce	6,137	869	308	7,314	6,086	863	237	7,186
3. Communications	3,32,135	3,443	1,06,195	4,41,773	3,43,549	3,485	1,06,933	4,53,967
4. Defence (Civilians)	4,41,782	5,032	9,697	4,56,511	4,51,552	5,437	16,936	4,73,925
5. Education	21,153	1,004	5,217	27,374	22,393	1,090	5,567	29,050
6. External Affairs	5,281	915	2,329	8,525	5,648	166	1,489	8,134
7. Finance	1,01,839	5,806	1,155	1,08,800	1,03,953	6,041	1,365	1,11,359
8. Food, Agriculture, Community Develop-	30,263	2,499	1,788	34,550	29,982	2,559	1,708	34,249
ment and Cooperation								
9. Health and Family Planning	11,599	1,222	278	13,099	12,562	1,422	141	14,125
10. Home Affairs	41,196	1,462	1,722	44,380	47,073	1,611	2,220	50,904
11. Indian Audit & Accounts Depti.	40,317	1,359	70	41,746	41,442	1,395	82	42,919
12. Industrial Development and Company	7,141	993	185	8,319	8,043	1,020	504	9,267
Affairs								
13. Information and Broadcasting	11,100	1,654	1,541	14,295	11,531	1,775	1,429	14,735
14. Inigation and Power	5,907	1,124	4,294	11,325	6,191	1,168	4,464	11,823
15. Labour, Employment and Rehabilitation	15,125	1,244	2,256	18,625	15,770	1,299	2,048	19,117
16. Law	775	161	12	948	980	214	6	1,203
17. Petroleum & Chemicals	240	52		292	240	59		299
18. Railways	13,51,840	7,290	45,280	14,04,410	13,50,661	7,386	43,547	14,01,594
19. Social Welfare	851	81	90	940	973	88	14	1,075
20. Steel, Mines and Metals	7,998	1,378	432	9,808,9	8,307	1,477	517	10;301
21. Transport and Shipping	4,194	9 4 4	594	5,432	4,352	664	543	5,559
22. Tourism and Civil Aviation	11,661	1,171	87	12,919	11,968	1,187	111	13,266
23. Work, Housing and Supply	37,506	2,205	14,607	54,318	38,585	2,274	15,143	56,002
24. Miscellaneous Offices	12,406	3,103	2,039	17,548	13,968	3,249	3,178	20,395
TOTAL	25,00,786	44,930	2,00,118	27,45,834	25,38,230	46,978	2,07,907	27,93,115

\$ Work Charged Personnel, Staff Paid from Contingencies and Locally Recruited in Offices Abroad Source: As in Statement 1

VOL. 2 NO. 1

SALARIES OF CENTRAL GOVERNMENT EMPLOYEES

Name of Ministry / Office		As on Mar	ch 31, 1969			As on Mar	ch 31, 1971	
	Non - gazetted	Gazetted	Work charged etc.\$	TOTAL (2+3+4)	Non - gazetted	Gazetted	Work charged	TOTAL
1	2	3	4	5	10	11	12	13
1. Cabinet Secretariat	2,415	226	18	2,659	6,320	951	124	7,395
2. Communications	351,907	3,693	99,987	455,587	3,81,495	4,065	1,19,562	5,05,122
3. Defence (Civilians)	460,089	6,709	17,583	484,381	4,66,355	7,373	20,756	4,94,484
4. Education and Youth Services	21,501	992	5,281	27,774	22,473	1,035	4,264	27,722
5. External Affairs	3,364	866	1,367	5,597	3,135	888	1.577	5,600
6. Finance	107,629	6,699	875	115,203	1,11,700	7,256	1,415	1,20,371
7. Food, Agri. Commu. Develop.&	29,607	2,480	1,373	33,460	15,489	1,638	1,528	18,655
Coop.								
8. Foreign Trade and Supply (a)	10,294	1,289	4	11,629	5,230	766	250	6,246
9. Health and Family Planning	45,798	3,120	16,049	64,967	46,461	3,371	16,250	66,082
10. Works, Hous.& Urban Develop.								
11. Home Affairs	49,804	1,893	2,250	53,947	75,975	1.784	3.129	80,888
12. Indian Audit & Accounts Deptt.	42,704	1,497	11	44,278	49,125	1,966	112	51,203
13. Ind. Develop. Int. Trade & Company	9,142	1,249	494	10,885	6,632	912	167	7,711
Affairs (b)								
14. Information and Broadcasting	12,221	1,843	1,381	15,445	13,221	2,013	1,486	16,720
15. Irrigation and Power	6,350	1,172	4,955	12,477	1,079	1,372	5,200	13,651
16. Law	959	217	12	1,188	1,112	276	21	1,409
17. Petro, Chemi. Mines & Metals	7,584	1,423	834	9,841	8,156	1,639	805	10,600
18. Railways	13,47,193	7,508	39,230	13,93,931	13,65,557	8,077	37,428	14,11,062
19. Shipping and Transport	4,384	668	597	5,649	4,827	601	1,127	6,663
20. Social Welfare	266	76	11	1,105	961	88	ŝ	1,052
21. Steel and Heavy Engineering	713	93	1	808	703	112	6	817
22. Tourism & Civil Aviation	12,395	1,207	48	13,650	13,376	1,308	140	14,824
23. Miscellaneous	14,463	3,493	3,328	21,284	15,666	4,021	4,200	23,887
24. Company Affairs					1,224	172	58	1,454
25. Labour, Employment & Rehab.	17,449	1,387	2,805	21,641	16,510	1,460	2,269	20,239
26. Supply					5,870	753	36	6,659
TOTAL	25,58,962	49,821	1,98,603	28,07,386	26,44,652	54,005	2,21,909	29,20,566
Vote: Data for 1970 not available. For 1971,	(a) includes Foreig	gn Trade only a	nd (b) includes In	dustrial Develo	pment and Internal	Trade only.		

STATEMENT 10. CENTRAL GOVERNMENT EMPLOYEES IN DIFFERENT MINISTRIES

Note: Data for 1970 not available. For 1971, (a) includes Foreign Trade only and (b) includes Industrial Develo \$ Work Charged Personnel, Staff Paid from Contingencies and Locally Recruited in Offices Abroad Source: As in Statement 1

JOURNAL OF INDIAN SCHOOL OF POLITICAL ECONOMY

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		As on A	March 31, 197	£		As on Ma	rch 31, 1975			As on Marc	h 31, 1976	
	Non - gazetted	Gazetted	Work charged etc.S	TOTAL (2+3+4)	Non - gazetted	Gazetted	Work charged etc.\$	TOTAL (2+3+4)	Non - gazetted	Gazetted	Work charged etc.S	TOTAL (2+3+4)
	2	3	4	Ś	9	7	8	6	10	11	12	13
1. Agriculture (a)	14.418	1.747	437	16,602	20,859	2,679	4,554	28,092	21.399	2.895	4.839	29.13
2. Atomic Energy	11.776	3,346	4.666	19,788	13,809	4,474	4.140	22,423	14.429	4.758	4.415	23.60
3. Cabinet Secretariat	4,054	111	45	4,816	4,282	763	4	5,089	4,386	842	27	5,25
4. Commerce	5,481	808	161	6,450	5,847	874	204	6,925	5,642	808	192	6.64
5. Communications	393,416	5,050	212,498	610,964	432,786	6,081	210,401	649,268	451,490	6,240	215,240	672,970
5. Culture	5,290	268	293	5,851	5,381	301	225	5,907	5,580	317	131	6,023
7. Defence (Civilians)	480,423	7,810	17,983	506,216	481,781	7,976	22,492	512,249	483,099	8,030	9,687	500,816
8. Education and Social Wel-	2,364	360	58	2,782	2,371	438		2,809	2,098	454	120	2,67
		1 000	214.1	5 633		1.001	1105	5 401	500 6	101.1	1901	
9. External Allaus	3,110	1,00/1	1,410	112200	212.0	1,024	C01.1	104°C	120,0	1,124	1971	
1 Unma Affeire	140 440	2 6 3 6		153 001	160 847	2,029	1 26	141,0015		C44,4	04C'T	10,041
 Mealth and Family Diaming 	11125	1 620	296	100,011	146,001	1 781	32	16,586	10/ 701		200	100,100
a Heavy Industry (c)		10	2	10	111 111	1000	101	7 684	6 407	191	S. C.	
4 Industrial Development	5 840	18	173	6 952	11250	C 1017	ţ	100 ⁵	50-50	1,100	1	
5. Indian Audit & Accounts	54.899	2.294	3	57,387	58.185	2.844	289	61.318	58.917	3.176	254	62.34
Deptt												
6. Information and Broadcas-	13,941	2,011	1,431	17,383	14,743	2,327	1,456	18,526	15,131	2,558	1,531	19,22
ting	100		200.2	11.000	1 607	906	1000	010 0	5	202	1	
1. Imgauon and Power (b)	1,404	104,1	0,600	14,000	4.290	0,001	100,2	2925 Q		1 085	C//4	0711
0. Law Instice & Company	26/01	407	j.	3 151	2,660	125	47	3 273	2,070	295	30	107 E
Affairs			2			ļ	9		20064		5	
0. Petroleum & Chemicals (g)	264	85		349	248	6	21	359	197	63	77	28
1. Planning	2.525	292	21	2,838	17,713	1,202	3,105	22,020	19.367	1,392	3,909	24,668
2. Railways	14,02,607	8,580	27,875	14,39,062	14,32,143	8,913	27,402	14,68,458	14,47,903	9,093	27,432	14,84,425
3. Science and Technology (f)	11,744	<i>S</i> 72	3,090	15,406					219	93		312
 Shipping and Transport 	4,450	685	1,023	6,158	4,200	570	2,011	6,841	4,589	657	1,941	7,187
5. Space	36	11	-	48	1,214	276	ş	1,594	6,068	1,815	8	7,983
6. Steel and Mines	011,6	1,709	774	12,253	9,636	1,761	534	11,931	8,078	1,737	1,012	10,827
7. Supply (c)	6,266	200	35	7,105	13,542	1,119	897	15,558	13,752	1,140	773	15,665
8. Tourism and Civil Aviation	13,346	1,338	101	14,791	13,179	1,675	140	14,994	13,618	1,736	123	15,477
9. Works and Housing	33,871	2,348	18,709	34,928	30,462	1777	18,001	25,084	06/,46	5077	18,010	22,24
	4,407	£	44	70 0 , c	4,000	1,00,1	10	776'0	47/74	1,0,1	10	
TOTAL	27.97.129	60.507	300.832	31.58.468	29.03.645	66.479	302.166	32.72.290	29.73.292	71.396	298.530	33.43.218
	and a star											

STATEMENT 11. CENTRAL GOVERNMENT EMPLOYEES IN DIFFERENT MINISTRIES

VOL. 2 NO. 1 SALARIES OF CENTRAL GOVERNMENT EMPLOYEES

1 2 3 4 5 6 7 2 Atomic Energy 21,769 2944 4379 29,992 23,241 32,16 3 4 7 5566 824 5,563 5,553 5,573 398 4 Chemication 21,769 2,944 22,405 5,566 824 5,556 5,566 849 5,556 5,566 849 5,556 849 7,520 5,566 840 7,520 5,566 840 7,520 5,566 840 7,520 5,566 840 7,520 5,566 840 7,520 5,566 840 7,520 5,566 840 7,520 5,566 840 7,520 5,566 840 7,520 5,566 11,191 </th <th>lame of Ministry / Office</th> <th>Non - gazetted</th> <th>As on Marc Gazetted</th> <th>th 31, 1977 Work charged etc.\$</th> <th>TOTAL (2+3+4)</th> <th>Non - gazetted</th> <th>As on Man Gazetted</th> <th>ch 31, 1978 Work charged etc.\$</th> <th>TOTAL $(6+7+8)$</th> <th>Non - gazetted</th> <th>As on Mar Gazetted</th> <th>ch 31, 1983 Non Regular Employees</th> <th>TOTAL (10+11+</th>	lame of Ministry / Office	Non - gazetted	As on Marc Gazetted	th 31, 1977 Work charged etc.\$	TOTAL (2+3+4)	Non - gazetted	As on Man Gazetted	ch 31, 1978 Work charged etc.\$	TOTAL $(6+7+8)$	Non - gazetted	As on Mar Gazetted	ch 31, 1983 Non Regular Employees	TOTAL (10+11+
1. Agriculture and Irrigation 21,769 2,944 4,379 29,092 23,241 3,216 3. Chonnicals & Fertilizers 16611 5,243 4,556 5,610 1,667 5,93 4. Chennicals & Fertilizers 1,6611 5,243 4,556 5,670 2,677 3,98 5. Cummicals & Fertilizers 5,560 8,33 1,67 5,553 4,595 5,606 8,695 5,670 2,677 3,98 6. Communications 5,500 8,333 1,115 5,993 5,005 5,505 5,522 5,525 5,525 5,525 5,525 5,525 5,525 5,525 5,525 5,525 5,525 5,525 5,525 5,525 5,525 5,525 5,526 5,526 5,526 5,526 5,526 5,526 5,526 5,526 5,526 5,526 5,526 5,526 5,526 5,526 5,526 5,526 5,526 5,526 5,526 5,566 5,1179 5,566	-	7	ę	4	Ŷ	Q	7	90 1	6	10	11	 12	12)
5. Communications 5. 500 8.23 167 5.56 4.56 8.06 4.56 8.06 4.56 8.06 4.55 8.05 4.55 8.05 4.55 8.05 4.55 8.05 4.55 8.05 4.55 8.05 6.05 4.55 8.05 6.05 4.55 8.05 6.05 <th6.05< th=""> 7.50 6.05<td>griculture and Irrigation tornic Energy abinet Secretariat</td><td>21,769 16,611 4,581</td><td>2,944 5,243 925</td><td>4,379 4,556 164</td><td>29,092 26,410 5,670</td><td>23,241 16,856 2,677</td><td>3,216 5,753 398</td><td>5,265 4,473 7</td><td>31,722 27,082 3,082</td><td>22,732 18,702 192</td><td>3,029 6,472 33</td><td>5,696 3,787</td><td>31,447 28,961 225</td></th6.05<>	griculture and Irrigation tornic Energy abinet Secretariat	21,769 16,611 4,581	2,944 5,243 925	4,379 4,556 164	29,092 26,410 5,670	23,241 16,856 2,677	3,216 5,753 398	5,265 4,473 7	31,722 27,082 3,082	22,732 18,702 192	3,029 6,472 33	5,696 3,787	31,447 28,961 225
 A. Currenter (1) B. Edence (Crivitans) C. Currenter (1) B. Edence (Crivitans) C. Edence (Cr	hemicals & Ferblizers ommerce (a) ommunications	5,560 5,560 478,056	53 829 644	167 222,426	220 6,556 706,926	4,526 494,044	809 7,520	143 233,885	5,478 735,449	214 7,041 633,063	11 1.043 12,254	317 294,474	162 108'8 108'8
10. 10. 11. Eneronics 266 125 391 344 133 11. Eneropy 3.228 1.027 4.510 11.665 6.153 971 13. Finance 13.6085 1.0201 1.446 5.869 4.530 11.191 13. Finance 13.6085 2.0700 3.34 18.489 16.652 2.187 14. Health and Family Planning 16,085 2.0700 3.34 101 18.6193 18.5023 3.804 15. Home Affairs 16,085 2.0700 3.126 4.19 57.594 5.187 2.187 16. Industrik & Account 18.2645 3.126 7.627 8.108 1.228 17. Industrik & Account 5.409 3.126 2.653 19.967 16.377 2.129 13. Industrik & Account 5.455 1.096 2.663 19.967 16.967 12.96 17. Industrit 5.455 1.6633	uture (0) efence (Civilians) ducation and Social Welfare	2,804 489,030 2,309	333 8,422 466	2/1 12,512 118	509,964 2,893	500,160 2,252	8,565 532 532	144 11,458 174	6,608 520,183 2,958	522,852 8,035f	11.022 880f	13,027 186f	546,901 9,101f
15 Floine Affairs 187,594 3502 3,152 16. Indiant Audit & Account 54,049 3,126 419 57,594 53,022 3,152 17. Industry Experiment 6,267 1,096 264 7,573 8,108 1,285 17. Industry 54,049 3,126 109 57,594 53,022 3,152 18. Information and Broadcasting 15,645 1,096 264 7,627 8,108 1,285 19. Labour (d) 8,075 1,098 575 9,967 16,377 2,422 20. Affairs 1,867 1,687 7,63 16,377 2,425 590 21. Petroleum (e) 2,817 5,64 16,877 2,460 2,862 1,129 22. Retroleum (e) 2,340 764 14,86,953 9,619 701 6,2278 5,011 1,065 23. Retroleum (e) 2,940 766 1,581 1,477,743 14,88,953 9,619 701 24. Shipping and Transport 14,619 1,766 8,91 6,924 4,998 701 2)) lectronics nergy nance auth and Family Planning	266 6,128 3,258 136,064 16,085	125 1,027 1,165 10,201 2,070	4,510 1,446 1,234 334	391 391 5,869 147,499 18,489	344 6,153 3,370 142,661 16,632	133 971 1,159 11,191 2,187	15 2,186 1,497 1,110 1,110	492 9,310 6,026 154,962 18,990	494 5,046 3,762 148,576 18,196	232 1,171 1,369 13,368 13,368 2,612	6 1,345 1,163 544 203	732 7,562 6,294 162,488 21,011
17. Industry E.267 1,096 264 7,627 8,108 1,285 18. Information and Broadcasting 15,645 1,696 264 7,627 8,108 1,285 19. Information and Broadcasting 15,645 1,096 264 7,627 8,108 1,285 19. Labour (d) 8,075 1,098 575 9,967 16,377 2,742 20. Law, Justice and Company 2,817 5,64 79 3,460 2,862 590 21. Petroleum (e) 2,307 2,817 5,64 79 3,460 2,862 130 21. Petroleum (e) 2,397 1,381 1,472/43 14,86,953 9,619 22. State (f) 20,975 1,581 1,477/743 14,86,953 9,619 23. Supping and Transport 4,599 6,78 1,687 6,972 130 25. State (f) 1,461 900 1,763 1,472/743 14,986,953 9,619 26. State and Mines 9,011 1,753 1,112 1,112 11,125 8,902 1731 26. State and Mines 9,013) ome Affairs dian Audit & Account	182,644 54,049	3,448 3,126	101 419	186,193 57,594	185,023 53,022	3,804 3,152	158 182	188,985 56,356	266,046 52,697	6,559 3,848	1,785 127	274,390 56,672
21. Preroleum (e) 240 76 280 364 130 22. Planning 20,975 1,488 3,815 26,278 5,011 622 23. Railways 14,61,906 9,256 1,581 14,72,743 14,86,953 9,619 24. Sipping and Transport 14,61,906 9,256 1,581 14,72,743 14,86,953 9,619 25. Space (f) 6,149 1,960 9,256 1,581 14,72,743 14,86,953 9,619 26. Sicel and Mines 9,013 1,706 407 11,126 8,902 1,753 27. Supply and Rehabile (g) 14,558 1,175 1,112 16,845 14,095 2,137 28. Works and Housing 1,4,558 1,1175 1,112 16,845 14,295 1,773 29. Works and Housing 3,226 2,978 50 5,943 35,382 2,951 29. Other Departments 30,26,84 74,496 291,446 3992,816 3,922,517 78,769 30. Other Departments 30,26,84 74,496 291,446 3992,816 701 2,931 <tr< td=""><td>epartmentt dustry formation and Broadcasting bour (d) .w. Justice and Company</td><td>6,267 15,645 8,075 2,817</td><td>1,096 2,659 1,098 1,098</td><td>264 1,663 575 79</td><td>7,627 19,967 9,748 3,460</td><td>8,108 16,377 8,269 2,862</td><td>1.285 2,742 1.129 590</td><td>318 1,584 3,550 54</td><td>9,711 20,703 12,948 3,506</td><td>5,852 18,570 15,376 3,235</td><td>1,045 3,068 1,582 625</td><td>185 2,417 785 91</td><td>7,082 24,055 17,743 3,951</td></tr<>	epartmentt dustry formation and Broadcasting bour (d) .w. Justice and Company	6,267 15,645 8,075 2,817	1,096 2,659 1,098 1,098	264 1,663 575 79	7,627 19,967 9,748 3,460	8,108 16,377 8,269 2,862	1.285 2,742 1.129 590	318 1,584 3,550 54	9,711 20,703 12,948 3,506	5,852 18,570 15,376 3,235	1,045 3,068 1,582 625	185 2,417 785 91	7,082 24,055 17,743 3,951
Z.6. Steel and Mines 9,013 1,706 407 11,126 8,902 1,753 27. Supply and Rehabile 14,558 1,175 1,112 16,845 14,095 1,211 28. Tourism and Givil Aviation 14,258 1,175 1,112 16,845 14,095 1,211 28. Tourism and Givil Aviation 14,256 1,802 1,802 1,437 1,211 29. Works and Housing 35,252 2,918 18,029 56,259 36,382 2,951 30. Other Departments 30,26,884 74,496 291,446 3392,826 30,92,517 78,769 30. Other Departments 30,26,884 74,496 291,446 3392,826 30,92,517 78,769 30. Other Departments 30,26,884 74,496 291,446 3392,826 30,92,517 78,769 30. Other Departments 30,26,884 74,496 291,446 3392,826 30,92,517 78,769 Steel Land for 1979-870 to available (a) For 1978 includes Commerce, Civil Supplies and Cooperation; (b) For 1978, 1983 includes For 1983 78,1983 includes Petroleum, Chemicels	troleum (c) annung ulways ipping and Transport	240 20,975 14,61,906 4,599 6,140	76 1,488 9,256 678 678	3,815 1,581 1,687 20	280 26,278 14,72,743 6,964 8,105	364 5,011 14,86,953 4,998 6,572	622 622 701 701	65 14,994 1,302	494 5,698 15,11,566 7,001	5,944 15,71,328 5,171 7,657	825 11,653 719 3.329	34,073 1,311 126	6,769 16,17,054 7,201
101AL 2015-2017 101AL 20120,004 14,470 271,440 271,440 2017,420 1017,111 10,107 Note: Data for 1979-82 not available. (a) For 1978 includes Commerce, Civil Supplies and Cooperation: (b) For 1983 Ec	ace (t) cel and Mines poly and Reabil (g) unism and Civil Aviation octs and Housing ber Departments	9,013 14,558 35,252 4,774	1,706 1,175 1,175 2,978 1,119	1,112 1,112 71 18,029 50	56,259 56,259 56,259 5943 5943 5943	8,902 14,095 14,245 36,382 22,182 22,182	2,028 2,028	1,022 907 99 16,867 4,337	11,677 16,217 56,200 28,547 28,547	10,430 6,029 6,029 40,993 28,154 28,154	2,592 857 3,248 3,560	292 632 151 20,338 3,383	6,949 6,949 6,579 84,579 35,097
For 1983 Unity Supply: 5 Work Charged Personnel , Staff Paid from Contingencies and Locally Recruited in Offices Abroad; Source: As in Statement 1	u Au- ta for 1979-82 not available. (a ta Latour and Rehabilitation; (c Only Supply: Charged Personnel, Staff Paid f As in Statement 1) For 1978 in) For 1978 in for Continge	Later and Lo	cent, Chemica cum, Chemica cally Recruite	upplies and C ub and Fertiliz vd in Offices A	Jooperation: (1) For 1! Abroad;	b) For 1983 inc	Education & C sludes Science	Sulture: (c) Fo	r 1978, 1983 ogy, (g) For 1	977 Civil Su	alth and Family ipplies and Coc	, Welfare, (d) peratives; (g)

STATEMENT 12. CENTRAL GOVERNMENT EMPLOYEES IN DEPERENT MINISTRIES

JOURNAL OF INDIAN SCHOOL OF POLITICAL ECONOMY

JAN.-APRIL 1990

DEVELOPMENT OF BANKING IN INDIA

Prakash Tandon

When the British arrived in India, they found that a kind of banking system already existed in the country, run by banias, chettys, sahukars, etc. With the progressive take over of the internal and external trade by the Englishman, his need for a different form of banking facilities arose. The paper traces the development of banking since then till 1985. Major landmarks are : Establishment of the Presidency Banks in the 1880s; Attempts to establish a Central Bank from 1773 ending with the establishment of the Reserve Bank of India in 1935; Banking crises and failures in 1913-23; Partition and Independence in 1947; Banking legislation from 1936 to 1956; Social Control in 1967 and Nationalisation in 1969; and examination by a series of committees of the problems of improved management since then.

The British found in India a banking system run by *banias*, chettys, *sahukars*, *podars* and shroffs, that had traditionally served the needs of commerce, agriculture and individuals since ages.

For Indian bankers, dishonouring a hundi was an event of rare occurrence, while debts of fathers were repaid by sons. The two worked on mutual trust and confidence without the formalities and securities so essential to British bankers. However, the indigenous system had begun to disintegrate with the break-up of the Indian political structures in the eighteenth century and through its own inability or reluctance to adjust to the new economic ambience under the impact of the West.

The indigenous bankers and moneylenders of the time may be distinguished from modern banks in two respects. (i) Both indigenous bankers and moneylenders combined other business with banking and moneylending, the notable exceptions being the Nattukottai Chettis of Madras, the Multani bankers of Sind and Bombay, and the Chettiars in Burma. (ii) Neither the bankers nor the moneylenders stood on any formalities in their business, willingly accommodating their customers on any day of the week and any hour of the day and night.

In some of their methods, the Nattukottai Chettis and the Chettiyars of Burma and Madras seemed to be the most advanced in the country; they received from their customers both current and fixed deposits, and gave to the current depositors either deposit receipts or demand promissory notes. In addition, a pass book was usually given in which sometimes the entries were

made by the customer himself and subsequently initialled by the Chettiyar. In the more important towns, cheques were issued and used for making payments and there was no difficulty in their encashment provided arrangements were made with the bankers beforehand. In the absence of previous notice, the Chettiyar would mark the date and initial the cheque and return it to the presenter for a second presentation on the following morning or afternoon, when it would invariably be paid. On 11 June 1930, the Chettiyars adopted the modern system of clearing cheques drawn upon them; the Bank of Chettinad obtained access to the clearing facilities provided by the Imperial Bank of India.

The moneylenders in the nineteenth century included (1) pukka moneylenders who advanced on the security of registered documents (e.g., mortgage deed), (2) kachha moneylenders who advanced on the security of other than registered documents (e.g., promissory notes), (3) pawnbrokers and goldsmiths, called choksis or sarafs in Bombay, who lent against ornaments and valuables, (4) gistias who lent on the instalment system, including those giving day-to-day loans called rozai, (5) military moneylenders for military regiments, (6) Pathans, Kabulis, Rohillas, Aghar or Mughals, Harias or Tharakkars Atitha, Gossains or Nagas all itinerant moneylenders. doing a kind of mobile banking, both Hindus and Muslims, and (7) casual and amateur moneylenders pursuing other occupations and lending only their surplus money.

The functions of moneylenders, generally

This article is a summary of Ch. 2 (pp. 58-79), and Chs. 6-8, and 11 of the Banking Century by Prakash Tandon, published by Viking. We are grateful to the Author and the Publishers for their approval - Editor.

Prakash Tandon was the Chairman of Hindustan Lever (1961-68); of State Trading Corporation of India (1968-72); of Punjab National Bank (1972-75); and of the Advisory Committee on Capital Issue Control, Ministry of Finance (1980). Presently, he is the President of the Board of Governers of the National Council of Applied Economic Research, New Delhi. Summary by Ms. Madhumati S. Asuti.

speaking, consisted of making advances for crops, seeds or cattle to agriculturists or to persons connected with land, on security of produce or other movables, or of immovables, or no security other than personal. They often made advances against standing crops to agriculturists and lent in cash or kind to persons other than agriculturists.

Their systems and instruments were (a) Dastavez (Document): a form of security against which loans were made. They were written out on legal forms and fully executed. Their special feature was recording in writing of all the conditions of the loan in detail. (b) Ticket-Bahis (Book): so called because stamps (tickets) had to be affixed therein; In these bahis, the borrowers pledged their signatures to repay the loans they took, but neither conditions nor the rates of interest were mentioned; only verbal contracts were made. (c) Raham: a loan on mortgage of landed property or house. The mortgage deed called Raham Nama was duly registered by the Registrar or Special Registrar of the district in which the property was situated. (d) Kist (Instalment): also known as banal or rehtat, rehti, carried on in the north-west United Provinces, was the instalment system of moneylending. (e) Rujahi (Daily): another instalment system, on a daily basis, also called rozaii. (f) Hath Udhar (Credit on Hand): in which the credit was entirely given by word of mouth on both sides and no written documents were used. No written chits were demanded. People usually swore by the sun or the moon or their children and such oaths could never be broken as it was solemnly believed that the sin of default could cause the greatest disaster.

Tipu Sultan was the first to attempt a system of State-sponsored banking houses, *Mullicutyal Coties*, all over the south, undertaking exchange operations and trade finance, backed and funded by a central bank at Srirangapattanam. There was, however, opposition from the indigenous bankers, who preferred to operate without any restrictions from an external authority, nor did they want to change with the times to meet the new demands. Tipu's idea died with him.

As the East India Company's trading and administration grew, British merchants progressively took over some of the internal and much of the external trade, which was directed mainly to

England and its Far East connections. There grew correspondingly a demand for modern banking services to finance trade, the British army and civil personnel's need to keep their money safely and profitably, and to ultimately remit their savings back home, and facilities for the new administration to remit its revenues from the districts to headquarters. All this required new fiscal and monetary policies, a uniform coinage, bank notes and paper currency, and a modern banking system.

As trade passed from the hands of private merchants to agency houses, the *baniya* became more than a mere *factotum* of private European gentlemen; he increasingly functioned as a guarantee broker and a financier. Subsequently, when the banking functions of the agency houses came to be performed by bankers themselves, the guarantee business of the *baniya* passed into the hands of shroffs or bill brokers, performing, in spite of a new name, essentially the same functions.

Some of the nineteenth-century Indian bankers were known to issue cheques and passbooks in the vernaculars, with a limited local circulation. These indigenous credit agencies were largely responsible for financing agriculture, indirectly through sahukars, internal trade, and small industries. Later, industrial concerns were financed by taking debentures, subscribing to the share capital, advancing against the security of shares, and giving long-term loans against the whole or part of the property or goods. Trade was financed by means of cash, and less often by drawing and discounting of hundis. The Indian bankers, however, took little part in financing large-scale industries and foreign trade, though some of them acted as treasurers to the government and Indian states, and later as treasurers and disbursing agents of the new railways and also of the modern banks. It was a custom till World War II to have treasurer-contractors who handled all the cash of large banks.

By the eighteenth and the nineteenth centuries, the bankers' ancient guilds were left mainly in the north and south of India; instead, bankers and moneylenders formed new associations: the Bombay Shroffs' Association, the Marwari Chamber of Commerce, the Commission Agents' Association, the Multani Bankers' Association, the Multani and Shikarpuri Bankers' Association, and a Bankers' Panchayat at Delhi. Among them there was cooperation and the associations met to discuss matters of common interest; but, there was no organization for the interchange of intelligence about the credit position of the constituents; they were individuals who had their *biradaris* and *bhaibandis*, but they never formed banking companies. The Multani Bankers' Association was in existence till the early 1970s, but gradually bank nationalization and direct loans to small entrepreneurs removed it from the scene.

With the growing importance of Calcutta, the financial needs of the East India Company and the British community were met by the managing agency houses, who extended their business into banking. The fortunes they made gave them the name of merchant princes of India, while the money they and the Company servants made was called 'shaking the Pagoda Tree'. These houses gained in importance as the Company turned from trading to administration, which it ultimately discarded in 1833. They dealt in trading, banking, insurance; tea, coffee and indigo plantations; inland navigation, railways, coastal and foreign shipping; mining; power, engineering and gas; jute and cotton textile; leather, paper, etc. Their example was followed by Indian entrepreneurs, mainly the Jains and Parsis in Ahmedabad and Bombay, the Marwaris in Calcutta, and the Chettiyars in Madras and Cochin.

The pioneering contribution of the European agency houses, and of the Indian houses that followed, to the development of Indian industry, especially the entry of Indian houses into textile and jute, infrastructure, plantations, and overseas trade, was significant and cannot be lightly written off. Admittedly, the English agency houses, as they entered banking, had little capital of their own nor did they possess knowledge of modern European or conventional Indian banking; so the vicissitudes and trade crises that visited their agency businesses were wholly transmitted to their banking activities, and whenever an agency house failed so did its bank. Yet, due to the East India Company's opposition to starting a bank, it was left to the managing agencies to take the initiative and fill the growing void.

The need for starting a modern bank must have arisen first with the decision in London, communicated to the East India Company in Madras in 1683, to raise capital and accept deposits. Next, the Government Bank of Bombay was 'erected' on December 2, 1720 after consultation with 'eminent black merchants'. The Bank was placed under the immediate direction of the Governor and two members of Council, and was furnished with Rs 1 lakh as capital stock out of the Company's cash. Deposits of Rs 100 and more were received for six months, for which the depositors received in exchange promissory notes bearing interest at a fixed amount per day. Inhabitants of Bombay, whether native, covenanted or hired servants, were allowed to borrow at a fixed rate of 9 per cent against security of goods or joint security of borrower and another substantial party. Borrowers were encouraged by facility of repayment in instalments of Rs 100 and more. The manager of the Bank was paid for his trouble by a levy of 1 per cent on each loan. In 1744, a committee examined the affairs of the Bank and found that its total outstandings exceeded Rs 1 lakh, of which Rs 43,000 was lent on personal security of good quality. Some debts had been outstanding for more than twenty years, many others for more than ten years. The committee advised repayment of all bonds immediately, and that future mortgages and bonds be repaid in five years at the latest, a recommendation endorsed by the government on the ground that bank money must circulate and not stagnate 'in particular hands'. It was recorded that depreciation of values proved the existing practice of lending on the full value of houses and *batti* grounds to be wrong and that margins of 50, 33 and 25 per centrespectively should be maintained against them; that when the borrower died, the sons and heirs must repay the loan or execute a fresh security; that borrowers of less than Rs 200 were a nuisance. In 1770, the treasury repaid its debts of Rs 8 lakh, inclusive of interest, against the bank's outstandings of Rs 28 lakh, and the government decided to close the Bank and start a new one. In 1773, Warren Hastings revived the idea and started the General Bank of Bengal and Bihar, but this too was aborted by some of his colleagues.

In the absence of modern banks, it was therefore left to the managing agency houses to pioneer banking. The first bank, the Bank of Hindostan, was started by Alexander and Company as a department and counting house to finance foreign trade; it had no up-country branches nor made arrangements with indigenous banks; hence, it was unable to transmit government revenue. While it successfully withstood three severe runs on it in 1791, 1819 and 1829, it failed when Alexander and Company itself failed in 1832. The Calcutta Bank, similarly established by Palmer and Company in 1824, failed in 1829 upon the failure of Palmers. A number of other banks of other agency houses shared the same fate. To relieve the distress caused by the crisis of the 1830s, Lord William Bentick created a government agency to receive deposits at no interest. Its business was transferred to the Bank of Bengal in 1856.

'Fortified, therefore, by the experience of the safe and profitable working of all the Colonial and Metropolitan Banks, and encouraged by the acknowledged want of such an institution for British India, then brought within thirty days' post of London, the East Indian Bank was established on a small scale, but capable of extension as prudence and circumstances might afterwards demand. The East India Company had declared by letter (April 30, 1840) that 'they are sensible of the advantages to be derived from Banking establishments formed and conducted upon sound principles', and, in another letter (September 16, 1840), stated that 'they are anxious to afford every facility for extending to India all the benefits to be derived from an accession of capital'.

The opposition of the East India Company crumbled eventually when the Oriental Banking Corporation obtained a Royal Charter in 1852, followed by the Chartered Bank of Asia, 1852, Chartered Mercantile Bank of India, London and China, 1853, and Chartered Bank of India, Australia and China, 1853. What enabled the entry of these banks was an opinion given by legal experts in London, on behalf of the Oriental Banking Corporation, that Act 47 of George III did not limit the royal prerogative to grant charter to banks in India, as had so far been argued by the

Company in opposing the entry of London banks. The Oriental Banking Corporation was originally the Bank of Western India, formed in 1842 with head offices at Bombay; and failing to get charter, it was reconstituted as Oriental Bank in 1845 at London and obtained Royal Charter as Oriental Banking Corporation in 1852.

Three Presidency Banks were set up in the 1880s in Bengal, Bombay, Madras.

Bank of Bengal: After closing the General Bank of Bengal and Bihar in 1775, the Court of Directors reiterated their opposition in 1787 by prohibiting the Indian government from extending their support to banking institutions. In 1805, they again negatived a suggestion for the establishment of a government bank at Madras. The Bank of Calcutta was established on May 1, 1806, with a capital of Rs 50 lakh in sicca rupees, consisting of 500 shares of Rs 10,000 each. one-fifth of which was contributed by the government. On January 2, 1809, the first Charter was granted and the name was changed to the Bank of Bengal, with government's right to end its Charter at one year's notice. The maximum stock shareholding was limited to Rs 1 lakh to any one proprietor, and Rs 1 lakh by amount to be advanced to any individual and Rs 5 lakh to government. The rate of interest was limited to a maximum of 12 per cent. The Charter also provided a cash reserve of at least one-third of the outstanding liabilities payable on demand, and the total liabilities to the bank, including deposits. were not to exceed the bank's capital of Rs. 50 lakh. The bank was entrusted with government funds and its notes alone were recognized by government, but as it did not command enough credit, it was not entrusted with the remittance of revenues from the mofussil. The Charter was reviewed in 1823, when its note issue was raised to Rs 200 lakh, limit of cash advances to Rs 3 lakh, and cash reserve requirements lowered to one-fourth of the outstanding liability. In 1839 the Bank was given powers to open branches and to deal in inland exchange business, but restrictions were put on its dealing in foreign exchange.

Bank of Bombay: In 1840, the Company started a second bank, the Bank of Bombay; this time the opposition came from some large Bombay British capitalists, who did not want their monopoly to

be broken. Three old mercantile houses had secretly addressed the government, praying for an issue of treasury notes payable on demand, and suggesting that, 'if the accommodation now solicited is granted, nothing further is wanted to put the monetary system of Bombay upon a good and convenient footing: nor do the subscribers conceive that any advantage can flow from the establishment of a bank, while numerous evils would undoubtedly arise from the issue of paper notes.' The government rejected the proposal, and the public, which enthusiastically supported it, reacted indignantly. At a public meeting a com-

mittee was appointed and a prospectus adopted. A Charter was promptly granted by the local government and an agent was chosen and sent to London to obtain the court's sanction. Such was the public response that the original capital of Rs 30 lakh was increased to Rs 52.25 lakh to meet the wishes of the applicants. The Company held Rs 3 lakh. As this was perhaps one of the earliest companies to solicit Indian shareholders, the pattern of its shareholding is interesting. Indian communities other than the Parsis seemed to have taken a limited interest (Table 1).

	18	40	18	48
	(Number)	(Shares)	(Number)	(Shares)
Europeans resident in India	173	3,261	91	1,473
European, non-resident	-	-	95	2,365
Native Christians	12	49	13	18
Mahomedans	3	55	1	18
Parsees	109	1,233	88	877
Hindoos	35	327	25	130
The Bombay Government	-	300	-	300
Total	332	5,225	313	5,225

The Bank of Bombay became involved in the crisis of 1862-65, following upon the end of the speculative cotton boom when the American Civil War ended. The Bank suffered serious losses and went into liquidation in 1868.

Bank of Madras: The Bank of Madras was incorporated in 1843, with a share capital of Rs 30 lakh, held one-tenth by the Governor in the Council of Madras, on behalf of the East India Company, and 260 public shareholders. Its objectives included discounting negotiable securities; keeping of cash accounts, including realization of dividends and interest on government securities for the constituents; buying and selling bullion and bills of exchange payable in India; receiving deposits and lending money on short loans; issuing and circulating bank post bills; and selling property or securities deposited as security for loans not redeemed or unpaid debts and claims. The Bank was managed by government officials alone, very unsuccessfully, and was abolished. But, the new Bank which started too did not fare better at first, for 'within a period of two years and a half from its establishment, it was twice placed in circumstances of serious embarrassment'. Its right of issue was withdrawn in 1862 and it was given in lieu the free use of government balances. The Bank was also given a new Charter. The capital was raised to Rs 56 lakh in 1863, which fell to Rs 50 lakh when the government cancelled its shares in 1876 and was again raised to Rs 60 lakh in 1897.

The Presidency Banks Act of 1876 regulated and restricted the business of these banks, prohibiting them from dealing in the risky business of foreign bills and borrowing abroad, from lending for more than six months, and from lending on the security of immovable property. They were eventually amalgamated in 1921 into the Imperial Bank of India, and in 1955 into the State Bank of India, in which were also merged a number of banks belonging to the old princely states of Jaipur, Mysore, Patiala, Jodhpur, etc.

Early European banking in India thus went through three stages before it emerged into the modern banking system. In the first stage, the English agency houses entered banking, but their mixing trading with banking took its toll, for all of them failed with the collapse of their parent agency houses. In the second stage, the three Presidency governments started their own banks, but they all suffered from the handicap of inexperience and inability to conduct foreign exchange business and, therefore, in the third stage the Exchange Banks, incorporated in England and Europe, entered India. A list of the banks which came into existence in the eighteenth and nineteenth centuries, prepared from available material, is given in Annexure I.

Of the large number of banks, those that are in existence today are the three Presidency banks merged into, first, the Imperial Bank and, later, the State Bank of India; Allahabad Bank, now nationalized; Grindlays Bank; Hongkong Bank; and the Chartered Bank; and of the later arrivals, the Banque Nationale de Paris.

A few of the old banks are described below to give some idea of their lives and times.

(i) Bank of Hindostan: It was founded by the agency house of Alexander and Company in 1770 as its branch, and was the earliest known institution set up on European lines. The circulation of its notes was confined entirely to Calcutta and the immediate neighbourhood, because the government did not permit their acceptance in the Collector's Treasury in the mofussil and refused to recognize them on the spot as legal tender. The amount of its issues fluctuated widely between Rs 2 lakh to Rs 25 lakh according to the state of the market. The Bank successfully met three severe runs on it in 1791, 1819, and 1829. Finally, in 1832, 'the most awful commercial crisis that ever visited India, by drawing into its vortex all the old firms', caused the failure of Alexander and Company and, in turn, of the Bank, which had latterly become so closely mixed up with the trading part of their business as to be unable to weather the storm that wrecked the firm. It is to the Bank's credit that it survived its own crises and failed only when the parent firm failed [Cooke, 1863].

(ii) The Carnatic Bank: The Carnatic Bank was established in 1788 as the first joint-stock bank in South India. Little is however known of its origin or demise. There are references to its existence in Madras Presidency in 1791 and it is presumed that it disappeared unnoticed when its promoters retired and left India.

(iii) The Commercial Bank: It started in 1819 with

partners who were members of the firm Mackintosh and Company, including an Indian. Gopeymohun Thakoor, and members of the firms Joseph Baretto and Company and Messrs. Mendietta Uriarte and Company. Like the Bank of Hindostan, its note circulation fluctuated according to the state of the market, the average amount of the notes in circulation being about Rs 16 lakh. Its operations continued for some years till it closed in 1828 when Messrs. Baretto and Company failed and some of the other partners quit Calcutta. In 1829 the Union Bank was projected and finally established, principally by the partners of the Commercial Bank, to take its place. Its operations were gradually narrowed along with those of Messrs. Mackintosh and Company. It failed in 1848, when the settlement of its affairs devolved upon Baboo Dwarkanath Tagore, of Rabindranath Tagore's family, who was the only solvent partner and who finally adjusted all claims against it, in the true tradition of Indian bankers. (iv) The Agra and United Services Bank Ltd: In the foundation of this bank in 1833 was encapsuled an interesting aspect of British India's social history. The British created a two-tiered hierarchy of the covenanted and the uncovenanted, of the rulers of pure blood and those who were locally mixed or were pure in blood but brought up in India. Accordingly, two types of services, the Covenanted Service meant for those of pure blood and the Uncovenanted Service, an inferior and subordinate service, recruiting those of mixed blood i.e. Eurasians or domiciled Europeans, were created. This rigid stratification between the Covenanted and Uncovenanted Services led to the forming of two separate banks at Agra: the United Services Bank, established by members of the Covenanted Services in 1833 under the name of the Agra Bank, and the Uncovenanted Services Bank in 1846, by and for the inferior service.

The United Services Bank was founded in 1833 after the break-up of the great Calcutta agency houses in 1829-30. The Bank was promulgated on July 1, 1833, by an eminent member of the civil service, under the name of The Agra Bank, with a capital of Rs 10 lakh and 4,000 shares of Rs 250 each, which was wholly subscribed within three years, and placed under the management of an experienced commercial gentleman and watched over with no little care by a committee of shareholders. In addition to the usual business of joint-stock banks, it was to advance money, for certain terms, to officers of the services on the security of approved sureties, and general loans to regiments to facilitate the establishment and maintenance of messes, bands, libraries, and other regimental services.

In 1838 it was decided to form an agency of this Bank at Calcutta that would purchase *hundis* and bills to any large amount for six to seven months of the cold weather, while the sale of the Bank bills would continue throughout the year. In 1839 its stock was doubled and there was further successive augmentation of capital. In 1843 a branch was opened in Madras and in 1845 one in Bombay.

The Bank enjoyed surprising success and growth and in 1846 a branch was established in London. In 1847 the capital was raised to Rs 60 lakh, in 12,000 shares of Rs 500 each. In 1853 the head office was transferred to Calcutta and in 1854 a branch was opened at Canton which was shifted in 1857 to Hongkong. A branch was opened in Shanghai in 1858. In the same year the head office was also moved from Calcutta to London. In 1861 a branch was opened at Karachi. In addition to its London establishment, the Bank now had branches in China, Australia and France. In 1864 it amalgamated with the private London banking firm of Masterman, Peters, Mildred & Co., in order to strengthen its UK connections and obtain membership of the London clearing house. After amalgamation, the Bank was named the Agra and Masterman's Bank. The Bank seemed to have fallen victim to the misfortune of attracting some envy, and it suspended payment in the banking crisis of 1866 in London, with liabilities of 19 million pounds.

(v) The Uncovenanted Services Bank Ltd: It was established in 1846 at Agra, exclusively for the benefit of the members of the Uncovenanted Services but soon the directors realized the limitations of exclusiveness and explained to the shareholders in 1847 that some stock remained unsold and one-quarter of the total stock should be thrown open to the public without any restriction. It would both help attract capital and

place at the disposal of the Uncovenanted Servants, who were the shareholders, a wider market for sale of their shares. But when in 1848 an attempt was made to change the designation of the Bank and throw it open to all classes, strong opposition was expressed in a resolution that reflected the strong feelings of these 'second class' citizens. So keen were they to preserve their distinctiveness that, in January 1849, the General Meeting passed a resolution that 'no one shall be eligible to act as Director or Secretary who is not an Uncovenanted Servant.... Also that this restriction shall be held irrevocable, unless rescinded by three-fourths of the votes of the proprietary. The Bank was wound up in about 1894.

(vi) The Government Savings Bank: It was established on November 1, 1833, not long after the banking crisis that had led to the disastrous failure of all the large commercial houses, under the guarantee and responsibility of government, to afford to all classes, British and native, a means of investing their savings, free from all the uncertain influence of commerce. Rules were laid down with impeccable care by its financial department, to discourage benami (literally, nameless) accounts, protected the rights of the minors, and respected local mores, such as the purdah. The Bank was in operation in 1863 but nothing is known after that; presumably, when the Presidency Bank of Calcutta became well established the rationale for its existence ceased.

(vii) The Bank of Mirzapore: This was a bank born out of the adventurous spirit of a young Mr Bathurst, fresh from England in 1835, of plausible manners, suave address, and gentlemanly appearance, the son, or otherwise near relative, of a highly respected civil servant, whose name was a byword of Mirzapore. He came determined to carve out for himself a new business which was to make his fortune. He announced the establishment of a bank to be called 'The Bank of Mirzapore'. The mahajans did not at first trust him but, with his ingenuity and punctuality of service, he soon obtained a limited circulation for his Bank notes. The public, however, did not have the same confidence in them as in the notes of the Bank of Bengal. He was disappointed with his progress and, in 1837, the bank closed when he

left India to avoid unpleasant proceedings.

(viii) Bank of Asia: Started in February 1841 in London, it met with an unequivocal reception at Bombay, and its establishment was hailed with great satisfaction. One thousand shares were allotted to Bombay, and 500 each to China, Ceylon, etc. Bombay alone over-subscribed four times and 'the shares were principally taken by native gentlemen and they were at a premium of twelve per cent on the scrip being issued'. At Calcutta about 1,482 shares were granted. During the year, one of the founders, Mr Robert Montgomery Martin, the Secretary, had a misunderstanding with Mr Jardine, one of the Directors of the provisional Board, whose private interest was said to be adverse to the Bank's. Martin resigned his post and an acrimonious correspondence followed. Wearied by the internal dissensions and the blow dealt to their expectations when the Charter was withheld, the shareholders closed the Bank in 1842.

(ix) The East India Bank: A still-born venture, the East India Bank, intended to be established with a capital of 250,000 pounds of 5,000 shares of 50 pounds each, was projected with great pretension, one of the latent objects being the suppression, or rather the absorption, of the Bank of Bengal. So great was the interest created that the Court of Directors of the East India Company sent out a despatch to the Bengal government to communicate with the Directors of the Bank of Bengal to learn what they had to say on the subject. The project was never very favourably received in the Bank of Bengal parlour and this was the first spoke in the wheel of the East India Bank which prevented its onward progress.

(x) Grindlays Bank: Robert Melville Grindlay, a gifted amateur and pioneer, realized the scope for making a business out of his knowledge and experience in India, and started an agency in 1828, under the name of Leslie and Grindlay, specializing in booking sea passages to India, clearing and forwarding of personal effects, and taking care of all the details of life abroad in those days. In 1820 Leslie left the firm, and in 1839 Robert Grindlay made a partnership of Grindlay, Christian, Matthews, but four years later it was renamed Grindlay & Co., with its first branch in India in 1854 at Church Lane, Calcutta. A Mr C.J. Groom,

senior official from London, was sent to open it. The Calcutta Banking Corporation, established in 1863, was incorporated in London as the National Bank of India in 1866. Nearly a century later, in 1948, it acquired the capital of Grindlay and Co., and changed its name to National and Grindlays Bank Ltd. In 1960, it took over the business and management of Lloyds' Eastern branches, which gave it a large equity base and a network of nearly a hundred branches in Asia and Africa. In 1969 Grindlay Holdings was incorporated in London and the shareholding was re-arranged, with Lloyds Bank holding 41.17 per cent and Citibank 40 per cent of National and Grindlays. In the same year it acquired the Imperial Ottoman Bank, established in 1863 at Istanbul. In 1972, it acquired William Brandt Sons and Co., originally founded in 1802 as ship brokers and merchants. In 1973, the name was changed to Grindlays Bank and in September 1983, the shareholding was re-arranged, with Lloyds Bank and Citibank holding 21.3 per cent and 48.6 per cent respectively. In September 1984, the Australia and New Zealand Bank, established in London in 1835, bought all the shares of Grindlays' Holdings. With its head office in Melbourne, it is now one of the largest banking groups in Australasia, and among the top hundred banks in the world, with a total of 1.657 branches in forty-seven countries. In India, the Grindlays Group, with fifty-six branches, has the largest network of all foreign banks, and it is known for its product innovation, training and management, development in merchant banking, creation of the secondary market for capital issues, and lease broking. It has started a Grindlays International Training Centre, presently located in Bombay, that conducts courses for over two hundred participants, Indians and foreigners, in different aspects of operation, credit and marketing, exchange and treasury, general management, industrial relations, computerization, etc.

(xi) Comptoir D'Escompte de Paris: Known today in India as the Banque Nationale de Paris, popularly BNP or the French Bank, it was founded in Paris under a National Decree of March 8, 1848, and by Imperial Decree on 25July 1854. After the conclusion of a commercial treaty with England in January 1860, the Directors applied to the Minister of Finance, who by special order authorized the Bank to establish agencies at Shanghai, Calcutta (in 1860 at No.2, Mangoe Lane), Madras, Bombay (in 1860 at No.23, Rampart Road), and Pondicherry, which did not last long. It was established in India over a century-and-quarter ago and presently has five branches in the metropolitan towns of Bombay, Delhi and Calcutta.

The banks described so far have all been European, mostly British. A number of small Indian banks were started from 1870 onwards, but they either closed down or were merged with other banks. None of them survives today. They were, in effect, what the Reserve Bank referred to as banking companies rather than banks in the modern sense. J. P. Jain describes one of them, the Oudh Commercial Bank, set up in 1881, as '..one of the oldest joint-stock banks of Uttar Pradesh incorporated as early as May 3, 1881. It has since then continued to be a local bank and transacts all kinds of banking business. It never opened any branches and stayed a local city bank'.

A CENTRAL BANK

The need for establishing a Central Bank in India was felt in the early life of the East India Company. During the reign of Charles II a decision was taken in London and communicated in 1683 to the Company administration in Madras, to raise capital and accept deposits from the public at 6 per cent per annum for a period of not less than six months, issuing deposit receipts with the East India Company's seal to create greater confidence. Nothing came out of it, but the need to open banks run on modern lines persisted, especially for the new function of issue of notes, in addition to the other three conventional functions, namely, the acceptance of deposits, making advances, and discounting bills, which were being performed by indigenous bankers.

In 1773, Warren Hastings revived the idea when he proposed the establishment of the General Bank of Bengal and Bihar, the main features of which were elaborately worked out, even employing the services of Indian bankers : (i) A principal House or Bank under the conduct of one or more responsible Shroffs with branches under

the charge of gomastas in the districts. (ii) Collectors were to charge fixed rates of batta [discount, but a term also used for a daily allowance; urdu-bhatta] for the different kinds of rupees and make over the coins to the gomastas of the bank.-A table of hundi or commission of exchange was to be fixed for payment to the bank, according to the distance of the place and the risk and charge of transport. (iii) Merchants desirous of sending money from one part of the country to another were to be permitted to make remittances through the Bank by means of bills. (iv) The Managers of the Bank were to enter into an engagement with the government and give security for the performance of their duties.

The plan was accepted by the Council at Fort William. During the first three months the Bank made a profit of Rs 29,560, of which one half was allowed to the Managers and the other half carried to the Company accounts. The Court of Directors, on hearing about it, refused to confirm the regulation establishing it, and urged the President and the Council to enquire into the effects the Bank had produced. Eventually, the whole proposal was opposed and a resolution was passed on February 15, 1775 providing for the closure of the bank. Opposed sometimes by the Court of Directors, at others by the Council in Calcutta, and later by the managing agents and their banks in India, the idea of a Central Bank was thwarted right through the eighteenth century and beyond. In fact, in 1787, the Court even prohibited the authorities in India from lending their support to any banking institution in Calcutta.

In 1807-8, there was a proposal for a 'General Bank' by Mr Robert Rickards, a member of the Bombay government, envisaging joint participation of the public and the government. While the Bank could pay off the large public debts, it would also be entrusted with the functions of note issue, note convertibility, and collection of revenue, would act as the Company's Treasury, would grant bills at reasonable rates, and be a Bank of Discount. The Governor-General-in-Council of Bengal, Lord Minto, thought that the scheme was extremely cumbersome and complicated, but instead of asking for a simpler scheme, it was rejected.

In 1836, a body of merchants in England having

trade relations with India proposed a 'Great Banking establishment for British India to be set up under an act of Parliament with adequate resources, for the general improvement of Indian commerce, giving stability to the monetary system of India...' To avoid the inherent possibility of the government utilizing the Bank for its own purposes, its connection with the government were perceived as 'not to be one of partnership, but of superintendence on the part of the latter'. The proposal was not favoured by the Bank of Bengal, who feared that the proposed Bank sought to encroach upon its sphere of activities.

In 1860, after the exit of the East India Company, Mr James Wilson, India's first Financial Member of the Viceroy's Indian Legislative Council, emphasized in a speech on the Bill for establishment of a paper currency in India, the undisputed need for a national banking establishment which would bring within its fold banking operations all over India. The proposed Bank was to be on the model of the Bank of England, but the proposal fell through. In 1861, the Paper Currency Act, vested the power to issue currency notes solely in the government. In 1866, the Commission appointed under Sir William Mansfield to enquire into the operation of the Paper Currency Act, 1861, pointed out the want of facilities for encashment of notes. The Commission suggested the introduction of a 'universal note' which would be legal tender and encashable throughout India; further, the currency should consist of gold, silver and paper.

In 1867, it was proposed that the three Presidency banks be merged into a 'Central Bank for all India', so that note circulation could develop through the agency of banks. The proposal was mooted in anticipation of the failure of the Bank of Bombay, which until then was acting as an agent in Bombay for the Bank of Bengal. However, the shareholders did not accept the proposal, nor did the Viceroy, Sir John Lawrence, who feared that the amalgamated banks would become too powerful for the government.

The continuous fall in the exchange rate created serious budgetary problems for the Government of India, particularly in the context of the progressive increase in the 'Home Charges'; the falling rate also affected the interest of European

Houses in India engaged in manufacture and import of European goods and investment capital from England. Particularly affected were the English Civil Servants who received their salaries in rupees; any decline in its sterling value inflicted on them an unmerited and unwelcome loss in remitting their savings home.

The impact of these complex factors led to the abandonment in 1893 of the silver standard, after India had remained on it for about sixty years. The decision was made after the Indian Currency 1893 (Herschell Committee) Committee. endorsed the proposal of the Government of India to stop free coinage of silver with a view to establishing a gold standard in India. With this the exchange value of the rupee began to rise and later stabilized at 16 pence. With sterling on a gold basis and the maintenance of the rupee at 16 pence for a fairly long period, the system which began to emerge was labelled by Keynes as the gold exchange standard.

In 1870, there was a proposal to set up 'one State Bank for India' under government control, with branches in the Presidency towns on the model of the Bank of France. However, the government expressed apprehensions about a Bank modelled on the Bank of France. In 1884, there was a suggestion to set up a Central Bank on the lines of the Netherlands Bank, but this too was not pursued on the ground 'that India possessed a sound banking and currency system'.

The Indian Currency Committee was appointed under Sir Henry Fowler to (i) consider the Government of India's proposal to withdraw from circulation rupeds that were in excess of the requirements of the trade, (ii) study the probable effects of its proposals on internal trade and taxation and (iii) suggest a satisfactory system of currency to secure a stable exchange between the country and the United Kingdom. The Committee rejected in 1898 the Government's proposal and suggested the introduction of a full-fledged gold standard with the sovereign as a current coin and legal tender. The Committee highlighted the inadequate banking facilities in India, and suggested creating a counterpart of the Bank of England by amalgamating the Presidency Banks. The proposal was not accepted.

The Royal Commission on Indian Finance and

Currency headed by Rt. Hon. Mr. Austen Chamberlain concluded in 1914, that a mint for the coinage of gold was not necessary. It suggested a more elastic paper currency system and the adoption of the proportional reserve system and laid down a suitable formula. In the absence of a consensus on the question of central banking functions as an integral part of currency and exchange, the Commission entrusted Mr. J. M. Keynes with drawing up a plan for the Commission's consideration. In a lengthy treatise, Keynes too suggested the establishing of a 'State bank' by the merger of the three Presidency Banks. The Commission felt that the matter deserved early consideration but expressed its inability to comment favourably or otherwise on the proposal itself. The outbreak of World War I shelved the proposal.

Attempts to form a Central Bank thus continued to be as regularly made as they were defeated, but the inherent compulsion of the need for a Central Bank continued. There appeared to be a breakthrough in 1919, when the Presidency Banks volunteered for a merger. In 1919, the proposal was accepted by all concerned and the Imperial Bank of India was born in 1921, entrusted with the discharge of commercial and central banking functions. The concept of an apex Central Bank, an entity apart and by itself, remained uncleared till the Royal Commission on Indian Currency and Finance (Hilton Young Commission), recommended in 1926 that:

A Central Bank should be set up, called the Reserve Bank of India, to provide a unity of policy in the control of credit, as an entirely new institution, quite apart from the Imperial Bank. Like other Central Banks of the world, it would have the usual four rights of note issue, to hold reserves of the commercial banks, to buy and sell securities, and to discount bills. Like the Bank of England, the Reserve Bank was to be a shareholders' bank with a fully paid up capital of Rs 5 crore, but unlike it, with a view to ensuring for it, beyond any manner of doubt, freedom from political pressure and conduct of business on lines of prudent finance, a Director of the Bank was not to be a member of the central or provincial legislatures or a representative of any commercial bank. The Bank was to enjoy an assured life of

twenty-five years, in the first instance, as compared with twelve years in the case of Bank of England at its inception in 1694. Finally, like the Bank of England, it was to work through two departments, the issue department and the banking department.

The government introduced a Reserve Bank of India Bill in the Legislative Assembly in January 1927, which was referred to a Joint Select Committee on the subjects of the Gold Standard and the Reserve Bank of India Bill. It was now the turn of Indian opinion to oppose the idea, and while the government wanted it to be an autonomous shareholders' bank, Indians wanted it to be a 'State Bank'.

The Joint Committee recommended that the Bank should be a 'State Bank', because a shareholders' bank would have the weakness that it would 'tend to be controlled by vested interests, and would therefore fail to secure the confidence of the Indian public; and that its utility to the public might even be endangered by a conflict of interest within the management of the Bank between Indian and external capital'. On the composition and constitution of the Board of Directors, the Committee dropped the provision prohibiting members of central or provincial legislatures from being appointed as Directors of the Central Board of the Bank, as it would deprive the country of the services of really able men. It however inserted a clause that only persons who were or had been actively engaged in agriculture, commerce, finance, or industry should be eligible for appointment as Directors, provided that of the fifteen Directors with the right to vote, six were to be elected by elected members of the central and provincial legislatures.

There arose much controversy centering mainly around the constitution and management of the Reserve Bank, not its objectives. It became so acute that the Bill, taken up twice for consideration, was postponed on both occasions.

The Central Banking Enquiry Committee was set up with Sir Bhupendra Nath as Chairman with three main terms of reference viz., (i) the development of banking with a view to expansion of indegenous, co-operative and joint-stock banking with special reference to the needs of agriculture, commerce and industry; (ii) the regulation of banking with a view to protecting the interests of the public; and (iii) banking education ... to meet the increasing needs of the country for a sound and well managed national system of banking. In its report submitted in 1931, the Committee urged the creation of a Central Bank endorsing the recommendations of the Royal Commission on Indian Currency and Finance, 1926. The foreign experts advising the Committee endorsed the suggestion emphasising that no substantial progress was possible unless and until the control of credit and currency in India was placed in the hands of a single authority.

This time the government, when considering the new constitutional reforms, 'stated in unambiguous terms that the formation of a Reserve Bank on sound lines was in their view to be a condition precedent to any transfer of financial responsibility from the agents of Parliament to a minister answerable to the Indian Legislature'.

At the First Round Table Conference in London in December 1931, the question of establishing a Reserve Bank on sound lines and free from political influence received particular attention from the members of the British Indian and Indian States' Delegations, who expressed themselves strongly in favour of it. The Financial Safeguards Committee and the Third Round Table Conference were equally clear and took the view that proposals to be submitted to Parliament should be based on the assumption that a Reserve Bank would be created prior to the inauguration of the Federal Constitution. The Committee therefore recommended that steps should be taken to introduce the Reserve Bank of India Bill in the Legislative Assembly as early as possible.

At last, in 1933, the Reserve Bank of India Bill was introduced in the Legislative Assembly by the Finance Minister, Sir George Schuster. It was passed in December 1933 by the Assembly and in February 1934 by the Council, and received the assent of the Governor-General in March 1934. On April 1, 1935 the Reserve Bank, with a share capital of Rs 5 crore, was inaugurated, with the following objectives: (i) Maintain the purchasing power of the rupee stable internally and externally; (ii) Remove the structural instability of the banking system; (iii) Carry out a judicious and appropriate credit policy, which would keep the volume of currency and credit in proper adjustment with the volume of business as well as the reserve, so as to maintain the stability of the volume of the monetary unit and to prevent instability and uncertainty in the money market and business of the country, by being given the monopoly of the issue of notes; (iv) Systematize and develop the money market in the country; (v) Arrange for the compilation of proper and extensive statistics regarding the working of banks and indigenous bankers and operations in the money market, and for their prompt publication; (vi) Benefit government directly by acting as its fiscal agent; (vii) Supply better credit facilities to agriculture and internal trade; (viii) Perform the duty of watching the development of banking in India and take steps to promote its advancement on the right lines in the interests of the nation as a whole.

The bank issued notes: sold and purchased sterling and other foreign currencies; served as a banker to the government and as a banker's bank; and financed agriculture and industry in a variety of ways. It regulated the credit and banking system of the country; gave bills rediscounting facilities and advances against eligible securities; offered extensive remittance facilities to banks. It was also entrusted with control over all banks regarding the (i) issue of licences to the banks for the opening of new branches; (ii) periodic inspection of all banking companies governed by the Banking Companies Act 1949, to reveal the defects and advise remedies; and (iii) issue of directives to banks to ensure that the pattern of bank credit conforms to the general economic policy and to the needs of the situation in the country.

In the first thirty-five years, events moved fast and in quick succession; World War II, the partition, Independence, social control and nationalization. In relation to each of these, the Reserve Bank had to play a vital role.

BANKING CRISES AND FAILURES

It might be useful to study briefly the history of banking crises and failures in India before the banks were nationalized, after which the question does not arise.

The growth of Indian banks suffered its first and

major setback in 1913, during the worst ever banking crisis in India, starting before the war and accentuated by it. It was worse than the earlier crises of 1829-32 and 1863-66, of World War II, and of the partition. No less than ninety-four banks, with a total paid-up capital of Rs 180 lakh, failed; the most serious among them was the Indian Specie Bank, a British bank with paid-up capital of Rs 75.50 lakh, which failed due to its heavy involvement in silver speculation.

The crisis caused a setback to the growth of banking, and during 1913-15 the total number of reporting commercial banks increased only marginally, from fifty-six to fifty-nine, while the total deposits fell from Rs 97.51 lakh to Rs 95.83 lakh. The setback was prominent in those provinces where bank failures were the most marked: thus no banks were started in 1914-15 in the province of Bombay and the United Provinces, and only three were started in the Punjab.

There was a brief respite in bank failures from 1919 to 1921, when only fourteen banks, with a total paid-up capital of Rs 12.50 lakh failed, but the number of failures increased again from 1922 onwards, during the post-war depression. In 1923 alone, twenty banks with paid-up capital of Rs 465 lakh failed. During the remaining years of the 1920s, most of the banks that failed were small and weak, causing little loss of capital.

The Central Banking Enquiry Committee, 1931, summed up the principal causes of bank failures in India. One, the incompetence of Directors, 'too innocent of banking practice or business prudence' to check the manipulations of designing Directors or Managers. Two, unrestricted loans to Directors or concerns in which they were interested. Three, dishonest management and bad, speculative, and injudicious investments. Four, paid-up capital and reserves were insufficient, while a large proportion was held in immovable property, and short-term deposits were utilized for long-term loans, leading to poor liquidity. Five, there was no co-operation among banks for joint action in the hour of need, no central banking institution for timely assistance, and no organization for effecting schemes of amalgamation.

An analysis of bank failures during the 23 years, 1913 to 1936, reveals that more than 65 per cent

of the banks that failed were less than eight years of age; this, together with the inexperience of their promoters and their weak financial base, made them particularly vulnerable during their infancy. More than 75 per cent of the failures were accounted for by banks with paid-up capital of less than Rs 1 lakh each; the bigger banks were more stable.

After the 1923 crisis, excepting some runs on banks following upon rumours, there were no important failures till 1938, when the Travancore National and Quilon Bank, with paid-up capital and reserves of Rs 29.50 lakh, failed. During 1937-46, though the number of bank failures was as high as 647, the total paid-up capital loss of Rs 144.51 lakh was quite small, proving once again that it was the small banks that were more prone to fail.

The partition in 1947 was the last major setback, especially for banks with sizeable business in the pre-partitioned areas. During 1947-51, 242 banks, mainly small ones, with a total paid-up capital of Rs 585.93 lakh, failed; no major banks failed this time, owing largely to the timely intervention and assistance of the Reserve Bank.

There were some failures of big banks as well, like the Associated Banking Corporation of India, the Exchange Bank of India and Africa of Bombay, and the Nath Bank of Calcutta. The failure of Nath Bank created a panic among the depositors, and had it not been for the amalgamation of the four banks in Bengal into the United Bank of India, there might well have been another major banking crisis.

After 1951, with the emergence of the Reserve Bank as a decisive factor, armed now with the new powers it had acquired in 1949 under the Banking Companies Act to intervene in the event of a crisis in a bank, the picture changed totally. The Reserve Bank could step in and bring about voluntary or compulsory liquidation, or a merger with a sound bank, and thus retrieve the position of the shareholders, depositors, and employees. Progressively, the main and root cause of failures, the unhealthy ways of bank owners and managements, was also dealt with under the new powers of the Reserve Bank for periodic inspections. The Reserve Bank of India Act was also modified to enable it to make advances to banks in difficulty on any security it deemed proper.

With the liquidation of two scheduled banks, the Laxmi Bank and the Palai Central Bank in 1960, several small and medium-sized banks experienced serious runs on them. In order to strengthen the weak units and revive public confidence, a new section 45 was inserted in the Banking Companies Act in September 1960, empowering the Government of India, on the recommendation of the Reserve Bank, to compulsorily amalgamate weak units with strong ones. Thus in 1961 alone thirty banks were merged compulsorily with other banks.

The Deposit Insurance Scheme was introduced in 1962, under which deposits in banks up to a specified amount were guaranteed by the Deposit Insurance Corporation in the event of a bank failure.

As a consequence of the improved atmosphere, there was a marked change on the scene of failures, which decreased from fourteen in 1954 to four in 1963, while the number of mergers, amalgamations, and transfers increased from one in 1954 to twenty-two in 1963 and seventy-nine in 1964. Even in 1985, three small banks showing some disquieting features were merged with larger banks; the process continues as needed.

India has today a wide range of sophisticated banking and financial institutions that might well be the envy of many developing countries; integrity, stability, and innovativeness in its monetary and financial system; and a record of prudence and obligations always honoured. These are largely due to starting from old traditions, the attention devoted to the subject over the last two centuries, especially since Independence, through the appointment of a large number of Commissions and Committees to delve deep into all facets of banking and finance.

Starting with the Harris Committee in 1787 on the subject of 'Discount on Gold Mohur since Introduction of Bimetallism', there have been altogether 45 committees covering a very wide range of subjects. Thirteen committees were appointed in the years 1968 and 1969 alone, at the time of social control and nationalization. Some were appointed directly by the government and the Reserve Bank, while others were appointed

by the committees themselves. The list in Annexure II has been made as complete as possible, except for an important Committee of Asoka Mehta's in 1977 on rural credit, whose report is not available. Summaries of their recommendations are given in Annexure III.

BANKING LEGISLATION

Although banking as a subject of study had received considerable attention, there was virtually no legislation on banking till after 1947. In the enquiry that followed the 1913-14 banking crisis, there was much comment upon the lack of legislation, and the need for it was strongly recommended in all quarters, banks, government and public, to provide safeguards and to protect the interests of bank shareholders and the public.

The few provisions relating to banking companies in the Companies Act of 1913 concerned only matters like prohibition of partnership firms with a membership in excess of ten from carrying on the business of banking; publication of halfyearly statements of assets and liabilities; provision for the inspection of banking companies; and the acceptance of copies of audit reports of the foreign branches. There was no comprehensive legislation that took into account the distinctive features of banking, bankers' responsibilities, and customers' protection.

The lessons of 1913 continued to be ignored even after the crises of 1922 and 1929. The Indian Central Banking Enquiry Committee, 1929-31, observed that the provisions in the Companies Act of 1913 were inadequate and it recommended enactment of a comprehensive Bank Act covering the organization, management, audit, and liquidation of banks. Its recommendations were an important landmark in the history of banking reform in India. The legislation that was introduced in India, particularly after Independence, is recorded below.

The Indian Companies (Amendment) Act, 1936, was the first attempt at banking legislation in India, embodying some recommendations of the Central Banking Enquiry Committee, by introducing a new chapter on banking companies in the Indian Companies Act. Its salient features were (a) The definition of a banking company; (b) Prohibiting a banking company to conduct business other than banking, and specifying items of business that a bank was permitted to do; (c) Restriction on a managing agency to conduct banking activities; (d) Provision for a minimum paid-up capital of Rs 50,000; (e) Prohibition of a charge on unpaid capital; (f) Provision for maintenance of reserve funds and cash reserves by non-scheduled banks by transferring a percentage of profits to reserves; (g) Provision for till money or cash, according to a certain prescribed ratio, to be maintained by a bank with itself; (h) Provision of the grant of moratorium to a bank by a court of competent jurisdiction.

The law proved to be inadequate, especially in the crisis which brought down the Travancore National and Quilon Bank, in that the definition of 'banking', namely, that a banking company was one which carried on as its principal business, the accepting of deposits of money on current account or otherwise, subject to withdrawal by cheque, draft or order, proved unsatisfactory. In practice, the Registrar of Companies could not decide whether a company was carrying on the business of banking. Hence, three further amendments were made to the Companies Act : (i) The Indian Companies (First Amendment) Act. 1938, required the non-scheduled banks to submit additional copies of returns and statements to the Registrar of Companies for being forwarded to the Reserve Bank; (ii) The Indian Companies (Second Amendment) Act, 1942, stipulated that any company which used as part of its name the word 'bank', 'banker', or 'banking' should be deemed to be a banking company, irrespective of the nature of its principal business; (iii) The Indian Companies (Third Amendment) Act, 1944, prohibited employment in a bank, of any person whose remuneration took the form of a commission or share in the profits; it also provided that the paid-up capital of a banking company should not be less than half of the subscribed capital and that the subscribed capital should not be less than half of the authorized capital.

After Independence, in consonance with a plan announced in 1945 by the earlier government, a general policy of control and regulation of the Indian economy was introduced. The Reserve Bank considered it a matter of urgency to bring forth legislation to consolidate the rapid and uncontrolled growth of banking during the years of war-time prosperity. Inflation during the war had led to a proliferation of financial companies and uncoordinated branch expansion, which had resulted in reducing the viability and profitability of the banks. To deal with this situation, an ordinance was issued, namely, *The Banking Companies (Inspection) Ordinance*, and *The Banking Companies (Restriction of Branches) Act, 1946*, requiring banking companies to obtain the permission of the Reserve Bank before opening new offices or changing the location of their existing offices.

After 1946, a system of inspection, free of cost, was undertaken. Provision was also made for the issue of general directions by the Reserve Bank relating to advances; it was also empowered to grant assistance to all banks against any securities during an emergency. The situation in Bengal and Punjab suddenly deteriorated in 1947, when regulatory provisions were enacted and brought into force. The Reserve Bank of India (Temporary Amendment) Ordinance, 1947, issued in September 1947, enabled it to grant advances to a bank against any security in an emergency. The Negotiable Instruments Act and The Indian Limitation Act (Temporary Amendment) Ordinance, December 1947, provided for the disposal of bills which could not be presented, and for the extension of limitation in the event of disturbances preventing the filing of claims in time. The Banking Companies (Control) Ordinance was promulgated in September 1948, anticipating some of the provisions of the Bill under consideration.

The Banking Companies Act, 1949, included the various ordinances promulgated between 1946 and 1949, and it extended to the whole of India except the state of Jammu and Kashmir. Itomitted from the earlier definition the reference to the principal business of the company and amplified the reference to the mode of withdrawal by cheque, draft or order by specifying withdrawal in any other manner. It added two tests, namely, acceptance of deposits from members of the public and not merely from members of the company, and utilization of funds for lending or investment outside the company. Its objective

was to remove many unhealthy practices prevailing in banking: (a) A disproportionately large portion of advances against immovable properties; (b) Advances on inadequate security to concerns in which the directors of the bank or their friends and relatives were interested: (c) Indiscriminate policy of branch expansion; (d) Interlocking of funds between banks and concerns in which their directors were interested; (e) Attempts made by the managements of some banks to secure control over certain industrial undertakings by misuse of bank funds; (f) The tendency to manipulate figures appearing in the published accounts with the object of concealing from the public the true financial condition; (g) Granting of loans and advances by certain small banks, far out of proportion to their total resources.

The Act defined banking to mean the accepting. for the purpose of lending or investment, of deposits of money from the public, repayable on demand or otherwise and withdrawable by cheque, draft, order, or otherwise. Its salient sections placed a number of restrictions. Section 8 prohibited a banking company from dealing directly or indirectly in the buying or selling or bartering of goods except in connection with its legitimate banking business. Section 9 disallowed a banking company from holding any immovable property except for its own use. Section 10 held that a banking company cannot be managed by a management agent. Section 11 provided for a minimum paid-up capital and reserves, ranging from Rs 1 to 10 lakh, depending upon location, etc. Section 12 said the subscribed capital should not be less than one half of the authorized capital, and the paid-up capital should not be less than one half of the subscribed capital. The capital should consist only of ordinary shares. Section 19 disallowed a banking company from holding shares in any company of an amount exceeding 30 per cent of the paid-up share capital of that company or 30 per cent of its own paid-up capital and reserves, whichever was less. It also could not hold shares in any company in the management of which any Managing Director or Manager of the banking company was interested. Section 20 held that a banking company could not make a loan against its own shares; or unsecured loans to

any of its Directors or a firm/private company in which the Director was interested as partner/managing agent/guarantor. Section 23 said new branches could not be opened and existing branches could not be shifted, except within the same city, town or village, without prior permission from the Reserve Bank. Section 35 gave powers to the Reserve Bank to inspect the books of a banking company. Section 38 said the court could order the winding up of a banking company if it was unable to pay debts, within two working days at places where a Reserve Bank office was established and five working days at other places, or if the Reserve Bank applied to the court in this behalf. Section 44 said no licenced banking company could be voluntarily wound up unless the Reserve Bank certified that the company was not able to pay in full all debts to its creditors as they accrued.

The Banking Companies (Amendment) Act. 1950. was passed to secure a speedy amalgamation of banking companies and speedy disposal of proceedings for their winding up. The Banking Companies (Amendment) Act, 1953, expedited the proceedings for the liquidation of the banks ordered to be wound up. The Banking Companies (Amendment) Act, 1956, mainly plugged the loopholes in the earlier Acts in dealing with managerial irregularities of banking companies. In particular, the existing powers of the Reserve Bank were extended to cover the terms of appointment of Directors, Managing Directors, and Chief Executive Officers. The Act also aimed at the prevention of misuse of voting rights through concentration of shares in the hands of a few by withdrawing the exemption granted to banks incorporated prior to 15 January 1937, under Section 12 of the Banking Companies Act, 1949.

SOCIAL CONTROL AND NATIONALIZATION

Social control on banks in 1967 and nationalization in 1969 opened a new chapter but they were the last enactments; after that the Reserve Bank and the Department of Banking issued instructions and directives to all banks, private or nationalized, on behalf of the new owners, the government. Social control and nationalization were part of the same exercise. Unexpected and

drastic as they appeared at the time, and attributed by some to a political move to consolidate the government's position, they were in fact implicitly 'programmed' in the party's agenda right from Independence. Its genesis lay in the White Paper of the Government of India on April 21, 1945, on post-war industrial policy. This Paper spelt out for the first time the concept of a public sector which independent India readily accepted as its socialist creed. Many new heavy industries were started in the public sector, while service industries like power, transportation, and insurance were nationalized; the Industries Development and Regulation Act, 1948, also envisaged in the 1945 White Paper, was introduced. Taxation was used as an instrument to raise new resources to support the national Plans, to discourage consumption, and promote equitable redistribution of income and wealth. Lord Kaldor's ideas laid the foundations of a new taxation policy introduced by Nehru's Finance Minister, T.T. Krishnamachari.

With this new philosophy and policies, bank nationalization could not be far behind, especially when regulation, control, and planning was directing financial resources to goals and targets set by the new plans, even though Nehru was somewhat lukewarm towards the idea, at least at that point of time. Dr R.K.Hazari, later Deputy Governor, Reserve Bank, in a report to the Planning Commission on September 14, 1967, on Industrial Planning and Licensing Policy suggested that 'It would be difficult to undertake credit planning unless the linked control of industry and banks in the same hands is snapped by nationalization of banks.' As a first alternative to nationalization, social control was put forward in the election manifesto of the All India Congress Committee in early 1967, which laid down that it was necessary to bring most of the banking institutions under social control. After the election, the Deputy Prime Minister, Morarii Desai, who was said to be personally opposed to nationalization, tried to stave it off by accepting social control. He stated in Parliament on December 17, 1967 : The government's considered opinion is that mere acquisition of banks would severely strain the administrative resources of the government, while leaving the basic issues untouched. What is of prime importance is to ensure that particular clients or groups of clients are not favoured in the matter of distribution of credit and whatever the character of the shareholding, its influence is neutralized in the constitution of boards of directors and in the actual credit decision taken at different levels of bank management.

A draft Bill was therefore introduced on December 23, 1967, with extensive provisions for control over banks and banking policy. The Bill, referred to a Select Committee on March 26, 1968, recieved a vast response of 7,749 memoranda, representations, and telegrams from different parts of the country, giving suggestions pertaining to various provisions of the Bill. The Committee submitted its report on May 2, 1968, which was immediately placed before the Parliament on May 6, 1968. After weathering innumerable storms of criticism and cross criticism. the Bill was ultimately passed and became law on February 2, 1969. It laid down, inter alia, 'banking policy' to protect specifically the interests of depositors, monetary stability, sound economic growth, equitable allocation, efficient use of resources, etc. Furthermore, in the place of almost every bank's Board of Directors being presided over by some industrialist or businessman, the new legislation stipulated that only bankers, or professionals useful to banking, were to be appointed whole-time Chairmen. whose appointment and de-appointment was subject to the approval of the Reserve Bank of India, which was later extended to approval by the Finance Minister, and ultimately by the Prime Minister. The Board of Directors of a bank was to be composed of persons with experience or expertise in accountancy, agriculture, rural economy, banking, economics, finance, law, small industries, etc. It was also laid down that if a nonnationalized bank ignored the provision of social control and violated banking policy, causing harm to the interest of depositors, government could decide to acquire its ownership.

National Credit Council 1967-68: A major step in instituting social control was the appointment of the National Credit Council under a government resolution of December 22, 1967. The idea was taken from France, where one was set up under the Bank Nationalization Law of 1945 to control the nationalized banks and devise a suitable national credit policy. The Indian Council was designed to perform the following main functions. (a) To assess the demand for bank credit from the various sectors of the economy; (b) To determine the priorities for the grant of loans and advances or for investment, having regard to the availability of resources and the requirements of the priority sectors, in particular, agriculture, small-scale industry, and exports; (c) To coordinate lending and investment policies as between commercial and cooperative banks and specialized agencies, to ensure the optimum and efficient use of the overall resources; and (d) To consider other allied issues as may be referred to it by the Chairman or the Vice-Chairman of the Council.

The Council was established in February 1968. Its membership consisted of five permanent members, namely, Finance Minister (Chairman); Governor, Reserve Bank of India (Vice-Chairman); Deputy Chairman, Planning Commission; Secretary, Ministry of Finance, Department of Economic Affairs; and, Chairman, Agricultural Refinance Corporation. The Council was permitted to invite others and meet as often as it may like but not less than twice a year.

At its first meeting on March 16, 1968, various problems relating to credit planning were discussed and a Standing Committee with the Governor of the Reserve Bank of India as its Chairman was appointed to study specific issues and formulate concrete proposals on the same. At its second meting on July 24, 1968, the Council accepted the Report of the Standing Committee appointed by it on March 16, 1968 and concurred with its view that commercial banks should step up the financing of agriculture and small-scale industry, while for the long-term issues five study groups may be set up as follows : (i) Problems of deposit mobilization by commercial and cooperative banks; (ii) Extent to which the credit needs of industry and trade were likely to be inflated and how this trend could be checked; (iii) Organizational framework for implementation of the objectives of social control; (iv) Need to adopt an area and project approach in implementing

schemes for extending credit to agriculture, and extending it to rural electrification and minor irrigation projects; and (v) Bank finance for road transport operators.

It was noted that small industry and agriculture, two vital sectors of the economy, had not been receiving their fair share. Of the Rs 2,717 crore advanced by the scheduled banks as on March 31, 1967, only 2.1 per cent had gone to agriculture including plantations, and while the share of big industries had risen from 51 per cent in 1961 to 64 per cent in 1967, the small-scale industries sector got only 2.5 per cent in 1960 and 6.6 per cent in 1967 of the total bank credit. The Council recommended that commercial banks should allocate in 1968-69 additional amounts of Rs 35-40 crore and Rs 60-70 crore by way of credit to agriculture (other than to plantations and for marketing of agricultural produce including food procurement) and small-scale industries respectively. These were the minimum targets to be kept in view by the banks.

The achievements of social control were quick and substantial. During the first year, the National Credit Council's target of extending Rs 35 crore of credit to agriculture by the banking system was well exceeded by the twenty major scheduled banks' sanctioning Rs 190 crore by March 1969; and small-scale industries received Rs 106 crore in the first three quarters of the year against the year's target of Rs 60 to Rs 70 crore. In 1968, commercial banks opened 675 (488 in rural areas and semi-urban centres) new offices, against 372, 406 and 478 in 1965, 1966 and 1967, respectively. Loans to Directors and their companies in the sixteen major scheduled banks declined from 10.1 per cent in 1967 to 3.1 per cent in 1968.

The weakness of social control was that in many banks people who had been controlling policies in the past continued to exercise influence over them in one way or another, sometimes by the continued presence of the old Chairman or Vice-Chairman on the Boards. In the circumstance, nationalisation appeared unavoidable. On July 19, 1969, the President of India promulgated an Ordinance whereby 'the undertakings of of the 14 banking companies with a deposit of Rs 50 crore or more were purported to be transferred to 14 new body corporates called corresponding
new banks'. On August 9, 1969, the Indian Parliament passed and enacted the Banking Companies (Acquisition and Transfer of Undertakings) Act, 1969. This was challenged in the Supreme Court and on February 10, 1970, the Court decided that the Act was void in its entirety because of certain legislative loopholes. On February 14, 1970, the President promulgated another Ordinance which was followed by another Act, the Banking Companies (Acquisition and Transfer of Undertakings) Act, 1970. It plugged the loopholes pointed out by the Supreme Court and has come to stay.

The fourteen nationalized banks had a deposit of Rs 2,741.80 crore, nearly 72 per cent of the total deposits of the Indian scheduled banks, and their advances amounted to Rs 1,683.66 crore which was 65 per cent of the total advances of all the scheduled banks. A decade later, on April 15, 1980, six more banks having demand and time liabilities of not less than Rs 200 crore were nationalised. Today, the twenty nationalized banks account for virtually the entire banking activity in the country; the remaining banks are under the same control as the nationalized banks.

Annexure 1. Banks Which Came into Existence in the Eighteenth and the and Nineteenth Century

Founded	Where	Name of Bank	Failed (F)
	Founded		or Merged (M)
1720	Bombay	Bank of Bombay	1770
1770	Calcutta	Bank of Hindostan	F 1832
1773	Calcutta	General Bank of Bengal and Bihar	F 1775
1784	Calcutta	Rengal Bank	F 17 9 1
1786	Calcutta	General Bank of India	F 1791
1700	Untroum	The Comptio Bank	Unknown
1/00	Unknown	Park of Coloutton	M 1920
1800	A 1	Dank of Calcula:	141 1/20
	Calculta	Bank of Bengal, 1808	E 1939
1819	Calcutta	The Commercial Bank	F 1020
1824	Calcutta	The Calcutta Bank	F 1829
1828		Bank of India	Unknown
1829	Calcutta	The Union Bank	F 1848
1833	Calcutta	The Government Savings Bank	Unknown
1833	Agra	The Agra & United Service Bank Ltd.	F 1866
	0	(Earlier The Agra Bank and later	
		The A gra and Masterman's Rank	
		London)	
1925	Missen	The Boult of Mirmon and	E 1927
1033	wiirzapur	The Bank of Mirzapore	F 1057
1830		Bank of India (London)	Sull Bom
1840	Mussoone	North Western Bank of India	F 1859
1840		Bank of Bombay: Re-formed in 1868	M 1920
1841	London	Bank of Asia	1842
1841	Colombo	The Bank of Ceylon	M 1849
		(Taken over by the Oriental Banking	
		Comoration	
1842		The Fast India Bank Landon	Still Born
1842	Rombau	The Orientel Bank Companyion	E 199A
1042	Domoay	(Easting Daub of Western L. P.)	F 1604
1040	A .	(Earlier, Bank of Western India)	
1842	Agra	The Agra Savings Fund	1863
1843	Madras	Bank of Madras	M 1920
1844	Delhi	Delhi Bank Corporation Ltd.	Unknown
1844	Banaras	The Benares Bank	F 1850
1844	Simla	Simla Bank Ltd.	F 1893
1845	Bombay	The Commercial Bank of India	F 1866
1845	Kanour	The Cownnore Bank	E 1851
1846	Dacca	Daces Bank	1° 1051 M 1963
	Dutta	(maggad into Daula of Doursel)	IVI 1802
1846	A	(mergeo into Bank of Bengal)	
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ANNEXURE II. COMMITTEES/COMMISSIONS APPOINTED SINCE 1787

1.	Harris Committee (1787)	Discount on Gold Mohur Since Introduction of Bimetallism
2.	Mansfield Commission (1866)	Operation of the Paper Currency Act of 1861
3.	Herschell Committee (1893)	Indian Currency
4.	Fowler Committee (1898)	Indian Currency
5.	Chamberlain Commission (1913)	Royal Commission on Indian Finance and Currency
6.	Babington Smith Committee (1919)	Indian Exchange and Currency
7.	Hilton Young Commission (1925)	Royal Commission on Indian Currency and Finance
8.	Select Committee (1927)	On the Gold Standard and Reserve Bank of India Bill
9.	Bhupendra Nath Committee (1931)	The Indian Central Banking Enquiry Committee
10.	Purushottamdas Thakurdas Committee (1950)	Rural Banking Enquiry Committee
11.	Gorwala Committee (1954)	All India Rural Credit Survey, Committee of Direction
12.	Ramunni Menon Commission (1956)	Travancore Cochin Banking Enquiry Commission
13.	Shroff Committee (1963)	Committee on Finance for the Private Sector
14.	Pai Study Group (1968)	Deposit Mobilization by Banks
15.	Dahejia Study Group (1968)	Credit to Industry and Trade
16.	Gadgil Study Group (1968)	Implementing Nationalization's Objectives
17.	Damry Study Group (1968)	Agricultural and Rural Electrification Credit
18.	Dutt Study Group (1968)	Bank Finance for Transport Operators
19.	Saraiya Commission (1969)	Banking Commission
20.	Rameshwar Thakur Group (1969)	Banking Commission-Banking Costs
21.	Rajamannar Group (1969)	Legislation Affecting Banking
22.	Parekh Group (1969)	Indigenous Bankers
23.	Joshi Group (1969)	Banks' Procedures
24.	Bhabatosh Datta Group (1969)	Bank and Financial Intermediaries
25.	Talwar Committee (1969)	Enactments Regarding Commercial Banks' Lending to Agricul-
26.	Nariman Committee (1969)	Coordinated Approach to Banking Facilities in Under-banked
27		Districts
21. 20	Narasimnan Committee (1970)	Bill Market Scheme
20.	The later Committee (1971)	Second Credit Schemes and Employment Detection
29.	Probash Tandan Committee (1971)	Park Credit and Fallow up Guidalings
31	Lakabringroup Committee (1974)	Consortium Participation Basis
32	Talwar Committee (1974)	Customer Service in Banks
33	Rei Committee (1975)	Non-Ranking Companies
34	Narosimhan Committee (1975)	Rural Banke
35	Puri Committee (1976)	Bank Credit Problems of Small Scale Industries
36	Manubhai Shah Commission (1976)	Bank Clour Provision
37	Luthar Committee (1976)	Banking Costs and Operational Efficiency
38	Dantwala Committee (1977)	Regional Rural Banks
39	Rai Committee (1977)	Functioning of Public Sector Banks
40.	Bhuchhar Committee (1979)	Review the Arrangements for Institutional Credit for Agriculture
		and Rural Development
41.	Chore Committee (1979)	Cash Credit System
42.	Sivaraman Committee (1979)	Consumption Credit
43.	Ghosh Committee (1982)	Implementation of Twenty Point Programme
44.	Marathe Committee (1983)	Credit Authorization Scheme

ANNEXURE III. SUMMARIES OF RECOMMENDATIONS OF COMMISSIONS/COMMITTEES Appointed Since 1787

(1) 1787. The Harris Committee under Herbert Harris (the Mint Master) was appointed to examine the hardship caused since the introduction of bimetallism in 1766 by the varying rates of discount or *batta* on the gold mohur. The report and recommendations are not available.

(2) 1866. The Mansfield Commission under Sir William Mansfield was appointed to enquire into the operation of the Paper Currency Act. The Commission pointed out the want of facilities for the encashment of notes, suggested the introduction of a 'universal note' which would be legal tender and encashable throughout India and further that the currency should consist of gold, silver and paper.

(3) 1893. The Indian Currency Committee under Lord Herschell, the Lord Chancellor, was appointed to consider the proposals of the Government of India to close the mints to stop the unlimited coinage of silver, and introduce the gold standard. The Committee recommended that the closing of the mints against free coinage of silver should be accompanied by an announcement that, though closed to the public, they will be used by the government for the coinage of rupees in exchange for gold at a ratio to be then fixed, and that at the government treasuries gold will be received in satisfaction of public dues at the same ratio.

(4) 1898. The Indian Currency Committee under Sir Henry Fowler, was appointed to consider the Government of India's proposal to withdraw from circulation rupees that were in excess of the requirements of the trade and to study the probable effect of its proposals on internal trade and taxation and suggest a satisfactory system of currency to secure a stable exchange between the country and the United Kingdom. The Committee rejected the government's proposals and suggested the introduction of a full-fledged gold standard, with the sovereign as a current coin and legal tender.

(5) 1914. The Royal Commission on Indian Finance and Currency, headed by the Rt. Hon. Mr Austen Chamberlain, was appointed to enquire into the location and management of the general balances of the Government of India; the sale in London of Council Bills and transfers; the measures taken by the Indian government and the Secretary of State for India in Council to maintain the exchange value of the rupee in pursuance of the recommendations of the Indian Currency Committee of 1898. The Commission concluded that a mint for the coinage of gold was not necessary but may be established to 'pacify Indian sentiments'. It suggested a moreelastic paper currency system and the adoption of the proportional reserve system, and laid down a suitable formula.

(6) 1919. The Committee on India Exchange and Currency under Sir Henry Babington Smith was asked to examine the effect of the war on the Indian exchange and currency system; the position of the Indian note issue; and to recommend such modifications to the policy of meeting the requirements of trade as to maintain a satisfactory monetary circulation and ensure a stable gold exchange standard. The Committee thought it essential to introduce elasticity in the system of paper currency reserve and recommended that Rs. 5 crore of additional note issue, based on commercial bills of exchange, should be made by way of an experiment.

(7) 1925. The Hillon Young Commission a Royal Commission under Lt. Commander Edward Hilton Young, was appointed

'To consider whether any modifications are desirable in the interests of India in the Indian exchange and currency system and practice'. Its report was considered one of the most important financial documents of those years. According to it, the Indian exchange and currency system suffered from three main defects. First the system was far from simple, and the basis of the stability of the rupee was not readily intelligible to the uninstructed public. Second, there was cumbrous duplication of reserves with the antiquated and dangerous system of the government controlling the currency and with credit controlled by the Imperial Bank. There was a likelihood of failure to coordinate. Third, the system was inelastic and did not secure the automatic expansion and contraction of currency. Its two main recommendations were the establishment of a Central bank and the introduction of the gold bullion standard, but there would be no gold currency in circulation. (8) 1927. The Select Committee on the Gold Standard and Reserve Bank of India Bill. The Gold Standard and the Reserve Bank of India Bill to implement the recommendations of the Hilton Young Commission, were referred to a Joint Committee in March 1927. While there is no reference to the gold standard, the only record available refers to the constitution and management of the Reserve Bank. The government wanted it to be truly autonomous while the legislature advocated, in effect, a government-controlled bank. On this difference the proposal was shelved and the bill was dropped. (9) 1931. The Central Banking Enquiry Committee under Sir Bhupendra Nath was the first Committee headed by an Indian, with three main terms of reference: (i) The development of banking with a view to the expansion of indigenous, cooperative and joint-stock banking, with special reference to the needs of agriculture, commerce and industry. (ii) The regulation of banking with a view to protecting the interests of the public and (iii) Banking education with a view to the provision of Indian personnel in adequate numbers and with the necessary qualifications to meet the increasing needs of

the country for a sound and well managed national system of banking. The Committee made detailed recommendations on the following matters.

(i) Rural Finance: It recommended a Provincial Board of Economic Enquiry in each province to provide economic data to build an agriculture policy under modern conditions. Attempts should be made while relieving prior debts by cooperative land mortgage banks, to meet the credit needs of agriculture. It also recommended a scheme of debt conciliation on a voluntary basis; a simple Rural Insolvency Act in every province; and legislation to secure the settlement of debts on a compulsory basis.

(ii) Moneylenders: The Committee suggested that in their future role in the credit system of the country, momeylenders should be brought within the fold of the cooperative movement, and their activities be dovetailed to those of the banking system on an agency basis or through development of partnership.

(iii) Indigenous bankers: The Committee felt that they should be brought into direct relation with the Reserve Bank.

(iv) Cooperation: The Committee suggested improvement of their organization and methods of business, training of staff, reduction of interest rates, provision of State aid and the linking up of cooperative agencies with joint-stock banking and the Reserve Bank, and exempting their profits from tax.

(v) Land mortgage banks: The solution of the problem of long-term credit lay largely in the establishment of more land mortgage banks.

(vi) State loans: Provincial governments should take steps to minimize the delays in the disposal of loan applications and lessen the opportunities for illegal gratification by employing officers of standing; loans may be given according to the emergency of needs but there was to be no laxity in the realization of *takavi* loans, which should be restricted to relief of distress.

(vii) Banking legislation: The Committee recommended legislation to protect the public against abuse on the part of dishonest or incompetent bank managements.

(viii) Exchange banking: All non-Indian banks should take a licence from the Reserve Bank on certain specified conditions, while the Imperial Bank, on withdrawal of the restrictions upon it with the establishment of the Reserve Bank, should be induced to take active share in financing Indias foreign trade, failing which the establishment of an Indian exchange bank was recommended.

The Committee made important recommendations in many other areas connected with banking and finance, such as post office deposit investment facilities; the stock exchange, setting up an All India Banking Association for better understanding of bankers' common problems and interests, banking education, bank branches in unbanked areas, especially in small centres, with the help of the Reserve Bank placing a deposit for the first five years.

(10) 1950. The Report of the Rural Banking Enquiry Committee appointed by the Government of India in November 1949 under the chairmanship of Sir Purushottamdas Thakurdas was asked to consider the following issues.

-Measures for extension of banking facilities in rural areas; -The present arrangements for the management of cash work at government treasuries and sub-treasuries.

-To what extent extension of banking facilities will be facilitated by entrusting the cash work at government treasuries and sub-treasuries, to commercial banks and cooperative banks, or a new State-sponsored bank;

-Recommendations in regard to the banks which may handle the treasury work in the States and the Union Territories.

The Committee proposed that while cooperative institutions should receive special attention and assistance, the Imperial Bank and other commercial banks should be allowed and encouraged to expand in *taluka* or *tehsil* towns, *mandis* or market towns and other towns of some commercial or industrial importance. However, direct cash subsidies to support rural branches of banks was not recommended, nor was the keeping of interest-free deposits with banks favoured.

The future structure of banking would consist of the Reserve Bank of India with a branch or office in each major province or state, and the Imperial Bank of India and other commercial and cooperative banks extending their activities to suburban centres and *taluka* or *tehsil* headquarters. The setting up of State-owned and State-sponsored agricultural credit corporations or agricultural banks and a chain of land mortgage banks for each region should be encouraged.

It recommended converting non-bank treasuries into bank treasuries. Every state should appoint the Reserve Bank as its banker and entrust it with all remittances, exchange, investment and other banking transactions as well as with the management of the public debt of each state. The formation of a new State-sponsored bank by the consolidation of several small banks in the states was considered to present many difficulties.

(11) 1954. The All India Rural Credit Survey, Committee of Direction was appointed by the Reserve Bank in August 1951 under A. D. Gorwala to plan, organize and supervise a survey of the credit position in the rural areas. Its major findings were that only 2.7 per cent of the total credit given by the reporting scheduled banks and 5.5 per cent by the non-scheduled banks went to the agricultural sector, directed largely to trade rather than production, while commercial and cooperative banking and credit facilities were relatively well developed in the better-off districts compared to the subsistence tracts.

It recommended that conditions should be created for the effective functioning of cooperative and other institutions, with State partnership in finance, technology, personnel, etc., through certain strategic institutions. Institutional help should extend along the line to cooperative credit, marketing, processing, storage, warehousing and commercial banking, with adequate and suitable trained personnel. A national fund for the development of cooperative agricultural credit, cooperative economic activity, and storage and warehousing, etc., should be established.

It especially recommended setting up the State Bank of India, to help develop rural and cooperative banking through a large and expeditious branch expansion programme, especially in the sub-divisional headquarters.

(12) 1956. The Travancore Cochin Banking Enquiry Commission was appointed in January 1956 under Ramunni Menon, to enquire into the position of banking in Travancore-Cochin State, the role played by the banks incorporated in the state in financing economic activities and to judge the capacity of these banks to function as useful and economic units by analysing their financial position. It was also asked to look at the terms and conditions of banks workers and consider the application of the provisions of the Industrial Disputes Act.

The recommendations of the Commission were as follows: (i) Exemption granted to banks from Section II of Banking Companies Act 1949 up to March 1957; may be extended up to March 1960, for banks whose financial position is satisfactory;

(ii) The government may examine the question of prescribing different ratios for demand and time liabilities for the purpose of Section 24 of the Banking Companies Act, 1949 and take suitable decisions.

(iii) Balance maintained with banks other than the Reserve Bank of India and its agent should not be taken into account for purposes of Section 24 of the Banking Companies Act 1949.

(iv) Advances made by banks against fixed deposits should not be set off while computing liabilities for the purposes of Section 24 of the Act.

(v) The government may examine and take suitable decisions regarding excluding borrowings from banks other than the Reserve Bank of India and State Bank of India against approved securities while computing liabilities for the purpose of Section 24 of the Act. (vi) Borrowing by banks against their fixed deposits should not be excluded while computing liabilities for the purpose of Section 24 of the Act.

(13) 1963. The Committee on Finance for the Private Sector was set up in October 1963 under the Chairmanship of A. D. Shroff by the Reserve Bank of India to examine how increased finance could be made available to the private sector. The Committee made the following recommendations:

(i) The leading banks should form a consortium or syndicate with insurance companies, under the leadership of the Imperial Bank for underwriting or investing in new industrial companies' shares and debentures.

(ii) Government may appoint an expert committee to examine the wage and salary structure in the banking sector and find out possible avenues of reducing banks' operating costs.

(iii) Facilities under the Bill Scheme should be made available to all scheduled banks with deposits of Rs 1 crore or more, with limits of banks fixed in advance of the busy season.

(iv) Banks should endeavour to increase their investment in shares and debentures of first class industrial concerns, to advance against such shares and debentures and subscribe to a greater extent to the shares and bonds of specialized institutions like the Industrial Finance Corporation of India.

(14) The T. A. Pai Group on deposit mobilization and the need for expanding banking facilities with particular urgency in the under-banked states, suggested that banks could advantageously adopt the 'area approach' towards branch expansion. (15) The V. T. Dahejia Group was appointed to examine the extent to which the credit needs of industry and trade were likely to be inflated and how such a trend could be checked. Its main recommendations were as follows:

(i) Adoption of the cash flow analysis of the financial position of the borrowers.

(ii) Determination of what may be deemed as (a) the hard core and (b) fluctuating components of existing and proposed cash credit advances and seek appropriate solution to lessen the use of short-term bank credit for long-term use as also reduce over a period of time the dependence of borrowers on short-term bank credit for 'hard-core'.

(iii) Increasing use of bills wherever possible.

(iv) Examine the scope and effectiveness for the levy of a commitment charge on unutilized credit limits.

(v) Adherence to a rule as far as possible that each borrower confines his dealings to one bank.

(vi) Recourse to better methods of inventory control of industrial units.

(16) The D. R. Gadgil Group on an Organizational Framework for the Implementation of Social Objectives examined in detail the 'gaps' in the supply of credit to the economy and the manner in which they might be bridged. It recommended that commercial banks should make available more credit to priority sectors like agriculture, exports, small-scale industries, and small borrowers. It also recommended the adoption of an area approach for the development of banking and credit structure, in which the district should be the smallest unit in the implementation of the plan for banking development.

(17) The P. N. Damry Group on Industrial Finance through Cooperative Banks for implementing schemes to extend commercial bank credit to agriculture recommended an area and district-wise approach in financing agriculture. Its main recommendations related to: (i) Strengthening of the capital structure of industrial cooperative societies;

(ii) Financing the block capital and working capital needs of industrial cooperative societies; and

(iii) Role of the Reserve Bank of India in this regard to the Group's recommendations.

(18) The B. K. Dutt Group on Credit Facilities for Road Transport Operators, appointed by the National Credit Council, recommended that banks themselves should take the lead in promoting hire purchase finance companies as their partly-owned subsidiaries, and that the credit guarantee scheme for small-scale industries should be extended to cover direct loans by banks and outstanding hire purchase credit granted by approved hire purchase finance companies.

(19) 1969. The Banking Commission under R.G. Saraiyamade the first comprehensive review of the banking system since the Indian Central Banking Enquiry Committee of 1931. The Commission was appointed in January 1969, with the following terms of reference.

(i) Enquire into the existing structure of the commercial banking system having particular regard to size, dispersion and area of operation and to make recommendations for improving the structure.

 (ii) Make recommendations for extending the geographical and functional coverage of the commercial banking system.
 (iii) Make recommendations for improving and modernizing the operating methods, procedures and management policies of commercial banks.

(iv) Examine the cost and capital structure and review the adequacy of available surplus and reserves with regard to the developmental needs of the banking system and to make recommendations in the light of the findings.

(v) Review the existing arrangements relating to recruitment, training and other relevant matters connected with manpower planning of bank personnel and to make recommendations for building up the requisite professional cadre of bank personnel at all levels of management.

(vi) Review the working of cooperative banks and to make recommendations with a view to ensuring the coordinated development of commercial and cooperative banks, having regard in particular to (ii) above.

(vii) Review the role of various classes of non-banking financial intermediaries, enquire into their structure and methods of operation and recommend measures for their orderly growth.

(viii) Review the working of the various classes of indigenous banking agencies such as the multanis and shroffs, evaluate their utility in the money market complex and make recommendations in the light of the findings.

(ix) Review the existing legislative enactments relating to commercial and cooperative banking.

(x) Make recommendations on any other related subject matter as the Commission may consider germane to the subject of enquiry or any other related matter which may be specifically referred to the Commission by the government.

The Commission appointed five Study Groups.

(20) The Study Group on Banking Costs under Rameshwar Thakur to examine cost accounting techniques for banking, both commercial and cooperative; to collect and analyse data for cost accounting in the Indian banking industry; to develop methods for estimating the net costs of various services rendered by banks; and to recommend the extent to which the working capital costs of banks are amenable to control and the manner in which they are controlled.

Its principal recommendation was that in respect of the transfer price mechanism for funds transferred to and from branches to the head office, a concept of 'central pooling' of all funds should be adopted. To this central pool should be added the owned funds of the banks, the capital and reserve and bor rowings. The central pool should meet the statutory requirements, lend funds to branches for their advances, and invest the balance in the money market, Treasury bills and other government securities.

The Study Group recommended a cost-based transfer rate which should also include an element of profit.

To maximize deposit mobilization, the Group recommended that the deposit interest rate structure should conform to public expectation about appropriate rates for deposits of different terms.

(21) The Study Group to Review Legislation Affecting Banking was appointed under Dr P. V. Rajamannar to study various enactments by the Centre and states which have an impact on the working of the banking system, considering especially the problems arising in its working owing to it being subject to the Companies Act, 1956, and its rules. It would also examine the existing and special legislation in respect of non-banking financial intermediaries, while its recommendations should take into account the future needs of the country for a flexible and adaptive system of banking, non-banking institutions and financial intermediaries.

It made the following recommendations:

(i) Only institutions authorized to carry on all forms of banking, accepting deposits and chequeable deposits, should be required and permitted to call themselves, 'bank', 'banker' or 'banking', and classified into 'national banks', 'cooperative banks' and 'other banks'.

(ii) Cooperative credit banking institutions should comply with certain provisions of the Banking Regulations Act, 1949, and the Cooperative Societies Act. The classification of banks as scheduled banks and non-scheduled banks need not be continued.

(iii) Banks may be authorized to engage in equipment leasing, and undertake any form of business which the Reserve Bank may notify.

(iv) Banks may form subsidiaries for carrying on any other business than the Banking Regulations Act 1949 considered conducive to the spread of banking in public interest.

(v) A provision, similar to the one that enables the Reserve Bank to vary cash reserves to be maintained by scheduled banks within a range of 3 per cent to 15 per cent of the total demand and time liabilities, may also be introduced for the maintenance of liquid assets.

(vi) Concerns accepting non-chequeable deposits could be classified into those accepting deposit liabilities for the purpose of (a) lending or investment (could be termed financial institution), (b) financing their own business such as manufacture or trade (deposit receiving institution).

(vii) The different pieces of legislation on carrying on banking business may be brought under one comprehensive scheme to ensure control over the different categories of banking institutions, protection of depositors' interests, and safeguarding public interest and effective implementation of monetary and credit policy.

(viii) Provisions for all nationalized banks and the State Bank

of India and its subsidiaries should be made uniform.

(ix) Certain recommendations were made in regard to the confidentiality of banks' information and its disclosure legally.

(x) Statutory provisions should be made giving protection to banks and financial institutions for exchange of credit information on the affairs of their customers.

(xi) Statutory provisions should be made for giving nomination facility in relation to deposits, mortgaged property, safe custody goods, safety lockers, and credit facility, whereby the nominee could repay the debt and obtain redemption of the assets charged to the bank by the borrower. (22) The Study Group on Indigenous Bankers was appointed under H. T. Parekh to review the working of the various classes of indigenous banking, multanis and shroffs, evaluate their utility in the money market complex; to see whether bankers can usefully extend their activities to provide specialized services; and to consider the steps necessary to develop a link between them and the organized financial system.

It recommended a system of licensing to provide recognition by the Reserve Bank to the various associations of indigenous bankers, with details of each individual member's qualifications.

The Reserve Bank should periodically indicate as a guideline an adequate interest spread, broadly the same for commercial and cooperative banks, it being mandatory to disclose the terms of loan transactions to the customers both in terms of the rupee amount of loan and the interest, and in terms of effective charge per year.

The Multani and Gujarati Shroffs Association should have a list of approved *hundi* brokers and issue regular licences to them to regulate their entry and maintenance of standards.

Indigenous bankers may in future consider other ways of linking themselves with the organized financial system, e. g., Taking on some of the activities of ancillary non-banking financial intermediaries, like dealing in short-term paper.

(23) The Banking Operating Procedure Committee was appointed under D. R. Joshi to review operating methods and procedures prevalent in the banking system and to recommend improvements, to render speedy and efficient service, and ensure safety of banking transactions. It made the following principal recommendations:

(i) Banks may discontinue the practice of half yearly closing of accounts at the end of June each year as it entails considerable labour without commensurate benefits.

(ii) A planned programme for the use of regional languages for account opening forms, pay-in slips, cheque books, pass books, statement of accounts, etc., should be adopted and implemented by banks.

(iii) Code numbers should be allotted to branches to eliminate confusion caused by similarity in names.

(iv) The system of maintaining accounts in alphabetical order should be replaced by a numerical system.

(v) The issue of pass books is to be discontinued in respect of savings bank account holders who are allowed to make withdrawals by cheques; instead a statement of accounts should be supplied to them at periodical intervals. In current accounts all banks should switch over to the system of furnishing a statement of accounts.

(vi) Provision 292 of the Companies Act, 1956 may be suitably amended so that in the case of banking companies, the Board of Directors is enabled to authorize the Chief Executive Officer or a Committee of Directors to exercise the powers of the Board in regard to the total amount up to which loans may be made by the delegates, the purpose for which the loans may be made, and the maximum amount of loan which may be made for each such purpose in individual cases.

(vii) Standardization of the form of import letter of credit may be considered by the Exchange Control Department of the Reserve Bank of India in consultation with the Foreign Exchange Dealers' Association and in keeping with the requirements of importers. Similarly, the Foreign Exchange Dealers' Association may consider standardizing the form of mail transfer receipt.

(viii) The Indian Banks' Association should take expeditious steps to introduce courier service for transmitting outstanding bills, cheques, etc., on behalf of member banks from one centre to another.

(24) The Study Group on Non-Banking Intermediaries was appointed under Bhabatosh Datta to review the role of NBFI (non-banking financial intermediaries) such as the unit and investment trusts, chit funds, *nidhis* and loan companies and other finance companies (excluding insurance companies and development companies such as the IDBI, ICICI, SFC), to enquire into their structure and methods of operation and to recommend measures for their orderly growth. It was also to consider other types of NBFI, such as specialized savings bank, building societies, consumer finance companies, export import banks, small-scale industry banks, etc., needed for proper development of the economy, and recommend appropriate measures for them.

The Study Group made the following recommendations:

(i) There was no need for more unit and investment trusts in the economy.

(ii) Regarding chit funds, owing to the malpractices existing, the ultimate solution would be for commercial banks to introduce similar schemes without the disadvantages of chit funds.

(iii) Nidhis too should be more strictly regulated.

(iv) Since the Bangalore type of finance corporations are para-banking institutions, their activities should be licensed and regulated.

(v) For new financial intermediaries, merchant banking institutions and acceptance discount houses should be established, to provide syndication, financing and promotion of Indian projects, investment advisory services, and investment management.

(vi) There is no need for a specialized export import bank in India, as the existing institution of commercial banks, the Industrial Development Bank and Reserve Bank provide adequate credit on reasonable terms.

(vii) There is no need to create a separate financing institution such as a small-scale industry bank.

(viii) A review may be conducted of the growth and structural changes of the financial institutions over the past few decades, but there was no need to establish an entirely new organization of specialized saving banks.

(ix) The Housing Development Corporation may work as an apex institution and a local and regional institution may be set up with the active support of the government.

(x) Consumer credit for durables on large scale in the present circumstances is likely to raise aggregate expenditures and thus raise prices of essential commodities. Loans for meeting medical, education and other contingent expenses should be provided by health and educational insurance schemes and other welfare schemes of the government.

(25) 1969. The Talwar Committee was appointed under R. K. Talwar to report on the various State enactments having a bearing on commercial banks' lending to agriculture.

The Talwar Committee's terms of reference were as follows: (i) To examine the provisions of State laws relating to abolition of intermediaries, land tenure and tenancy reforms.

(ii) To examine State laws relating to agricultural debt relief and regulation of moneylending.

(iii) To examine the provisions of State legislation imposing a ceiling on land holdings and suggest modifications.

(iv) To examine the provisions of various land reforms legislation relating to the regulation on sale of land applicable to lands coming into the possession of institutional credit agencies.

(v) To recommend measures for simplification of procedures for registration of documents and of equitable mortgages.

Its main recommendations were that:

(i) Cultivators who have no, or only restricted, rights, should be vested with rights to alienate land or interest in land in favour of banks for the purpose of obtaining loans for agricultural purposes.

(ii) The concept of first charge in favour of cooperatives introduced in the Transfer of Property Act, 1882 should be enlarged to ensure that it does not adversely affect commercial banks.

(iii) To facilitate prompt recovery of dues of commercial banks, without having to resort to protracted and timeconsuming litigation of the civil courts, the state government should empower the officials to issue an order, having the same authority as a decree of a civil court, for the payment of any sum due to a bank by a sale of property charged or mortgaged in favour of the bank.

The Banking Commission, after taking into account the findings of the groups appointed by the National Credit Council, under Social Control, and its own deliberations, finally made seventeen major recommendations.

(i) Banks should not be allocated 'lead' districts which are away from the respective principal areas of operation.

(ii) The proposal to have a dual structure of interest rates from the point of view of mobilizing deposits in the rural areas should be examined.

(iii)Relax the terms and conditions when considering facilities for small-scale industries.

(iv) Commercial banks may not insist upon maintenance of proper books of account for judging the creditworthiness of small artisans, as informal enquiries about their financial position and personal integrity would prove useful in assessing their creditworthiness.

(v) Commercial banks should evolve schemes that combine in them both savings and borrowing operations of artisans and other small borrowers in order to promote and develop the banking habit among them.

(vi) Extension of credit to the priority sector should not be at the expense of meeting the developmental credit needs of this section.

(vii) Banking facilities can be promoted in rural areas by commercial banks through the opening of branches, or adoption of villages, or financing primary credit societies, besides formation of rural cooperative banks. (viii) The introduction or modification of procedures to improve services in the bank, notably, the introduction of a teller system at all important branches, and mechanization, especially at large branches in a phased programme.

(ix) Audit and inspection departments of the banks should be strengthened.

(x) The need to have a well designed management information system for policy formulation, performance evaluation, control, economic analysis, etc., was emphasized.

(xi) Detailed recommendations were made about recruitment and training of personnel.

(xii) A merchant banking institution should be set up.

(xiii) A legislation to regulate private banking was recommended.

(xiv) It prescribed the constitution and composition of bank boards.

(xv) A statutory provision should be made specifying the period for preservation of bank records.

(xvi) A credit information agency should be set up by legislation.

(xvii) A review of laws relating to negotiable instruments and documents, etc., should be made.

(26) 1969. The F. K. F. Nariman Committee was entrusted with evolving a coordinated programme for branch expansion to ensure adequate banking facilities in the under-banked districts of the country. It generally adopted the 'area approach' recommended by the Study Group under Professor D.R.Gadgil, and recommended 'a lead bank scheme, under which banks could be allotted specific districts, where they would take the lead in surveying the potential for banking development, in extending branch banking after identifying growth centres, in extending credit facilities after locating viable and potentially viable propositions, and mobilizing deposits out of rising levels of income'.

(27) 1970. The M. Narasimhan Committee was appointed to study the enlarging of the use of the bill of exchange as an instrument of credit and the creation of a bill market in India. It recommended that a system of lending should be evolved which would combine the advantages of the present cash credit system, with the advantages of a system based on bills of exchange to genuine trade bills. The Group recommended steps to be introduced to discourage finance by way of book debts and encourage borrowings by way of bills of exchange. The Group envisaged the bill market as an auxiliary to the inter-bank call money market rather than supplanting it.

(28) 1971. The R. K. Hazari Differential Interest Rates Committee was formed to examine differential interest rates to favour borrowers in low income groups.

The Committee observed that an objective and practicable criterion for identification of borrowers sought to be given this advantage could only be the size of the loan, which need not be uniform for all sectors. As a measure of automaticity for the selection of a small borrower, the Committee suggested the linking of the scheme of differential interest rates with the new credit guarantee scheme for covering small loans to borrowers in the priority and neglected sectors. The Committee recommended that the guarantee fees under the credit guarantee scheme in the case of small borrowers be borne by the lending bank. A significant concession to such borrowers could also be a relaxation of securities and margins, under some guidelines laid down for the banks.

(29) 1971. The V.D.Thakkar Committee was appointed to

review the working of special credit schemes of commercial banks, including in particular public sector banks, with particular reference to the credit requirements of various categories of self-employed persons; to identify the types of self-employed persons who should be considered for special financing; and to evolve guidelines in respect of security, rate of interest, period of repayment, and other terms and conditions.

The Committee recommended flexibility in administering the various schemes, taking into account the special needs of individual entrepreneurs; that concessional terms should be given in respect of margin, repayment schedules, and rates of interest, etc.; and the schemes should be evolved by banks according to their traditions and innovative capacity. It endorsed the recommendations of the Gadgil Committee that the large banks should assist the small regional banks with resources and suitable participation arrangements.

(30) 1974. The Prakash Tandon Committee was set up to frame guidelines for the follow-up of bank credit with the following terms of reference:

(i) To suggest guidelines for commercial banks to follow up and supervise credit from the point of view of proper end use of credit.

(ii) To make recommendations for obtaining periodical forecasts from borrowers of business plans and credit needs. (iii) To suggest inventory norms for various industries.

(iv) To make recommendations regarding the sources and methods of financing working capital requirements, etc.

(v) To suggest criteria regarding satisfactory capital structure and sound financial basis in relation to borrowings.

(vi) To make recommendations as to whether the existing pattern of financing working capital requirements by cash credit-overdraft system etc., requires to be modified; if so, to suggest suitable modifications.

(vii) To make recommendations on any other related matter as the group may consider germane to the subject of enquiry or any other allied matter which may be specifically referred to it by the Reserve Bank of India.

The Committee felt that the system of financing cash credit by banks was unsuitable for financial discipline and credit planning. It averred that there is need for proper definition of current assets, against which the borrower requires finance. It recommended a gradual strengthening of the current ratio of companies, accompanied by a tightening of bank lending to the medium, volatile part of the current assets, leaving the hard core to be financed by owned funds. The objective was to make bank finance cover only a part of the working capital gap, so that the scarce lendable resources of banks may go a longer way in financing a variety of economic activities, and secure maximum social welfare by equalizing the marginal, social utility of bank finance in all its uses.

The annual credit limit recommended should thus be bifurcated into two components viz., loan which is stable through the year, and demand cash credit which constitutes the fluctuating part of the loan, both reviewed monthly for seasonal industries and annually for others, with the loan component charged at a lower rate of interest than the demand cash credit component. The accounting of limits and subsequent reviews should be based on proper financial fund flow statements and projections of balance sheet and profit and loss statements and other operational data.

After accepting the final report, the Reserve Bank appointed

a Committee of Direction for frequent, on-going review of the recommendations, to take forward the work done by the Group. The Reserve Bank also advised banks with deposits of Rs 50 crore and above to set up similar committees at their end to implement the new system.

(31) 1974. The Laxminarayanan Committee on extension of credit limits on consortium/participation basis was appointed to evolve guidelines that would reflect the responses of the banking system to the growing magnitude and complexities of bank credit. Its terms of reference were mainly to recommend sharing between banks of all types of banking business; arrangements relating to banks' consortium for providing domestic and export credit; participation amongst them for reviving sick units; and better coordination and cooperation in respect of multiple banking.

The Committee felt that participation was a concept that could promote collective application of banking resources to the development of the economy. Participation should therefore be accepted as a culture and philosophy of banking. Public sector and private sector corporations should be treated on par. It recommended that sharing of advances should embrace the total range of a borrower's business, including foreign exchange business. Consortium financing should be based on a joint processing and appraisal of credit requirements by the lead bank and the borrower.

(32) 1975. The Working Group on Customer Service in Banks under R.K.Talwar. The Working Group submitted an interim report in August 1975, and appears to have wound up with the resignation of R. K. Talwar from the State Bank. Its work was continued by another Working Group, under T.R. Varadachary, the new Chairman of State Bank, which submitted its report in March 1977 to the Government of India.

The Working Group appointed a Study Group and three sub-committees. A total of 176 recommendations were made on a variety of subjects covering deposit accounts, remittances and collections, loans and advances, government business, discipline and attitudes, foreign exchange, and others having an impact on customer service.

(33) 1975. The J.S.Raj Committee was appointed to examine the relative positions of the Reserve Bank of India Act, 1934, the Non-Banking Financial Companies (Reserve Bank) Directions, 1966, and the Miscellaneous Non-Banking Companies (Reserve Bank) Directions, 1973, to assess their adequacy in regulating the conduct of business by nonbanking companies.

It recommended that non-banking financial companies (NBFCs) should be subjected to the same type of controls as banks under the Banking Regulation Act 1949, and loans and advances by them to their directors and firms, in which they are interested as partners, managers, etc., should be prohibited. Further, no NBFC, other than an investment company, should be allowed to form any subsidiary, except for the purpose of carrying on the same line of business as that of the holding company.

(34) 1975. The M Narasimhan Committee was set up to look into the need to establishnew institutions, regional rural banks, on the basis of attitudes and operations entirely different from those obtaining in the public sector banks, and to provide guidelines in respect of their size of operations, initial coverage, viability, etc., for future development. As a result of the recommendations of the Group, the Regional Rural Banks Ordinance of 1975 was promulgated, but was replaced by the Regional Rural Banks Act of 1976, 'With a view of developing the rural economy by providing for the purpose of development of agriculture, trade, commerce, industry and other activities in the rural areas, credit and other facilities, particularly to the small and marginal farmers, agricultural labourers, artisans and small entrepreneurs and for matters connected therewith and incidental thereto'.

(35) 1975. The I.C. Puri Committee was appointed to examine the credit problems of small-scale industries. It was asked to examine the possibility of introducing a measure of uniformity in the terms and conditions of finance; determine the problems and difficulties being faced by small-scale industries with regard to bank credit, especially from the point of view of existing interest rates; and suggest measures that should be taken by small-scale units to facilitate the flow of institutional finance.

The Committee made a number of recommendations to help small industries' entrepreneurs by the standardization of application and appraisal forms in all nationalized banks, exempting their interest payments from interest tax, liberalizing the IDBI bills rediscounting, relaxing the margin money, and creating a national equity fund to provide them with easier access of capital.

(36) 1976. The Manubhai Shah Banking Commission was appointed to examine the existing position and future scope for more balanced growth of banking, especially of credit disbursement and branch expansion; and to get banking more directly involved in rural development. The Chairman resigned in February 1977 and the Commission was wound up in May 1977.

(37) 1976. The Luther Committee was appointed mainly to examine and improve the operational efficiency and profitability of commercial banks, especially the fulfillment of socio-economic objectives of national importance. It was asked to suggest practical and realistic criteria for the evaluation of the performance of individual banks; to determine the basis of assessment of cost of various banking services, how to control them and provide guidelines for their pricing, and generally to evolve a standard for cost control, rationalization of service charges and methods for conducting profitability analyses of branches.

The Committee recommended principally that banks should adopt performance budgeting coordinated with credit budgeting, profit planning, and follow-up information and monitoring system. They should selectively and progressively adopt a market segmentation approach to enable management to develop specialized knowledge and skills for formulating strategies for growth and development. The Reserve Bank, in collaboration with the banks, should organize regular and systematic sample surveys to estimate costs of services and profitability of different activities to enable the banks to control and reduce their costs, and at the same time increase their earnings. This would bring about an improvement in owned funds to international standards, at an owned funds to deposits rate of 3 per cent. Finally, there was a need to improve the capital base, for which at least 40 per cent of the disclosed profits should be transferred to resources, free of taxation.

The Committee conducted a study of losing branches, and recommended adopting a uniform transfer price formula for the service charge structure. It evolved a graduated scale of charges to recover as much of the actual cost as possible. (38) 1977. The Dantwala Committee was appointed by the Reserve Bank of India to review the working of regional rural banks, set up under the Act of 1976. It was asked to evaluate their performance in the light of their objectives, indicate their precise role in the rural credit structure, and recommend the scope, methods and procedure of their functioning.

Its recommendations covered the organizational structure of rural credit institutions, the place of regional rural banks in it, and their constitution, functions and system of control and regulation.

(39) 1977. The Committee on Functioning of Public Sector Banks was set up in June 1977, under James Raj to report on the functioning of public sector banks, to assess the impact of branch expansion since 1969 and recommend any change in tempo and direction that such expansion needed, keeping in view the need for rural development and removal of regional imbalances; to evaluate performance in lending to the priority sectors and weaker sections of the society, and suggest their orderly and balanced growth, at the same time rendering better and speedy service to the public; to examine and suggest improvement in vigilance work in banks. The Committee recommended a selective consolidation of gains achieved in branch expansion for three to five years and that the size of a bank may be restricted to 1,500 branches, except for strategic reasons.

The State Bank of India should be made into a holding company with five independent zonal subsidiaries. Of its present seven subsidiaries, four may be made independent entities while three may remain attached to one of the proposed five zonal subsidiaries.

Officers of commercial banks may be taken over by the well established regional rural banks with undivided powers of lending, especially to small borrowers. Three new public sector banks with a strong financial and managerial position may be established to serve areas of the north-east, central east (UP, Bihar), north (MP, Orissa).

The Committee made a number of other recommendations regarding full drawings against supply bills; concessional interest rates to small-scale industry; charging penal rates of interest only on the amount of overdue bills discounted by the banks and not the entire outstanding; excluding small-scale units from the Tandon Committee norms, even if advances are greater than Rs 10 lakh; setting apart a part of the credit limit to large-scale units as a sub-limit to be utilized only for making payments for supplies received from small-scale units. Banking should be declared an 'essential' service with uniform laws for industrial relations. In dealing with general problems the Committee recommended that the nationalized bank Boards should represent trade and industry through the appointment of professionals familiar with various sectors of the economy.

(40) 1979. The Bhuchar Committee was appointed to examine and recommend the criteria for sharing term loans between term-lending institutions and commercial banks; provision of adequate and timely working capital finance to units which have been sanctioned loans by term-lending institutions; sharing of securities; and nursing of sick units. It was to, besides, decide upon the exchange of information between term-lending institutions and banks, and the need for an on-going mechanism of coordination.

The Group recommended that there should be an agreed basis for broadly sharing term loans between the term-lending institution and the banks, and made detailed recommendations regarding coordination, the nature and quantity of finance, exchange of information, documentation, follow-up, control rehabilitation, review of performance, etc.

(41) 1979. The Chore Committee was appointed by the Reserve Bank in March 1979 to review the system of cash credit in all its aspects, particularly with reference to the gap between sanctioned credit limits and the extent of their utilization. It was to recommend how to make the system more amenable to rational management of funds by commercial banks; and/or suggest alternative types of credit facilities which would ensure greater credit discipline and also enable banks to relate credit limits to increase in output on their production activities; make recommendations on any other related matter as the Group may consider germane to the subject.

It was a follow-up of the 1973 Prakash Tandon Committee, and it recommended in main that the borrowers should enhance their contribution to working capital and improve their current ratio, and be placed under the 'Second Method of Lending' recommended by the Tandon Committee, which would give a minimum current ratio of 1.33:1. Separate limits should be fixed for the 'normal non-peak level' and 'peak level' credit requirements, with a quarterly information system.

The Committee emphasized the need to explore the use of the bill system of financing.

(42) 1979. The Sivaraman Committee was appointed to review the arrangements for institutional credit for agriculture and rural development. It was asked to review the structure and operation of the Agricultural Refinance and Development Cooperation; the feasibility of integrating short-term and medium-term credit structures in the long-term credit structure; consider the nature, relative merits of a three-tier and two-tier structure for cooperative financing institutions and suggest improvements; and review the role of the RBI in the field of rural credit.

The Committee in its interim report recommended the establishment of the National Bank for Agriculture and Rural Development (NABARD). This was accepted; the Committee was asked to prepare the details including a draft legislation and relationship of NABARD with the Reserve Bank and other institutions.

The Committee made recommendations about the identification of the rural poor as target groups-as small marginal farmers, agricultural labourers, rural artisans, scheduled castes and tribes. It also made recommendations regarding the developmental role of credit institutions in the rural context, and the field level arrangements for district credit planning and coordination under the Multi-Agency System. Further, the Committee detailed the functions of NABARD.

(43) 1982. The Ghosh Committee went into the role of banks in the implementation of the new twenty-point programme with special reference to the needs of the weaker sections of society; reviewed the present reporting and monitoring system of the flow of credit to the new twenty-point programme, in order to simplify and expedite the flow of information and make evaluation more effective; and examined the scope for modification in the definition of priority sector.

It suggested modifications in the definition of some components of the priority sector to ensure a thrust towards financing small borrowers. It asked the regional rural banks to ensure a sizeable participation in all viable schemes drawn up under the programme. The progress of priority sector lending should be regularly monitored and the data mechanized, processed and consolidated in the banks.

(44) 1982. The Marathe Committee was appointed to review the working of the Credit Authorization Scheme by examining the objectives, scope and content of the scheme, the adequacy or otherwise of the credit appraisal machinery and procedures in commercial banks, and the existing data bank relevant for making recommendations by banks to the Reserve Bank. It was to examine the existing format for applications by banks to the Reserve Bank and study the desirability of introducing time-bound guidelines to speed up the processing and disposal of applications. Its major recommendations were a continued surveillance by the Reserve Bank over the lending operations of banks through the scheme, but by evolving a system in which there is an incentive for the borrowers to comply with all the requirements of the scheme. At the same time, where certain requirements are fulfilled, it suggested allowing the discretion to deploy credit in cases approved under the scheme, without the Reserve Bank's prior authorization. Discretionary powers should also be allowed to the banks for export-oriented manufacturing units. Finally, there should be a policy of placing increasing reliance on the judgement of banks by allowing ad hoc limits for limited periods in respect of certain facilities.

AGRO-CLIMATIC REGIONAL PLANNING OVERVIEW OF A NEW APPROACH

The exercise in agro-climatic regional planning, initiated by the previous Planning Commission, was conceived in three steps, namely, preparation of (a) a regional profile for each one of the 15 regions into which the country was divided; (b) a preliminary strategy paper; (c) a revised strategy paper; and (d) action points and programme outline. In the following, we present in outline the work completed so far, starting with the characteristics of the several regions, broad strategies and programme thrusts that have emerged region-wise, and their implications for investments, organisations, and policy framework. It is hoped that the work will continue under the direction of the new Planning Commission.

The Agro-climatic Regional Planning aims at a more scientific utilisation of natural and manmade resources available in the country. As a first step, the country is divided into 15 Regions delineated on the basis of agro-climatic factors such as soil type, rainfall, temperature, and water resources. An overall development profile of each region is formulated through an optimal mix of land stock management, crop production, animal husbandry, aquaculture, horticulture, forestry, and agro-processing activities. At the disaggregated level, a farming system approach, rather than the traditional crop production approach, is attempted. The objectives are to (a) attempt a broad demand- supply balance of major commodities at the national level based on an analysis of potential and prospects of the several regions; (b) maximise net income of producers; (c) generate additional employment for the benefit, particularly, of landless labourers; and (d) in the long run, provide the framework for a scientific and sustainable use of the natural resources, particularly land, water, and forests.

The 15 regions so delineated are: (I) Western Himalayan Region; (II) Eastern Himalayan Region; (III) Lower Gangetic Plains Region; (IV) Middle Gangetic Plains Region; (V) Upper Gangetic Plains Region; (VI) Trans-Gangetic Plains Region; (VII) Eastern Plateau & Hills Region; (VIII) Central Plateau & Hills Region; (IX) Western Plateau & Hills Region; (X) Southern Plateau & Hills Region; (X) Southern Plateau & Hills Region; (X) Southern Plateau & Hills Region; (X) Bast Coast Plains & Hills Region; (XII) West Coast Plains & Ghats Region; (XIII) Gujarat Plains & Hills Region; (XIV) Western Dry Region; and (XV) The Islands Region. The criteria adopted were

homogeneity in agro-characteristics and operational convenience. Districts falling in each region are shown in Statement I.

The planning exercise was conceived in three steps, namely, (a) preparation of a regional profile; (b) a preliminary strategy paper; (c) revised strategy paper; and (d) action points and programme outline. In the following, we discuss the highlights of the work accomplished so far starting with the characteristics of several regions, broad strategies, and programme thrusts that have emerged region-wise, their implications for investments, organisations, and policy framework.

Basic characteristics of the regions

Statement-I gives the districts falling in each Region. Statement-II gives the agro-climatic features of the several regions divided into subregions. They are summarised in the following:

Natural Resources: Hills regions of Western and Eastern Himalayas (Regions I and II) have much diversity. The valleys receive good rainfall and have rich soils while the temperate areas of Ladakh in Western Himalayas and Sikkim and Darjeeling in Eastern Himalayas suffer from inadequate moisture and climatic barriers resulting in a limited crop growing period. High soil erosion reduces soil fertility.

Gangetic Plains (Regions III-VI) have relatively abundant natural resources in soils, water, and rainfall. Lower and Middle Gangetic Plains (Regions III and IV) are characterised by high rainfall areas, alluvial and deltaic soils, and good

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ground water, whereas Upper and Trans-Gangetic Plains (Regions V and VI) are alluvial rich soil areas with medium to low rainfall, and ample ground water.

Plateau and Hills Regions (Regions VII-X) are characterised by comparatively poor soils, high slopes with high run-off, and medium rainfall (around 900 mm/year). Eastern Plateau and Hills Region (Region VII) has high assured rainfall, but ground water potential has remained unexploited. The utilisation of ground water is also low in the other plateau and hills regions.

Plains and Hills Regions (Regions XI-XIII) have large variations of soil and rainfall. Eastern Coastal Hills Region (Region XI) is a high rainfall area (1,057 mm) with comparatively heavy soils of high moisture retentive capacity and deltaic formation leading to inadequate drainage, water logging, and flooding during monsoon. Salinity and alkalinity are also present. Ground water is available but exploitation is low. Western Plains and Ghats Region (Region XII) is also characterised by high rainfall (2,664 mm) with a warm and humid climate. Coastal alluvial, laterite, and red soils are predominant. Some inundation by sea water occurs resulting in Khar and Pokhali lands.

Gujarat Plains and Hills Region (Region XIII) is arid and semi-arid with average rainfall of 836 mm but ranging from 340 mm in western arid area to 1,793 mm in southern east. A large area has been identified as drought prone. Nearly 50 per cent of the area is covered under alluvial plains and the remaining under residual or shallow alluvial soils on the plateaus and hills. Exploitation of ground water is nearly 71 per cent. Soils are diverse and belong to about six soil grades out of ten in the world.

Western Dry Region (Region XIV) receives highly erratic and uncertain rainfall of 395 mm. Ground water is scarce and saline. Soils range from sandy to loamy sands occurring in the form of sand dunes, parabolic dunes, etc., with little moisture retention capacity and are primarily infertile.

The Islands Region (Region XV) is a typical equatorial climatic region with annual rainfall of 3,086 mm. Because of equatorial nature, nearly 90 per cent is forest area. The soils are loarny and

rich. Like the Himalayan Region, this Region has serious sustainability problem.

A synoptic view of agro-climatic features of the 15 Regions directly relevant to agricultural development strategy is presented in Statements III and IV.

For agricultural production, Middle Gangetic Plains and Eastern Plateau should have the highest priority followed by Upper and Lower Gangetic Plains. Productivity level of rice in the first two regions is very low, between 8 to 10 quintals per hectare. Given the land and water resources quality, doubling is feasible. Relatively high population pressure on lands in Lower Gangetic Plains and East and West Coast Plains, which also have high productivity potential needs to be taken into account. At the other extreme, Trans-Gangetic Plains, which has already tapped potential resources, should now be considered for a high technology and diversified agriculture. Western Dry Region is characterised by low land productivity potential and needs a strategy of land development centered on non-crop based activities like livestock.

An equally important aim has to be maintenance of the ecosystem particularly in Himalayan and Coastal Regions. Increasing deterioration of land and water resources is evident in other regions as well. The real test of agricultural development in future lies in evolving a sustainable agricultural system, with a steady increase in land productivity, aggregate agricultural production, and rising farm incomes.

Land and Livestock Resources: Per Capita Culturable Land (PCCL) shows a ratio of 1:14 among regions. Regions with richer land resources and more congenial climatic features, for crops, generally, but not always, have lower PCCL. Plateau and Dry Regions have higher PCCL and regions in alluvial plains and with higher level of irrigation show lower per capita land. But, Trans-Gangetic Plains (Region VI) has higher per capita land compared to other regions in Indo-Gangetic Plains as well as in the coast.

As in the case of demographic features, Western Dry Region (Region XIV) stands out as the extreme case with per capita livestock three times the national average. But, livestock per hectare of Gross Cropped Area (GCA) is highest in Western Himalayan Region (Region I) and Bihar part of Middle Gangetic Plains (Region IV). Lowest per capita and per hectare livestock is in West Coast Plains and Ghats (Region XII).

Agricultural Production: Crop specialisation Regional strategies - highlights in different Regions is indicated in Statement V. Crop specialisation is more in crops like sugarcane, cotton, jowar and wheat. In the case of rice, pulses, fruits and vegetables, distribution appears to be more widespread.

Productivity Level and Input Use: There are large variations in yield level of major crops amongst regions. As an aid to planning, a composite input index is prepared including overall irrigation intensity, intensity of tubewells, fertiliser use, and tractor usage. A land productivity index is also developed in value terms (using national average of wholesale prices for individual crops) to assess returns to producers in monetary terms. There is wide variability in input use and apparently no clear relationship between input use and land productivity index (Statement IV). In input use, Trans-Gangetic Plains stands out way above the rest because of high levels of irrigation and fertiliser use. At the other extreme lies Western Dry Region. But, value productivity is the highest in coastal regions because of predominance of high valued crops. In contrast, in Trans-Gangetic Plains, productivity of paddy, wheat, and pulses is high but proportion of high valued crops is low.

Demographic Features and Poverty Ratio: There are large variations among regions both in respect of population density (persons per sq. km.) and social development indicators (for example, literacy). Gangetic Plains (Regions III-VI) are rich in land and water resources and show higher population density followed by the Coastal Plains. Lower Gangetic Plains (Region III) shows the highest population density (691), the lowest being Western Dry Region (Region XIV). West Coast (Region XII) stands out with 56 per cent female literacy compared to 10 per cent for Western Dry Region. Unemployment is high in regions with low per capita land such as Lower Gangetic Plains and West Coast. Poverty ratio is highest for Eastern Plateau & Hills Region (50 per cent in rural) followed closely by Middle Gangetic Plains and Central Plateau and Hills.

The productivity of major crops appears to explain to a large extent the variations in poverty ratio (Statement IV).

A brief account of the broad features of the strategies for future development that have emerged from the work of the Regional Planning Teams is outlined below.

REGION I: WESTERN HIMALAYAN REGION

Western Himalayan Region consists of three distinct sub-regions of Jammu & Kashmir, Himachal Pradesh, and hills of Uttar Pradesh. The highest forest area is in Uttar Pradesh Hills and the highest net sown area is in Jammu & Kashmir. Cropping intensity is lowest in Jammu & Kashmir and highest in Himachal Pradesh. Rice, maize, millets, wheat and barley are main crops. Productivity of crops is low. Anirnal population is in excess of carrying capacity of the area. Measures suggested are :

Soil and Water Conservation: Integrated development of soil and water through land treatment, plantation of trees and crops according to topography be covered during the coming 15 years. Cost of project formulation and implementation (watershed management) for the entire area of the three sub-regions is estimated at Rs. 5.2 crore.

Land Use: A more rational land use planning is required. Land suitable for agriculture, horticulture, pasture, forestry respectively should be demarcated on the following basis: (a) agriculture on land of up to 30 per cent slopes; (b) land having 30 - 50 per cent slopes for horticulture/fodder development; and (c) all lands above 50 per cent slope under tree cover. Unirrigated fields of slope over 30 per cent should be converted into orchards and fodder trees and blank areas between 30-50 per cent slope be managed for fodder grasses and maintained as pastures.

Fruit Crops: Components of fruit production programme should be: (a) better quality planting material made available to the fruit growers; (b) high density plantation technique; and (c) development of fruit processing industry including alternate products like beverages (wine/brandy from apple).

High Value Crops: Temperate climate in a large part of the Region is favourable for growing temperate vegetables, flowers, and crops like ginger and saffron. These crops are of low volume and high value. Production of high quality seed of vegetables should be given priority. The irrigated areas should be especially brought under such crops. Tissue culture technique should be perfected for saffron seed. A plan to produce vegetable seeds in plastic houses in Ladakh region over 10 ha area is contemplated.

Transport and Communication: In order to overcome the major constraint of transport of perishable commodities like fruits, flowers, and vegetables in hills, rope trollies should be used. Such ropeways cost Rs. 1 lakh per kilometre. The Uttar Pradesh hills region has possibilities for 93 km of ropeway in 6 districts in 19 locations.

Marketing and Storage: (a) Establishment of terminal markets at strategic points; (b) Manufacture of good quality rain-proof cartons; (c) purchase of fruits and vegetables through cooperatives to protect small producers, and (d) Establishing of grading-cum-packing centres and cold storages.

Irrigation Management: In the hills, rain water run-off should be collected in tanks for more area to be brought under irrigation. Construction of tanks for irrigation costs around Rs. 10,000 per ha. As water is scarce in Himachal Pradesh and Uttar Pradesh hills, tank irrigation should be undertaken through drip and sprinkler systems. Modernisation of the canal system in Jammu & Kashmir (186 km) costing Rs. 3.72 crore is needed. Development of land under command areas and construction of field channels is also important in Jammu & Kashmir.

Agro-Processing: At present only two processing units, one in Himachal Pradesh and another in Jammu & Kashmir are functioning. The capacity is 30,000 tonnes per year. There is no processing facility in Uttar Pradesh hills which produces about one lakh tonnes of apple. A large expansion of processing facilities during the Eighth Plan and beyond is necessary. Cost of setting up a processing unit of 20,000 tonnes capacity per year is estimated at Rs. 11 crore. Alternate use of apple as beverages is proposed by Himachal Pradesh.

Livestock, Fodder & Dairy: Area under marginal and sub-marginal land on slopes of 30-50 per cent should be developed as grasslands. Cross-bred cattle with exotic breed can prove suitable, once adequate fodder is assured. The programme should be phased over 10-15 years by identifying suitable pockets. It needs : (a) Multiplication and supply of high productivity cows; (b) Adequate health coverage; (c) Supply of forage seeds; and (d) Production technology for forage. For sheep and goat, cross breeding and organised collection of their produce are required. Crop Planning: (a) Diversification and introduction of high value crops under rainfed conditions such as soyabeans in place of millets, in Uttar Pradesh and Himachal Pradesh Hills and (b) Research in crop varieties suitable for the cold Himalayan region and stepping of up of fertilizer use through credit facilities, and strengthening of their delivery systems.

Social Forestry: In order to meet with requirement of fuel and fodder, a total area of 30,240 sq.km. will need to be afforested in the next 10-15 years. *Populus* and *Selix* species are recommended for dry temperate region. Apart from fuel wood requirement, wood requirement for packing also has to be met; this is estimated at 4.12 lakh cu. mtr. by 1996.

REGION II: EASTERN HIMALAYAN REGION

Eastern Himalayan Region comprising subregions (1) Sikkim and Darjeeling, (2) Arunachal Pradesh, Meghalaya, Nagaland, and North Cachar of Assam, (3) Manipur, Tripura, and Mizoram, (4) Assam South, and (5) most of Assam, Jalpaiguri and Cooch Bihar districts of West Bengal, is characterised by hills and mountains of folded topography, plateaus, and hills with near tropical to alpine climatic conditions. This is a high rainfall area having large river basins. The forests occupy more land, followed by barren land, leaving much smaller cultivable area. Transport and communication system is very weak, and a small portion of sown area is under irrigation. Shifting cultivation (Jhum) is practised in nearly 1/3 of the cultivated area and food crops are raised mainly for sustenance. The strategies suggested are:

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Soil & Water Conservation: (a) Soil degradation should be arrested by controlling deforestation and by terracing in hills. The run-off should be checked and water conserved to develop minor irrigation potential. Sub-regions (1)-(3) are prone to water and soil loss. Watershed development should be undertaken by impounding run-off water and recycling it for irrigation in low hills; (b) Control of Jhum (shifting) system of farming by encouraging permanent settlement, setting up of Production Complexes to demonstrate farming system approach. A complex to cover 2-3 villages on an area of about 5,000 ha and 250 families. Eleven such complexes are proposed at suitable locations during the Eighth Plan. Shifting cultivation control to be replaced with permanent settlement through appropriate measures in land reforms in sub-regions (1)-(3); (c) Nearly 10 per cent of the area in sub-regions (4) and (5) is subject to recurrent floods causing extensive damage to crops. Measures to arrest this are needed. Suitable variations and crop production technology to escape/combat severity of floods needs to be developed.

Horticulture & Farming Systems: A programme to grow fruits above 30 per cent slopes in the hills needs to be framed. Transit godowns to store fruits in clusters of production areas; processing units to convert fruits into value added products; infrastructure be strengthened so as to handle almost all horticulture produce in subregions (1)-(3). Supporting activities of sericulture, handicrafts, poultry, and piggery to be developed. 20 feed mills for production of animal feeds in sub-regions (1)-(4) be set up.

Input Supply Infrastructure: Shortage and time lag in supply of quality seed of main crops of rice and maize and planting material for horticulture crops have been deterrent to development. A long term seed production plan to attain self sufficiency in rice and maize seeds be formulated.

Transport & Communication: The inadequacy of roads and communication limits the development of hills, which needs to be strengthened.

REGION III: LOWER GANGETIC PLAINS

West Bengal Lower Gangetic Plains Region consists of 4 sub-regions: (1) Barind Plains, (2) Central Alluvial Plains, (3) Alluvial Coastal Saline Plains and (4) Rarh Plains. Per capita net

sown area in the Region is only 0.095 ha, compared to the national average of 0.223 ha in 1981. Rice is the main crop and the Region accounts for about 12 per cent, of rice production of the country. The annual growth rate of rice yields for Barind Plains and Rarh Plains are 2.54 per cent and 0.83 per cent, respectively against 1.00 per cent for Central Alluvial Plains. Sesamum, jute, mustard, and potato are the other crops grown. The main constraints are: (a) Floods and inundation of lands in Barind and Central Plains; (b) Excessively deep water logging in large areas of coastal plains; (c) Run-off and water scarcity in Barind and Rarh Plains: (d) Low productivity of crops; (e) Inadequacy of quality seeds; and (f) Shortage of forage. The strategies suggested are: Water Management: In the high rainfall areas, water management calls for (a) Proper control of irrigation systems and regulating supplies of irrigation water; (b) Increase in conjunctive use of canal and ground water to check water logging in ayacut areas; (c) Raising of embankments in naturally depressed spots to serve as reservoirs to collect rain water and control inundation, particularly in Malda, Nadia, Howrah, Hooghly, Burdwan, Midnapur and 24 Parganas districts; and (d) Discharge of excess water in Southern part of the Region in the Kangsabati system and water in Malda-Murshidabad to Mayurakshi system; technical feasibility of such a system needs to be examined.

Minor Irrigation: Development of irrigation potential in sub-regions of Barind and Rarh plains by (a) excavation of about 1.50 lakh dug wells in Rarh Plains; and (b) deepening of about 10 lakh small tanks to add to their storage capacity.

Crop Planning: The crop production strategy envisages : (a) Enhancement of coverage under HYV of kharif rice and rabi maize by 15 per cent; in rice cultivation, selectivity with reference to land capability is important; (b) High value crops like groundnut and arhar to be introduced in upland rainfed areas, especially in Rarh Plains; (c) Mung and groundnut in kharif and gram and peas in rabi, under irrigated conditions, to be increased in uplands; (d) Examination of introduction of sugarbeet in the coastal saline plains during rabi (e) Evolution of early maturing varieties of rice to make areas available in time for mustard cultivation; sunflower and safflower in rice fallows are more suitable for saline areas. **Horticulture**: There is scope for extension of fruit plantation in Rarh and Barind Plains in Bankura, Birbhum, parts of Midnapur and Burdwan and Malda districts by (a) Expansion of area under fruits like Mango, Citrus, Banana, etc., and (b) Increasing productivity of existing orchards.

Seed Supply: (a) Strengthening of breeder and hybrid seed production by the Agricultural Universities in the Region; (b) certified seed production programme under State Seed Corporation and other agencies; and (c) seed certification unit; (d) Building a strong marketing network; and (e) Setting up management systems for cost effective seed production and multiplication.

Livestock: (a) Setting up an artificial insemination network; (b) Rearing of crossbred calves; (c) Import of quality rams for fat lamb production and supply of quality breeding bucks of Black Bengal variety; and (d) Research for increasing mature weight of Black Bengal goats in Rarh and Coastal Saline Plains area.

Poultry: (a) Establishment of commercial hatcheries on regional basis for introduction of superior genetic material; (ii) feed milling units with proper marketing network at strategic points in the Barind, Rarh and Coastal Plains; and (c) Crossing of local ducks with Khaki Campbell and Indian Runner.

Forage Production: (a) Increasing the forage area in 33.1 lakh ha of potential land, comprising 11.85 lakh ha under forests, 13.82 lakh ha not available for cultivation, and 7.43 lakh ha of wastelands; (b) Procuring and supplying good quality seeds and cuttings of forage crops; (c) Ensuring forage production on portions of dairy farmers' lands (d) Establishing feed milling units in private and cooperative sectors; and (e) Utilization of available funds for dairy development, e.g., from Operation Flood.

Fishery: (a) Attracting entrepreneurs for taking upscientific pisciculture (b) Reclamation of small tanks for semi-intensive agriculture; (c) Ensuring adequate production and supply of fish seed; (d) Developing shore and berthing facilities at appropriate locations for landing of marine fish catch; (e) Improvement of fish processing technology; and (f) Establishing export processing zone for sea-foods with modern facilities of freezing, canning, dehydration, and quality control.

Organisational set-up for implementation should include: (a) a committee at the State level to guide and monitor implementation; (b) the Zila Parishads at the district level, and (c) a village level committee under the aegis of the Panchayat, backed by trained staff.

REGION IV: MIDDLE GANGETIC PLAINS

Region IV consists of 12 districts of Eastern Uttar Pradesh (sub-region 1) and 26 districts of Bihar Plains (sub-region 2). The following strategy is proposed :

Development of Land Resources: (a) 1.5 lakh ha in six districts of Eastern Uttar Pradesh and 4 lakh ha in Bihar are salt-affected (usar) lands. Individual efforts of gypsum/pyrite treatment did not give encouraging results. The programme should be implemented on area basis, with a matching blend of chemical amendments and suitable crops/culturable methods. Reclamation of usar lands cost around Rs. 2,000 per ha and another Rs. 5,000 per ha for cost of raising crops. Reclamation measures should include identification of compact blocks of problem soils on the basis of detailed soil survey, proper education of farmers, funding arrangement, and continuous monitoring; (b) Wasteland in Eastern Uttar Pradesh and Bihar account for 8.7 and 16.7 lakh ha, respectively. Fallow lands are estimated at 5.0 and 11.5 lakh ha. Strategy suggested is to put unculturable wasteland under silvi-pasture and culturable land under agro-forestry. Degraded forest can be utilised through energy plantation. Government wastelands and village commons can be developed in this manner and leased to private individuals. Estimated cost is Rs. 7,000 per ha; (c) Deficiency of zinc is widespread in the region. Incorporation of legumes in cropping sequences, growing dhaincha and sunhemp in between application of NPK should be recommended on the basis of soil testing and crop response.

Crop Production:(a) Improve and stabilise yield of kharif rice which accounts for over 40 per cent of gross cropped area in the Region. Following measures are suggested : (i) Small farmers not to

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grow rice as a mono-crop but cropping systems such as rice - wheat/maize, potato/oilseeds/pulses according to soil capability and irrigation availability; (ii) Popularising of short duration variety of rice, and increasing fertiliser use from the present 12 kg to 25 kg per ha; (iii) Taking care of widespread zinc deficiency; (b) Maize has shown a production potential of 8 tonnes per ha under full package. Maize production should be concentrated in more suitable areas and rabi maize should be given a thrust. Maize based agro-industries should be promoted. Replacing the upland rice and millets with fruits, vegetables, and kharif pulses may be taken up; (c) Arhar (kharif pulse) is the most suitable crop for uplands in large parts of Bihar. Use of improved Arhar, especially improved variety Bahar, should be popularised and protection from pod borer undertaken. Sugarcane has received a setback because of price policy and dryage of cane due to bad transport and marketing. Rehabilitation, modernisation, and expansion of sugar mills is necessary.

Development and Management of Water Resources: Ground water potential is more promising in Uttar Pradesh districts, current exploitation being around 30 per cent. More than 60 per cent of irrigation in Eastern Uttar Pradesh is by tubewells and potential created is about 16 lakh ha. In Bihar Plains, canal and ground water irrigation is nearly equal. Measures needed are : (a) increasing utilisation level of canal irrigation which is presently less than 50 per cent; (b) regulating canal irrigation delivery system by enforcing rotational system of supply; (c) exploitation of ground water potential to supplement canal irrigation; and (d) through conjunctive use, introducing higher degree of assurance in kharif irrigation and higher allocation for rabi irrigation.

Management of Flood Control and Wet Lands: (a) In Bihar Plains, about 17 lakh ha are subject to recurrent floods and another 4 lakh ha are under Chaur lands with varying depth of water for varying periods of the year. Strategy suggested is to reduce flood peak flows by lowering the pre-monsoon ground water table by about two metres to help in staggering time period for flood flows from rivers in Nepal and run-off to areas in North Bihar; (b) In low lands, pre-kharif paddy (January to June)/maize may be encouraged. Depending on the extent of water stagnation,

another rabi crop can also be taken; (c) Special programmes to improve low land cultivation through water harvesting structures, alternative farming systems, particularly in situations where water level rises to the surface in June and July and continues till December, needs to be explored; (d) Based on the physiography of Chaur lands, ponds of appropriate size should be dug for draining water from surrounding area which would become suitable for farming. The ponds could serve as natural fish culture sites. A suitable organisation is suggested to tackle the problem. Development of Diara lands: (a) On upper fringes where sands are deposited, crops like sweet potato, cucumber, water-melon and barley have to be popularised; (b) Timely agricultural operations will require availability of agricultural machinery like tractors with disc harrows and ploughs and sprayers; (c) Available ground water potential can be tapped by simple method of boring of tubewells.

Supplementary measures should include input delivery system, demonstration of recommended package of practices, particularly for kharif rice, diversification of crops like vegetables and fruits, and provision of processing and marketing facilities, poultry, dairying, and inland riverine fishery.

REGION V: UPPER GANGETIC PLAINS REGION

Upper Gangetic Plains consist of 32 districts of Uttar Pradesh divided into 3 sub-regions of Central, North-West, and South-West Uttar Pradesh. It has 131 per cent irrigation intensity and 144 per cent cropping intensity. Irrigation is largely through canals and tubewells with good dynamic ground water potential. Productivity of rice and wheat increased dramatically during last decade. With net sown area reaching limits, further growth in agriculture has to come through increasing crop productivity and cropping intensity. The strategies suggested are:

Maximise production per unit of land and water : (a) Develop multiple mixed cropping patterns like Rice-potato-wheat-moong and sugarcane + toria/sunflower and potato + mustard. At least 50 per cent of area in sub-regions 2 and 3 should be covered during the Eighth Plan; (b) Improve irrigation system and water management: by (i) Lining of canals to check seepage in irrigation projects, and (ii) Construction of shallow tubewells for conjunctive use of canal and ground water in sub-regions (1) and (2); (c) **Reclaim saline/alkaline soils (long term)** through use of soil amendments and removal of elemental deficiency. About 9 lakh hectares of problem soils exist, mainly in sub-region (3).

Horticulture Development: Raise fruit trees on Diara areas; substitute for low value crops in Uplands: Fruit crops production is feasible in Diara (flood prone) lands in sub-region (3). Similarly, areas could be diverted from low value crops in Uplands with horticultural plantings in sub-regions (1) and (2). Horticultural development needs support of marketing, storage, and processing; infrastructure in the form of transit godowns and processing units may be established.

Ancillary measures: Milk production capacity of animals is low and needs improvement through cross-breeding (indegenous and exotic) using artificial insemination and embryo transfer technology. Because of predominance of food crops, supply of green fodder is limited. Hence, area under fodder crops needs to be increased.

REGION VI: TRANS-GANGETIC PLAINS REGION

Trans-Gangetic Plains consist of Punjab, Haryana, Delhi and Chandigarh, and Ganganagar district of Rajasthan. The Region is sub-divided into 3 sub-regions, namely: (1) Foothills of Shivalik and Himalayas; (2) Plains (semi-arid); and (3) Arid zone bordering Thar desert. The Region is mostly arid and semi-arid. Nevertheless, highest net sown area, highest irrigated area, and high cropping intensity are its major characteristics. Ground water utilisation is about 115 per cent. The strategies suggested are:

Soil Management: (a) Correct water logged areas by strict regulation of canal water supplies and conjunctive use of canal and ground water in sub-region 1 and parts of sub-region 2; (b) Correct soil salinity and nutrient imbalance: by use of gypsum and micro nutrients in identified areas.

Water Management: (a) Improve irrigation use efficiency by changing water supply from area basis to volumetric basis; (b) Manage flood control and drainage and utilise ground water more efficiently in the Yamuna basin in subregion (1) and parts of (2). Overdrawal of ground water needs to be checked, particularly in

sub-region (2) in view of increasing Dark and Grey areas.

Cropping Patterns: (a) Diversion of rice-wheat area to other crops like maize, pulses, oilseeds, and fodder should be made by at least 15 per cent in sub-regions (1) and (2); (b) Evolve short duration genotypes of rice, maize and wheat with in-built resistance to pests and diseases; (c) In upland conditions, fruit trees offer scope, besides pulses like tur and peas. A target to add about 5 lakh hectares during the Eighth Plan can be set; (d) Cultivation of vegetables in the vicinity of industrialised clusters, can prove more remunerative: (e) Supply of quality seeds of vegetables and planting material for horticulture crops; and (f) Development of infrastructure of transit godowns and processing to handle additional fruit and vegetable production.

Livestock Development: (a) Proper breeding policy and programmes to increase productivity of milk and wool; and (b) Development of high quality fodder crops and animal feed by stepping up area under fodder production by 10 per cent.

REGION VII: EASTERN PLATEAU AND HILLS

Eastern Plateau and Hills Region consists of (1) Wainganga, Madhya Pradesh Eastern hills, and Orissa inland, (2) Orissa Northern, and Madhya Pradesh Eastern hills and Plateau, (3) Chhotanagpur North and Eastern hills and Plateau, (4) Chhotanagpur South and West Bengal hills and Plateau, and (5) Chhatisgarh and South Western Orissa hills. The region requires planning to maximise use of rain water, increase ground water potential, change cropping patterns to achieve a balanced crop production and strengthen input and services delivery systems. The strategies suggested are:

Soil and Water Conservation: (a) Rainfall in the Region is nearly 1,300 mm but because of slopy topography, rain water is lost due to run-off. Integrated watershed development approach to conserve soil and rain water should be strengthened. Micro-watersheds should be identified and programme undertaken. The approximate area to be treated during the Eighth Plan is 514 thousand ha. Involvement of beneficiaries is necessary to implement this programme; (b) Nearly95.321akh ha in the Region are acidic and need correction with lime treatment at 3 tonnes per ha. The unit cost is estimated at Rs.600 per ha. It will be necessary to extend subsidy at 50 per cent to small/marginal farmers.

Water Resources Development: (a) On-going major and medium irrigation schemes should be completed in all respects during the Eighth Plan; (b) Renovation of existing tanks and excavation of new tanks should be taken up in sub-region (1) of Orissa Inland and Madhya Pradesh east, subregion (2) of Orissa North and Madhya Pradesh east and sub-region (5) of Chhatisgarh and South West Orissa hills; the contribution of tank irrigation to total irrigation in these sub-regions is about 55 per cent, 31 per cent, and 37 per cent, respectively; 1.05 lakh ha may be covered under such irrigation; (c) Desilting of tanks, beels, and pools in the region, particularly in sub-region of Madhya Pradesh East and Orissa inland. The total area irrigated by tanks is 22.34 lakh ha. The entire operation of desilting should be taken up during the Eighth Plan departmentally at a cost of Rs.2,000 per ha. The renovated tanks be retained by Block Development authorities to be operated through the Panchayats for maintenance, supply of water, and collection of water charges from the users; (d) One lakh new dugwells are suggested for the Eighth Plan to generate additional irrigation potential of 85,000 ha.

Crop Planning: A more rational cropping system is needed in place of traditional rice cropping. The action points proposed are (a) Coverage of large areas with quality seeds of HYV; seed replacement rate should be at least 10 per cent of rice, wheat, tur, and 100 per cent for hybrid maize; (b) In upland rainfed areas high value crops of pulses like tur, and oilseeds like groundnut and soyabean should be taken up; (c) Crops like urad, castor, and groundnut in kharif and mustard and vegetables should be taken up in irrigated areas. Cropping sequences based on research findings proposed are : rice - rice/gram, rice-wheat/beans, rice-vegetables/groundnut, rice-mustard/maize, groundnut-wheat/gram/vegetables, maize-(winter)rice-potato/wheat rice/maize and -wheat/mustard/gram, in irrigated conditions, and ragi/kodo/maize/tur-gram/niger, groundnutgram/vegetable.rice-vegetables/safflower,ricewheat/forage (in bended areas), tur-linseed, soyabean-safflower/gram, rice + tur, maize/groundnut + tur, and castor + tur in the unirrigated areas.

Horticulture: The scope for extension of fruit plantations exist in all sub-regions. A unit of 40,000 ha of several fruits like mango, citrus, guava, sapota, ber, pineapple, and pomegranates with gestation period ranging from one to five years is proposed for each sub-region, at Rs.2,000 per ha. Adequate provision will be needed for institutional support for planting material and scientific extension support.

Animal Husbandry: (a) Genetic improvement of indigenous breeds of cattle and buffaloes through embryo transfer techniques and reduction of herd size to optimal levels; (b) Fodder development on wastelands and old fallows (c) Fodder to form an important component of agro-forestry; and (d) Promotion of poultry and duck farming.

Forestry: Nearly 30 per cent of forest land estimated as degraded needs rehabilitation. This programme should be phased over 10-15 years.

Inland Fisheries: Parmanent water bodies like reservoirs of major and medium irrigation schemes, non-drying jheels and depressions should be developed for fishing. Sub-regions 1 -(MadhyaPradeshEastern hills and Orissa inland), 3 - (Chhotanagpur North and Eastern hills), and 4 - (Chhotanagpur South and West Bengal hills and plateau) can be developed for inland fishery.

REGION VIII: CENTRAL PLATEAU AND HILLS REGION

Central Plateau and Hills Region is a large region comprising 46 districts of Madhya Pradesh, Uttar Pradesh, and Rajasthan. It is subdivided into 14 sub-regions having varied topography of low hills, mounds, valleys, and ravines. Nearly one-third of land is not available for cultivation. Climate is arid in western part to sub-humid in eastern part. Irrigation intensity and cropping intensity are low, and cropping is dominated by food crops. The undulating topography, underdeveloped irrigation potential, and large proportion of rainfed farming suggest water conservation, crop diversification, ground water development and input supplies and services to be main measures necessary for proper development and growth of the region.

Soil and Water Conservation: Delineate watersheds at macro and micro levels; Take an

integrated approach to watershed development to include physical works together with agroforestry, grass lands, horticulture, and crop production components. As nearly 75 per cent of farming is rainfed, of the 96 lakh ha requiring watershed programmes, a target for 6 lakh ha could be fixed for the Eighth Plan. A good share of the cost on physical works may be recovered from the beneficiaries leaving the balance to come from Integrated Employment Programme. Popularise use of water saving devices like sprinklers and drip system in low rainfall areas. About 3 lakh ha of ravine lands could be reclaimed to increase area under cultivation and reduce dacoit menace. **Increase** Cropping Intensity and Diversify Cropping Pattern: Divert about 16 lakh ha during the Eighth Plan from low value to high value crops by growing Kharif/Rabi oilseeds like groundnut, soyabean, mustard, and safflower in place of jowar, baira and upland rice and growing mustard and safflower on residual moisture. Test/evolve suitable genotypes to fit into the above cropping pattern. Arid and semi-arid areas in low hills of sub-regions 1, 2, 8, 11, and 13 offer good scope for cultivation of fruits and vegetables. About 10,000 ha should be brought under fruits and vegetables each year in each of the above sub-regions.

Develop ground water potential: Sink dug wells, shallow tube wells, and other wells totalling about 10 lakh wells irrigating additional 7.5 lakh ha during the Eighth Plan.

Strengthen Input Supply and Services: Seed production and supply should be strengthened to cover a minimum of 50 per cent of area under HYV during the Eighth Plan. In difficult areas, mobile units for supply of inputs should be used during the season.

Improve productivity of livestock: Indigenous breeds of cattle should be upgraded through appropriate breeding programmes. Feeding, management, clinical, and para-clinical programmes have to be strengthened and synchronised.

REGION IX: WESTERN PLATEAU AND HILLS REGION

Western Plateau and Hills Region comprises major part of Maharashtra, part of Madhya Pradesh and one district of Rajasthan and is divided into 4 sub-regions. Annual average rainfall is 904 mm. Net sown area is around 65 per cent; forests occupy only 11 per cent. Only 12.4 per cent of area is irrigated; canals form main irrigation source and is concentrated in sub-region 3. Jowar and cotton are main crops grown on nearly half of the sown area and accounts for nearly half of area and production of jowar of the country. Though it accounts for a little over one third of cotton area of the country, production is less than one-fifth because of low productivity. The Region is known for its oranges, grapes, and bananas. Area under fruit crops is about one lakh ha. Strategies suggested are:

Integrated watershed development: (a) In order to conserve rain water run-off, an integrated approach to develop agro-forestry, grasslands, and crop production should be taken. A target to cover 5 lakh ha. could be considered, with special attention to water harvesting/storage structures; (b) Adoption of dry farming practices to conserve rain water *in situ* and mixed cropping to reduce risk of crop failure; and (c) R & D programmes to evolve early maturing, fertilizer responsive varieties of main crops of cotton, bajra, and unirrigated wheat, to be strengthened.

Ground water: (a) Use of utilisable ground water potential is only 19 per cent in Maharashtra and 8 per cent in Madhya Pradesh. A target to sink 5 lakh wells could be set for the Eighth Plan; (b) Since water availability is limited, attention be paid to increasing water efficiency by popularisation of water saving devices like sprinklers and drip system.

Crop Substitution/Diversification: (a) The low value crops of jowar, bajra and rainfed wheat should give way to high value oilseeds like sunflower, safflower and mustard; (b) Five per cent area under rainfed cotton and jowar could be substituted with fruits like ber, pomegranate, mango and guava; (c) Appropriate marketing, storage and processing infrastructure to handle added fruit production should be developed.

Livestock and Poultry: Improvement of milk production of cattle and buffalo through crossbreeding (indigenous as well as exotic) programmes using artificial insemination and embryo transfer techniques. Poultry development should be extended, particularly in sub-regions (2) and (3).

REGION X: SOUTHERN PLATEAU AND HILLS REGION

Southern Plateau and Hills Region comprising 35 districts of the States of Andhra Pradesh, Karnataka and Tamil Nadu is a large, typically semi-arid region with only 50 per cent of area cultivated, 81 per cent of dryland farming, and low cropping intensity of 111 per cent. Low value cereals and minor millets predominate. Low level of irrigation has led to unstable and low productivity. The strategies are:

Dry Land Farming: Delineate macro and micro watersheds. Take up physical works of land levelling and bunding with agro-forestry and crop production dovetailed with employment programmes. A goal to cover 8 lakh ha during the Eighth Plan could be considered. Develop location specific dryland farming technology, viz., early, fertilizer responsive varieties of jowar and rice and implement these innovations by covering about 20 per cent of area during the Eighth Plan.

Minor Irrigation: (a) Priority in sub-regions 2,3, and 4 for restoration of tank irrigation by taking appropriate measures of deepening, embanking, etc.; (b) Programme for one lakh dug-cum-bore wells be taken up in sub-regions 2, 4, and 5; (c) Appropriate irrigation delivery system and onfarm practices in major and minor irrigation commands; and (d) water saving devices like sprinklers and drip systems to be popularized.

Crop Substitution/Diversification: (a) Divert 20 per cent of area under jowar/bajra/ragi to groundnut/sesamum/sunflower in the Eighth Plan, in sub-regions 1, 3, 4, and 6; (b) Cultivate soyabean/safflower on residual moisture after rice in sub-regions 2, 4, and 6; and (c) Cover 0.5 lakh ha each in all sub-regions under mango, citrus, and crops like ber, pomegranate and guava under more arid conditions.

Input Supplies Delivery: (a) Coverage under HYV should be stepped up at least by 10 per cent each year for main crops by ensuring supply of quality seeds of the right varieties; (b) Transit storage godowns for fruits and vegetables at strategic points be constructed.

Soil Reclamation: (a) Master plan for drainage in major problem areas of major irrigation projects be drawn up and implemented in a phased manner. (b) Conjunctive use of water in irrigation command areas should be expanded.

Livestock and Poultry: (a) Strengthening of poultry farming which has developed very quickly in sub-regions 2, 3, and 5; (b) Upgrading of cattle and buffalo breeds genetically through the programmes of artificial insemination and embryo transfer technology; and (c) Augmenting fodder production by integrating it with the Integrated Wasteland Development Programme.

REGION XI: EAST COAST PLAINS AND HILLS

East Coast Plains and Hills Region consists of six sub-regions: (1) Orissa Coastal, (2) North Coastal Andhra and Ganjam, (3) South Coastal Andhra, (4) North Coastal Tamil Nadu, (5) Tanjavur, and (6) South Coastal Tamil Nadu. It accounts for 20.33 per cent rice, and 17.05 per cent groundnut production of the country. Subregions 1-5 are the main contributors of rice. The average size of operational holdings is 1.03 to 1.46 ha and 95.31 per cent of the holdings are small or medium. The cropping intensity is lowest in sub-region 6 (107 per cent) and highest in sub-region 1 (154 per cent). The alkaline-saline soils in the Region total up to 4.9 lakh ha.

Water logging is a critical constraint affecting crop yields in large areas in coastal sub-regions. Tanks are principal source of irrigation in upland sub-regions. Large areas are prone to soil erosion due to undulating terrain. Cultivable plain land is limited in tribal areas, leading to shifting cultivation. Agricultural extension is weak in tribal areas. Other constraints are marketing, processing, etc. Broad thrust areas are :

Soil Correction: Magnitude of alkalinity, salinity, and acidity is large in sub-regions of North and South Coastal Andhra and North Coastal Tamil Nadu. Soil reclamation programme should be taken up on area basis and targeted to cover all problem soils within the coming decade. The unit cost anticipated is Rs. 1,500 per ha, excluding the cost of cultivation, and Rs. 5,500 including it.

Soil Conservation: About 70 per cent of cultivable area in the Region does not have irrigation facilities. Therefore, conservation of rain water through a watershed development programme becomes important. Nearly 64.49 lakh ha of such land need treatment, particularly in the subregions of Orissa Coastal and North and South

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Coastal Tamil Nadu. A time frame of 15 years should be set for covering this area. The National Watershed Development Programme should be proportionately enlarged.

Wasteland development: The wastelands estimates of 25.33 lakh ha include degraded forests, cultivable waste, and permanent fallows. The problem of wastelands is more acute in South Coastal Andhra Pradesh, North Coastal and South Coastal Tamil Nadu. Broad possibilities suggested by the regional Planning Team for:

Government Wastelands: (a) Degraded forests: Afforestation - (i) general (interior); (ii) minor forest produce (interior and peripheral); (iii) fuel wood (peripheral); (b) Tank foreshores: (i) Afforestation of tank foreshores; (ii) Development of horticulture by leasing to weaker sections; (c) Village common property lands: (i) Fuelwood plantations; (ii) Fodder development; (iii) Horticulture through leasing of land or tree pattas scheme; (d) Government Wastelands: (i) Fodder Cultivation; (ii) Horticulture; (iii) Fuelwood/pulpwood/timber farms (either by Government or individuals).

Private Wastelands: (a) Cultivable Waste: (i) Farm forestry; (ii) Fodder cultivation; (iii) Horticulture; (b) Permanent fallows: (i) Fodder cultivation (ii) Horticulture.

Water Resources Development: This includes tank irrigation and ground water exploitation. (a) Tanks account for nearly 20 per cent of irrigated area in the Region, covering 10.78 lakh ha. Most of the tanks have an ayacut of less than 40 ha and are with Panchayats. The tanks are degraded and a massive programme to regenerate them is required by desilting, embanking, and improving field channels and structures. Restoration of tanks involves (i) desilting and use of the earth for augmenting soil fertility in ayacuts; (ii) strengthening of bunds and structures: (iii) improvement of field channels; and (iv) afforestation of foreshores for fuelwood. (b) Of the 1,717,998 wells feasible for development, nearly one million could be developed in the Eighth Plan. Both Government and beneficiaries need to undertake the programme. Restrictions should be imposed on new wells being closely spaced through a comprehensive ground water legislation. Water saving devices such as drips and sprinklers should be encouraged.

Drainage and Irrigation Management: Water logging affects 4.0 lakh ha in Orissa Coastal region (delta of Mahanadi), 3.00 lakh ha in South Coastal Andhra Pradesh (Krishna-Godavari delta), and 0.62 lakh ha in Tanjavur (Cauveri delta). Detailed planning and feasibility studies for integrated drainage-cum-irrigation management need to be taken up in these deltas.

Strengthening of Extension Services: (a) Appointing only agricultural graduates as VEOs; (b) Raising the VEO:cultivator ratio, particularly in subsistance farming regions; (c) Improving training system by developing better linkage with agricultural universities; (d) Institution of contact farmers through incentives and (e) Providing transport and housing.

Seed Supply: (a) Long term seed production and supply plans worked out by the State Seed Corporations; (b) Strengthening seed multiplication facilities in State Agricultural Universities and Government farms; (c) Encouraging seed production through private sector by financing through banks; (d) Strengthening seed certification agencies; (e) Decentralising seed production and processing facilities for saving on transportation and ensuring timely supply; and (f) Imposing cost control procedures on public sector or para-statal seed producers and distributors.

Livestock: (a) Upgrading of genetic potential of existing animals through cross breeding programmes and strengthening Artificial Insemination and Embryo Transfer Technology Schemes; expansion of veterinary facilities; (b) In order to augment fodder availability, plantation of fodder crops, and silvipasture on larger permanent fallows should be encouraged.

Fisheries: The Region with over 2,000 km of coastline and many inland waterways and tanks is highly suitable for fisheries. Programmes suggested are : (a) Increase in marine fish production; (b) Develop brackish water fisheries; (c) Develop inland fisheries. The actual output of marine fisheries was 40 per cent of potential in Coastal Andhra and 46 per cent in Tamil Nadu coast. To increase marine fish production, the following is suggested: (a) Provide adequate berthing facilities in coastal Orissa and Andhra Pradesh; (b) Provide small country vessels with outboard motors or synthetic low cost mechanised boats to small fishermen; (c) Develop adequate storage, processing, and marketing facilities. The following is suggested for Brackish-water fishery development: (a) Government wastelands be leased out to fishermen. or to cooperatives; (b) Develop adequate infrastructure; (c) Set up model hatcheries to produce fish seed along the coastline; and (d) The Pulicat lake in North Coastal Tamil Nadu should be developed. The estimated area for brackish water fishery in this Region is 79,000 ha and larger potential exists in Coastal Orissa, North Coastal Tamil Nadu, and Tanjavur. Intensive programme of increasing fish seeds production in concerned districts of Andhra Pradesh and restoration of irrigation tanks should increase inland fishery potential and exploitation.

Development of Tribal Agriculture: (a) Shifting cultivation will need to be replaced by an integrated horti-agriculture programme, putting upper hill slopes under tree crops with ownership given to tribals and lower slopes under terraced cultivation to achieve higher productivity; (b) Soil and water conservation programmes and development of irrigation in tribal areas through lift irrigation and ground water development should be taken up; and (c) Supplement cropping with forest product collection and arts and craft through forest corporations/cooperatives should be promoted.

Cropping Systems: (a) Increase intensity of cropping, using water-efficient crops on residual moisture; (b) Discourage growing of rice on marginal lands and bring such lands under alternate crops like oilseeds and pulses; (c) Diversify cropping and avoid mono-cropping; and (d) Develop horticulture in upland areas.

Research Directions: (a) Development of genotypes of crops having high yield potential and ability to forage efficiently nutrients from soil mass; (b) Location specific varieties of crops for uplands, water-logged areas and saline areas; (c) Development of rice varieties suitable for late planting; and (d) Evolving better dryland farming technology.

REGION XII: WEST COAST PLAINS AND GHAT REGION

West Coast Plains and Ghat Region runs along west coast, covering parts of Tamil Nadu, Kerala, Karnataka, Maharashtra, and Goa with a variety of crop patterns, rainfall and soil types. This is an

important region for plantation crops and spices. The rainfall is unimodal in sub-regions (1) and (4) and bi-modal in sub-regions (2) and (3). Cropping intensity is 124 per cent on a net sown area covering about 36 per cent of geographical area. With rainfall, good water resource, a long coast and varied cropping, the strategies required include protection of land from salinity ingress, provision of drainage, development of high value crops and fisheries.

Rainwater Management: Construction of structures to store rain water in tanks and micro reservoirs. This is essential in sub-regions (1), (3) and (4).

Minor Irrigation Development: A programme to sink about 5 lakh dug wells and shallow wells in sub-regions (1) and (3) during the Eighth Plan could be considered.

Crop Diversification: Low productivity areas of rice and millets under rainfed conditions should be diverted to horticultural crops like mango, banana, coconut, etc., to cover about 0.5 lakh ha each during the Eighth Plan in sub-regions (1)and (3). Appropriate infrastructure for fruit marketing and processing should be developed.

Fisheries Development: Increasing mechanised fishing boats for deep sea fishing, strengthening of cold storage, processing, and transport infrastructure in corporate/cooperative sector. Appropriate research efforts and suitable incentives for prawn culture in brackish water should be taken up.

Soil Correction: The approach of homestead (group farming) system of reclaiming and using Khar lands be accepted, planned, and implemented to recover about one lakh ha during the Eighth Plan period.

REGION XIII: GUJAR AT PLAINS AND HILLS REGION

Gujarat Plains and Hills Region consists 19 districts of Gujarat State, divided into 7 subregions. The region is arid to semi-arid with low rainfall in most parts. Only 22.5 per cent is irrigated mainly by wells and tube-wells. The cropping intensity is only 114 per cent and nearly 60 per cent of the region is considered as drought prone. Only 50 per cent of cultivated area is occupied by food crops resulting in a food deficit. However, it is an important oilseeds producing region. The major thrust of development in this region should be on canal and ground water management, rain water harvesting and management, and dryland farming.

Water Conservation and Use: Integrated watershed development programme, and rain water harvesting and management incorporating agro-forestry, grassland development, and crop production. Area needing watershed development is about 62 lakh ha. A target to cover 5 lakh ha during the Eighth Plan could be considered and taken up in sub-regions (3), (4), (5), (6), and (7). 20,000 structures could be constructed to conserve rain water. Surplus water available from several rivers needs to be supplied to water starved areas of sub-regions (4), (5), and (6).

Water Management: Maximise production per unit of land and water through regulation of canal supplies and control of over-drawal of ground water. Encourage construction of one lakh shallow tube-wells for conjunctive use of water in irrigation command areas in sub-regions (1), (2), and (3) during the Eighth Plan.

Dryland Farming: Evolve suitable technology for dryland farming by development and spread of (i) early maturing and fertilizer responsive varieties of groundnut, cotton, bajra and jowar, (ii) technology of agronomic practices like time of sowing, spacing, fertiliser dosage, etc.,

Wasteland Development: Development of agro-forestry, grasslands/pastures, and arid horticulture by delineating suitable areas for wasteland development in sub-regions (4) and (5).

The long coastline and river deltas should be used fully for developing marine fishing and brackish/back-water aquaculture, by providing needed infrastructure of docking, transit godowns, and processing units.

REGION XIV: WESTERN DRY REGION

Western Dry Region comprises nine districts of Rajasthan, and is characterised by hot sandy desert, erratic rainfall, high evaporation, no perennial rivers, and scanty vegetation. Groundwater is very deep and often brackish. Famine and drought are common features. Land:man ratio is high. Average annual rainfall is only 395 mm with wide fluctuations from year to year. Forest area is only 1.2 per cent. Land under pastures is also

low (4.3 per cent). Cultivable waste and fallow lands account for nearly 42 per cent of geographical area. Net irrigated area is only 6.3 per cent of net sown area which is 44.4 per cent of geographical area. Cropping intensity is just 105 per cent. Bajra, guar, and moth are main crops in kharif and wheat and gram in rabi. Yield levels per hectare are very low.

Livestock contributes greatly in desert ecology. Due to imbalance between animals and biotic energy, migration of animals is a common phenomenon.

The core areas of development are - (1) Water resources management; (2) Crop planning; (3) Livestock; (4) Inputs and services; (5) Forestry; and (6) Pasture development.

Water Resource Management: Net irrigated area is about 5.00 lakh ha largely from wells and tubewells, with only 0.40 lakh ha from canals. On-going irrigation projects should be completed on priority basis. Indira Gandhi Nahar Project should be accelerated in the Eighth Plan. In some areas of Fatehpur, Jhunjhunu, Bikaner, and Jalore, ground water is highly brackish. In canal irrigated areas, conjunctive use of saline ground water should be taken up in highly permeable soils in rabi season. Operations Research on use of saline water is needed. Identification of possibilities of having more wells in Churu, Jalore, Jhunjhunu, Jodhpur, Nagaur and Sikar districts by the Department of Special Schemes and Ground Water Board, should be taken up.

Crops and Cropping: Bajra, guar, and moth are grown as mixed crops. As fodder value of these crops is important, change in the cropping pattern is not advocated. Yield levels could be increased by: (a) popularising bajra varieties giving higher biomass; (b) promoting use of fertilizers; (c) making improved seeds available to farmers and (d) constructing moisture (rain water) conservation structures. In irrigated areas rabi cropping can be encouraged by (i) Growing fodder crops and pastures; (ii) Increasing yield level of gram and rapeseed-mustard by popularising use of fertilizers, better seeds, and plant protection measures; and (iii) Improving yield of fruits like date-palm, water-melon and guava.

Arid Fruits Development: Horticultural crops protect, to some extent, incomes against drought. Fruits like kair, lasoda, gundi, and bel under unirrigated conditions and date-palm, karonde, aonla, guava, pomegranate, and ber under partially irrigated/unirrigated conditions should be cultivated.

Livestock: Livestock provide stability to income and employment. The Region is the home of milch breeds of cattle like Rathi and Tharparkar and dual purpose breeds like Kankrej and draught cattle like Nagauri. Sheep consists of carpet wool sheep like Magro, Pugal, Marwari and Jaisalmeri. The proposed measures are: (a) Introduction of high quality germ-plasm in cattle to improve their productivity, for which units/blocks of 6,000 cows should be identified and served by a network of satellite centres and peripherals. A total of 27 such units covering about 1.62 lakh cows should be established during the Eighth Plan under the aegis of Rajasthan Agricultural University; (b) Expansion of the programme of raising rams and their distribution to sheep farmers.

Pasture Development: (a) Identification of contiguous areas suitable for aerial seeding of pasture lands covering about 1.50 lakh ha during the Eighth Plan in the districts of Barmer, Bikaner, Jaisalmer and Jodhpur; (b) production and supply of seeds of grasses like Sevan and Dhaman over 50,000 ha and (c) adoption of silvi-pastoral system over wastelands through aerial and manual seeding.

Fodder Storage: (a) Training to be imparted to farmers in silage making; (b) Use of indigenous material for making silo pits; and (c) Development of buffer stocking of fodder.

Agro-forestry: Increased tree cover is necessary to (a) check desertification; (b) provide fodder to livestock; (c) meet fuel needs of population; and (d) provide timber for implements. Action proposed are: (i) massive programme of plantation on farmers' fields (farm-forestry), Panchayat lands and Government lands; (ii) plantation along railway lines, roads, canals, tanks, and around settlements to check frequent problem of sand deposition; (iii) a target to plant 10 million trees during the Eighth Plan, and (iv) The Forest Department to work as nodal agency with the help of Panchayati Raj institutions and voluntary agencies.

REGION XV: ISLANDS REGION

Islands Region covers Andaman and Nicobar Islands and Lakshadweep, which are typically equatorial with rainfall of 3,000 mm spread over 8-9 months. It is largely a forest region having large undulating areas leading to heavy loss of soil due to run-off. Nearly half of the cropped area is under coconut. The main thrust in development should be on crop improvement, water management, and fisheries.

Crop Productivity Improvement: (a) Old unproductive coconut trees should be replaced with better productive genotypes by planting about 10,000 ha under improved varieties during the Eighth Plan; (b) Improved package of practices should be adopted to increase productivity of existing crop without harming the ecology; (c) Supply seed of improved rice varieties with recommended package of practices to take two crops instead of one.

Rain water Management: Rain water should be impounded in ponds and tanks for supplementary irrigation to raise a second crop. A goal to construct about 20,000 such structures by digging natural depressions could be considered in the Eighth Plan.

Fisheries: (a) Introduce multi-purpose fishing vessels for deep sea fishing; (b) Build up of suitable infrastructure for storage and processing of fish; and (c) Development of brackish water prawn culture.

Implications and issues for consideration

The farming-cum-resources system approach involves numerous development agencies/institutions at various levels. The work on planning for the regions and the sub-regions has to be integrated with the work on district planning with emphasis on decentralised planning and on revitalisation of *Panchayati Raj*. Constraints on agro-climatic regional planning need to be eased out. These are lack of up-to-date and reliable land records, pattern of land ownership and operational holdings, informal tenancy, control over water, etc.

The operational plan involves a number of steps: (a) Review of suggested regional and sub-regional strategies by relevant State departments/agencies and refining the strategies for each sub-region; (b) Feed-back from the district planning and development bodies on the subregional strategies; (c) Translating accepted sub-regional strategies into a set of programmes in the priority sectors, including physical targets, and investment implications; (d) Aggregation of sub-regional programmes into a State Level Programme; (e) Prioritisation to arrive at financially feasible set of programme at the State level in consultation with the Regional Planning Teams; (f) Identification of programmes along with investment implications for Central sector; (g) Determination of priority programmes districtwise.

This approach needs to be dovetailed with the goals in the Eighth Plan and beyond. Policy instruments including pricing policies for inputs and outputs, imports and exports, machines and

labour, and the institutional arrangements for extension, delivery of credit, supply of inputs, and processing and marketing of output will need to be reviewed. Investment priorities and magnitudes for the Eighth Plan would also need to be examined. The process requires iterative consultations between expert and elected bodies at various levels which is the essence of democratic and decentralised planning.

Within this framework, the main implications of the several propositions made and measures suggested are summarised as follows.

Integrated Watershed Development Programme is given a high priority in regions VII. VIII, IX, X, and XIII. If an annual target of 4 million ha. is kept, 20 million ha. could perhaps be covered by 1994/95 and the balance of 24 million ha. in the Ninth Plan.

Particulars	(Area-lakh ha)							
	VII	VIII	IX	X	XIII	TOTAL		
Geographical area	395	370	331	395	196	1687		
Net sown area	174	169	159	189	98	789		
(% of geographical area)	(44)	(46)	(48)	(48)	(50)	(47)		
Area needing soil/water	158	128	132	158	107	683		
conservation measures	(40)	(34)	(40)	(40)	(54)	(40)		
Area likely to be treated by the end of VII Plan	31	25	26	32	21	135		
(cumulative) (assuming 20 %)								
Area remaining to be treated	127	103	106	126	86	548		
Assuming 20% will be attended by farmers themselves	25	21	21	25	17	109		
Balance remaining	102	82	85	101	69	439		

Correction of Problem Soils: Corrective salinity, alkalinity, and acidity. Financial measures are suggested in regions V, VII, XI, XII, involvement of cultivators who stand to benefit and XIII which suffer from soil problems such as will be important.

Particulars	V	VII	XI	XII	XIII	Total
Estimated area under problem soil (lakh ha)	9.91	95.32	4.32	0.37	8.2	118.02
Time frame for implementation (Years)	5	25	5	5	5	
Cost of work (Rs/ha) (Tentative)	1500	600	1500	1500	1500	
Returns estimated as additional yield after soil conservation (%)	30	25	30	30	30	
Average Yield kg/ha	1993	743	1905	727	996	
Value of additional production per	(wheat)	(wheat)	(rice)	(jowar)	(bajra)	
ha(Rs)	1166	36 3	1985	338	463	

Groundwater Development: Potential and present utilisation of ground water in different regions is indicated in the following Table.

Region	Consolidated formations of Groundwater Yields (c.u.m.per hour)	Stage of Groundwater Development/ Utilisation (per cent)		
ſ	5 - 20	5 - 24		
II	50 - 150	neg		
III-VI	50 - 300	30 - 100		
VII-IX	5 - 50	4 - 19		
х	5 - 50	20 - 40		
XI-XIII		12 - 25		
XIV		30		

A regular programme to sink wells/shallow wells/tubewells should be taken up in Hills and Plateau Regions where the stage of groundwater development is on low key and run-off problem is more acute. The largest potential lies in regions IV and V in which at least additional three million hectares could be brought under well irrigation during the Eighth Plan. A target to sink new wells at the rate of two lakh wells each year in plateaus of regions VII, VIII, and IX, one lakh wells in regions X, XI, XII, and XIII, and about 25000 thousand in regions I, II, and XIV is recommended.

Tank Irrigation: The suggested programme is as shown in the following Table.

Particulars	111	VII	X	XI	Total
Estimated area irrigated by tanks (lakh ha)	2.00	22.34	7.30	10.50	42.14
Estimated time for complete restoration of tanks (Years)	2	20	7	10	-
Cost of restoration (Tentative) (Rs/ha)					
a) Desilting	2000	2000	2000	2000	-
b) Complete Package	20000	-	-	20000	-
Total cost (Rscrores)	400	446.80	146	2100	3092.8
Present average Yield - Kg/ha (rice)	1255	763	2012	1905	
Estimated additional output @ 40 % of avg.	502	305	805	762	
(rice) - kg/ha each Year					
Value of additional output @ Rs 190/qtl. (Rs/ha - Tentative)	954	579	1529	1448	

Crop Planning: Proposals for crop planning including crop diversification and productivity improvement in different regions are summarised in the following. The total of 125 million ha. under food crops in the country include marginal and sub-marginal lands. In fact, only about 105 million ha. can be sustained under food grains, without danger of further degradation, and must produce about 250 million tonnes of food grains by the turn of the century. This is possible by adopting the following measures: (a) about 70 million ha. of assured rainfall and irrigated areas to be brought under double or triple cropping; (b) increasing productivity of cereals in low rainfall areas by adoption of appropriate dryland farming technologies, viz., (i) adoption of appropriate varieties with moderate level of fertilizer application; (ii) adoption of appropriate inter-cropping system specially in kharif upland cereals; and (iii) introduction of legumes during summer season under irrigated conditions.

Production of edible oilseeds has to increase I-(1),(3): Maize-gram, Rice+soyabean;

through (i) adoption of better HYVs with moderate use of inputs; technology now available should be transferred to fields without delay; (ii) increasing area under irrigated oilseeds from present 15 per cent to much higher levels over the next decade: (iii) effective inter and double cropping systems under oilseeds; (iv) developing short duration varieties of cereals to enable second crop of oilseeds on residual moisture; and (v)replacing inefficient traditional cereals with more efficient oilseed crops.

As the country is fairly self-sufficient in production of cotton and sugar, further expansion of areas under these crops need to be restricted and productivity increased to meet additional requirements.

In Hilly Regions I and II, maize and rice are cultivated in large tracts in kharif, and wheat, potato, and mustard in rabi. The following cropping patterns are suggested for different conditions:

Unirrigated :

II-(1) : Rice/maize, Maize+soyabean-mustard;

II-(2),(3),(4): Jute-blackgram;

II-(5) : Rice-mustard

Irrigated :

I-(1),(3) : Rice-wheat, Maize-potato, Ricerapeseed-potato, Maize+soyabean-wheat, Rice/maize-mustard/wheat;

II-(1) : Maize-mustard, Rice-potato-wheat, Juterice, Jute-jute-potato;

II-(2),(3),(4) : Rice-rice-mustard, Rice-potato, Rice-sugarcane;

II-(5) : Autumn rice-potato/wheat/mustard, Jute-wheat;

II-(4) : Winter rice-summer rice, Jute-winter rice-wheat

Gangetic Plains (Regions IV, V, VI) grow cereals like rice, wheat and maize to a large extent. As ground water source is well developed, rice and wheat are cultivated as irrigated crops. Cash crops like sugarcane are also grown largely with irrigation. Inter-cropping and relay cropping should be extended on a large scale, thus advocating for more intensive cropping. The suggested cropping patterns are:

Unirrigated:

IV-(1): Rice-lentil, Maize+red gram-rabi gram; V-(1): } Maize + redgram, Maize-wheat/oilseed; VI-(1),(2): } Early maize-wheat/gram;

vi-(1),(2):) Early maize-wheat/gram;

IV-(Diara area) : Jute-rice-lentil, Fallow-vegetables;

IV-(2),(3): Jute-gram, Rice-wheat/gram/oilseed; VI-(2): Rice-potato-green gram;

V-(3): Bajra-gram/barley, Bajra+green gram;

VI-(1),(2),(3): Maize-mustard/gram;

Irrigated :

IV-(1),(3) : Early rice-potato-wheat/gram; V-(1),(2) : Maize-potato-onion, Rice-wheat-

green gram;

VI-(1),(2) : Early rice-winter maize,

Rice-sugarcane+potato, Maize-wheat/rabi maize;

IV-(2): Jute-rice-wheat, Maize-wheat-green gram, Rice-potato-blackgram;

V-(1):

Cowpea-potato-onion-maize+cowpea(forage), Maize-toria-wheat;

V-(3): Maize-potato-wheat-cowpea;

VI-(1): Groundnut/soyabean-wheat;

VI-(2): Rice-wheat-mung/cowpea;

VI-(3): Cotton-wheat;

Plateau Regions (VII, VIII, IX, and X) are largely rainfed. Cropping is mainly cereal based, major cereals being rice, wheat, maize, and jowar. Groundnut and soyabean are major oilseeds. Gram, green gram, and black gram are major pulses. A large area is under rainfed cotton. In view of the rainfed conditions, raising early maturing crop varieties and taking advantage of whatever moisture is available is vital. Suggested cropping patterns are:

Irrigated:

VII-(1),(2),(3),(4),(5) : Rice-rice/gram, Rice-wheat/gram;

VIII-(1),(2),(3),(4),(9),(12) : Rice-groundnut, Groundnut/maize-wheat/gram;

VII-(1),(3),(4) : Rice-potato-maize/groundnut; VIII-(10),(11),(12),(13) : Maize-wheat;

VII-(4),(5) : Maize-potato/wheat, Rice-gram, Maize-mustard;

VIII-(7) : Soyabean-wheat;

VIII-(12),(13) : Bajra-wheat/gram/mustard;

VIII-(11): Bajra-barley;

Unirrigated:

VII-(1): Ragi/maize-gram, Ragi/kodo-sorghum;

VII-(5); X-(3),(6),(7): Groundnut--gram;

VII-(2): Groundnut-mustard;

VII-(2) (bunded fields) : Rice-wheat/berseem;

VIII-(1),(7) : Soyabean-safflower; VII-(4),(5) : Maize/groundnut-barley/mustard, Rice+tur;

VII-(4); IX-(4) : Castor+tur;

VIII-(3),(4),(7): Rice-gram, Maize-mustard;

IX-(2),(3),(4); X-(4) : Cotton/soyabean/jowar+tur/mung;

VIII-(9),(10); IX-(3),(4): Maize/jowar+tur;

VIII-(10): Maize-gram/mustard;

VIII-(11),(13),(14), X-(3), IX-(2) : Bajra+sesamum/ mung/ groundnut;

East and West Coast Regions (XI, XII) have plains as well as hill (ghat) areas where varied crop patterns are followed. Moreover, because of high rainfall in coastal hilly regions, cultivation of millets like ragi and kodo is practised, besides rainfed fruit trees. In the plains, rice is the main crop. In some slopy areas, plantation crops dominate. Under such a situation, only a limited system of cropping can be followed. XII-(2),(3) : Rice-rice-pulse, Rice-rice-rice, Rice-tapioca;

XI-(1),(2),(3),(4) : Rice/tur+groundnut/green gram, Cotton+green gram-wheat;

<u>Unirrigated</u>:

XII-(2): Rice/tur-cowpea (forage);

XI-(5),(6) : Groundnut-sorghum (forage), Bajra+green gram;

Arid and Semi-arid Region, (XIII, XIV) have largely dryland farming. The only way to supplement production of crops is to introduce mixed, parallel, and sequence cropping systems. Under irrigated conditions two/three crops should be included in a rotation.

Irrigated:

XIII-(6),(7); XIV : Groundnut+tur-wheat;

XIII-(2),(3): Rice-mustard-green gram;

XIII-(4),(5); XIV : Bajra-wheatcowpea/sorghum;

XIII-(3); XIV : Maize-wheat/mustard;

Unirrigated:

XIII-(6),(7): Groundnut+guar;

XIII-(4),(5); XIV : Bajra+tur/green gram/guar; XIII-(1),(2); XIV : Jowar+black gram;

XIII-(5),(6): Cotton+green gram/cowpea;

Horticulture Development: Major constraints to horticultural development are : (a) Inadequate availability of appropriate genotype and quality planting material; (b) Comparatively long gestation period, ranging from 2 to 5 years; (c) Inadequacy of required finance; (d) Lack of viable technology to reduce post-harvest losses estimated at about 20 per cent; and (5) Lack of infrastructure support such as packaging, forwarding, marketing, storage and processing. It will be necessary to handle the additional production of fruits in a systematic manner for which fruit storage, marketing, and processing units need to be established in the concerned regions/sub-regions. Region I has some units working whereas in other regions very little processing industry has been set up. Appropriate location specific planning should be done to establish such units.

Following work plan for horticultural development during the Eighth Plan period is suggested:

			DI	Regio	ns		Dia			
Particulars	I	lis II	III III	uns V	VII	VIII	IX	X	хи	TOTAL
Net Sown Area	28	43	43	100	125	167	199	185	46	936
Assuming Potential for addl.hortl.	30	30	10	10	10	10	10	10	20	-
Potential Hortl.area Attempt to cover 10 %	8.4 0.84	12.9 1.29	4.3 0.43	10.0 1.00	12.5 1.25	16.7 1.67	19.9 1.99	18.5 1.85	9.2 0.92	112.4 11.24
Cost of Planting for stdd.crop mix @ Rs. 15000 per hain 3	126	193	64	150	187	250	298	277	138	1683
years (Rs cr) Addl. prodtn.(1k tn) anticpid after 5 years @ 10 t/ha	8.4	12.9	4.3	10.0	12.5	16.7	19.9	18.5	9.2	112.4

Plantation Crops:

Tea: Major tea growing areas are Western Himalayan Region (Region I), Eastern Himalayan Region (Region II), Hilly Region of Southern Plateau and Hills Region (Region X). Regional Planning Teams have recommended that non-traditional areas should be tapped and productivity level of existing tea gardens be enhanced.

Coffee: Coffee cultivation is confined mainly to Regions X and XII. Main strategy is to enhance

productivity of present area under cultivation and not by area expansion, and also to boost export of Indian coffee to non-member countries.

Rubber: Productivity of present growing areas, largely in Kerala and some parts of Tamil Nadu, Karnataka, Tripura and other North-Eastern States, should be augmented. Technology back up is forthcoming in rubber.

Spices: Important spices produced in the country are pepper, cardamom, ginger, turmeric, chilli, coriander, cumin, fennel, celery and saffron.

There is great need for harnessing the latest techniques in developing better planting material. Well organized research network is also needed with a mandate to release varieties with package of practices having not only high yielding character but also yield quality products in the various regions. Bulk of pepper production comes from West Coast Plains and Ghats Region (Region XII) and the rest from Southern Plateau and Hills Region (Region X) and East Coast Plains and Hills Region (Region XI). There is scope for increasing production of good quality pepper for export. Cardamom (small) is grown in West Coast Plains and Ghats Region (Region XII) and Southern Plateau and Hills Region (Region X). Large cardamom is confined to parts of West Bengal and Sikkim in Eastern Himalayan Region (Region II). Ginger is produced largely in West Coast Plains and Ghat (Region XII). India is the largest producer of chillies. It is cultivated commercially in almost all regions of the country. India also occupies the prime position in world production of coriander. Cumin and fennel are grown in Gujarat Plains and Hills Region (Region XIII). Saffron is cultivated in the J & K Division which falls in Western Himalayan Region (Region I).

Animal Husbandry & Dairy Development:

Following measures are suggested: (a) Enhanced production of regionally suited quality fodder seeds of high yielding, multi-cut varieties in conjunction with region-wise land development/water management strategies and changing cropping patterns and technologies; (b) Western Dry Region and Gujarat Plains and Hills Region (Regions XIII and XIV) should concentrate on raising milk production mainly through selective breeding of indigenous breeds like Harvana. Tharparkar, Kankrej, Gir cattle and Murrah, Mehsana, Surti, Jafarabadi buffaloes. Efforts should also be made to raise sheep and wool productivity in these regions; (c) Lower and Middle Gangetic Plains Regions as well as Eastern Plateau and Hills Region (Regions II, IV, and VII) are not endowed with any important indigenous cattle/buffalo breed. Milk production in these areas should be enhanced largely through cross-breeding, keeping in view the climatic adaptability and sufficiency of feed and fodder

availability. Maize production for fodder in Zaid season should be practised; (d) In Western and Eastern Himalayan Regions (Regions I and II), cross-breeding of cattle on similar lines along with buffalo development in appropriate areas, should be implemented to raise milk production. Wool production through sheep development, should also be undertaken widely. Piggery development (particularly in Eastern Himalayan Region) should be stepped up in view of the local customs/demand; (e) In Upper and Trans-Gangetic Plains Regions (Regions V and VI), where buffaloes predominate, improvement through selective breeding/grading should be intensified to increase milk production. Simultaneous emphasis on enhanced feed/fodder availability should be laid. Poultry rearing for eggs and broiler production should be further encouraged; (f) In Central and Western Plateau and Hills Regions (Regions VIII and IX), as animal draught power is still of high significance for agricultural operations and rural transportation, cross-breeding of cattle in selectively appropriate areas should be taken up. Grading up of non-descript cattle using indigenous draught and dual purpose cattle breeds could be taken up; (g) In West Coast Plains and Ghats Region (Region XII), cross-breeding of non-descript cattle should be further intensified to raise milk productivity/production. Poultry sector should also be paid adequate attention: (h) In Southern Plateau and Hills and East Coast Plains and Hills Regions (Regions X and XI), emphasis should be given on buffalo improvement. Cross-breeding of cattle in suitable pockets should be intensified. Development of sheep breeds for mutton and coarse wool, suited for this geo-climatic area, should be given priority. Poultry raising should prove to be a highly successful endeavour; (i) Dairy Development programmes need to be integrated with Operation Flood, particularly in the Eastern Region.

Fisheries Development: (a) Jammu & Kashmir, Himachal Pradesh and Uttar Pradesh Hills (Region I) have high potential for developing cold water fisheries. A project on trout fisheries has been taken up and the same is to be extended to cover more areas with the technology back up in this field; (b) North Eastern States including Sikkim (Region II) have good potential for

developing inland fisheries. The need for fish seed

production by constructing hatcheries has been

improved hatcheries, distribution systems for feed and seed, and processing and storage need particular emphasis. Employment Dimensions :

felt; (c) Inland States falling in Middle and Upper Gangetic Plains, Trans-Gangetic Plains, and the A quick analysis of NSS data (1983-84, 38th Plateau Regions (Regions IV to X) have good round) on employment structure and intensity for potential for increasing inland fish production; (d) 15 regions reveals that (a) Except in Regions XII Coastal States of West Bengal, Andhra Pradesh, and XV, dependency of workers (rural) on agri-Kerala and Gujarat (Regions III, XI, XII, XIII) culture is more than 75 per cent; (b) In rainfed are important for coastal aquaculture. About 9 agriculture average employment (gainful) does lakh ha, of brackish water area is available in the not, in general, exceed 6 months. Only Regions country of which about 55,000 ha. only have been IV, V, VI and XI have developed assured irrigautilised for prawn culture. Emphasis on covering tion and show higher land productivity (except more area and increase prawn production by Region IV); (c) Percentage of casual labour is adopting high technology for intensive and large (more than 30 per cent) in rainfed region semi-intensive prawn culture should be made. and also in relatively high irrigated regions like These regions are also important for marine fish Regions III and XI; (d) Most adversely affected production. Maharashtra has considerable are Regions VII, VIII, and IX with predominant potential for both fish production and brackish rainfed agriculture and high proportion of marwater aquaculture; (e) The seas around the Islands ginal farmers and agricultural labour. This is also (Region XV) are rich in tuna and shark resources. Infrastructural facilities for exploitation of these directly reflected in higher incidence of poverty resources should be provided; (f) Introduction of in these regions.



WESTERN HIMALAYAN

STATEMENT I. DISTRICTS IN DIFFERENT REGIONS

REGION I JAMMU AND KASHMIR (1) Chilas** (1) (2) Gilgit** (1) (3) Gilgit Wazarat** (1) (4) Jammu (1) (5) Kashmir North (1) (Baramula)*
(6) Kashmir South (1)
(Anantnag, Pulwama, Srinagar, Bad-(7) Kathua (1) (8) Ladakh (1) (Kargil, Ladakh)* (9) Mirpur** (1) (10) Muzaffarabad (1) (Kupwara)* (11) Punch (1) (12) Riasi (1) (Rajauri)* (13) Tribal Territory** (1)
(14) Udhampur (1)
(Udhampur, Doda)* HIMACHAL PRADESH (15) Bilaspur (2) (16) Chamba (2) (17) Hamirpur (2) (18) Kangra (2) (10) Kingra (2) (19) Kinnaur (2) (20) Kullu (2) (21) Lahul and Spiti (2) (22) Mandi (2) (23) Shimla (2) (24) Sirmaur (2) (25) Solan (2) (26) Una (2) UTTAR PRADESH (27) Chamoli (3) (28) Dehara Dun (3) (29) Garhwal (3) (30) Tehri Garhwal (3) (31) Pithoragarh (3) (32) Almora (3) (33) Nainital (3) (34) Uttar Kashi (3) EASTERN HIMALAYAN REGION II ASSAM (1) Barpeta (4) (2) Dhubri (4) (3) Dibrugarh (4) (4) Darrang (4) Dibrugarh (5) (5) Goalpara (4) (6) Kamrup (4) (Nalbari)*

(7) Jorhat (5)
(8) Karbi Anglong (2)
(9) Karinganj (5)
(10) Kokrajhar (4)
(11) North Cachar Hills (2)
(12) Lakhimpur (5)
(13) Nowgong (4)
(Nagoon) (Nagaon) (14) Sibsagar (5) (Golaghat)* (15) Cachar (5) (Silcher, Pragjyotishpur) (16) Sonitpur (4) ARUNACHAL PRADESH (17) Dibang Valley (2) (18) East Kameng (2) (19) East Siang (2)
(20) Lohit (2)
(21) Lower Subansiri (2) (21) Tirap (2)
 (23) Upper Subansiri (2)
 (24) West Kameng (2)
 (Tawang)***
 (25) West Siang (2) MANIPUR (26) Bishnupur (3) (Central Manipur)* (27) Churachandpur (3) (South Manipur)* (28) Imphal (3) (Central Manipur)* (29)Senapati (3) (North Manipur)* (30) Tamenglong (3) (West Manipur)*
(31) Chandel (3) (Tengnoupal)* (32) Thoubal (3) (Central Manipur)* (33) Ukhrul (3) (East Manipur)* MEGHALAYA (34) East Garo Hills (2) (35) East Khasi Hills (2) (36) Jaintia Hills (2) (37) West Garo Hills (2) (38) West Khasi Hills (2) NAGALAND (39) Kohima (2) (40) Mokokchung (2) (41) Mon (2) (42) Phek (2)

TRIPURA (46) North Tripura (3) (47) South Tripura (3) (48) West Tripura (3) WEST BENGAL (49) Darjeeling (1) (50) Jalpaiguri (5) (51) Koch Bihar (5) SIKKIM (52) East Sikkim (1) (53) North Sikkim (1) (54) South Sikkim (1) (55) West Sikkim (1) MIZORAM (56) Aizawl (3) (57) Chhimtuipui (3) (58) Lunglei (3) LOWER GANGETIC PLAINS **REGION III** WEST BENGAL (1) Bankura (4) (2) Barddhaman (2) (3) Birbhum (4) (4) Calcutta (3) (4) Calcuta (3) (5) Haora (2) (6) Hugli (2) (7) Maldah (1) (8) Medinipur (2) (East and West)* (9) Murshidabad (2) (10) Nadia (2) (11) Twenty-four-Parganas (3) (North and South) (12) West Dinajpur (1) MIDDLE GANGETIC PLAINS REGION IV BIHAR Aurangabad (2)
 Begusarai (2)
 Bhagalpur (2)
 Bhojpur (2) (5) Darbhanga (2) (6) Gaya (2) (d) Gaya (2) (7) Gopalganj (2) (8) Katihar (2) (9) Khagaria (2) (10) Madhepura (2) (11) Madhubani (2) (12) Munger (2) (13) Murgeffernur (2) (12) Muzaffarpur (2)
(14) Nalanda (2)
(15) Nawada (2)
(16) Paschim Champaran (2)

* District for which 1981 census list is different. ** District in Jammu & Kashmir occupied by Pakistan & China. *** Tawang district for which boundaries are not available.

(43) Tuensang (2) (44) Wokha (2) (45) Zunheboto (2)

Note:-1. Figures in right hand side brackets show sub-Region numbers. 2. Sub-Region shown in this list for Region 1 refer to the Administrative units and are different from that of Statement II.

Source: A Social and Economic Atlas of India.

(17) Patna (2) (18) Purba Champaran (2) (19) Purnia (2) (19) Purnia (2) (20) Rohtas (2) (21) Saharsa (2) (22) Samastipur (2) (23) Saran (2) (24) Sitamarhi (2) (25) Siwan (2) (26) Vaishali (2) UTTAR PRADESH (27) Azamgarh (1) (28) Bahraich (1) (29) Ballia (1) (30) Basti (1) (31) Faizabad (1) (32) Gazhipur (1) (33) Gonda (1) (34) Gorakhpur (1) (35) Jaunpur (1) (36) Mirzapur (1) (37) Deoria (1 (38) Varanasi (1) UPPER GANGETIC PLAINS **REGION V** UTTAR PRADESH (1) Agra(3) (2) Aligarh (3) (3) Allahabad (1) (4) Bara Banki (1) (5) Bareilly (2) (6) Bijnor (2) (7) Budaun (3) (8) Bulandshahr (2) (9) Etah (3) (10) Etawah (3) (11) Farrukhabad (3) (12) Fatchpur (1) (13) Gaziabad (2) (14) Hardoi (1) (15) Kanpur (Rural) (3) (16) Kanpur (Urban) (3) (17) Kheri (1) (18) Lucknow (1) (19) Mainpuri (3) (20) Mathura (3) (21) Meerut (2) (22) Moradabad (2) (23) Muzaffamagar (2) (24) Pilibhit (1) (24) Findatt (1)
(25) Rac Bareli (1)
(26) Rampur (2)
(27) Sahranpur (2)
(28) Shahjahanpur (2) (29) Sitapur (1) (30) Sultanpur (1) (31) Unnao (1) (32) Partapgarh (1) TRANS-GANGETIC PLAINS REGION VI PUNJAB (1) Amritsar (2) (2) Bathinda (3) (3) Faridkot (3) (4) Gurdaspur (1) (5) Ferozpur (3) (6) Hoshiarpur (1) (7) Jalandhar (2) (8) Kapurthala (2) (9) Ludhiana (2)

(10) Patiala (2) (11) Rupnagar (1) (12) Sangrur (3) HARYANA (13) Ambala (1) (14) Bhiwani (3) (15) Faridabad (2) (16) Gurgaon (2) (17) Hisar (3) (18) Jind (2) (19) Karnal (2) (20) Kurukshetra (2) (21) Mahendragarh (3) (22) Rohtak (2) (23) Sirsa (3) (24) Sonipat (2) RAJASTHAN (25) Ganganagar (3) **U. TERRITORY** (26) Chandigarh (1) (27) Delhi (2) EASTERN PLATEAU AND HILL **REGION VII** ORISSA (1) Bolangir (1) (2) Dhenkanal (1) (3) Kalahandi (5) (4) Keonjhar (2) (5) Koraput (5) (6) Mayurbhanj (2) (7) Phulbani (5) (8) Sambalpur (1) (9) Sundargarh (2) WEST BENGAL (10) Puruliya (4) MADHYA PRADESH (11) Balaghat (1) (12) Bastar (5) (13) Bilaspur (1) (14) Durg (1) (15) Raigarh (2) (16) Raipur (1) (17) Raj Nandgaon (1) (18) Sarguja (2) (19) Shahdol (2) BIHAR (20) Deoghar (3) (21) Dhanbad (3) (22) Giridih (3) (23) Godda (3) (24) Gumla (4) (25) Hazaribag (3) (26) Lohardaga (4) (27) Palamu (4) (28) Ranchi (4) (29) Sahibganj (3) (30) Santhal Pargana (3) (Dumka)*

(31) Singhbhum (4)

MAHARASHTRA (32) Bhandara (1) (33) Chandrapur (1) (34) Garhchiroli (1)

CENTRAL PLATEAU AND HILL REGION VIII

MADHYA PRADESH (1) Bhind (8) (2) Bhopal (5) (3) Chhatarpur (2) (4) Chhindwara (6) (5) Damoh (5) (6) Datia (20 (6) Datia (20 (7) Guna (8) (8) Gwalior (8) (9) Hoshangabad (7) (10) Jabalpur (4) (11) Mandla (3) (12) Narsimhapur (70 (13) Panna (4) (14) Paires (5) (14) Raisen (5) (15) Rewa (4) (16) Sagar (5) (17) Satna (4) (18) Schore (5) (19) Sconi (4) (20) Shivpuri (8) (21) Sidhi (4) (22) Tikamgarh (2) (23) Vidisha (5) (24) Morena (80 (25) Betul (6) UTTAR PRADESH (26) Banda (1) (27) Jalaun (1) (28) Jhansi (1) (29) Lalitpur (1) (30) Hamirpur (1) RAJASTHAN (31) Ajmer (13) (32) Alwar (14) (33) Banswara (10) (34) Bharatpur (14) (35) Bhilwara (12) (36) Bundi (9) (37) Chittaurgarh (12) (38) Dungarpur (10) (39) Jaipur (13) (40) Kota (9) (41) Pali (11) (42) Sawai Madhopur (14) (43) Tonk (13) (44) Sirohi (11) RAJASTHAN (45) Udaipur (12) (46) Dhaulpur (14) WESTERN PLATEAU AND HILL **REGION IX**

MAHARASHTRA (1) Ahmednagar (2) (2) Akola (3) (3) Amravati (3) (4) Aurangabad (3) (5) Beed (3) (6) Buldana (3)
TAMIL NADU

(28) Coimbatore (6)

(7) Dhule (2) (8) Jalgaon (3) (9) Jalana (3) (10) Kolhapur (1) (11) Latur (3) (12) Nagpur (4) (13) Nanded (4) (14) Nasik (1) (15) Osmanabad (3) (16) Parbhani (3) (17) Pune (1) (18) Sangli (2) (19) Satara (1) (20) Solapur (2) (21) Wardha (40 (22) Yavatmal (4) MADHYA PRADESH (23) Dewas (3) (24) Dhar (3) (25) East Nimar (3) (26) Indore (3) (27) Jhabua (1) (28) Mandsaur (3) (29) Rajgarh (3) (30) Ratlam (3) (31) Shajapur (3) (32) Ujjain (3) (33) West Nimar (3) RAJASTHAN (34) Jhalawar (3) SOUTHERN PLATEAU AND HILL **REGION X**

ANDHRA PRADESH (1) Adilabad (4) (2) Anantpur (2) (3) Chittoor (2) (4) Cuddapah (2) (5) Hyderabad (3) (6) Karimnagar (4) (7) Khammam (4) (8) Kurnool (2) (9) Mahbubnagar (3) (10) Medak (4) (11) Nalgonda (3) (12) Nizamabad (4) (13) Rangareddi (3) (14) Warangal (4) KARNATAKA (15) Bangalore (2) (16) Belgaum (1) (17) Bellary (1) (18) Bidar (1) (19) Bijapur (1) (20) Chitradurga (2) (21) Dharwad (1) (22) Gulbarga (1) (23) Kolar (2) (24) Mandya (5) (25) Mysore (5) (26) Raichur (1) (27) Turnkur (2)

(29) Dharmapuri (5) (30) Madurai (Anna) (6) (31) Tiruchirapalli (6) (32) Periyar (6) (33) Pudukkotai (6) (34) Salem (5) KARNATAKA (35) Hasan (5) EAST COAST PLAINS AND HILL **REGION XI** ANDHRA PRADESH (1) East Godavari (3) (2) Guntur (3) (2) Guildin (3)
(3) Krishna (3)
(4) Nellore (4)
(5) Prakassam (3)
(6) Srikakulam (2) (7) Vishakhapatanam (2) (8) Vizianagaram (2) (9) West Godavari (3) ORISSA (10) Baleshwar (1) (11) Cuttack (1) (12) Ganjam (2) (13) Puri (1) TAMIL NADU (14) Chengalpattu (4) (15) Kamarajar (6) (15) Nanta aga (5) (16) Madras (4) (17) North Arcot (4) (18) Ramanathapuram (6) (19) South Arcot (4) (20) Thanjavur (5) (21) Tirunelveli (6) (22) P. Muthurama Lingam (6) (Ramnatha Puram)* PONDICHERRY (23) Yanam (3) (24) Pondicherry (4) (25) Karaikal (5) WESTERN PLAINS AND GHAT **REGION XII** KERALA (1) Alleppy (2) (2) Cannanore (2) (3) Ernakulam (2) (4) Idukki (4) (5) Kasargod (2) (6) Kottayam (3) (7) Kozhikode (2) (8) Malappuram (2) (9) Paighat (3) (10) Pathanamthitta (3) (11) Quilon (2) (12) Trichur (2) (13) Trivandrum (2) (14) Wayanad (4)

TAMIL NADU

(15) Kanniyakumari (2)

KARNATAKA (16) Chikamaglur (4) (17) Dakshin Kannad (2) (18) Kodagu (4) (Coorg) (19) Shimoga (4) (20) Uttar Kannad (1) MAHARASHTRA (21) Greater Bombay (1) (22) Ratnagiri (1) (23) Raigad (1) (Kolaba)* (24) Sindhudurg (1) (25) Thane (1) (26) Goa (1) TAMIL NADU (27) Nilgiri (4) **GUJARAT PLAINS AND HILL REGION XIII** GUJARAT (1) Ahmadabad (4) (2) Amreli (6) (2) Familien (6) (3) Banaskantha (4) (4) Bharuch (2) (5) Gandhinagar (4) (6) Bhavnagar (6) (7) Jamnagar (6) (8) Junagadh (7) (9) Kachchh (5) (10) Kheda (3) (11) Mahesana (4) (12) Panch Mahals (3) (13) Rajkot (6) (14) Sabarkantha (4) (15) Surat (2) (15) Suran (2) (16) Surendranagar (6) (17) The Dangs (1) (18) Vadodara (3) (19) Valsad (1) U. TERRITORY (20) Daman (1) (21) Dadra Nagar Haveli (1) (22) Diu (7) WESTERN DRY **REGION XIV** RAJASTHAN (1) Barmer (1) (2) Bikaner (1) (3) Churu (1) (4) Jaisalmer (1) (5) Jalor (1) (6) Jhunjhunu (1) (7) Jodhpur (1) (8) Nagaur (1) (9) Sikar (1) THE ISLAND REGION XV

ANDAMAN, NICOBAR AND LAK-SHADWEEP (1) Andaman (1) (2) Nicobar (1) (3) Lakshadweep (2)

Sr.	Sub - Region	Rainfall	Climate	Soils	Сторя
(1)	(2)	(3)	(4)	(5)	(6)
	Western Himalayas				
1.	High altitude temperate	165	Humid to cold arid	Hill soils, mountain meadow skeletal, Tarai	Wheat, Maize, Rice, Jowar
2.	Hill temperate	2000	Humid	Brown hill	Rice, Maize, Rapeseed, Wheat
3.	Valley temperate	400	Sub-humid	Sub-mountain, mountain, meadow, skeletal	Wheat, Maize, Rice, Sug- arcane
4.	Sub - tropical	1030	Semi-arid to humid	Alluvial (Recent), brown hills	Wheat, Barley, Potato
П.	Eastern Himalayas				
1.	Himalayan Hills	2641	Per humid to humid	Brown hills	Rice, Maize, Ragi, Potato
2.	NE Hills	3528	Per humid to humid	Red Sandy laterite	Rice Rape seed, Maize
3.	Southern Hill	2052	Per humid to humid	Acidic soils	Rice, Maize, Sesamum, Sugarcane
4.	Lower Brahmaputra	1840	Per humid to humid	Alluvial, red loamy tarai soils	Rice, Rapeseed, Wheat, Jute, Potato
5.	Upper Brahmaputra	2809	Humid to per humid	Alluvial, red loamy	Rice, Jute, Rapeseed, Wheat
III.	Lower Gangetic Plains				
1.	Barind Plains	1587	Moist sub-humid & dry sub-humid	Red and yellow alluvial (Recent)	Rice, Jute, Wheat, Rapeseed
2.	Central Alluvial Plains	1449	Moist sub-humid to dry sub-humid	Red and yellow, Deltaic, alluvium, red loamy	Rice, Jute, Wheat, Rapeseed, Potato
3.	Alluvial Coastal Saline Plains	1607	Dry sub-humid to moist sub humid	Red and yellow deltaic, alluvial	Rice, Jute, Rapeseed
4.	Rarh Plains	1302	Moist sub-humid to dry sub-humid	Red and yellow red loarny	Rice, Wheat, Rapeseed, Sesamum
IV.	Middle Gangetic Plains				
1.	North West Alluvial	1211	Moist sub-humid to dry sub-humid	Aluvial (Recent), Calcare- ous	Rice, Wheat, Maize, Sug- arcane
2.	North East Alluvial	1470	Dry sub-humid to moist sub-humid	Alluvial, tarai	Rice, Wheat, Maize, Jute, Gram
٧.	Upper Gangetic Plains				
1.	Central Plains	979	Dry sub-humid to semi-arid	Alluvial	Wheat, Rice, Tur
2.	North western Plains	907	Dry sub-humid to semi-arid	Alluvial tarai	Wheat, Sugarcane, Rice, Maize
3.	South western Plains	721	Semi-arid	Alluvial	Wheat, Bajra, Rice, Maize, Tur, Potato
VI.	Trans - Gangetic Plains				-
1.	Foothills of Shivalik & Himalayas	890	Semi-arid to Dry sub-humid	Alluvial (Recent) calcare- ous	Wheat, Rice, Maize, Sug- arcane
2.	Plains	561	Semi arid to Dry sub-humid	Alluvial (Recent) calcare- ous	Wheat, Rice, Bajra, Maize, Sugarcane
3.	Scarce Rainfall arid region	360	Arid & Extreme arid	Calcareous, sierozemic alluvial (recent) desert	Wheat, Cotton, Gram, Baira. Rice
VII.	Eastern Plateau and Hills				5.7
1.	Eastern Plain	1271	Dry sub-humid	Medium to deep black red and yellow	Rice, Linseed, Jowar, Wheat, Gram, Groundnut
2.	Eastern Highland	1436	Moist sub-humid to dry sub-humid	Red sandy, red and yellow	Rice, Maize, Nigerseed, Wheat
3.	North central Plateau	1296	Moist sub-humid to dry sub-humid	Red sandy, red and yellow	Rice, Maize, Wheat, Ragi
4.	Eastern Plateau	1369	Moist sub-hurnid to dry sub-humid	Red and yellow, Red loamy	Rice, Maize, Ragi, Wheat
<u>ک</u> .	Inbal	1338	Moist sub-humid to dry sub-humid	Red sandy, red and yellow, red loamy laterite	Rice, Ragi, Nigerseed, Maize

STATEMENT II. SELECTED AGRO-CLIMATIC FEATURES OF SUB-REGIONS

(Contd.)

			STATEMENT IL (COM	<i>D</i> .j	
Sr. No.	Sub - Region	Rainfall (mm)	Climate	Soils	Crops
(1)	(2)	(3)	(4)	(5)	(6)
VIII.	Central Plateau and Hills				
1.	Bundelkhand (U.P.)	780	Dry sub-humid to dry arid	Mixed red and black	Wheat, Gram, Jowar, Rice
2.	Bundelkhand (M.P.)	700	Dry sub-humid to Semi-arid	Mixed red and black	Wheat, Gram, Jowar, Rice
3.	North Hills	1570	Moist sub-humid to dry sub-humid	Red and yellow	Rice, Wheat, Nigerseed, Maize
4.	Kymore Plateau and Satpura hills	1100	Dry sub-humid	Red and yellow Medium black	Wheat, Rice, Gram, Linseed
5.	Vindhya Plateau	1130	Drv sub-humid	Medium black	Wheat Gram, Jowar, Rice
6.	Satpura Plateau	1220	Dry sub-humid	Shallow black, mixed Red and black	Jowar, Wheat, Tur, Rice
7.	Central Narmada Valley	1300	Dry sub-humid	Deep black, skeletal	Wheat, Gram, Soyabean, Jowar
8.	Gird	670	Semi arid (half drier & wetter half)	Medium black, alluvial	Wheat, Gram, Jowar, Rapesced, Bajra
9.	South Eastern Plains	760	Semi-arid (wetter half)	Medium black	Wheat, Jowar, Gram, Maize
10.	Southern Plains	760	Semi-arid to arid	Medium red and black, grey brown	Maize, Rice, Wheat, Gram
11.	Transitional Plain	490	Semi-arid (wetter half)	Desert soil, grey brown	Bajra, Wheat, Sesamum, Rapeseed, Jowar
12.	Southern Plains & Aravalli Hills	500	Semi-arid (wetter half)	Red and yellow, grey brown	Maize, Wheat, Gram, Jowar
13.	Semi-arid Eastern Plains	500	Semi-arid (drier half)	Alluvial	Wheat, Bajra, Jowar, Gram
14.	Flood Prone Eastern Plain	500	Semi-arid (drier half)	Alluvial (Recent)	Bajra, Wheat, Repeseed, Gram, Jowar
IX.	Western Plateau & Hills				
1.	Hill region	988	Semi-arid	Semi-arid	Jowar, Bajra, Groundnut
2.	Scarcity region	602	Semi-arid	Semi-arid	Jowar, Cotton, Wheat, Gram
3.	Plateau region	874	Semi-arid (wetter half)	Semi-arid (wetter half)	Jowar, Cotton, Wheat, Gram
4.	Plateau region South	1040	Semi-arid to dry sub-humid	Semi-arid to dry sub- humid	Cotton, Jowar, Tur, Wheat
X .	Southern Plateau & Hills				
1.	Sunregion-1	769	Semi-arid & arid	Medium black, red loamy	Jowar, Cotton, Groundnut, Bajra
2.	Subregion-2	677	Semi-arid	Red loamy, medium black, red sandy, coastal allu- viam laterite	Groundnut, Kagi, Jowar, Rice
3.	Subregion-3	725	Semi-arid & arid	Red sandy, medium to deep black	Jowar, Rice, Castorseed, Groundaut
4.	Subregion-4	1001	Semi-arid (wetter half)	Deep black, medium black	Rice, Jowar, Maize, Cot-
5.	Subregion-5	865	Semi-arid	Red loamy, red sandy	Ragi, Jowar, Groundnut, Rice
6.	Subregion-6	841	Semi-arid to Dry sub-humid	Mixed red and black red loamy, deltaic alluvium	Rice, Jowar, Groundnut, Baira
XI .	East Coast Plains & Hills				
1.	North Orissa Coast	1287	Moist sub-humid	Deltaic alluvial, coastal alluvial laterite, red loamv	Rice, Groundnut, Jute, Sesamum, Ragi
2.	North Coastal Andhra	1128	Dry sub-humid	Red loamy, laterite, medium black, red sandy, coastal alluvial	Rice, Ragi, Groundnut, Bajra, Sesamum
3.	South Coastal Andhra	996	Semi-arid	Deltaic alluvium, deep black, red, sandy red and black	Rice, Cotton, Jowar, Tobacco, Groundnut
4.	North Coastal Tamil Nadu	1036	Semi-arid	Red loamy, red sandy,	Rice, Groundnut, Bajra, Iowar
5.	Tanjavur	1113	Semi-arid to dry	Deltaic alluvium, red	Rice, Groundnut, Sesa-
6.	South Coastal Tamil Nadu	780	Semi-arid (drier half)	Mixed Red and black, coastal alluvium	Rice, Cotton, Bajra, Groundnut

STATEMENT IL (CONTD.)

(Contd.)

			STATEMENT II. (CORC		
Sr. No.	Sub - Region	Rainfall (mm)	Climate	Soils	Crops
(1)	(2)	(3)	(4)	(5)	(6)
XII.	West Coast Plains & Ghats				
1.	Coastal Hilly	3640	Per humid & humid	Laterite, red loamy, coastal alluvium	Rice, Ragi, Sesamum, Nigerseed
2.	Coastal Midland	3127	Dry sub-humid & per humid	Red loamy, coastal allu- vium, laterite	Rice, Tapioca, Ragi, Banana
3.	Midland	2727	Per humid	Laterite, red loamy, coastal alluvium	Rice, Tapioca, Groundnut, Banana
4.	Hilly	226	Per humid	Red loamy, mixed red and black	Rice, Ragi, Jowar, Ground- nut
XIII.	Gujarat Plains and Hills				
1.	South Gujarat A	1793	Semi-arid to dry sub-humid	Deep black, coastal allu- vium	Rice, Ragi, Sugarcane, Jowar
2.	South Gujarat	974	Semi-arid to dry sub-humid	Deep black, coastal allu- vium	Jowar, Tur, Cotton, Wheat
3.	Middle Gujarat	904	Semi-arid	Medium black	Rice, Cotton, Maize, Bajra
4.	North Gujarat	735	Arid to Semi-arid	Grey brown, coastal allu- vium	Bajra, Cotton, Jowar, Wheat
5.	North-West Arid	340	Arid to semi-arid	Grey brown, deltaic allu- vium	Bajra, Groundnut, Jowar, Cotton
6.	North Saurashtra	537	Dry sub-humid	Medium black	Groundnut, Cotton, Bajra, Jowar
7.	South Saurashtra	844	dry sub-humid	Coastal alluvium, medium black	Groundnut, Wheat, Bajra, Cotton
XIV.	Western Dry				
1.	Western Dry	395	Arid to extremely arid	Desert soil, grey brown	Bajra, Gram, Wheat, Rapeseed

STATEMENT II. (Concid.)

STATEMENT III. REGIONAL CHARACTERISATION IN THE FORM OF TYPOLOGIES

SI.	Typology	Region
(0)	(1)	(2)
1.	Rich water and soil resources, high land productivity (major crops) moderate	Trans-Gangetic Plains
2	Rich soil and water resources medium productivity level and moderate	(No.0) Manag Canastis Plains
2.	population pressure on land, deteriorating environment with respect to land quality	(No.5)
3.	Rich water and soil resources, low productivity level, high population pressure on land, increasing proportion of problem soils.	Lower and Middle Gangetic Plains (Nos.3 & 4)
4.	Large volume of land and water resources, very low productivity of land with predominance of subsistence agriculture, low population pressure, high pro- portion of problem soils.	Eastern and Central Plateau & Hills (Nos.7 & 8)
5.	Less favourable soil and water resources, low land productivity, low to medium population pressure, deteriorating environment in respect of soil erosion and water quality	Western and Southern Plateau & Hills (Nos.9 & 10)
6.	Rich water resources but relatively poor land, medium land productivity, medium to high population pressure. fragile ecosystem.	East Coast and West Coast Plains & Hills and the Islands (Nos 11 12 & 15)
7.	Less favourable land and water resources, low land productivity, low pressure on land and fragile ecosystem.	The Himalayan Regions
8.	Semi-arid to arid conditions, moderately good land quality and land produc- tivity, moderate population pressure on land.	Gujarat Plains & Hills (No.13)
9.	Arid conditions, large but less fertile soil resources, very low land productivity, low population pressure and fragile ecosystem.	Western Dry (No.14)

	VOL.	2	NO.	1
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STATEMENT IV. REGIONS AT A GLANCE

Zone No.

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AGRO-CLIMATIC REGIONAL PLANNING

109

(Contd.)

42

1.62

46.7

36.73

28.3

133

0.260

19.3

47.0

215

3195

All India

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Name	Geog. Area	Popu. Den- sity	NSA	Forest	Cultivable Land/Cap.	Cropping Intensity	GIA	Tubewells (per 000	Fert cons.	Tractors (per 000 hects)	Agril. Credit
	(000 sqkm)	(/sqkm)	(%)	(%)	(Ha/cap)	%)	(%GCA)	hects)	(kg/ha)		(Rs/cap)
						GCA/NSA)			-		
W Himalaya	245	62	18.2	45.3	0.195	143	23.0	2.12	23.0	1.34	43
E Himalaya	274	118	18.7	42.8	0.189	131	16.73	0.85	9.4	0.19	12
L Gangetic	69	692	63.8	11.0	0.098	147	30.3	1.07	64.9	0.26	30
M Gangetic	164	526	62.8	8.7	0.141	140	40.4	28.43	67.6	1.75	25
U Gangetic	143	466	70.1	4.5	0.172	148	57.5	33.24	85.5	2.99	41
T Gangetic	116	331	80.9	3.2	0.268	170	78.8	56.47	104.7	8.10	127
E Platcau	395	136	35.9	35.2	0.323	127	15.5	3.71	14.6	60.0	17
C Plateau	370	137	45.0	14.2	0.446	118	20.9	17.17	15.9	1.46	47
W Plateau	331	170	59.7	11.8	0.396	126	12.5	36.29	27.7	0.69	65
S Plateau	395	200	48.4	17.1	0.319	112	26.0	83.63	57.3	0.97	61
E Coast	197	321	43.3	18.7	0.181	134	49.0	65.27	77.3	1.16	59
W Coast	117	441	37.2	29.0	0.123	123	16.5	54.86	51.5	1.65	77
Gujarat	196	175	51.4	10.9	0.363	114	23.9	57.06	37.8	1.39	%
W Drylands	175	58	47.7	1.12	1.314	105	7.5	8.01	5.4	1.09	35
Islands	œ	29	42	88.1	0.210	142	NA	NA	NA	NA	NA

one	Name	Ϋ́.	eld	Land	Live	stock	Derect		Lite	racy
j.		Rice (Kg/Ha)	Whcat (Kg/Ha)	(Rs/Ha)	Per Cap (/man)	Per GCA (/Ha)	(%)	Uncupi. (% to labforce)	Total (%)	Female (%)
-	W Himalaya	1925	1129	3516	9960	5.18	20.4	0.96	40.0	23.1
7	E Himalaya	1069	1296	3411	0.463	1.96	30.1	2.36	36.4	27.2
ŝ	L Gangetic	1424	*	4743	0.511	3.84	39.0	4.06	42.3	31.8
4	M Gangetic	984	1542	3043	0.858	5.17	49.0	1.10	25.0	12.2
S	U Gangetic	1375	2059	5125	0.385	1.72	41.4	1.10	27.7	15.1
9	T Gangetic	2939	2845	4672	0.397	1.13	17.8	2.50	42.1	32.1
٢	E Plateau	906	096	2528	0.789	2.61	49.8	0.67	28.3	15.6
80	C Plateau	592	1295	2089	1.038	2.64	45.5	0.75	27.4	14.2
6	W Platcau	1153	1120	2202	0.700	1.57	41.3	1.12	40.2	27.4
0	S Plateau	1992	606	3388	0.506	1.90	38.2	1.63	34.8	23.6
	E Coast	1916	•	5480	0.532	2.94	38.1	2.61	41.2	30.3
2	W Coast	1790	1096	5453	0.042	0.41	24.4	5.41	62.9	56.2
6	Gujarat	1319	2099	3013	0.531	1.65	27.9	1.56	43.7	32.7
4	W Drylands	*	•	629	1.897	2.36	32.8	1.20	22.0	9.6
S	Islands	ŧ	÷	5892	0.360	1.74	28.2	1.10	52.8	39.1
	All India	1393	1873	3385	0.563	2.25	38.1		36.2	

STATEMENT IV (Concid.)

JOURNAL OF INDIAN SCHOOL OF POLITICAL ECONOMY

JAN-APRIL 1990

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Sr.	Crop/crop group	Regions of concentration	Percentage to total area	Percentage to total pro-
No.				duction
(0)	(1)	(2)	(3)	(4)
1	Rice	3, 4, 7, 11	62.0	55.3
2	Wheat	4, 5, 6, 8	80.0	86.2
3	Jowar	8, 9, 10	86.3	87.0
4	Pulses	6, 8, 9	66.6	65.5
5	Oilseeds	8, 9, 10, 13	70.0	70.3
6	Cotton	6, 9, 10, 13	92.0	85.3
7	Sugarcane	4, 5, 9, 10	74.3	72.6
8	Fruits & Vegetables	3, 4, 5, 12	56.4	60.8

STATEMENT V.	CROPPING SPECIAL	ISATION IN 1	THE REGIONS

POTENTIAL RATES OF GROWTH FOR THE INDIAN ECONOMY: RECURSIVE ESTIMATION RESULTS

M.J. Manohar Rao Cedwyn J. Fernandes Chandrahas S. Deshpande

An attempt is made in this paper to derive estimates of potential output for the Indian economy over the period 1950-88 through the use of a locked growth model which overcomes the deficiencies of some of the conventional methodologies referred to in the literature. Along with recursive estimation techniques, the model generates an average annual growth rate of 4.2 per cent for potential output over this period as against the historical average GDP growth rate of 3.8 per cent. Moreover, it is shown that the output gap which had peaked in 1974-75 at 22.8 per cent is seen to be down to a level of 14.6 per cent currently. Also the empirical regularities witnessed between potential growth, actual growth and changes in the output gap serve to verify an Indian version of Okun's Law by indicating that, for approximately every 1.2 percentage points of growth in real GDP above potential GDP that is sustained for a year, the output gap would decline by 1 percentage point.

1. INTRODUCTION

One of the most difficult problems facing macroeconomic planners in developing economies is to define the relevant concept of potential output as well as to outline a methodology which permits its measurement. This concept draws upon the ideas of growth accounting in order to construct a GNP series that can serve as a benchmark for policy planning because when decision makers contemplate the use of appropriate policy measures to bring the economy in closer proximity to this level of potential output they must know exactly where to aim at.

The concept and measurement of potential GNP discussed in this paper are addressed to this question. It is a question with considerable policy significance because the pursuit of an attainable level of output is a goal of policy and such a target needs to be linked with a corresponding target of potential output. Within the context of an instruments-targets framework, the realization of a desired trajectory of potential output would presuppose appropriate changes in the instrument vector comprising, within the Indian plan framework, select macroeconomic variables like savings, investment, capital inflows, amongst others. Thus, how far we stand from the target of potential output is an important information in the formulation of appropriate fiscal and monetary policies. Therefore, a quantification of potential output offers guidelines for stabilization policy

and is one indicator of its success [Fernandes, 1988].

The quantification of potential output and the accompanying measure of the "gap" between actual and potential output is, at best, an uncertain estimate and, not surprisingly, no measures of potential output exist for the Indian economy. This is a serious drawback because without having any idea of the level as well as the growth rate of potential output, we have no way of explicitly analyzing the long-run behaviour of the Indian economy. This raises the important, albeit unanswerable, question of what the future levels of potential GNP are likely to be because minute differences in the growth rate of potential output can cumulate over time to yield large differences in the levels of potential GNP. Thus, as we have no way of realizing to what extent the future levels of actual GNP can be raised, the entire exercise of "selecting" a desired growth rate of GNP over a plan period on a priori grounds reduces to a meaningless charade. While the use of control and filtering techniques can implicitly derive an "optimal" growth rate of GNP, such a measure is not fully substitutable for the concept of potential output per se because the estimated control system incorporates the operative constraints on the economy [Rao, 1987]. To appraise the vigour of an expanding economy like India, it is important to study customary cyclical measures such as advance over previous peak levels or advance over recession trough levels. But, these measures

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do not indicate the extent to which instruments have to be manipulated in order to meet our targets, unless we are prepared to assume, rather unrealistically, that each peak is like any other one and all troughs are likewise uniform. The record of the Indian economy over the past four decades testifies to the dramatic differences amongst cyclical peaks and troughs in terms of resource utilization.

Such an evaluation of potential output can also help in driving attention to the enormous social costs of idle resources and, if the programme to reduce the gap between actual and potential output are viewed as attempts to increase employment, the case for such a study seems compelling. In this context, a focus on the closure of the 'gap' would also help to remind Indian policy makers of the correctness associated with the corresponding development strategy.

2. POTENTIAL OUTPUT AND THE PROBLEMS OF MEASUREMENT

2.1. The traditional approach

In estimating potential GNP via the traditional method, most of the facts about the economy are usually taken as they exist: technological knowledge, the capital stock, natural resources, the skill and education of the labour force are all data rather than variables. Potential output, as defined in this context, differs from actual output only because the potential concept depends on the assumption that aggregate demand is exactly at the level that yields a minimum rate of unemployment of the civilian labour force, say u*(min). The estimates of potential GNP, based on this indirect method, are obtained from the growth in GNP necessary to hold down unemployment at this desired level, u*(min), which must be viewed as subject to stochastic variations. The Okun equation is the best known and most successful model of this vintage [Okun, 1962]. If, in fact, aggregate demand is lower, part of potential GNP is not produced and thus emanates an unrealized potential, or the so-called 'gap', between actual and potential output. In this context, the failure to use one period's potential fully can influence future potential GNP and because the current level of actual output influences future productive capacity, any success in the stabilization objective would promote more rapid economic growth.

This approach does not attempt to identify the separate contributions to output of capital and labour, but rather focuses attention only on employment and labour productivity. Thus, the basic contention this approach uses, as a starting point, an identity which relates output to employment and labour productivity, or output per hour of labour, *i.e.*,

$$Output = (Labour Hours) \times (Output per Hour of Labour)$$
(2.1)

To move from here to potential output, we need estimates of: (a) the high-employment total labour hours and (b) the high-employment level of labour productivity. Because both labour hours and productivity vary over time as well as cyclically, the problem is to determine the highemployment value of each and to predict their future courses. The former is estimated using the following formula:

Total High	(Hours per Worker) x (Employment Ratio)	
Employment	= × (Labour Force Participation Ratio)	
Hours	× (Working Age Population)	(2.2)

where both the ratios on the right-hand-side are evaluated at the high employment level. The second determinant of high-employment output in eq. (2.1) is labour productivity - the determinants of which include not only increases in capital per work hour, but also changes in the quality of labour, in knowledge and in the regulatory environment [Kendrick, 1981].

As far as this traditional approach to estimating potential output is concerned, the most difficult point arises when we have to specify the benchmark unemployment rate that corresponds to full employment, *i.e.*, u*(min). Moreover, while the observed actual measures of labour utilization indicate how much employment would have to increase, given the labour force, to make the unemployment rate equal to $u^{*}(\min)$, they do not offer similar direct information on other matters that might make labour input at full employment different from its observed level, including: (a) how the average hours worked per man would be altered if the level of aggregate demand were consistent with full employment, and (b) how participation rates in the labour force - and hence the size of the labour force - would be affected under conditions of full employment.

Thus, while the traditional method does possess the virtue of simplicity, it can, and does, lead to inaccurate estimates of potential output especially when the economy has been operating at levels below potential or when changes in underlying factors (such as a faster growth of the labour force) are expected. Moreover, since the adjustment mechanisms are lumped into a single equation, eq. (2.2), any component adjustment mechanism that is of particular interest (such as productivity) cannot be isolated. A production function approach, which builds up potential growth from its components, can, in principle, overcome these drawbacks.

2.2 The production function approach

An alternative to eq. (2.2) is to directly estimate the relationship between output and the inputs of capital and labour using any of the standard formulations of the production function most often used is a slightly modified version of the production function derived by Solow [Solow 1957, 1962]. Such a modification allows for changes in capacity utilization, technical progress in both labour and capital, disembodied technical progress and economies of scale [Thurow and Taylor, 1966]. The equation is generally of the following form:

$$Y(t) = e^{(b+cU+dU^{2})} Ae^{t} [K(t)^{1-s} L(t)^{s}]^{t}$$
(2.3)

where Y is GNP, U is the unemployment rate, t is the time index, K is capital stock and L is labour man-hours.

Once estimates of eq. (2.3) are obtained, the level of potential output can be calculated by initially measuring disembodied technical progress through the exponential trend in the equation, then by measuring embodied technical progress

by building improvement factors into the observed capital and labour stocks and finally by incorporating benchmark rates that correspond to full-employment and full-capacity levels for labour and capital in the function [Intriligator, 1965].

The production function approach has attracted interest in part because of its seeming tractability in determining just how important the energy shocks of the 1970s were in reducing the growth rate of potential output. Such a probe was triggered off because energy shocks were prime suspects in the quest for an explanation of lower productivity growth which haunted the world economic scene after the primary oil shock of 1973. By using an explicit production function framework, several researchers obtained estimates of the effect of increased energy prices on energy usage and consequently on output [Perloff and Wachter, 1979] [Denison 1985]. However, some of the results using this approach, have turned out to be quite controversial because the production function framework has suggested a very significant decline in real potential output in response to increased energy costs, what with the magnitude of the decline being unacceptable to most observers [Tatom, 1982].

A large part of the reason for such anomalous behaviour has been the difficulty in specifying the benchmark estimates corresponding to the fullemployment and full-capacity levels in eq. (2.3). Moreover, productivity growth has not been constant in the past, nor has it shown any indications of staying stable in the future. It has changed over time and significantly so over the business cycle, and therefore although it is almost mandatory to disentangle the trend, the changes in trend, and cyclical factors in order to determine the behaviour of cyclically adjusted (or highemployment) productivity, the production function approach per se has been unable to do so, and this has implied that measures of potential output obtained therefrom have been subject to a wide margin of error.

Taking all these caveats into consideration, the U.S. Council of Economic Advisors (CEA), which had prided themselves on regularly publishing annual estimates of potential output for the American economy, made large-scale downward revisions in their potential output measures from 1977 onwards despite protests to the contrary [Perry 1977]. The CEA argued that these revisions were necessary in view of the slippages that occurred in the U.S. economy as an aftermath of the oil price shock of 1973. Consequently, the potential growth rate for the U.S. economy was adjusted downwards to a more modest 2.85 per cent per annum for the post 1973 era vis-a-vis the original potential growth rate of 4.00 per cent arrived at by Okun [Okun 1962].

However, it was not long before Fellner sharply questioned the entire idea of determining potential output using either of these approaches [Fellner, 1962]. He argued that the conventional notion, and subsequent computation, of potential output was not very useful because it seemed to imply that only demand variables (reflected in the unemployment rate) determined the economy's potential output, neglecting, in the process, the importance of supply-side variables, including savings and investment, amongst others. Following this scathing indictment, the CEA discontinued *in toto* their series on potential output from 1982-83 onwards.

While the disappearance of probably the only existing well-defined potential output series is regrettable, much more disturbing is the discrediting of both these well-established techniques hitherto used for estimating potential output. Essentially, what emerges is that while the theoretical concept of potential output remains entirely intact, the controversies surrounding the measurement of potential output can be sorted out only by rendering potential output responsive to supply-side policies emphasizing the links between savings, investment and income. If and when these puzzles can be explained and understood by using such an alternate methodology, potential output measures should hopefully become more widely acceptable than they are currently, and it is towards this goal that we have targeted the subsequent portion of the paper.

3. THE MODEL

3.1 The structural form

The model which we shall utilize for our purpose is the two-gap variant of the basic Harrod-

Domar model, albeit with certain modifications. In order to be able to explain potential economic growth *endogenously*, *i.e.*, without any need for *a priori* specifications of benchmark estimates of, say, unemployment rates corresponding to fullemployment or capital utilization rates corresponding to full-capacity, the model should be "locked" in as much as the system *per se* should be capable of internally generating values for all its endogenous variables without the need for any external stimuli. Such a reformulation of the standard prototype models usually employed in development planning literature leads to the following 5-equation system.

3.1.1 Gross domestic product

In the simplest form of a fixed-coefficients aggregate production function, real gross domestic product (GDP) at time t, Y(t), is determined in direct proportion to the quantities of real capital stock, K(t), and labour, L(t), at time t. Thus, Y(t) = K(t)/v or Y(t) = L(t)/u, where v and u are constants and indicate the average capitaloutput ratio and average labour-output ratio, respectively. Different interpretations can be given to these fixed coefficients, all of which basically imply that with this form of production function there is one and only one flow of output which can be generated for any given particular stock of capital or labour[Jones, 1976]. The actual production function takes the form:

$$Y(t) = Min [K(t)/v, L(t)/u]$$
 (3.1)

Eq. (3.1) allows either capital or labour to remain unused, depending upon its relative abundance, and this form of technology implies that there is no substitution between capital and labour in the production of output. Under the assumption of surplus labour, an endemic feature of almost all developing countries, including India, eq. (3.1) can be stated as follows:

$$Y(t) = K(t)/v$$
(3.2)

which, if defined in terms of increments $\Delta Y(t)$ and $\Delta K(t)$, where Δ is the backward difference operator, can be written as

$$\Delta Y(t) = b \Delta K(t) \qquad (3.3) \quad S(t) = sY(t) \qquad (3.9)$$

where 'b' is the inverse of the incremental capital-output ratio (ICOR), *i.e.*, $b = \Delta Y(t)/\Delta K(t)$. As far as macroeconomic planning applications are concerned, eq. (3.3) can be stated as follows [Salvatore and Dowling, 1977]:

$$Y(t) = Y(t-1) + b \Delta K(t)$$
(3.4)

In order to eliminate capital stock, which is at best a very fuzzy concept, from the above formulation and thereby reduce the dimension of the system, we define a capital stock generating forward-recursion equation [Blitzer, *et.al.*, 1975]:

$$K(t) = (1-d) K(t-1) + I(t-1)$$
(3.5)

where I(t) is gross real investment and 'd' is the fraction of capital stock depreciated each period, *i.e.*, d = D(t)/K(t), where D(t) is real capital consumption or depreciation allowances at time t. Thus eq. (3.5) can be rewritten as:

$$K(t) - K(t-1) = \Delta K(t) = I(t-1) - dK(t-1)$$
(3.6)

Substituting eq. (3.6) into eq. (3.4) above, we obtain

$$Y(t) = Y(t-1) + b I(t-1) - bd K(t-1)$$
(3.7)

From eq. (3.1) we realize that 'v' represents the average capital-output ratio (ACOR) which implies that K(t-1) = v Y(t-1) and, as a consequence, eq. (3.7) can be rewritten as

$$Y(t) = A Y(t-1) + B I(t-1)$$
 (3.8)

where A = 1 - vbd and B = b. The *a priori* constraints on these coefficients therefore turn out to be 0 < A < 1 and B > 0.

3.1.2 Gross domestic savings

The basic assumption involved in the specification of the savings function is that a constant proportion 's' of real income is saved and that there is no distinction between the average and the marginal propensities to save. We thus have the following savings function given by

3.1.3 Gross domestic capital formation

The concept of two-gap models, probably the most widely used for forecasting in developing countries, is incorporated into the main body of the system via this sector. These models can be viewed as a practicable generalization of the Harrod-Domar specification to take into account foreign trade bottlenecks, absorbtive capacity limits and other disequilibrating phenomena that are ubiquitous in the developing world. Foreign trade is brought into the model through the identity that real capital inflows, F(t), alternatively referred to as real foreign resources, add to real investible resources, I(t), so that the savings-investment balance becomes

$$I(t) = sY(t) + F(t)$$
 (3.10)

where F(t) is the difference between real imports, M(t), and real exports, X(t), *i.e.*,

$$F(t) = M(t) - X(t)$$
 (3.11)

Eq. (3.10) is usually called the savings constraint, or "gap", if formulated in terms of an inequality.

3.1.4 Imports

If investment has a marginal import share of 'h' and production of a unit of GDP requires imports to the amount of 'm', then the trade balance faced by the economy is written as

$$h I(t) + m Y(t) - X(t) = F(t)$$
 (3.12)

Rewriting eq. (3.12) in terms of I(t) yields

$$I(t) = (1/h) F(t) + (1/h) [X(t) - mY(t)]$$
(3.13)

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In the structural analysis of two-gap models, the term F(t) is usually assigned an exogenous value and, when this is done, only one of the eqs. (3.10)and (3.13), which will then have to be formulated as constraints, will be binding, given the prior values of Y(t) and X(t). Therefore investment and consequently the growth rate will be restricted to a lower level by the operative constraint. However, as we were primarily interested in obtaining the growth rate of potential output, we assumed that neither of these constraints were, in essence, binding and that the level of real capital inflows and consequently real investment were determined by the intersection of the savings and trade balances. It is for this reason that we formulated eqs. (3.10) and (3.13) as balances rather than as constraints. This implied that we could replace F(t) in eq. (3.12) by its definition provided by eq. (3.11) and as a consequence, we obtain an imports equation given by

$$M(t) = h I(t) + m Y(t)$$
 (3.14)

3.1.5 Exports

As far as exports are concerned, we make a clear departure from the accepted convention of treating it as an exogenous variable, because, as mentioned earlier, we are basically concerned with constructing an autonomous system capable of growing indefinitely over time without the need for any input function. To endogenize exports we introduce a quasi-Keynesian flavour into our model and assumed, following Chambers, *et.al.*, that it is some fixed fraction of the level of real output [Chambers *et.al.*, 1975]. Consequently, our exports function was given by

$$\mathbf{X}(\mathbf{t}) = \mathbf{x} \ \mathbf{Y}(\mathbf{t}) \tag{3.15}$$

where X(t) denoted real exports and 'x' represented the marginal as well as the average propensities to export out of GDP. Of course, we were fully aware that there would be a host of other factors capable of influencing the level of real exports, but from our viewpoint of constructing

a "locked" system, the assumption of considering a fixed fraction of real output as exportable surplus seemed fairly reasonable.

3.2 The final form representation

The structural form of the model, given by eqs. (3.8), (3.9), (3.10), (3.11), (3.14) and (3.15), can be rewritten in order to obtain a final form representation for Y(t). To do so, we initially substitute the three equations representing savings, imports and exports behaviour, *i.e.*, eqs. (3.9), (3.14) and (3.15), into the extended savings-investment balance obtained by combining eq. (3.11) along with eq. (3.10). This yields

$$I(t) = [(1/1-h)(s+m-x)] Y(t)$$
 (3.16)

Lagging this investment equation by one period and substituting the resulting expression into eq. (3.8) yields the following final form representation for Y(t)

$$Y(t) = [A + B(1/1-h)(s+m+x)] Y(t-1)$$
(3.17)

which is a first-order linear difference equation. Our primary concern here is with the overall dynamic behaviour of eq. (3.17) which represents our autonomous system, *i.e.*, a system without inputs. If such a model is expected to explain economic growth endogenously, then the mean path of such a system must have no steady state solution. The solution of eq. (3.17) is given by

$$Y(t) = G^t Y(0)$$
 (3.18)

where Y(0) is the level of real output in the base year and where

$$G = [A + B(1/1-h)(s+m-x)]$$
(3.19)

The absence of a steady state solution would imply that

$$\lim_{t \to \infty} \mathbf{G}^t - \to \infty \tag{3.20}$$

Now this is possible only if G > 1, and this manifestation of instability can be considered as sufficient proof that we have constructed a model capable of endogenously explaining economic growth through the interaction of the variables. This would, in turn, imply that G would dominate the long-run behaviour of the system and consequently Y(t) would have a periodic growth rate equal to [A+(B/1-h)(s+m-x)]. It is this estimate that shall be referred to as the potential growth rate of the economy in view of its seeming tractability in coming to terms with the causes of growth as well as its analytical ability in being able to endogenously predict the consequences thereof. Potential output is thus characterized as that level of output which would result, (given the long-run investment-income multiplier), when aggregate real investment is at its maximum feasible, *i.e.*, not constrained at a lower level either by an inadequacy of real domestic savings or by an inadequacy of real export surplus.

The model used in this paper can, in theory, provide three general links between the actual and potential levels of output. These are: (1) the induced increases in capital stock, (2) the level of utilization of existing capital stock, and (3) the changes in average productivity of capital stock due to the induced increases in them as well as the changes in its utilization rates. These links emphasize the fact that three possible types of potential output can be computed for any given period using our model. First, there is an immediate potential output which depends upon the existing capital stock adjusted to the potential levels of utilization. Second, there is a steady state potential output which would exist if the economy was geared to the induced increases in capital stock adjusted to the existing levels of utilization. Finally, there is a steady growth potential output that would exist if the economy consistently grew at its potential, *i.e.*, if the economy was fully adjusted to the induced increases in capital stock as well as to the potential levels of utilization. This paper is basically interested in determining the third type of potential output.

A key feature of the present approach is that the growth model can be easily transformed, via recursive estimation techniques, into a productivity model, thereby enabling the potential growth of productivity to be analyzed over time. Since productivity growth has not been constant in the past and has changed significantly over the business cycle, such an analysis of intertemporal variations in it could enable one to determine the behaviour of cyclically adjusted productivity, thereby enabling forecasts of potential output to be made with a greater degree of precision than that which is currently possible using conventional methodologies. The next section will deal with the application of recursive estimation techniques in order to determine the time varying parameters of the growth model and, consequently, the intertemporal variations in productivity.

4. RECURSIVE ESTIMATION RESULTS

While the estimation of most econometric models is based on block data processing, the concept of recursive estimation is comparatively little known, even though it has had an important influence on estimation methodology in the literature pertaining to the concept of modelling for control [Salmon 1977]. From the conceptual small perturbation analysis, where models inherently possess time-varying coefficients to the idea of adaptive control, where the control system is adapted to changes in the system dynamic characteristics, control theorists have tended to view the system model as inherently time-varying, and since recursive estimation is an ideal and computationally tractable form for the estimation of time-variable parameters, we have made use of it for estimating the time-varying parameters of the equations of our model [Rao and Nachane, 1988].

In its simplest version, when applied in analyzing time series data, recursive estimation entails the sequential estimation of the parameters of an equation via the simultaneous addition (deletion) of the most (least) current observation as the "locked grid-scan" is progressively slid chronologically across the entire set of time series observations available to the model builder. Therefore, the initial step in recursive estimation methodology requires adjusting the length of the grid, in effect, fixing once-and-for-all the number of observations that will be analyzed, for the purpose of estimation, at any given point in time. It needs to be noticed that such a prior adjustment of the grid length involves a trade-off between the degrees of freedom (that will be available for estimating each equation) and the number of time-varying parameters (that will be available for each equation).

Considering that: (1) our entire set of observations comprised 38 data points covering the period 1950-51 to 1987-88 on an annual basis. and (2) the maximum number of parameters that had to be estimated in any equation was just two; we decided to limit the length of our grid so as to cover just 15 observations at a time. This yielded : (1) a minimum of 13 degrees of freedom for each question which was sufficient for the interpretation of the coefficients and (2) a maximum of 24 time-varying parameters (the first set of parameters being estimated using observations over the 15-year period 1950-51 to 1964-65; the second set of parameters being estimated using observations over the 15-year period 1951-52 to 1965-66; ; and the twenty-fourth set of parameters being estimated using observations over the 15-year period 1973-74 to 1987-88) for each equation.

All the subsequent empirical results in this paper pertaining to the parameters of the model, *i.e.*, A, B, s, h, m and x, are therefore with respect to this recursive estimation technique, implying that each of these successive 24 time-varying estimates of a parameter refer to one phase of a sequence of "overlapping phases" running chronologically in stretches of 15-year periods from 1950-51 to 1987-88.

4.1 Estimating the income determination equation

The income-determination equation (3.8) which determines the dynamic behaviour of the system is the key to the entire analysis and its precise estimation is therefore of crucial importance. Using historical time series data on Y(t) and I(t) to estimate the parameters A and B would have reduced our system to a mere simulation model capable of generating (and therefore tracking) actual GDP instead of potential GDP. It

is for this reason that the following 3-step methodology is adopted in order to obtain the coefficients of eq. (3.8) using restricted least squares.

Step 1: Derive the expression for the long-run investment-income multiplier using eq. (3.5). This is done by letting t $\rightarrow \infty$ in the concerned equation. Consequently (t-1) $\rightarrow t$, and we obtain

$$Y(t) = A Y(t) + B I(t)$$
 (4.1)

where A = 1 - vbd and B = b.

Therefore, the long-run investment-income multiplier (L) is

$$L = [dY(t)/dI(t)t] = B/1 - A = b/(1 - (1 - vbd)) = 1/vd \quad (4.2)$$

Reverting to the definitions of these symbols, we realize that 'v' represents the ACOR, while 'd' represents the fraction of capital stock depreciated each period, *i.e.*, D(t)/K(t). Thus

$$L = 1/vd = [Y(t)/K(t)][K(t)/D(t)] = Y(t)/D(t)$$
(4.3)

Rewriting eq. (4.3) in its stochastic version yields

$$Y(t) = L D(t) + u1(t)$$
 (4.4)

where ul(t) is the error term. Thus, the estimated value of the long-run investment-income multiplier (\hat{L}) can be obtained using ordinary least squares (OLS) appropriately structured to account for the absence of any intercept term.

Step 2: From eq. (4.2), we realize that the extra information derived from considering the steady state solution of eq. (4.1) implies a linear constraint on the parameters of the form

$$\mathbf{B} = \hat{\mathbf{L}}(1 - \mathbf{A}) \tag{4.5}$$

which can be imposed (and tested) using restricted least squares.

Step 3: In order to do so, we rewrite eq. (3.8) in its stochastic version, incorporating the constraint given by eq. (4.5), as

$$Y(t) = AY(t-1) + \hat{L}(1-A) \quad I(t-1) + u2(t)$$
(4.6)

where $u^{2}(t)$ is the associated error term. This vields

$$[Y(t) - \hat{L} I(t-1)] = A[Y(t-1) - \hat{L} I(t-1)] + u2(t) \quad (4.7)$$

As L is a computed estimate, the sequence of observations on the transformed independent variable, *i.e.*, $[Y(t-1) - \hat{L} I(t-1)]$, and on the transformed dependent variable, *i.e.*, $[Y(t) - \hat{L}]$ I(t-1)], can also be computed and, consequently, the estimated value of A, denoted by Â, in eq. (4.7) can be obtained. From the linear constraint given by eq. (4.5), this yields $\hat{B} = \hat{L} (1 - \hat{A})$.

Following the recursive estimation methodology outlined above, we computed 24 timevarying estimates of \hat{L} using eq. (4.4), the first one pertaining to the period 1950-65; the second

chronological sequence. Correspondingly, we obtained 24 time-varying estimates of using eq. (4.7) which yielded an equal number of timevarying estimates of \hat{B} using eq. (4.5). This complete set of time-varying estimates of L, A and \hat{B} over the entire sample space 1950-88 is provided in Table 1. It is interesting to note (see Figure 1) the steady and monotonically declining values of L evincing in no uncertain manner the fall in the long-run productivity of investment, what with the multiplier decaying by nearly 33 per cent over the 38-year estimation period from 21.42 in the first phase (1950-65) to 14.28 in the final phase (1973-88). There is a more pronounced decay in B over this period (see Figure 2) and this is reflected in the near doubling of the one to the period 1951-66; ...; and so on, in $ICOR (= 1/\hat{B})$ from 2.51 to 4.86 over the sequence.

TABLE 1. RECURSIVE ESTIMATION RESULTS OF THE LONG-RUN OUTPUT EQUATION, 1950-88

Time Period of Estimation	Long-Run Multiplier	Autoregressive Term	Incremental Output Capital Ratio (B)
		()	(2)
1950-65	21.41891	0.9814	0.398391
1951-66	21.04441	0.9814	0.391426
1952-67	20.67646	0.9815	0.382514
1953-68	20.31495	0.9819	0.367700
1954-69	19.95975	0.9821	0.357279
1955-70	19.61077	0.9824	0.345149
1956-71	19.26789	0.9826	0.335261
1957-72	18.93100	0.9827	0.327506
1958-73	18.60000	0.9829	0.318060
1959-74	18.27479	0.9834	0.303361
1960-75	17.95527	0.9839	0.289079
1961-76	17.64133	0.9842	0.278733
1962-77	17.33289	0.9846	0.266926
1963-78	17.02983	0.9850	0.255447
1964-79	16.73208	0.9853	0.245961
1965-80	16.43953	0.9854	0.240017
1966-81	16.15209	0.9856	0.232590
1967-82	15.86968	0.9856	0.228523
1968-83	15.59221	0.9856	0.224527
1969-84	15.31959	0.9856	0.220602
1970-85	15.05174	0.9857	0.215239
1971-86	14.78857	0.9857	0.211476
1972-87	14.53000	0.9856	0.209232
1973-88	14.27595	0.9856	0.205573

4.2 Estimating the savings, exports and imports functions

In a similar manner, recursive estimation of the savings propensity (s), the export propensity (x), the propensity to import out of investment (h) and

the propensity to import out of income (m) yielded 24 sets of time-varying estimates for these four parameters. These are reproduced in Table 2, while their plots are provided in Figure 3. A brief discussion on these results is in order.







Time Period of Esti- mation	Savings Propen- sity	Export Propensity	Propensity to Import out of	Propensity to Import out of	Potential Growth Factors
	(s)	(x)	(h)	(m)	(G)
1950-65	0.133900	0.067744	0.129182	0.064505	1.041176
1951-66	0.138659	0.065115	0.126621	0.064874	1.043435
1952-67	0.143434	0.063344	0.124110	0.065245	1.044970
1953-68	0.146172	0.061883	0.121650	0.065618	1.044655
1954-69	0.148941	0.061127	0.119238	0.065993	1.044491
1955-70	0.153384	0.059591	0.116874	0.066370	1.044996
1956-71	0.156983	0.057465	0.114556	0.066749	1.045554
1957-72	0.161056	0.056029	0.112285	0.067131	1.046214
1958-73	0.164267	0.055168	0.110059	0.067514	1.046020
1959-74	0.170972	0.054670	0.107877	0.067900	1.046036
1960-75	0.174877	0.055104	0.105738	0.068288	1.044692
1961-76	0.180717	0.057840	0.103641	0.068679	1.043766
1962-77	0.188945	0.061763	0.101586	0.069071	1.042908
1963-78	0.196125	0.065849	0.099572	0.069466	1.041665
1964-79	0.206165	0.069420	0.097598	0.069863	1.041613
1965-80	0.213062	0.073791	0.095663	0.070262	1.041011
1966-81	0.218201	0.077739	0.093766	0.070664	1.039786
1967-82	0.222155	0.080646	0.091907	0.071068	1.039095
1968-83	0.227807	0.083670	0.090085	0.071474	1.038803
1969-84	0.232881	0.086144	0.088299	0.071882	1.038498
1970-85	0.236024	0.089190	0.086548	0.072293	1.037333
1971-86	0.240549	0.090605	0.084832	0.072706	1.037149
1972-87	0.244880	0.091945	0.083150	0.073122	1.037187
1973-88	0.248057	0.093221	0.081502	0.073540	1.036713

TABLE 2. RECURSIVE ESTIMATION RESULTS OF THE STOCHASTIC EQUATION, 1950-88

4.2.1 The savings propensity

The average as well as the marginal propensity to save (assumed to be equal in our exercise) is seen to exhibit a steady build-up increasing, without any pause, from 0.1339 in the first estimation phase (1950-65) to 0.2481 in the last estimation phase (1973-88). While the periods 1965-70 and 1970-75 witnessed near equal increases in the savings rate from 0.1339 to 0.1534 to 0.1749; the period 1975-80 was responsible for a quantum jump in the savings rate from 0.1749 to 0.2130, *i.e.*, by almost four percentage points. The period after that, especially the phase 1983-88, saw a deceleration in the savings rate, what with the recorded increases from 0.2278 to 0.2481 being equal in magnitude to those evinced in the earlier phases i.e., 1965-70 and 1970-75. Alarmingly enough, the changes in the savings rate (Δs) seem to be diminishing (the last four observations in the sequence providing us with a Δs of 0.0045, 0.0043 and 0.0032) which implies that, in the absence of any definitive impetus from appropriate policies, the savings rate is likely to converge to some insurmountable maximum in the near future.

4.2.2 The export propensity

The propensity to export out of income is seen to dip steadily from 0.0677 to 0.0547 over the first ten estimation phases, i.e., over the period 1950-74, before gaining in strength and improving steadily thereafter to finish at 0.0932. While the momentum in nominal exports, which was largely due to the depreciation of the rupee, can be traced back to the beginning of the 1970s, it is interesting to note that the "turnaround" in the average propensity to export (at constant prices) out of real income coincides with the immediate aftermath of the first oil price shock of 1973-74 which did bring about substantial structural changes in the trade block of the Indian economy. However, while the period 1975-82 saw the export propensity pushing responsible forward rapidly from 0.0551 to 0.0806, the period 1982-88 was responsible for a considerable deceleration in it as the export propensity was barely able to creep from 0.0806 to 0.0932 implying a considerable degree of stagnation on the export promotion front.

4.2.3 The propensities to import out of investment and income

The marginal propensity to import out of investment is seen to decline monotonically from 0.1292 during the first phase of estimation to 0.0815 during the last phase. Contrariwise, the marginal propensity to import out of income is seen to increase slowly, yet steadily, from 0.0645 to 0.0735 over the corresponding estimation phases. Based upon this 37 per cent decline in 'h' countervailed by only a 14 per cent rise in 'm' over the 38-year period, it would be very tantalizing to presume that the Indian economy is well on its way towards self-reliance. However, the facts, based on a deeper scrutiny, belie this presumption. Consider, the following definitional identity:

$$Y(t) = C(t) + S(t)$$
 (4.8)

which states that real income, Y(t), must equal the sum of real consumption C(t), both private as well as public, and real savings, S(t). Substituting eq. (3.9) into eq. (4.8) above yields an expression for Y(t) in terms of C(t) which, if substituted into eq. (3.14), yields

$$M(t) = h I(t) + (m/1-s) C(t)$$
(4.9)

We now realize that a rising 'm' in conjunction with a rising 's' is bound to increase the marginal propensity to import out of consumption and, given the recursive estimation results spelt out in Table 2, this is precisely what has been happening in the Indian economy. The projected version of eq. (4.9) for the first estimation phase (1950-65) and the last estimation phase (1973-88) is given below:

We now realize that the 37 per cent decline in the marginal propensity to import out of investment is countervailed by a 31 per cent rise in the marginal propensity to import out of consumption (both private as well as public), and considering that C(t) far outweighs I(t) in the national income balance sheet, any presumption of having gradually attained self-reliance by virtue of the steadily declining marginal propensities to import out of investment seems quite premature.

This vitiation of the self-reliance conjecture has

brought in its wake a far more serious problem which, in view of its burgeoning nature, seems quite intractable. The recursive estimation methodology which yielded time-varying estimates of these "fixed" parameters indicates that the Indian economy has undergone considerable structural change which has been, unfortunately, of a deleterious variety. As trying to alter these "fixed" parameters lies at the very heart of development planning, we attempt to explain this structural retrogression by means of an in-depth analysis of the two-gap specification with inequalities replacing the balances to understand the problem. If we do so, then the savings balance, eq. (3.10), can be written as

$$I(t) < sY(t) + F(t)$$
 (4.11)

where the inequality now replaces the former equality to indicate that this is the savings constraint or "gap". In a similar manner, the trade balance, given by eq. (3.13), can be specified in constraint form by replacing the equality by an inequality and incorporating eq. (3.15) into it. Doing so yields the trade "gap" given by

$$I(t) < (1/h) F(t) + {(x-m)/h} Y(t)$$
 (4.12)

The terms F(t) and Y(t) enter both of these inequality constraints and when they are assigned historical values, only one of eqs. (4.11) and (4.12) will be binding, *i.e.*, investment (and therefore the growth rate of real output) will be restricted to a lower level by one inequality constraint than by the other. This dichotomy provides a basis for classifying time-periods (for a given country) into savings-constrained regimes if eq. (4.11) is binding or, alternatively, tradeconstrained regimes if eq. (4.12) is binding. It also provides a means for assessing the "shadow price" of a balance of payments deficit, since the impact of increased capital inflow on investment is greater when the trade "gap" rather than the savings "gap" is binding.

It is therefore possible to use the recursive estimation results, providing the time-varying parametric estimates of s, x, h, and m, set out in Table 2, to classify each time period of estimation as either a savings-constrained or tradeconstrained regime using the methodology just spelt out. For this purpose, we equate F(t) and Y(t) with their respective means over the concerned estimation period and substitute these exogenously assigned values into eqs. (4.11) and (4.12) in order to determine the binding constraint.

Doing so yields some very disturbing results. It is seen that the first two estimation periods, i.e., 1950-65 and 1951-66, were clearly savingsconstrained regimes. After a brief period, i.e., 1952-67 and 1953-68, when the quanta of investment determined using either of the constraints were approximately equal, the Indian economy switched towards a trade-constrained regime and was locked onto it for the next sixteen estimation periods, *i.e.*, 1954-69 to 1969-84. However, after the estimation period (1964-79), it became apparent that a re-switching back towards a savings-constrained regime was not merely inevitable, but imminent. This switchback towards a savings-constrained regime occurred in the estimation period (1970-85) and ever since the predicted level of investment via the trade constraint has been well in excess of that predicted by the savings constraint.

That the economy started off from a savings constrained regime due to a low savings rate seems quite reasonable. Equally so, is the fact that the switch towards a trade-constrained regime was made with the advent of devaluation in 1966 and in the face of rapidly rising savings rates whose pace outstripped the rate at which the trade constraint was becoming increasingly steeper due to the falling marginal propensities to import out of investment (h). Therefore, this era of a trade constrained regime, which although replete with considerable deficits in the balance of payments position, paid a relatively lower "shadow price" for such deficits because the falling h's implied that the marginal impact of these increased capital inflows on investment (being given by the slope of the trade constraint, *i.e.*, 1/h) was being continuously revised upwards because investment was being restricted to a lower level by the trade constraint.

In view of this, the re-switching of the Indian economy back to a savings-constrained regime is alarming because of its implications. Ordinarily, the oil price shocks should have made the trade constraint more critical but the fact that this has not happened is primarily because of the stagnation in the savings rates witnessed since the early 1980s. The resulting consequences that this entails is that in future the "shadow price" of the already massive balance of payments deficit is going to be very high because the economy, shackled by a low level of domestic savings, will be unable to take advantage of the ever increasing slope of the trade constraint to push up its investment levels, because these levels will now be bound to a lower level by the savings constraintwhose slope is always equal to unity.

A solution to the predicament would be to increase S(t) and reduce F(t) in equivalent amounts thereby pre-empting any attenuation in I(t). In view of our earlier comments that the savings rate seems to be closing in onto an insurmountable maximum and that the import propensities do not seem inclined to permit any untoward reduction in M(t), the only way out of the dilemma is to increase Y(t), and consequently X(t), and this brings us back to the question posed at the outset of this paper: What is the potential level of output in the Indian economy so that an appropriate target for an increase in Y(t) can be set?

4.3 Estimating the potential growth rates

From eq. (3.19), it is seen that once the parameters A, B, S, x, h, and m have been obtained, recursively or otherwise, the growth factor, G, of the system, can be obtained by merely inputting these parametric estimates into the right-hand-side of the equation governing the long-run behaviour of the model. Doing so, yields 24 time-varying values of G, denoted by G(t), one for each period of estimation, and it is seen that all of these are distinctly more than unity thereby testifying to the fact that the constructed model is capable of endogenously explaining economic growth and that the mean path of such a system would have no steady state solution for its components. Therefore Y(t) must grow steadily, over the concerned time-period of estimation, at this rate. These time-varying estimates of the potential growth factors are given by

$$G(t) = A(t) + [B(t)/1-h(t)][s(t)+m(t)-x(t)]$$
(4.13)

and these are listed in the last column of Table 2. The estimates of potential growth rates in percentage terms, g(t), can be computed merely by subtracting unity from the corresponding potential growth factors and multiplying the resultant by 100. Thus, a potential growth factor of 1.0412 for the first time-period of estimation (1950-65) will imply a potential growth rate of 4.12 per cent, and so on.

It is extremely interesting to note, on scanning these time-varying estimates of the potential growth rates, the following features of the Indian growth scenario. Initially, there is a gradual build-up in these growth rates from 4.12 per cent in the first estimation phase (1950-65) to 4.60 per cent in the nineth estimation phase (1958-73), with some minor oscillations around this rising trend. Then with the advent of the first oil price shock in 1973-74, there is a sharp and continuous downward spiral in the potential growth rates from 4.60 per cent in the tenth estimation phase (1959-74) to 4.16 per cent in the fourteenth estimation phase (1963-78), where it hovers briefly on a plateau for the next estimation phase as well, i.e., 1964-79.

Then, with the impact of the second oil price shock in 1979-80, the potential growth rate slips down further to 4.10 per cent in the sixteenth estimation phase (1965-80), and continues to do so until it hits a rock bottom of 3.67 per cent in the final estimation phase (1973-88). It is significant to note that each of the oil price shocks sheared off a distinct half a percentage point from the potential growth rate of the Indian economy, although we shall see, in the following sections, that when we construct 'envelopes' of the levels of potential output based on these period-wise potential growth rates, the cumulative effect of both these shocks will be transferred to the first, and more damaging, of the events. Interestingly enough, these slippages correspond quite closely

with those arrived at for the U.S. economy in the light of similar events that transpired there in the post 1973 era [Dornbusch and Fischer, 1988].

5. THE POTENTIAL LEVELS OF OUTPUT

In order to move from these time-varying estimates of period-wise potential growth rates to a more orderly series of annual estimates of potential output for the Indian economy, we have to construct an 'envelope' of all the alternative estimates of potential output for each period. In this context, we should remember that each time-period of estimation, which considerably overlaps with the preceding periods, is characterized by its own distinct growth rate of potential output which is capable of internally generating its own distinct projection of potential output which could be different, for all the overlapping periods, from the ones generated by the earlier projections using alternative potential growth scenarios.

In order to initiate this search for the envelope, we have to specify at the outset, a bench-mark estimate of potential output for the first time period, *i.e.*, 1950-51. In order to do so, we shall assume that the actual level of GDP in 1950-51, *i.e.*, Rs. 17,536 crores (at 1970-71 prices), was equal to the potential level of GDP for this year, thereby initiating our potential output series with the assumption that the output gap in 1950-51 was zero. While this assumption could, of course, be challenged, given the absence of any other relevant information on which to base our initialization, it remains the only reasonable one to make under the circumstances.

Having done so, we initially construct an annual series of potential output for the first estimation phase (1950-65) using Rs. 17,536 crores as the base year estimate and projecting forward for the next 14 years until the end of the estimation period in 1964-65 at an annual growth rate of 4.12 per cent which was the potential growth rate evinced over this first estimation phase. In the second iteration, we use the projected estimate of potential GDP for 1951-52, *i.e.*, Rs. 18,258 crores (= 1.0412 x 17,536), as the base year estimate and project forward for the next 14 years until the end of the estimation period in 1965-66 at an annual growth rate of 4.34 per cent which was the

potential growth rate estimate for the second estimation phase (1951-66).

For the third iteration, we now have to choose an appropriate base year estimate of potential GDP for 1952-53. As we already have two overlapping projections for this year, i.e., one obtained by projecting forward potential output using the base and the potential growth rate of the first estimation phase which works out to Rs. 19,010 crores (= 1.0412 x 1.0412 x 17,536) and the other one obtained by projecting forward potential output using the base and the potential growth rate of the second estimation phase which works out to Rs. 19,051 crores (= 1.0434 x18,258), we go about our construction of the potential output series by choosing the higher of these two estimates, *i.e.*, Rs. 19,051 crores, to be our base year estimate of potential GDP for

1952-53 and projecting forward for the next 14 years until 1966-67 at an annual growth rate of 4.50 per cent which was the potential growth rate over the third estimation phase (1952-67).

By doing so, we are implicitly constructing an envelope of the most dominant of all these alternative estimates of potential output, each of them being governed by the locally dominating effect of the time-varying growth factor of the system which is specific only for its corresponding estimation period. In the fourth iteration, the choice of an appropriate base year estimate of potential GDP for 1953-54, *i.e.*, YP(1953-54), is now spread over three overlapping projections for this year. Following the methodology just discussed, our choice is given by

$$YP(1953-54) = Max[(1.0412)^{3} 17536, (1.0434)^{2} 18258, (1.0450)^{1} 19051] = Max[19794, 19877, 19908] = 19908$$
(5.1)

and therefore it is this base year estimate of potential GDP for 1953-54, *i.e.*, Rs. 19,908 crores, that is projected forward for the next 14 years until the end of the estimation period in 1967-68 at an annual growth rate of 4.47 per cent which was the potential growth rate over the fourth estimation phase (1953-68).

The entire set of annual estimates of potential GDP for the Indian economy from 1950-51 to 1987-88, obtained in the manner spelt out above, is provided in Table 3 along with the corresponding set of annual estimates of actual GDP for the Indian economy, all of them being measured in Rs. crore at 1970-71 prices (see Figure 4). The average annual growth rate of potential GDP over this 38-year period works out to 4.22 per cent as against the historical annual growth rate of 3.78 per cent.

6. THE OUTPUT GAP

We shall now discuss the behaviour of actual output relative to potential output over the peaks and troughs of a business cycle. In Figure 4, the steady line, denoted by +++, indicates the trend path of potential GDP for the Indian economy

over the period 1950-88. This trend path is the one actual GDP would have taken if the economy was fully adjusted to the induced increases in capital stock as well as to their potential levels of utilization. This rising trend level of potential output reflects the increases in steady-growth output that would accrue as a consequence of the economy consistently growing at its potential.

However, unfortunately, the actual levels of GDP for the Indian economy have never ever attained their potential levels and, rather, they have fluctuated around a trend which has been distinctly below that of potential GDP, right through the business cycle, with each successive trough being further away from the trend path of potential output as compared to the previous one. The erratic line, denoted by ***, in Figure 4 shows these cyclical departures of actual output from potential output. Deviations of actual output from potential output are referred to as the output gap which measures the loss entailed as a result of the economy operating below its 'fullcapacity' levels. Thus, we have the following definitions:





Year	Actual GDP* (Y)	Potential GDP* (YP)	Percentage Output Gap (gap)
1950-51	17536	17536	0.00
1951-52	17883	18258	2.05
1952-53	18517	19051	2.80
1953-54	19688	19908	1.11
1954-55	20233	20803	2.74
1955-56	20870	21738	3.99
1956-57	22013	22716	3.09
1957-58	21631	23751	8.93
1958-59	23465	24849	5.57
1959-60	23894	25997	8.09
1960-61	25534	27198	6.12
1961-62	26440	28455	7.08
1962-63	27003	29770	9.29
1963-64	28380	31146	8.88
1964-65	30617	32586	6.04
1965-66	29023	34092	14.87
1966-67	29307	35667	17.83
1967-68	31868	37315	14.60
1968-69	32725	39040	16.18
1969-70	34802	40844	14.79
1970-71	36736	42732	14.03
1971-72	37312	44706	16.54
1972-73	36940	46669	20.85
1973-74	38722	48818	20.68
1974-75	39080	50610	22.78
1975-76	42890	52468	18.25
1976-77	43160	54395	20.65
1977-78	46917	56391	16.80
1978-79	49633	58462	15.10
1979-80	47138	60609	22.23
1980-81	50736	62834	19.25
1981-82	53168	65141	18.38
1982-83	54280	67532	19.62
1983-84	58736	70012	16.11
1984-85	61058	72582	15.88
1985-86	64154	75247	14.74
1986-87	66695	78009	14.50
1987-88	69097	80873	14.56

TABLE 3. ACTUAL OUTPUT, POTENTIAL OUTPUT AND THE PERCENTAGE OUTPUT GAP, 1950-51 TO 1987-88

* Rs. crore at 1970-71 prices

Output Gap = Potential Output - Actual Output (6.

Percentage	_	Potential Output-Actual Output	V100	
Output Gap	-	Potential Output		(6.2)

The percentage output gap allows us to measure just how large are the cyclical deviations of actual output from potential output, and is usually indicative of a recessionary phase in the economy. The estimates of the percentage output gap for the Indian economy for the 38-year period 1950-88 are provided in the last column of Table 3 and are plotted in Figure 5. It is seen that while the output gaps as well as the percentage output gaps have grown (shrunk) during a recession (recovery), they have never actually become negative essentially implying that the induced increases in

(6.1) capital stock have never been fully adjusted to their potential rates of utilization.

Much of the Indian economic track record can be read from the (percentage) output gap. Thus, it is seen that over the period of the First Plan (1951-56), the output gap remained fairly stable reaching a peak level of 4.0 per cent by the end of the plan in 1955-56. Over the period of the Second Plan (1956-61), the output gap started increasing, helped along in its momentum by a major recession in 1957-58 and a minor one in 1959-60, and, although it did peak at 8.9 per cent in 1957-58, a strong burst in the growth rate of GDP in 1960-61, to the tune of nearly 7 per cent, saw the output gap reduce appreciably to 6.1 per cent by the time the plan had terminated. The



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Third Plan (1961-66) started off quite well and a sustained expansion in the first four years of the plan forced down the output gap to 6.0 per cent by 1964-65. As far as the output gap was concerned, this year marked the end of the halcyon days for the Indian economy. As a result of two successive and disastrous drought years in 1965-66 and 1966-67, the output gap witnessed a quantum jump by surging forward to 17.8 per cent in 1966-67, which was nearly three times the level recorded just a couple of years ago. In a manner of speaking, the Indian economy has, till today, never really recovered from those shocks more than 21 years after they occurred, because the events that transpired later on, especially until the late 1970s, only served to reinforce, rather than attenuate, this disparity between potential and actual output.

In the wake of these uncertainties, there was a temporary cessation of medium-term planning during the period of the three Annual Plans (1966-69), and by 1968-69 the output gap was still hovering at 16.2 per cent inspite of a very good performance by the economy in 1967-68 when GDP increased to the tune of nearly 9 per cent. Over the period of the Fourth Plan (1969-74), two successively bad performances by the economy over the period 1971-73 brought about a new recessionary phase in the Indian economy causing the output gap to lurch forward to 20.8 per cent in 1972-73. Alarmingly enough, even though there was a reasonably good performance recorded by the economy the very next year, what with GDP increasing by nearly 5 per cent in 1973-74, the output gap decreased only marginally to 20.7 per cent.

Over the Fifth Plan (1974-78), the drought of 1974-75 saw the output gap peak at an all-time high of 22.8 per cent. However, a GDP growth rate well in excess of 9 per cent in 1975-76 forced down the gap to 18.2 per cent. The relief, however, was short lived because a recession in the economy the very next year made further inroads into the output gap causing it to increase to 20.7 per cent. By then the deleterious impact of the oil price shock on the potential growth rate of the economy had begun to make itself felt and this retardation in the trend growth rate of potential output in conjunction with an 8 per cent growth rate in GDP 1977-78 forced down the output gap to 16.8 per cent by the time the Fifth Plan had been terminated prematurely in 1977-78.

The Draft Sixth Plan (1978-83) started off well what with a GDP growth rate of nearly 6 per cent in 1978-79 causing the output gap to reduce to 15.1 per cent that year. However, in the very next year, the Indian economy was buffetted by the second oil price shock which was in unfortunate conjunction with yet another drought of an unprecedented magnitude. The combined havoc wrought by these two events brought about a reduction in the GDP growth rate to the extent of more than 5 per cent in 1979-80 - an event which had been matched only once before in 1965-66 and, as a consequence, the output gap shot upto 22.2 per cent that year which, when translated into actual amounts, yielded an absolute output gap of Rs. 13,471 crore (at 1970-71 prices) - a figure never attained hitherto and never exceeded thereafter!

The Revised Sixth Plan (1980-85), which replaced the Draft Sixth Plan in 1980-81, made strong inroads into the output gap by virtue of consistently good performances by the economy right through the plan period, although it must not be forgotten that the shearing-off of the percentage point from the potential growth rate of the economy as a result of the oil price shocks, *i.e.*, from 4.55 per cent prior to 1974-75 down to 3.67 per cent since then, did contribute largely towards this containment of the menace of the 'expanding frontier'. Be it as it may, the fact remains that by the time the Sixth Plan had ended in 1984-85, the output gap was down to a creditable 15.9 per cent.

The Seventh Plan (1985-90) has shown every indication of even bettering the performance of the earlier plan by continuing what could probably be the longest expansionary phase along the business cycle for the Indian economy, whose genesis can be traced back to the turn of the last decade. By the time the mid-point of the Seventh Plan had been reached in 1987-88, the output gap had shrunk to 14.6 per cent which, if we overlook the performance of the earlier year, was the lowest recorded gap since the Indian economy was ruthlessly dragged out from the comforting cocoon of a single digit output gap in 1965-66. In terms of absolute amounts, the output gap in 1987-88 was a more modest Rs. 11,776 crore (at 1970-71 prices) as compared to the absolute output gap recorded in 1979-80. In terms of current prices, however, this amounted to Rs. 45,692 crore which was the highest ever recorded value of the absolute output gap measured in current prices.

Since the absolute output gap measures the reduction in the flow of output as a result of the economy operating below its 'full-capacity' limits, we can compute the cumulative total reduction in the flow of output, CUM, merely by

$$CUM = \sum YP(t) - \sum Y(t)$$
(6.3)

where YP(t) and Y(t) refer to potential and actual output at time t, respectively; and where the summation is over the 38-year period 1950-88. The resultant cumulative output loss over this period worked out to a staggering Rs. 240,929 crore (at 1970-71 prices) which more than amounted to the sum of actual GDP of the Indian economy over the 11-year period 1950-61. This underscores, in no uncertain manner, the fact that even minute differences between the growth rates of potential and actual output can cumulate over time to yield large output losses.

These results clearly highlight the inescapable conclusion that the Indian economy is currently operating far below its productive potential and, although the long expansion of the 1980s has largely dissipated fears regarding the possibility of the Indian economy approaching the so-called 'stationary state', there is an urgent need to forcefully close the output gap as rapidly as possible so that the deprivation entailed by an ever-increasing cumulative output loss is minimized.

Moreover, if the postulated feedforward between present actual growth rates and future potential growth rates is activated as a result of the recovery currently in progress, then we can expect productivity to increase appreciably in the years ahead and if appropriate policy measures are not taken soon enough, seriously enough, and effectively enough, then the successes we have enjoyed in our battle against this 'expanding frontier' since the inception of the last two plans would have been hopelessly frittered away and, once this advantage is lost, the chances of ever narrowing the output gap to reasonable proportions in the future, when the rate of growth of potential output starts accelerating once more, would become very remote.

7. GROWTH AND OUTPUT GAPS

While the theoretical underpinnings of the relationship between percentage output gaps, potential growth rates and actual growth rates have already been established in the literature, no estimated equivalent exists within the context of the Indian economy. Such an equation could be an extremely useful guide to policy makers because it would allow them to determine how a particular growth rate over a plan period would affect output gaps. In effect, it would allow policy planners to answer questions pertaining to the duration of time it would take for the economy to return to, say, a 6 per cent output gap, given the fact that it was currently operating at a 15 per cent level. The answer depends on how fast the economy is growing, relative to the trend growth rate of potential output, during the recovery.

Theoretically, it can be shown that the change in the percentage output gap (Δ gap) is positively related to the excess of the average potential growth rate (g) over the average actual growth rate (a) weighted by an approximate factor of proportionality k = exp[(t-1) ln(1+a) - t ln(1+g)], where t denotes the number of intervening periods between the base year and the terminal year. From the results spelt out in Section 5, we set t=37, a=0.0378 and g=0.0422, thereby yielding k=0.8240.

In order to substantiate this theoretical result, we regressed the year-to-year changes in the percentage output gaps on the corresponding excesses of the annual potential growth rates over the annual actual growth rates. In Table 4, we have set out the entire data, over the 37-year period 1951-88, used in the analysis, which has been arranged in plan-wise sets (also see Figure 6). The two sets of estimates in parentheses at the conclusion of every plan indicate the average annual growth rates of actual and potential output over



the concerned plan period, respectively. Our 37-year period was given by: estimated regression equation over the entire

TABLE 4. ACTUAL GROWTH RATES, POTENTIAL GROWTH RATES AND THE CHANGE IN THE PERCENTAGE OUTPUT GAP,
1951-52 TO 1987-88

	Plan/Year		Actual Growth Rates	Potential Growth Rates	Change in the Per- centage Output Gap
			(a)	(g)	(gap)
I	PLAN:	1951-52	1.98	4.12	2.05
		1952-53	3.55	4.34	0.75
		1953-54	6.32	4.50	-1.69
		1954-55	2.77	4.50	1.63
		1955-56	3.15 (3.54)	4.49 (4.39)	1.25
п	PLAN:	1956-57	5.48	4.50	-0.90
		1957-58	-1 74	4 56	5 83
		1958-59	8 48	4.50	-3.36
		1050 60	1 93	4.02	-5.50
		1040 41	1.0J 6.96 (A.12)	4.02	2.52
		1900-01	0.80 (4.12)	4.62 (4.58)	1.97
ш	PLAN:	1961-62	3.55	4.62	0.96
		1962-63	2.13	4.62	2.21
		1963-64	5.10	4.62	-0.41
		1964-65	7.88	4.62	-2.84
		1965-66	-5.21 (2.60)	4.62 (4.62)	8.83
	ANNUAL:	19 6 6-67	0.98	4.62	2.96
	PLANS	1967-68	8.74	4.62	-3.23
		1968-69	2.69 (4.08)	4.62 (4.62)	1.58
īv	PLAN	1969-70	635	4.62	-1.38
		1970-71	5 56	4.62	-0.76
		1071.72	157	4.62	2 51
		1072 72	1.00	4 30	4 31
		1973-74	4.82 (3.42)	4.60 (4.57)	-0.17
v	DI AN.	1074 75	0.02	2 (7	2 10
v	PLAN:	1974-75	0.92	3.07	2.10
		1975-76	9.75	3.07	-4.55
		1976-77	0.63	3.67	2.40
		1977-78	8.70 (4.92)	3.67 (3.67)	-3.85
	DRAFT:	1978-79	5.79	3.67	-1.70
VI	PLAN	1979-80	-5.03 (0.24)	3.67 (3.670	7.12
	REVISED:	1980-81	7.63	3.67	-2.97
VI	PLAN	1981-82	4.79	3.67	-0.87
. –		1982-83	2.09	3.67	1.24
		1083-84	8.21	3.67	-3 52
		1984-85	3.95 (5.31)	3.67 (3.67)	-0.23
VII	DI A N.	10.95 96	5.07	3.67	.1.14
V II	L'LAN:	100(07	2.07	2.67	0.24
		1980-8/	3.90	3.07	-0.44
		1987-88	3.60 (4.21)	3.07 (3.07)	0.06

 $\Delta gap = 0.8364 (g-a)$ (7 (81.9)

where the figure in parentheses beneath the estimated coefficient indicates its t-statistic. The (adjusted) coefficient of multiple correlation for eq. (7.1) is estimated at 0.9946, while the standard error of estimate is 0.2223. It is thus ascertained that both the theoretically predicted value of k

(7.1) (*i.e.*, 0.8240) and its empirically estimated value (i.e., 0.8364) lie in close proximity to each other and this validation, along with the summary statistics of eq. (7.1), provide sufficient evidence of the close nexus between output gaps and the ndard growth rate.

This estimated relationship between real growth and changes in the output gap indicates that for approximately every 1.2 percentage points of growth (*i.e.*, 1/0.8364) in real GDP above potential GDP that is sustained for a year, the output gap declines by 1 percentage point. This 1.2 to 1 relationship which provides proof of an empirical regularity will yield a sensible translation from growth to output gaps although, being derived from a stochastic equation, the rule isonly approximate and may not work precisely from year to year.

Reverting back to the question posed at the outset of this section, we realize that, given the current growth rate of potential output as 3.7 per cent per year, one possible path to return to a 6 per cent output gap is for actual GDP to grow at 4.9 per cent per year for the next 9 years. On this path, each year we are growing at 1.2 per cent above that of potential output, and thus each year we reduce the output gap by 1 percentage point, thereby taking 9 years to bring down the gap from the currently operating level of 15 per cent to its targeted level of 6 per cent. Thus, eq. (7.1) allows us to move from an output growth targeting to an output gap targeting.

8. CONCLUSION

The methodology, outlined in this paper, of constructing a system capable of endogenously explaining economic growth is a flexible tool for deriving time-varying potential growth rates. Although simple, the technique of recursive estimation emphasizes the transformations that take place over time in the basic determinants of economic growth. This framework which is assembled around a productivity equation which examines the long-run links between investment and income is thus capable of analyzing changes in productivity as well. While the locked system technically eliminates the need to bring in exogenous factors to explain economic growth, it does make certain exogenous factors (such as depreciation) quite important because of their use in the prior estimation of governing parameters.

If the postulated feedforward between present actual growth rates and future potential growth rates has any validity, then productivity will increase appreciably in the years ahead as a result of the long expansion currently in progress. This is true because the technical change embodied in the rising long-run investment-income multipliers will be translated directly into increased productivity via the marginal product of capital (in terms of diminishing ICORs).

Moreover, with ever-increasing levels of output and, consequently, savings and, hopefully, exports, the economy might once again re-switch back onto a trade-constrained regime implying that it would be able to once again take full advantage of the (rising) slope of the trade constraint and thereby effectively convert net capital inflows into more than equivalent levels of investment (and output). This would then not only reduce the shadow price of a balance of payments deficit in the years ahead but also increase the productivity of foreign aid.

We have estimated here measures of potential output for the Indian economy using an extremely novel approach which overcomes some of the more significant drawbacks present in conventional methodologies which are usually resorted to in the literature for this purpose. Needless to say, the estimates of potential output that we have obtained are far from perfect in view of the fact that even a precise definition of potential output is fraught with complexities and, consequently, the resulting estimates are bound to dissatisfy several observers (See following note). Be that as it may, an attempt has been made, for the very first time within the Indian context, to provide benchmark estimates of the output gap which, apart from being plausible enough, uncovered several interesting features regarding the track record of the Indian economy.

We hardly need to emphasize that the unwary can get into trouble with any econometric model and consequently future work in this area should concentrate on revising and updating these estimates because the concept of potential output is central to most of the policy issues facing us today. In closing this paper, we urge that this caveat be kept in mind at all times.

NOTE

One possible source of such dissatisfaction which could possibly arise is the explicit assumption of "dominance" that we have adopted in tracing out the envelope of the alternative overlapping projections of potential output in order to arrive at the final time series estimates of potential output. It needs to be noted that rather than assuming that the base year estimate for any period corresponds to the maxmum predicted level of potential output for that year and thereby constructing an envelope of the most dominant of of all these alternative estimates, we could have traced out the locus of potential output using an alternative methodology wherein the *last* predicted level of potential output for any year is assumed to be its true estimate. However, there were two compelling reasons as to why such a methodology was not adopted in this Study.

The initial reason was a theoretical one. As mentioned in Section 3.2 of the paper, the model used can, in theory, provide three general links between the actual and potential levels of output, emphasizing the fact that three possible types of potential output can be computed for any given period using the model. These are: (i) *Immediate Potential Output* Which depends upon the existing capital stock adjusted to the potential levels of utilization, (ii) *Steady-State Potential Output* which would exist if the economy was geared to the induced increases in capital stock adjusted to the existing levels of utilization, and (iii) *Steady Growth Potential Output* that would exist if the economy consistently grew at its potential implying that it was being fully adjusted to the induced increases in capital stock as well as to the potential levels of utilization.

As this paper was basically interested in determining the third type of potential output, it logically implies that the concept of dominance must be applied in order to arrive at the resulting estimates of potential out put because the very tracing out of the "envelope" implies *inter alia* that we are assuming the economy is adjusting itself not only to the induced increases in capital stock but also to its potential levels of utilization which can be proxied by its past recorded maximum level of the output-capital ratio which, under the assumption of the recursive estimation technique, is supposed to be still available over the entire duration of the concerned estimation period.

If, under the circumstances, we merely used the last predicted level of potential output for any year to be its corresponding estimate of potential output, disregarding, in the process, higher estimates (if any) obtained via predictions from earlier overlapping phases, we would be actually computing a steady-state potential output because while the economy would still be geared to the induced increases in capital stock, these increases would be technically adjusting themselves to the existing lower levels of utilization, corresponding to the concerned estimation period, ignoring the fact that the economy had adjusted itself to higher utilization levels in the past.

Extending this logic, this would imply that if all earlier levels of utilization are overlooked and if these happen to be higher than the current one, which they naturally would be if the latest prediction of potential output lies below the dominant envelope, then the estimated annual levels of potential output (defined explicitly as steady-state potential output) for the Indian economy are bound to be considerably underestimated. Needless to say, this alternative technique would have yielded an identical time path for potential output vis-a-vis the one obtained by us in the paper only if the potential growth factors for each successive overlapping estimation phase had been at least as large as the preceding one. As this was not the case, we did carry out an alternative exercise wherein annual time series estimates of steady-state potential output were estimated on the lines suggested above. This yielded a

potential output of Rs.75,193 crore in 1987-88, which translated itself into an output gap of 8.11 percent. Both these estimates, in our opinion, understated the true extent of the output loss for the Indian economy, especially if we were considering the conventional definition of potential output.

The second reason was an empirical one. Had we resorted to estimating steady-state potential output on the lines suggested above, then the resulting annual estimates of the growth rate of potential output would have been contaminated by year-to-year fluctuations of substantial amplitudes quite uncharacteristic of a potential growth rate series which, by definition, is expected to exhibit steady-growth with sharp "kinks" being characteristic only of a structural break. This is because we would no longer be operating on the dominant envelope of alternative steady-growth potential output estimates but rather on the erratic locus of points obtained by applying different growth rates of potential output to its base year (1950-51) estimate. This "jitter" would have been rendered all the more conspicuous because after the last estimation period (1973-88) there would have been no more potential growth and consequently all subsequent predictions would have been carried out using this last phase estimate of the potential growth rate, i.e., 3.67 percent per annum, thereby deriving a smooth path for potential output from 1974-75 onwards which would be in stark contrast to a highly fluctuating one prior to this period. Contrariwise, the annual estimates of the rates of growth of (steady-growth) potential output derived in this paper (see Table 4) exhibit a steady build-up from 4.12 percent in 1951-52 to 4.62 percent in 1958-59 and remain locked onto this trajectory uptil 1973-74, before slipping down onto a lower growth trajectory of 3.67 percent thereafter. A brief "blip" in 1972-73 heralding the approaching structural break which, interestingly enough, coincides almost with the aftermath of the first oil-price shock can be considered symptomatic of the tracing out of such dominant envelopes. No such information on the possibility of structural breaks would have been discernable had we resorted to estimating steady-state potential output on the lines suggested above. It is for these two reasons that this alternative methodology was not adopted in the estimation of potential output.

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IMPACT OF OIL PRICE HIKES ON INDIA'S TERMS OF TRADE AND BALANCE OF PAYMENTS

H. Ashok Chandra Prasad

The unprecedented rise in the price of petroleum and petroleum products in 1973-74 and 1979-80 (or the two oil shocks), had serious repercussions on the economies of the world. A widely held belief among economists is that the oil price hike has led to adverse terms of trade and a severe deficit in the balance of payments of oil-importing LDC's like India (which are worst hit by the oil price hike), resulting in lower 'capacity to import'. But the oil price hike has also acted as a blessing in disguise to underdeveloped countries especially India. The oil boom and the inflow of petro-dollars to the OPEC countries has led to increased demand for Indian labour in these countries and consequently the remittances from these emigrants have soared up to more than compensate the negative effects of the oil price hike.

There are a few studies quantifying the negative calculations of India. The study extends upto effect of the oil price hikes on India's terms of trade and balance of payments. For instance, Chishti and Upadhyaya have quantified the effect of the first oil price hike. They calculated the import price index for India excluding petroleum and petroleum products (or oil) to arrive at the percentage excess of India's net barter terms of trade (and income terms of trade) in the absence of rise in prices of oil, over those with the rise in prices of oil. They also estimated the excess payments India had to make, consequent to the oil price hike, to assess the effect of the first oil price hike on India's balance of payments [Chishti and Upadhyaya, 1981, Pp 101-126]. There is also the study by G.C. da Costa and Trivedi [Dacosta and Trivedi, 1982, Pp 82-83]. But, so far, there are no studies assessing and quantifying the positive effect of the inflow of remittances which are a direct effect of the oil price hikes. The purpose of this paper is to quantify the negative and positive impact of the two oil price hikes on India's terms of trade and balance of payments, and also to assess their indirect positive and negative effects.

The first oil price hike was in December 1973. Therefore, the study is confined to the period after 1972-73. The year 1972-73 is taken as the base year to assess the impact on the balance of payments. However, for terms of trade calculations, the year 1968-69 is taken as the base, as this is the base year taken in the official terms of trade

1984-85, the latest year for which adequate data are available.

NOTES ON METHODS

Direct negative effects on terms of trade : We first consider the negative effect on net barter terms of trade and income terms of trade (capacity to import). For this purpose, we calculate net barter terms of trade and income terms of trade which exclude petroleum and petroleum products, and compare them with the ordinary (or general) net barter terms of trade and income terms of trade respectively.

Direct negative effect on net barter terms of trade : The method followed to calculate the net barter terms of trade excluding oil is the same as the one followed by Chishti and Upadhyaya [Chishti and Upadhyaya, 1981, Pp 103-106]. The ordinary (or general) export index (as given by the DGCIS) divided by the revised import index, multiplied by 100, gives the net barter terms of trade excluding oil.

Symbolically,

$$T^* = \frac{P_x}{P_m^*} \times 100$$
, where

T' = Net barter terms of trade excluding oil

 $P_{z} = Price index of exports (general)$

 $P_m^* =$ Revised price index of imports excluding oil

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The revised price index of imports is computed by using the following formula.

$$P_{m}^{\bullet} = \sum_{\substack{i=0\\i\neq 3}}^{\bullet} W_{i}P_{i}, \quad \text{where}$$

- W_i = Weight of items under section 'i' (i = 0 8).
- P_i = Price index of imports of items under section 'i' (i= 0 8)

The net barter terms of trade, excluding oil, calculated as above is compared with the general net barter terms of trade (DGCIS) to arrive at the negative effect on net barter terms of trade.

Direct negative effect on income terms of trade (capacity to import): The general income terms of trade is computed by dividing the value index of exports (computed from the value figures given in the balance of payments) by the general price index of imports.

Symbolically,

$$I_{\rm g} = \frac{V_{\rm x}}{P_{\rm m}} \times 100$$
, where

- l_G = The general income terms of trade.
- \tilde{V}_x = Value index of exports.

 P_m = General Price index of imports.

The income terms of trade as computed by the DGCIS is not used here as it is not comparable with our income terms of trade, including remittances, which make use of value figures as given in the balance of payments. The income terms of trade, excluding petroleum and petroleum products, is computed by dividing the value index of exports by the price index of imports excluding petroleum and petroleum products. Symbolically,

$$I^* = \frac{V_x}{P_m^*} \times 100$$
, where,

 $I^* =$ Income terms of trade excluding oil.

 $V_x = Value index of exports.$

 $P_m^{\bullet} = Revised price index of imports excluding oil.$

The general income terms of trade is compared with the income terms of trade excluding oil to arrive at the negative effect of the oil price hike on income terms of trade.

Direct negative effect on balance of payments : To evaluate the effect of the oil price hike on balance of payments, Chishti and Upadhyaya have taken the estimated difference between the foreign exchange outgo as a result of the import of petroleum and petroleum products on the basis of the rise in price similar to other product groups and the actual foreign exchange outgo as a result of the prevailing market price consequent to OPEC action for the years 1973-74 to 1978-79 [Chishti and Upadhyaya, 1981, p 108].

We adopt a similar approach. The percentage change in prices of other commodities (*i.e.*, prices of commodities other than items in section 3 including petroleum and petroleum products, and section 9 consisting of miscellaneous items) in the current year over the prices in the base year 1972-73 (i.e., the year before the first oil shock), is computed. Then, the prices of petroleum and petroleum products are recalculated, for each year, assuming that the prices of petroleum and petroleum products moved on par with the prices of the other commodities. The prices are multiplied by the respective quantity of imports of petroleum and petroleum products to arrive at the estimates of imports of petroleum and petroleum products. Then these estimated foreign exchange figures are deducted from the actual payments made for oil imports at the actual market prices to obtain the excess payments as a result of the oil price hikes. This gives the direct negative effect of the oil price hikes on the balance of payments. Then the estimated excess payments due to the oil price hikes is added to the net balance of trade and balance of payments figures, for each year, to arrive at the net balance of trade and net balance of payments figures in the absence of oil price hikes. This gives the direct negative effect of the oil price hikes on India's balance of trade and balance of payments.

Direct positive effect on terms of trade : The direct positive effect is due to the inflow of remittances. Since there is no question of calculating the net barter terms of trade including remittances, only the income terms of trade ((or capacity to import) including remittances is computed by modifying the method used by Alfred Maizels¹. This is done by adding the remittances, in each year, to the total value of exports and then constructing an index for the same to arrive at the value index of exports corrected for remittances. This index is divided
by the general price index of imports. Symbolically,

$$I_{\rm R} = \frac{V_{\rm XR}}{P_{\rm m}} \times 100,$$
 where

 I_R = Income terms of trade corrected for remittances (or the 'capacity to import' including remittances).

 V_{XR} = Value index of exports plus remittances. P_m = Price index of imports.

Annual data of actual remittances are not available. Hence, instead, we use private transfer payments (credits) given in the balance of payments account. But, for some years, we also calculate an alternative income terms of trade using actual remittances as given by one source. A real income terms of trade, including remittances, is also calculated by taking only the value of exports in the base year, but including the remittances along with the value of exports for the subsequent years, in constructing the value index for the numerator of this real income terms of trade. The value index is divided by the price index of imports and multiplied by 100 to arrive at the real income terms of trade corrected for remittances.

Symbolically,

$$I_{R}^{\bullet} = \frac{V_{XR}}{P_{m}} \times 100$$
 where,

- I^{*}_R = Real income terms of trade corrected for remittances (or the real capacity to import including remittances)
- V^{*}_{XR} = Value index including only the value of exports in the base year, but including the value of remittances for the subsequent years.
- P_m = Price index of imports.

Since the real income terms of trade, including remittances, and the general income terms of trade are the same in the base year, a good comparison of the positive change in capacity to import can be made.

Direct positive effect on balance of payments: The direct positive effect on the balance of payments can be seen directly by seeing the figures for remittances. However to get a better picture of the direct positive effect of the oil price hikes on the balance of payments, the remittances figures are deducted from the net balance of payments figures. This will show us the balance of payments position in the absence of inflow of remittances.

Net effect on terms of trade: The net effect of the oil price hikes on the terms of trade is estimated by taking the net of the following two sets of data: (1) The percentage excess of income terms of trade with remittances over the income terms of trade without remittances; and (2) the percentage excess of income terms of trade without oil over the income terms of trade with oil.

To get a better picture of the net effect of the oil price hikes on the terms of trade, the method suggested above is adopted with alternative data giving the actual remittances.

Again for the sake of comparison the net of the following two sets of data was also taken: (1) percentage excess of the real income terms of trade with remittances over the income terms of trade without remittances and (2) the percentage excess of income terms of trade without oil over income terms of trade with oil.

Net direct effect on balance of payments: The net direct effect of the oil price hikes on balance of payments is arrived at by deducting the excess payments as a result of the oil price hikes from the excess receipts due to the inflow of remittances.

Again, to get a clear picture of this net direct effect, excess payments as a result of the oil price hikes has been deducted from the excess receipts due to the inflow of actual remittances (as given by an alternative source) for the few years for which data were available.

DIRECT NEGATIVE EFFECTS

The oil price hikes have caused two direct negative effects on the Indian economy. First, an adverse impact on the terms of trade and second, an adverse impact on the balance of trade and hence on the balance of payments. The first is more important than the second as, in fact, it leads to the second. The adverse impact on the net barter terms of trade and income terms of trade can be seen in Tables 1 and 2. Table 1 shows that the net barter terms of trade were not adverse for India from 1968-69 to 1973-74, both including and excluding oil; in fact, they appear more adverse if oil is excluded. But during the period 1974-75 to 1979-80, that is, the aftermath of the first oil shock, the net barter terms of trade, both including and excluding oil, turned adverse though, if oil is excluded, they appear less adverse. The third period from 1980-81 to 1984-85, that is, the aftermath of the second oil shock, shows a different picture; the net barter terms of trade would not be adverse if oil is excluded, but, with its inclusion, they turn adverse in almost all the years during this period. Further, the percentage excess in net barter terms of trade without oil over with oil shows the effect of the second oil price hike was more severe compared to that of the first one.

The income terms of trade given in Table 2 show that they were favourable in almost all the years, both with and without oil. But, with oil, they were more favourable from 1968-69 to 1972-73, less favourable from 1972-73 to 1979-80 and also from 1980-81 to 1984-85. Again, the percentage excess of income terms of trade without oil over with oil is much higher in the years 1979-80 to 1984-85, that is, during the second oil shock and its aftermath, compared to in the years 1973-74 to 1978-79, that is during the first oil shock and its aftermath.

The second direct negative effect is on the balance of trade and, consequently, on balance of payments. This can be seen in Tables 3 and 4. Table 3 shows the excess foreign exchange payments due to the oil price hikes, which was quite substantial during 1974-75 to 1978-79, that is, the period after the first oil shock. But it became two to four times larger during 1979-80 to 1984-85, that is, during and after the second oil shock. If the oil prices had moved only on par with the other commodities, the balance of trade would have been favourable for two more years and less unfavourable for many years. On the other hand, balance of payments (current account), the despite the oil price hike, was favourable in all the years during the period 1973-74 to 1978-79, that is, after the first oil shock, except in 1974-75 (Table 4). In the absence of the oil price hike, it would have been more favourable in all these years and not unfavourable even in 1974-75. During the period 1979-80 to 1984-85, that is,

during and after the second oil shock, the balance of payments was adverse due to the oil price hike; otherwise, it would not be so.

DIRECT POSITIVE EFFECTS

The oil price hikes have also led to two direct positive effects. First, a positive balance of payments effect because of inflow of remittances by Indians employed in the OPEC countries. Second, a positive income terms of trade effect (higher capacity to import) due to the higher remittances in the balance of payments account. In contrast to the direct negative effects, where the terms of trade effect leads to the balance of payments effect, here, the balance of payments effect leads to the terms of trade effect.

As can be seen in Table 5, the balance of payments, in the absence of remittances, would have been unfavourable for some more years during the aftermath of the first oil shock, that is, from 1973-74 to 1978-79; and, during 1979-80 to 1984-85, that is, during and after the second oil shock, the already negative balance of payments would have been more adverse. Thus, the oil price hikes made a favourable impact on the balance of payments because of the consequent remittances by Indians working in the OPEC countries.

The second direct positive effect is one on the income terms of trade or capacity to import. Since by 'capacity to import' we mean the 'purchasing power over imports of the foreign exchange earned', remittances greatly improved it [Maizels, 1968, p 224]. This can be seen in Tables 6 and 7. In Table 6, the ordinary and real income terms of trade corrected for remittances are given. Both these were favourable for India in almost all the years. A comparison of the ordinary income terms of trade without remittances and corrected for remittances, shows that the latter was slightly unfavourable till 1974-75, but became more favourable thereafter, than the former (Table 7). The same may be seen in the percentage excess of the latter over the former. The real income terms of trade, corrected for remittances, was moderately favourable till 1974-75, but more favourable thereafter, as compared to the ordinary income terms of trade (uncorrected for remittances). The same may be seen in the percentage excess of the former over the latter.

RELATIVE STRENGTHS OF DIRECT POSITIVE AND NEGATIVE EFFECTS

We may now evaluate the relative strengths of the two direct negative effects and the corresponding direct positive effects and arrive at first. the net direct effect on the terms of trade, and second the net direct effect on the balance of payments.

First, consider the net direct effect on the terms of trade. We cannot find the net impact on net barter terms of trade because remittances are not susceptible to price calculations. But, we can find the net effect on the 'capacity to import' or income terms of trade. For this purpose, the percentage excess in income terms of trade without oil over with oil, is compared with the percentage excess of income terms of trade with remittances over without remittances, and the net of the two is taken by deducting the former from the latter. The results are given in Table 8 which show that the fall in capacity to import due to the oil price hikes was partly covered by the increased capacity to import due to the inflow of remittances. However, the percentage excess of real income terms of trade with remittances over without remittances is a better indicator for comparison with the percentage excess of income terms of trade without oil over with oil; because, the base year value figures are the same in the case of all the income terms of trade involved here and those for the subsequent years are calculated from this common value. A comparison of the two sets of data shows that the real income terms of trade due to remittances have more than covered the fall in income terms of trade due to the oil price hikes in almost all the years from 1968-69 to 1978-79, except the years 1974-75 and 1976-77, and have greatly covered the fall in the period from 1979-80 to 1984-85.

A point to be noted here is that the remittances figures taken for the purpose of our calculations of income terms of trade are lower than the estimates given by some other sources (Table 9). But, these are not available for all the years. Nevertheless, a separate calculation of the income terms of trade with remittances is done for the years 1974-75 to 1978-79 by using the estimates of remittances as given in Col. 2 of Table 9. Then the excess of the income terms of India to the importing country and consequently

trade with remittances over those without remittances is compared with the excess income terms of trade without oil over those with oil. The results are given in Table 10. It will be seen that, on this basis, the remittances seem to have more than compensated the fall in the income terms of trade due to the rise in price of oil in all the years.

Next, consider the net direct effect of the oil price hikes on the balance of payments. For this purpose the excess foreign exchange payments due to oil price hikes has been compared with the excess foreign exchange receipts due to the inflow of remittances (Table 11). The excess receipts covered the excess payments to a large extent though not fully. The same may be seen from Table 12 which gives the balance of payments without oil and remittances; the balance of payments with oil, but without remittances and the balance of payments with oil and with remittances.

The exercise is repeated using the estimates of remittances as given in Col. 2 of Table 9. The results are given in Table 13. On this basis, the inflow of remittances seems to have more than covered the excess payments due to the first oil price hike in all the years given in the Table except 1974-75 when oil prices had risen but remittances had just started flowing in.

INDIRECT EFFECTS OF OIL PRICE HIKES

The oil price hikes have led to many indirect effects, both positive and negative. But, they are not easy estimates as many of them are not quantifiable. Some of the important indirect negative effects are:

Higher Bunker charges : The oil price hikes have led to higher bunker charges making our goods a bit uncompetitive in world markets as c.i.f. value of the exports increases. Though the rise in bunker charges is a world phenomenon, our exports might fall, if the purchasers resort to import-substitution considering, the c.i.f. costs as exhorbitant; or if they can obtain the same goods from some other exporting country having lower c.i.f. value of goods due to lower bunker charges. (This may be mainly due to the fact that this alternative exporting country may be nearer than has a lower bunker charge). The rise in bunker charges also leads to greater outflow of foreign exchange since India has to pay for the higher bunker charges of ships carrying India's imports. Effect on other industries : The oil price hike affects not merely the shipping industry, but all industries and sectors of the economy making use of oil as a fuel, especially the transport sector.

Inflationary effect : Both oil price hikes and inflow of remittances have similar inflationary effect. However, world inflation in general and India's in particular are the result of many other factors and the role of oil price hike is negligible in this regard². The inflationary effect due to remittances can be found in only some pockets of the economy (e.g., some parts of Kerala), where there is a heavy inflow of remittances, and in particular sectors of the economy such as real estate and building. Some of the important indirect positive effects of the oil price hikes are :

Increase in prices of exports to OPEC nations : As a measure of retaliation to the oil price hikes, India like some other countries has increased the prices of her exports to the OPEC countries. Chishti and Updhyaya did an exercise to find whether, after the oil shock, India improved its terms of trade as the rest of the world did. For this purpose, a large number of export products to the OPEC for the year 1978-79 were taken to find out whether India exported its goods at a higher price. Nearly 61 per cent of exports to OPEC were covered; and 60 per cent were found to have been sold to OPEC at prices higher than to the rest of the world.

Change in the size and composition of India's exports to OPEC countries : India has responded to the growth and diversification of economies of OPEC countries by exporting turnkey projects, sophisticated items, and more unit-value-added items. In particular, exports of services like consultancy and technical services have increased. As a result, the quantum of India's exports to OPEC countries has increased so much so that their share in India's total exports has greatly increased (Table 14). The rate of growth of India's exports to OPEC countries has also increased (Table 15).

Increased aid from OPEC countries to India: Total authorisations and total utilisation of loans

from OPEC sources till the end of March 1985 stood at Rs.1,600 crore and Rs.1,128 crore constituting 4.3 per cent and 4.0 per cent respectively of the total external assistance to India

Impetus for domestic oil exploration: The oil price hikes have given stimulus to domestic oil exploration by making investments in such activities worthwhile to be given priority.

Increase in employment opportunities for Indians abroad : The oil price hikes have also helped in providing employment for Indians, in the OPEC countries. Moreover, most of the migrants here are not highly skilled workers; it is not brain-drain but brawn-drain, as they say. Besides, the skilled, and even the unskilled workers, do not desire to settle permanently in these countries.

It is not possible to quantify these indirect effects. However, the positive effects seem to outweigh the negative effects and the net indirect effects also seem to be favourable to India.

CONCLUSIONS

In conclusion, one may say that both the direct and the indirect positive effects have outweighed the direct and indirect negative effects and the net effect of the oil price hikes has been favourable thanks to the remittances from the OPEC countries. Thus, unlike other price hikes, the oil price hikes have had an in-built healing or compensating effect which has helped both India's balance of payments and her capacity to import.

FOOT NOTES

1. See [Maizels; 1968, Pp. 101-102] Maizels has used the following formula to calculate the 'capacity to import'

$$Z = \frac{1}{P_m}(X + X_s + N + F)$$

Where Z = Capacity to import (or income terms of trade)

- X = Value of exports of goods
- $X_{i} = Value of exports of services.$

N = Net factor payments abroad.

F = Net capital inflow.

 $P_m = Import prices.$

In our analysis a modification of this formula has been done to include only remittances along with the export of goods to calculate the capacity to import (or income terms of trade) corrected for remittances. 2. For a detailed discussion of the impact of oil price hike on inflation, see: [Chishti and Upadhyaya, 1981, Pp. 2. Da Costa, G.C. and Pushpa Trivedi, 1982; The IMF Loan 111-115].

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TABLE 1. DIRECT NEGATIVE IMPACT OF THE OIL PRICE ON THE NET BARTER TERMS OF TRADE OF INDIA

Year	Unit Value Index Number of Exports	Unit Va Number	lue Index of Imports	Net Barter T	erms of Trade	Percentage Excess of 6 over 5
11	2	with oil 3	without oil 4	with oil 5	without oil 6	7
1968-69	100	100	100	100	100	-
1969-70	104	100	103	104	101	- 2.88
1970-71	106	100	102	106	104	- 1.89
1971-72	108	93	95	116	114	- 1.72
1972-73	120	97	103	124	117	- 5.65
1973-74	146	138	135	106	108	+ 1.89
1974-75	183	239	202	77	91	+18.18
1975-76	197	280	252	70	78	+11.43
1976-77	210	278	237	76	89	+17.11
1977-78	236	249	219	95	108	+13.68
1978-79	234	260	238	90	98	+ 8.89
1979-80	236	360	277	66	95	+28.79
1980-81	255	338	224	75	114	+52.00
1981-82	290	343	234	85	124	+45.88
1982-83	309	348	233	89	133	+49.44
1983-84	353	328	248	108	142	+31.48
1984-85	395	421	320	95	123	+29.47

Source: (1) Data till 1978-79 from Sumitra Chishti and S.K. Upadhyaya, "Impact of Oil Price Hike on India's Terms of Trade and Balance of Payments", *Foreign Trade Review*, Julu-September 1981, p.106, Table IA; (2) Data after 1978-79: calculated as per the method given in the text.

Year	Value Index of Merchandise	Unit-value Index of Imports		Income Terms of Trade		Percentage Excess of 6 over 5
	Exports	With oil	Without oil	With oil	Without oil	
1	2	3	4	5	6	7
1968-69	100	100	100	100	100	0.0
1969-70	103	100	103	103	100	- 2.9
1970-71	103	100	102	103	101	- 1.9
1971-72	114	93	95	123	120	- 2.4
1972-73	139	97	103	143	135	- 5.6
1973-74	172	138	135	125	127	+ 1.6
1974-75	233	239	202	97	115	+18.6
1975-76	306	280	252	109	121	+11.0
1976-77	375	278	237	135	158	+17.0
1977-78	397	249	219	159	181	+13.8
1978-79	406	260	238	156	171	+ 9.6
1979-80	454	360	277	126	164	+30.2
1980-81	481	338	224	142	215	+51.4
1981-82	568	343	234	166	243	+46.4
1982-83	668	348	233	192	287	+49.5
1983-84	744	328	248	227	300	+32.2
1984-85	875	421	320	208	273	+31.3

TABLE 2. NEGATIVE INCOME TERMS OF TRADE EFFECT

Source: Same as Table 1.

(Rs.Crore)

Year	Imports of Petroleum	Excess Payments due to Oil Price Hike	
-	Actuals 2	Estimates 3	(2 - 3) 4
1973-74	561.00	300.49	260.51
1974-75	1157.00	429.56	727.44
1975-76	1256.10	508.45	747.65
1976-77	1424.14	502.33	921.81
1977-78	1550.98	485.09	1065.89
1978-79	1676.77	562.19	1114.58
1979-80	3267.08	734.20	2532.88
1980-81	5263.47	668.89	4594.58
1981-82	5189.26	600.15	4589.11
1982-83	5621.93	650.65	4971.28
1983-84	4831.98	640.73	4191.25
1984-85	5409.05	830.94	4605.11

TABLE 3. EXCESS FOREIGN EXCHANGE PAYMENTS DUE TO OIL PRICE HIKES

Source: Column 2 : DGCIS : Monthly Statistics of the Foreign Trade of India, Volume II, Imports (Annual Number, Various Issues); Column 3 : Calculated as per the method given in the text.

Year	India's Balance of Trade (Net)	Excess Payments as a result of Oil Price Hikes	India's Balance of Trade in the absence of the Oil Price Hikes (2 + 3)	India's Balance of Payments	India's Balance of Payments in the absence of Oil Price Hikes (5 + 3)
1	2	3	4	5	6
1973-74	- 378.6	260.51	- 118.09	+1301.4	+1561.91
1974-75	- 977.2	727.44	- 249.76	- 644.44	+ 83.00
1975-76	- 566.5	747.65	+ 181.15	+ 294.2	+1041.85
1976-77	+ 316.2	921.81	+1238.01	+1525.8	+2447.61
1977-78	- 107.5	1065.89	+ 958.39	+1734.7	+2800.59
1978-79	-1842.6	1114.58	- 728.02	+ 172.5	+1287.08
1979-80	-3374.3	2532.88	- 841.42	- 234.5	+2298.38
1980-81	-5967.2	4594.58	-1372.62	-1656.6	+2937.98
1981-82	-6121.0	4589.11	-1531.89	-2317.3	+2271.81
1982-83	-5776.1	4971.28	- 804.82	-2296.4	+2674.88
1983-84	-5870.8	4191.25	-1679.55	-2262.4	+1928.85
1984-85	-6721.1	4605.11	-2115.99	-2852.4	+1752.71

 TABLE 4. DIRECT NEGATIVE EFFECT OF OIL PRICE HIKES ON INDIA'S BALANCE OF TRADE AND BALANCE OF PAYMENTS

 (Rs. Crore)

Source: Column 2 and 5 : Taken from the Balance of Payments Tables given in the Reserve Bank of India: Report on Currency and Finance, Volume II (Various Issues); Column 3 : This is same as Column 4 of the Table 3.

		·····	(Rs.Crore
Year	Remittances*	Balance of Payments	Balance of Payments in the absence of Remittances (3 - 2)
1	2	3	· 4
1973-74	203.30	+1301.40	+1098.10
1974-75	279.92	- 644.44	- 924.36
1975-76	541.20	+ 294.20	- 247.00
1976-77	745.60	+1525.80	+ 780.20
1977-78	1029.30	+1734.70	+ 705.40
1978-79	1059.36	+ 172.50	- 886.86
1979-80	1631.90	- 234.50	-1866.40
1980-81	2258.80	-1656.60	-3925.40
1981-82	2237.10	-2317.30	-4554.40
1982-83	2541.00	-2296.40	-4837.40
1983-84	2785.10	-2262.40	-5047.50
1984-85	3116.20	-2852.40	-5968.60

TABLE 5. DIRECT POSITIVE	BALANCE OF PAYS	MENTS EFFECT OF TH	E OIL PRICE HIKES
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* Remittances figures taken here, are the same as transfer payments (credits) figures given in the Balance of Payments. But actual remittances are more than double the figures given here for most of the years. But serial data of these actual remittances are not available.

TABLE 6. INCOME TERMS OF TRADE CORRECTED FOR REMITTANCES

Year	Value Index of Exports corrected for Remittances	Ordinary Unit- Value Index of Imports	Ordinary Income Terms of Trade - corrected for Remittances	Value Index of Exports corrected for Remittances with merchandise exports of 1968-69	Real Income Terms of Trade corrected for Remittances
1	2	3	4	as base 5	6
1968-69	100	100	100	100	100
1969-70	102	100	102	113	113
1970-71	102	100	102	113	113
1971-72	114	93	123	127	137
1972-73	136	97	140	151	156
1973-74	169	138	122	187	136
1974-75	229	239	96	253	106
1975-76	312	280	111	345	123
1976-77	389	278	140	430	155
1977-78	428	249	172	473	190
1978-79	438	260	168	484	186
1979-80	518	360	144	573	159
1980-81	585	338	173	647	191
1981-82	662	343	193	732	213
1982-83	773	348	2.22	854	245
1983-84	857	328	261	947	289
1984-85	997	421	237	1102	262

(Rs.Crore)

Year	Ordinary Income Terms of Trade	Ordinary Income Terms of Trade corected for Remit-	Percentage Excess of 3 over 2	Real Income Terms of Trade corrected for Remittances	Percentage Excess of 5 over 2
1	2	tances 3	4	5	6
1968-69	100	100	0.0	100	0.0
1969-70	103	102	- 1.0	113	+ 9.7
1970-71	103	102	- 1.0	113	+ 9.7
1971-72	123	123	0.0	137	+11.4
1972-73	143	140	- 2.1	156	+ 9.1
1973-74	125	122	- 2.4	136	+ 8.8
1974-75	97	96	- 1.0	106	+ 9.3
1975-76	109	111	- 1.8	123	+12.8
1976-77	135	140	+ 3.7	155	+14.8
1977-78	159	172	+ 8.2	190	+19.5
1978-79	156	168	+ 7.7	186	+19.2
1979-80	126	144	+14.3	159	+26.2
1980-81	142	173	+21.8	191	+34.5
1981-82	166	193	+16.3	213	+28.3
1982-83	192	222	+15.6	245	+27.6
1983-84	227	261	+15.0	289	+27.3
1984-85	208	237	+13.9	262	+26.0

TABLE 7. POSITIVE INCOME TERMS OF TRADE (OR CAPACITY TO IMPORT) EFFECT DUE TO OIL PRICE HIKES

TABLE 8. NET DIRECT INCOME TERMS OF TRADE EFFECT OF THE OIL PRICE HIKES

	Percentage Excess of Income Terms of Trade		Loss in Income Terms of Trade due	Percentage of Real Income Terms of	Loss in Income Terms of Trade due
Year	Without Oil/With Oil	With Remittances/ Without Remit- tances	to Oil Price Hikes uncovered by gain in Income Terms of Trade due to inflow of Remittances* (3-2)	Trade with Remit- tances over income Terms of Trade without Remmit- tances	to Oil Price Hikes uncovered by gain in Real Income Terms of Trade corrected for Remitances*
1	2	3	4	5	(J-2) 6
1968-69	0.0	0.0	0.0	0.0	0.0
1969-70	- 2.9	- 1.0	+ 1.9	+ 9.7	+12.6
1970-71	- 1.9	- 1.0	+ 0.9	+ 9.7	+11.6
1971-72	- 2.4	0.0	+ 2.4	+11.4	+13.8
1972-73	- 5.6	- 2.1	+ 3.5	+ 9.1	+14.7
1973-74	+ 1.6	- 2.4	- 4.0	+ 8.8	+ 7.2
1974-75	+18.6	- 1.0	-19.6	+ 9.3	- 9.3
1975-76	+11.0	+ 1.8	- 9.2	+12.8	+ 1.8
1976-77	+17.0	+ 3.7	-13.3	+14.8	- 2.2
1977-78	+13.8	+ 8.2	- 5.6	+19.5	+ 5.7
1978-79	+ 9.6	+ 7.7	- 1.9	+19.2	+ 9.6
1979-80	+30.2	+14.3	-15.9	+26.2	- 4.0
1980-81	+51.4	+21.8	-29.6	+34.5	-16.9
1981-82	+46.4	+16.3	-30.1	+28.3	-18.1
1982-83	+49.5	+15.6	-33.9	+27.6	-21.9
1983-84	+32.2	+15.0	-17.2	+27.3	- 4.9
1984-85	+31.3	+13.9	-17.4	+26.0	- 5.3

* Here '- ' Means uncovered and '+ ' means more than covered

Year	Remittances	Balance of Payments (Net of the Current Account)	Balance of Payments (Net of the Current Account) in the absence of Remittances. (3 - 2)
1	2	3	4
1970-71	•	193	
1971-72	-	218	-
1972-73	-	209	-
1973-74	-	249	-
1974-75	569	376	-
1975-76	1054	659	. .
1976-77	1514	938	-
1977-78	1908	1327	2117
1978-79	2200	1450	2286
1979-80	-	2772	3071
1980-81	-	4200	1503

TABLE 9. REMITTANCES FROM INDIANS ABROAD

(Rs.Crore)

Source: Column 2: Badar Alam Iqbal: "Remittances from Abroad and India's Balance of Payments" Yojana, 16-31, Volume XXVI - 13, July 1982, p. 15; Column 3: P.R.Brahmananda: *The IMF Loan and India's Economic Future*, Himalaya Publishing House, Bombay, 1982, p.92; Column 4: This column shows the non-trade remittances as given by T.J.Mathew: "Remittances from Abroad: Need for a Rational Policy", *State Bank of India Monthly Review*, Volume xix, Number 11, November 1980, p.407, (Quoting data tabled in the Rajya Sabha on December 1, 1980).

TABLE 10. NET GAIN OR LOSS IN INCOME TERMS OF TRADE (CAPACITY TO IMPORT) DUE TO THE FIRST OIL PRICE HIKI	8
BASED ON ALTERNATIVE DATA FOR REMITTANCES	

	Income Terms of Trade					
- Year	With Oil	Without oil	With Remittances	Percentage Excess of (3/2)	Percentage Excess of (4/2)	Net Percentage Gain in Income Terms of Trade (6-5)
1	2	3	4	5	6	7
1968-69	100	100	100	-	-	-
••			••	-	-	-
	 97 109	115 121	119 133	+18.6 +11.0	+22.68 +22.02	+ 4.08+11.02
1976-77 1977-78 1978-79	135 159 156	158 181 171	175 215 223	+17.0 +13.8 + 9.6	+29.63 +35.22 +42.95	+12.63 +21.42 +33.35

(Rs.Crore)

Year 1	Excess Payments as a result of oil Price Hikes 2	Excess Receipts due to Inflow of Remittances 3	Net Balance of Payments Effect (3-2) 4
1973-74	260.51	203.30	- 57.21
1974-75	727.44	279.92	- 447.52
1975-76	747.65	541.20	- 206.45
1976-77	921.81	745.60	- 176.21
1977-78	1065.89	1029.30	- 36.59
1978-79	1114.58	1059.36	- 55.22
1979-80	2532.88	1631.90	- 900.98
1980-81	4594.58	2268.80	-2325.78
1981-82	4589.11	2237.10	-2352.01
1982-83	4971.28	2541.00	-2430.28
1983-84	4191.25	2785.10	-1406.15
1984-85	4605.11	3116.20	-1488.91

TABLE 11. NET BALANCE OF PAYMENTS EFFECT OF THE OIL PRICE HIKES

Source: Column 2 : Same as column 4 of Table 3; Column 3 : Same as column 2 of Table 5.

			(Rs.Crore)
Year	India's Balance of Payments in the absence of the Oil Price Hikes and without Remittances	India's Balance of Payments with the Oil Price Hikes and without Remittances	India's Balance of Payments with the Oil Price Hikes and with Remittances
1	2	3	4
1973-74	+1358.61	+1098.10	+1301.40
1974-75	- 196.92	- 924.36	- 644.44
1975-76	+ 500.65	- 247.00	+ 294.20
1976-77	+1702.01	+ 780.20	+1525.80
1 97 7-78	+2054.99	+ 989.10	+2018.40
1978-79	+ 227.72	- 886.86	+ 172.50
1979-80	+ 664.48	-1868.40	- 236.50
1980-81	+ 669.18	-3925.40	-1656.60
1981-82	+ 34.71	-4554.40	-2317.30
1982-83	+ 133.88	-4837.40	-2296.40
1983-84	- 856.25	-5047.50	-2262.40
1984-85	-1363.49	-5968.60	-2852.40

TABLE 12. THE NET EFFECT OF THE OIL PRICE HIKES ON THE BALANCE OF PAYMENTS

Source: Column 2: Calculated by deducting the remittances (given in Column 2 Table 5) from India's Balance of Payments, corrent account in the absence of the Oil Price Hikes (given in Column 6, Table 4); Column 3: Calculated by deducting Excess Payments due to the Oil Price Hikes (given in Column 3, Table 4) from Column 2; Column 4: Calculated by adding remittances (given in Column 2, Table 5) to Column 3.

.

				India's Balance of Payments					
Year	Excess Pay- ments due to Oil Price Hike	Excess Receipts due to inflow of Remittances	Net Balance of Payments Effect (3-2)	Oil Price Hike and without Remittances	With the Oil Price Hike and without Remit- tances	With Oil Price Hike and with Remittances (6-3)			
1	2	3	4	5	6	7			
1974-75 1975-76 1976-77 1977-78 1978-79	727.44 747.65 921.81 1065.89 1114.58	569.00 1054.00 1514.00 1908.00 2200.00	- 158.44 + 306.35 + 592.19 + 842.11 +1085.42	- 196.92 + 500.65 +1702.01 +2054.99 + 207.72	-924.36 -247.00 +780.02 +989.10 -886.86	- 355.36 + 807.00 +2294.20 +2897.10 +1313.14			

TABLE 13. NET BALANCE OF PAYMENTS EFFECT DUE TO THE FIRST OIL PRICE HIKI
(WITH ALTERNATIVE DATA FOR REMITTANCES)

Source: Column 2 : Same as Table 10; Column 3 : Same as Column 2, Table 9; Column 5 and 6 : Same as Table 12.

TABLE 14. GROWTH OF INDIA'S EXPORTS TO OPEC AND OTHER COUNTRIES

(Rs.Crore) Percentage share of OPEC in total Other countries in India's Total Exports to OPEC Year Exports to other Exports countries exports 5 total exports 1 2 3 4 6 5.88 5.68 1968-69 1969-70 1970-71 1354.19 94.12 79.56 1274.63 80.03 92.74 1408.70 1328.67 94.32 1524.79 1432.05 6.08 93.92 1970-71 1971-72 1972-73 1973-74 75.24 92.95 1527.91 1871.44 2331.95 4.69 4.73 1603.15 95.31 95.27 1964.39 7.40 92.60 2518.34 186.39 1974-75 1975-76 3323.31 2826.64 14.95 85.05 496.67 4025.92 615.76 3410.16 15.29 84.71 1976-77 5129.06 681.34 4447.72 13.28 86.72 12.39 1977-78 5407.90 670.28 4737.62 87.61 1978-79 5726.30 704.75 5021.55 12.31 87.69 1979-80 6458.76 701.44 5757.32 10.86 89.14 744.60 940.30 820.20 1980-81 1981-82 5966.10 6865.60 6710.70 11.10 88.90 12.05 87.95 7805.90 9.32 9.02 8.04 7983.20 8889.20 90.68 1982-83 8803.40 90.98 1983-84 9770.70 881.50 91.96 1984-85 11743.70 944.00 10799.70

Source: Columns 2and 3 : From Central Statistical Organisation; Economic Survey (various issues); Other Columns: Calculated.

				(per cent)
	Annual Compound Growth rate of exports	India's total exports	Exports to OPEC	Exports to other countries
Period I	1972-73 over 1968-69	9.75	4.00	10.10
	1973-74 over 1968-69	13.20	18.60	12.80
	1978-79 over 1973-74	11.50	30.47	16.60
	1978-79 over 1972-73	19.50	40.16	17.88
Period II	1984-85 over 1979-80	12.70	6.12	13.41
	1984-85 over 1978-79	12.72	4.99	13.61
	1984-85 over 1973-74	15.02	15.89	14.95
	1984-85 over 1972-73	16.07	21.83	15.73

Source: Period I: from Sumitra Chisti and S.K. Upadhyaya,op.cit p.116, Table VB (quoting DGCI & Calcutta); Period II: calculated by the author.

(Rs.Crore)

PROGRESS OF EDUCATION OF WOMEN IN INDIA : 1881-1981

Kumudini Dandekar

The paper reviews progress of education of women, relative to that of men, over the hundred years 1881-1981. In spite of much progress, even in 1981, female literacy was just about half of male literacy which itself was just about 50 per cent. The situation in rural areas is even less satisfactory : In 1981, only about 20 per cent of women in rural areas were literate compared to over 50 per cent in urban areas; further, less than 10 per cent of the women in rural areas belonging to the scheduled castes were literate. Literacy and education among women have important socio-economic consequences, particularly, on their age at marriage and the number of children they will bear. But, for full benefit, women's education must be pushed beyond at least matriculation. There is a long way to go; at present, only about one per cent of the women have reached that stage.

The objective of the present paper is to review progress of education of women, relative to that of men, in India over the hundred years 1881-1981. The study is based on data available from decennial population censuses. We may conveniently divide the hundred year period into two sub-periods : (1) pre-Independence period, 1881-1951, and (2) post-Independence period, 1951-81. Besides the obvious reason for this division, we may note that data from the censuses from 1881 to 1941 relate to the British India, as then existed, and certain princely states, while those from 1951 to 1981 relate to the Union of India. Besides the difference in the geographical coverage, there is also a difference between quality of data available for the two periods.

In the pre-Independence period, level of education was so low that, in the censuses before 1951, only literacy, not educational level, was recorded both for males and females. Literacy was properly defined in 1901 as ability to read a letter and write a reply to it. In the censuses of 1881 and 1891, persons were classified as those 'learning' and 'literates' and the literacy status of the former was uncertain because a number of them left the school before attaining sustainable literacy. In any case, before 1901, literacy, however defined, even among males, was confined to a small section constituting less than 10 per cent of the population. The literacy rates as recorded in the 11 censuses from 1881 to 1981, for males and females separately, are given in Table 1.

TABLE 1. LITERAC	(RATES PER 100 PERSONS IN (CENSUSES FROM 1881 TO 1981
------------------	-----------------------------	----------------------------

Census year	1881	1891	1901	1911	1921	1931	1941	1951	1961	1971	1981
Males	9.0 (6.6)	10.4 (8.7)	9.8	10.6	12.2	15.6	24.9	27.1	40.4	46.0	53.5
Females	0.4 (0.3)	0.5 (0.4)	0.6 (0.7)	1.1	1.8	2.9	7.3	8.9	15.3	22.0	28.9
F/M %	4.5	4.6	7.1	10.4	14.8	18.6	29.3	32.8	37.9	47.8	54.0

Figures in brackets are revised estimates due to changes in definitions of literacy in 1901.

Some census reports for 1941 admit that even ability to sign ones name was considered literacy and that therefore the figures for literacy in 1941 were exaggerated.

Source: For 1881-1941, Census of India 1971, Census Centenary Monograph No. 9 page ii. For 1951-1981, the respective Census Reports.

Thus, in pre-Independence period of 70 years, male literacy increased by 20.5 percentage points from 6.6 per cent in 1881 to 27.1 in 1951 and female literacy by 8.6 percentage points from 0.3 per cent in 1881 to 8.9 per cent in 1951. Not only the level of female literacy was low but the increase in it was also small compared to that in male literacy. But, the increase in female literacy was *proportionately*, more so that the ratio of

female to male literacy increased from 4.5 per cent in 1881 to 32.8 per cent in 1951. In the post-Independence period of 30 years, the male literacy increased by 26.4 percentage points from 27.1 per cent in 1951 to 53.5 per cent in 1981 and female literacy by 19.6 percentage points from 8.9 per cent in 1951 to 28.9 per cent in 1981. The ratio of female to male literacy increased to 53.2 per cent. But, the fact remains that, even in 1981,

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which itself was just about 50 per cent.

PRE-INDEPENDENCE PERIOD : 1881-1951

As mentioned above, literacy was properly defined in 1901. We may therefore as well begin with 1901. The Census of 1901 gives literacy rates by sex, by certain regions such as the British Provinces and certain princely states. In Table 2, we give male and female literacy rates for British India and certain princely states which were

female literacy was just about half of male literacy particularly progressive in the matter of education.

> Male literacy (all ages) in British India was 9.8 per cent and was much below the same in some of the princely states : Cochin (22.4), Travancore (21.5), the two together constituting the present Kerala, and Baroda (16.3). Female literacy was everywhere lower than the male literacy : 4.5 per centin Cochin, 3.1 in Travancore, and 0.8 per cent in Baroda. In British India, it was a mere 0.6 per cent.

TABLE 2. LITERACY RATES BY SEX AND AGE PER 100 PERSONS IN BRITISH INDIA AND CERTAIN PRINCELY STATES IN 1901

Provinces/States	All Ages		0-10		10-15		15-20		20 & over	
•	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
British India	9.8	0.6	1.3	0.2	8.5	1.0	13.2	1.4	13.9	0.8
Cochin State	22.4	4.5	1.7	0.7	16.8	5.9	28.2	7.7	34.3	5.6
Travancore State	21.5	3.1	1.7	0.7	13.6	4.3	26.4	5.8	31.9	3.5
Baroda State	16.3	0.8	3.4	0.4	16.0	1.3	20.6	1.3	20.8	0.7

Source: 1901 Census Report for India, Vol. 1.

In British India, male literacy increased from 1.3 per cent in the age group 0-10, to 8.5 per cent in age group 10-15, to 13.2 in age group 15-20, to 13.9 in the age group 20+. Presumably much of the gain in literacy after age 10 and particularly after 15 was because of informal learning of reading and writing. Female literacy was much lower, almost one-tenth or less of that among males; and, whatever it was, was almost entirely due to informal learning. It increased from a meagre 0.2 per cent at ages 0-10, to 1.0 at ages 10-15, and to 1.4 per cent at ages 15-20. Regrettably, for ages 20+, it dropped to 0.8 per cent. Evidently, for females, not only even informal learning ceased at age 20 or earlier, but 1931. They are given in Table 3.

later many females lapsed into illiteracy because of non-usage of reading and writing skills.

Considering literacy in the age-group 20+, male literacy was high in Cochin (34.3 per cent), Travancore (31.9), and Baroda (20.8). It is noteworthy that, in the youngest age group 0-10, literacy in Baroda was twice that in Cochin and Travancore; but, thereafter, Baroda lost ground first to Cochin and then also to Travancore.

The relatively high levels of literacy in Cochin and Travancore, and (somewhat lower) in Baroda, are sometimes attributed to the religious composition of their population. Data on religious composition are available from the Census of

TABLE 3. COMPOSITION OF POPULATION (PER CENT) BY RELIGION IN 1931.

Region	Cochin	Travancore	Baroda	Br.India
Hindu	64.6	61.5	86.3	68.2
Muslim	7.3	6.9	7.5	22.1
Christian	27.8	31.5	0.3	1.8
Others	0.3	0.1	5.9	7.9

(Par cent)

Clearly, all the three states had a much lower Muslim population than in the British India. This was compensated by a much larger Christian population in Cochin and Travancore and a larger Hindu population in Baroda. It is therefore tempting to suppose that the higher literacy in these states was due to these differences in the religious composition of their population; that literacy was the highest among Christians and lowest among Muslims with Hindus lying in between. It is worth examining the point.

In Table 4 are given literacy rates in 1901 for British India and the three princely states of Cochin, Travancore, and Baroda. Considering literacy among males, it will be seen that the literacy rates for both Hindus and Muslims were higher in the three states than in the British India. Clearly, therefore, literacy in Cochin and Travancore was high compared to that in British India, not so much because there was a high proportion of Christian population in these two states but because the states were generally progressive. In fact, literacy among Christians in these states was lower than in the British India. But this is doubtful; Christian population in British India included Europeans then resident in India. In the two states, as also probably in British India, literacy among Christians was higher than among Hindus and Muslims. Hence, besides the fact that the two states were progressive, a high proportion of Christians did partly raise their literacy rates. It seems that, in the matter of literacy, Christians had the advantage of their religion and also of the fact they were largely concentrated in two progressive princely states.

TABLE 4. LITERACY RATES BY SEX AND RELIGION IN BRITISH INDIA AND CERTAIN PRINCELY STATES IN 1901

											,		
Region	Hindus				Muslims			Christians			All Religions		
	Μ	F	F/M %	М	F	F/M %	М	F	F/M %	М	F	F/M %	
Cochin	21.8	3.9	17.9	12.5	0.6	4.8	27.2	7.3	26.8	22.4	4.5	20.1	
Travancore	20.8	2.5	12.0	15.8	1.1	7.0	25.9	5.3	20.5	21.5	3.1	14.4	
Baroda	16.0	0.5	3.1	17.8	0.6	3.4	13.5	4.7	34.8	16.3	0.8	4.9	
Br.India	9.4	0.5	5.3	6.0	0.3	5.0	29.1*	12.5*	42.9	9.8	0.6	6.1	

* These figures probably include Europeans in India. Separate literacy rates for all Christians and Indian Christians are available in 1911 Census. For males they were 29.3 and 22.8 per cent respectively; and for females 13.5 and 9.6 per cent respectively. On that basis, literacy among Christians in British India in 1901 may be placed around 22.5 and 9.0 per cent for males and females respectively.

In Baroda, literacy among both Hindus and Muslims was higher than in British India and it was higher among Muslims than among Hindus. Hence, the religious composition of its population does not explain the relatively high literacy there. The State was progressive but not as much as Cochin and Travancore; literacy among Hindus was lower than in Cochin and Travancore. It was only among Muslims that literacy in Baroda was higher than in Cochin and Travancore; but proportion of Muslims in the three states being small, higher literacy among Muslims in Baroda does not raise the overall literacy rate in that State.

Where religion seems to have had made real difference is regarding literacy among females. As already noted, in 1901, the literacy among females in India as a whole was only one-sixteenth of that in males (Table 1). The situation

in British India was naturally similar. But even in Baroda, which was relatively progressive with male literacy at least 60 per cent higher than in British India, female literacy was only marginally higher. It was only in Cochin and Travancore that female literacy was distinctly higher: It was about one-fifth of male literacy in Cochin and about one-seventh of male literacy in Travancore and was clearly due to higher Christian population in the two states. Incidentally, among Christians, literacy in males and females both was higher in Cochin than in Travancore. It seems that, for literacy among females, besides region and religion, literacy among males also mattered.

To judge the progress of literacy among Hindus, Muslims, and Christians, in the three decades 1901-1931, we give the relevant data in Table 5.

Census Year	Hi	ndus	Mu	Islims	Chris	stians	All Religions	
	Male	Female	Male	Female	Male	Female	Male	Female
1901	9.4	0.5	6.0	0.3	29.1	12.5	9.8	0.7
1911	10.1	0.8	6.9	0.4	29.3	13.5	10.6	1.1
1921	13.0	1.6	9.3	0.9	35.5	21.0	12.2	1.8
1931	14.4	2.1	10.7	1.5	35.2	20.3	15.6	2.9

TABLE 5. LITERACY RATES PER 100 PERSONS BY SEX AND MAIN RELIGIONS

* Christians in all censuses included European Christians resident in India. Separate figures for Indian Christians are available in 1911 Census only. They are : Male (22.8) and female (9.6).

It will be seen that, overall, male literacy increased from 9.8 per cent in 1901 to 15.6 per cent in 1931 and female literacy from 0.7 per cent in 1901 to 2.9 per cent in 1931. Of course, this is small progress. But, increase in female literacy was somewhat more than in male literacy and the ratio of female to male literacy increased from 7.1 per cent in 1901 to 18.6 per cent in 1931. Differentials between the religions also narrowed down. In males, the differential between Hindus and Christians, narrowed down from 1:3.9 in 1901 to 1: 2.4 in 1931. The same is true of the differential beween Muslims and Christians; it narrowed down from 1:4.9 in 1901 to 1:3.3 in 1931. But, the differential between Hindus and Muslims narrowed only slightly from 1.6 in 1901 to 1.3 in 1931.

In 1931, though the overall literacy was low, a few Hindu castes showed relatively high levels of literacy. In the following, we give cases where male literacy was more than 50.0 per cent. Side by side, we also give the level of female literacy which was of course everywhere low. Bengal: Baidya (77.7/47.6), Brahman (64.5/21.6), Kayastha (57.1/20.9); Bihar & Orissa: Kayastha (60.5/11.8); Bombay: Brahman (78.8/23.1);

Central Provinces & Berar: Baniya (59.8/7.4), Brahman (58.1/12.2); Madras (including Cochin & Travancore) : Brahman (80.0/28.6), Kshatriya (76.4/62.5), Komti (61.5/6.8), Nayar (60.4/27.6); Punjab : Baniya -Agarwal (49.0/3.4); United Provinces : Kayastha (70.2/19.1); Baroda : Brahman (78.3/28.4);Central India: Baniya(50.1/3.4); Mysore : Brahman (78.3/34.4); Raiputana : Baniya-Mahajan (59.2/2.3). Thus, literacy among Brahmans almost everywhere and among a few other castes such as Baidyas, Kayasthas, and Baniyas was satisfactory. Literacy among females even among these castes was everywhere low, the notable exceptions being Baidyas in Bengal and Brahmans in Mysore, Madras, and Bombay.

As noted already, the overall ratio of female to male literacy in 1931 was only 18.6 per cent. This varied greatly between different Provinces and States. In Table 6, the Provinces and States are classified by the ratio of female to male literacy. It will be noticed that it was only in Coorg, Cochin, and Travancore that the ratio was more than 50 per cent and in Delhi and Baroda between 30 and 40 per cent.

TABLE 6. REGIONS CLASSIFIED BY RATIO OF FEMALE TO MALE LITERACY IN 1931.

Ratio per cent	Regions					
10	Bihar, Orissa, Rajputana Agency.					
10-20	Assam, Bengal, Central Provinces, Berar, United Provinces, Central India Agency, Punjab State Agency, Gwalior, Hyderabad, Jammu and Kashmir.					
20-30	Ajmer-Mewar, Bombay, Madras, Punjab, Mysore, Western India State Agency.					
30-40	Delhi, Baroda.					
40-50	Nil					
50+	Coorg, Cochin, Travancore.					

Source: Estimated from the Literacy rates given for various regfions in the 1931 Census, Vol. 1.

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Incidentally, the Census of 1931 also gave separate figures of literacy in English and vernacular for 1911, 1921, and 1931. The rates were

expressed per 10,000 persons since the figures were small. As a matter of curiosity, these are given in Table 7.

	10	11	1(221		031
	M	F	M	F	М	F
India						
English	109	12	160	18	212	28
Vernacular	1060	100*	1390	210	1560	290
Br. Provinces						
English	121	13	176	19	224	29
Vernacular	1100	110*	1440	200	1630	290
States and Agencies						
English	62	9	97	16	151	22
Vernacular	810	90*	1190	260	1300	290

TABLE 7. LITERACY PER 10,000 IN ENGLISH AND VERNACULAR FOR MALES AND FEMALES OF AGES 5 AND OVER

* Vernacular figures for 1911 are for all ages. Source: 1931 Census Report Vol.1 for India.

Presuming that the literates in vernacular also included literates in English, it seems that, overall, among all literates, only about 10 per cent were also literates in English in 1901. This proportion increased to 13.6 per cent in 1931.

Because of the Second World War, the tabulation of the 1941 Census was partial and incomplete and even the figures of male and female literacy in 1941 are not available. But, Kingsley Davis estimated male and female literacy in 1941 at 27.4 and 6.9 per cent respectively. His own estimates for 1931 were 15.4 and 2.4 per cent respectively. Evidently, between 1931 and 1941, male literacy increased by 77.9 per cent and female literacy by 187.5 per cent and the ratio of female to male literacy increased from 15.6 per cent to 25.2 per cent. Writing in 1951, Kingsley Davis asked : "The new Governments of the Union of India and Pakistan have a real test ahead of them. Will they be able to accelerate or even maintain the recent pace of improvement in literacy?" [Davis, 1951, p.152].

GROWTH OF LITERACY DURING 1951 TO 1981

In Table 8 are given male and female literacy rates for different age groups for the census years 1951 to 1981. Side by side are also given ratios of female to male literacy from which one may judge the progress of female literacy compared to male literacy. The ratio of female to male literacy increased greatly between 1951 and 1981. In the youngest age-group 5-9, it increased from 48.3

per cent in 1951 to 73.6 per cent in 1981. In the age group 15-19, it increased from 45.7 per cent in 1961 (in 1951, the ratio was 38.9 for the combined age group 15-24) to 65.5 per cent in 1981. This is the age-group in which both the male and female literacy rates were the highest in all the censuses from 1951 to 1981; in later agegroups they steadily dropped. Nevertheless, even in the 35+ age-group, the ratio of female to male literacy increased from 18.6 per cent in 1951 to 32.4 per cent in 1981.

But a disconcerting feature present in earlier years still seems to persist; namely, the drop in the ratio of female to male literacy in the older age groups. Thus, in 1981, the ratio dropped from 73.6 per cent in the age group 5-9, to 67.0, 65.5, 55.9, 47.7, in successive age groups and finally to 32.4 per cent in the 35+ age group. Of course, this is mainly because the ratio of female to male literacy, in each age group, has improved over the years. For instance, in the youngest age group 5-9, the ratio was 48.3 in 1951, 57.8 in 1961, 69.4 in 1971, and 73.6 in 1981. Now, what was age group 5-9 in 1951 becomes age group 15-19 in 1961, and 25-29 in 1971, and 35-39 in 1981. Hence, in any given year, the ratio would naturally drop as we move from the youngest age group to the older ones. But, it also means that the education of women tends to be relatively neglected as they move out of the child age and that, possibly, some of them relapse into illiteracy because of nonusage of literacy acquired in childhood. In evidence, compare the ratio of female to male literacy in the age group 5-9 in a given year and in the age group 15-19 a decade later. For instance, the ratio was 48.3 in the age group 5-9 in 1951 and 45.7 in the age group 15-19 in 1961 showing a small drop; or, the ratio was 57.8 in the age group 5-9 in 1961 and 59.5 in the age group 15-19 in 1971 with no drop at all which seems to be an exception; because, again, the ratio was 69.4 in the age group 5-9 in 1971 and dropped to 65.5 in the age group 15-19 in 1981. Similarly, the ratio was 47.1 in the age group 10-14 in 1951 and dropped to 36.6 in the age group 20-24 in 1961; or, the ratio was 52.2 in the age group 10-14 in

1961 and dropped to 47.3 in the age group 20-24 in 1971; or, again, it was 63.8 in the age group 10-14 in 1971 but dropped to 55.9 in the age group 20-24 in 1981. Similarly, the ratio was 38.9 in the age group 15-24 in 1951 and it dropped to 32.7 in the age group 25-34 in 1961. To extend the comparison to later years, one must combine the age group 15-19 and 20-24 into the age group 15-24 and compare it with the age group 25-34 a decade later. When this is done, we notice that the ratio was 40.9 per cent in the age group 15-24 in 1971; and that it was 53.6 per cent in the age group 15-24 in 1971; and that it dropped to 47.7 per cent in 1981.

TABLE 8. MALE AND FEMALE LITERACY RATES AND FEMALEMALE LITERACY RATIOS (ALL INDIA)

Age group		1951			1961			1971			1981		
	Male	Female	F/M	Male	Female	F/M	Male	Female	F/M	Male	Female	F/M	
5-9	12.40	6.00	48.3	24.99	14.44	57.8	27.16	18.86	69.4	35.05	25.79	73.6	
10-14	30.10	14.20	47.1	54.40	28.41	52.2	59.78	38.15	63.8	66.90	44.85	67.0	
15-19	33.90}	13.20}	38.9}	52.04	23.78	45.7	63.38	37.70	59.5	66.12	43.28	65.5	
20-24	00.00}	00.00}	00.0}	49.78	18.20	36.6	60.69	28.73	47.3	66.54	37.18	55.9	
25-34	31.30	8.60	27.5	42.48	13.90	32.7	50.14	19.30	38.5	60.72	28.96	47.7	
35+	25.80	4.80	18.6	35.32	7.70	21.8	38.02	10.73	28.2	44.61	14.44	32.4	
A.N.S.	11.70	3.60	30.8	15.70	4.29	27.3	39.82	22.10	55.5	70.87	56.62	79.9	
Total	27.14	8.86	32.6	40.39	15.33	38.0	45.95	21.97	47.8	53.49	28.48	53.2	

Note: In 1951 Census reports the age groups 15-19 and 20-24 are combined into a single age group 15-24. A.N.S. Age not stated.

Source: Census Reports for India 1951, 1961, 1971, and 1981.

The data on the male and female literacy given in Table 8 pertain to the whole of India. In Tables 9 and 10 are given the corresponding data for the rural and the urban areas respectively.

The contrast between the rural and urban areas is sharp and clear. In rural areas, not only the male and female literacy rates are lower than those in the urban areas, in all the age groups and in all the years, but the ratio of female to male literacy is also considerably lower than in the urban areas, in all the age groups. For a quick comparison, we give in the following, the ratios of female to male literacy rates in successive age groups in the rural areas in 1981 with the corresponding ratios for the urban areas shown in brackets : 65.2(90.6), 58.4(89.1), 55.8(86.2), 45.6(78.6), 37.0(71.0), and 23.4(51.7). It will be noticed that the drop in the ratio in successive age groups is proportionately much smaller in the urban areas than in the rural areas; in the rural areas, the ratio drops from 65.2 in the age group 5-9 to 23.4 in the age group 35+; the corresponding drop in the urban areas is from 90.6 to 51.7 (Tables 9 and 10).

TABLE 9. MALE AND FEMALE LITERACY RATES AND FEMALE/MALE LITERACY RATIOS, (RURAL AREAS)

Age		1951		1961				1971			1981		
8F	Male	Female	F/M	Male	Female	F/M	Male	Female	F/M	Male	Female	F/M	
5-9	10.16	3.96	39.1	21.18	10.12	47.8	22.71	13.59	59.9	30.09	19.63	65.2	
10-14	25.99	9.66	37.2	49.11	20.74	42.2	54.64	29.96	54.8	62.42	36.44	58.4	
15-19	27.10}	8.58]	31.7}	45.21	16.30	36.1	57.38	28.51	49.7	60.36	33.66	55.8	
20-24	00.00	00.00	00.0	42.10	11.83	28.1	53.28	20.21	37.9	59.53	27.16	45.6	
25-34	25.31	5.42	21.4	35.36	8.55	24.2	42.86	12.58	29.4	53.06	19.64	37.0	
35+	34.25	3.13	9.1	29.18	4.41	15.1	31.38	6.49	20.7	36.93	8.62	23.4	
A.N.S.	10.11	2.95	29.2	14.43	3.62	25.1	40.03	21.43	53.5	63.51	41.64	65.6	
Total	21.97	5.7	25.9	34.26	10.13	29.6	39.55	15.52	39.3	46.74	20.66	44.2	

Note : In 1951 Census Report, the age groups 15-19 and 20-24 are combined into a single age group 15-24. A.N.S. Age not stated. Source: Census Reports for India 1951, 1961, 1971, and 1981.

TABLE 10. MALE AND FEMALE LITERACY RATES AND FEMALE/MALE LITERACY RATIOS, (URBAN AREAS)

Age		1951			1961			1971			1981		
gioup	Male	Female	F/M	Male	Female	F/M	Male	Female	F/M	Male	Female	F /M	
5-9	25.71	18.18	70.7	43.57	35.89	82.4	47.17	42.68	90.5	53.35	48.36	90.6	
10-14	55.56	37.17	66.9	77.99	62.67	80.4	80.86	71.05	87.9	82.35	73.39	89.1	
15-19	60.25}	34.83}	57.8}	77.72	56.70	72.9	82.75	69.53	84.0	82.15	70.80	86.2	
20-24	00.00	00.00	00.0)	74.98	46.53	62.0	81.19	59.01	72.7	82.93	65.16	78.6	
25-34	56.34	25.70	45.6	69.33	38.88	56.1	74.05	46.71	63.1	80.22	56.98	71.0	
35+	49.85	17.54	35.2	62.53	25.32	40.5	64.52	30.26	46.9	69.42	35.91	51.7	
A.N.S.	21.08	7.37	35.0	25.31	9.14	36.1	38.93	27.72	71.2	81.94	76.27	93.1	
Total	51.33	22.33	43.5	65.99	40.46	61.3	69.83	48.84	69.9	74.01	54.43	73.5	

Note : In 1951 Census Report, the age groups 15-19 and 20-24 are combined into a single age group 15-24. A.N.S. Age not stated. Source: Census Reports for India 1951, 1961, 1971, and 1981.

I ABLE 11. STATEWISE LITERACY KATES	(PER CENT) IN KURAL/URBAN Areas (1981)

State	R	ural	U	ban
	Males	Females	Males	Females
India	40.8	18.0	65.8	47.8
Andhra Pradesh	32.2	14.1	61.9	41.5
Bihar	34.4	10.2	62.5	39.8
Gujarat	47.8	24.1	68.6	51.1
Haryana	43.4	15.4	65.0	47.3
Karnataka	42.1	19.8	65.0	47.8
Kerala	74.1	64.2	80.1	72.2
Madhya Pradesh	32.9	9.0	64.4	42.3
Maharashtra	51.2	24.9	71.8	54.6
Orissa	44.5	18.4	65.1	42.7
Punjab	41.9	27.6	60.7	49.7
Rajasthan	29.6	5.5	60.5	34.4
Tamil Nadu	51.2	25.8	72.5	54.0
Uttar Pradesh	35.2	9.5	54.7	35.4
West Bengal	43.6	22.1	69.1	54.8

There are large differences between the States in the matter of male and female literacy. In Table 11. are given the relevant data for 1981. Kerala is of course at the top. But, even here, there is a noteworthy ranking. The literacy rates are : urban male (80.1), rural male (74.1), urban female (72.2), and rural female (64.2). At the bottom are : Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh. The lowest literacy rates are : Urban male - Uttar Pradesh (54.7), Rural male - Rajasthan (29.6), Urban female - Rajasthan (34.4), and Rural female - Rajasthan (5.5). The last one seems to be exceptionally low. The second lowest female literacy is in Madhya Pradesh (9.0). All this in the year 1981. Bihar is only a shade better than the lowest in each case.

In the matter of literacy, like living in rural areas and being a female are great handicaps, so is belonging to a scheduled caste. These handicaps appear in sharp focus in Table 12 where we give the literacy rates in the 8 sub-sectors - male/female x urban/rural x non-scheduled/scheduled caste. It will be noticed that the literacy rates vary from a high 68.46 per cent among non-scheduled caste males in urban areas to a low 8.44 per cent among scheduled caste females in rural areas. Moreover, in the matter of literacy, being a female seems to be a greater handicap (21.68) than belonging to a scheduled caste (27.91) in the rural areas. In urban areas, it seems to be the other way round; the literacy rates among the non-scheduled caste females (51.19) are somewhat higher than among the scheduled caste males (47.52).

TABLE 12. LITERACY IN V	ARIOUS SECTORS IN 1981
-------------------------	------------------------

Male/Female	Urt	an	Rural			
	Nonsch.	Sch.	Nonsch.	Sch.		
	castes	castes	castes	castes		
Male	68.46	47.52	46.14	27.91		
Female	51.19	24.34	21.68	8.44		

Source: Census Report, 1981.

BEYOND LITERACY

We may now examine progress of schooling as distinct from simple literacy which may be acquired without formal schooling. In Table 13, we give the proportion of males and females, in rural and urban areas, who had some schooling and who were literates without any schooling for 1961, 1971 and 1981; corresponding data for 1951 are not available. It will be noticed that, considering the urban and rural areas together, the proportion of males with any schooling at all increased from 15.36 per cent in 1961, to 31.68 in 1971, and to 37.77 in 1981. There is of course a marked difference between the rural and urban areas. In urban areas, the proportion increased from 34.77 in 1961 to 52.22 in 1971, and to 58.47 in 1981. In contrast, in rural areas, it increased from 10.72 in 1961 to 26.17 in 1971 and to 30.96 in 1981. Thus, the rural areas in 1981 was at least two decades behind the urban areas. But, the difference was narrowing.

The proportion of females with any schooling at all also increased over the years but, of course, in all the years and in the rural and urban areas both, it was much below the corresponding proportion of males with schooling. But again the difference is narrowing. Thus, considering all India, the ratio of female to male proportions with any schooling improved from 34.2 per cent in 1961 to 44.1 in 1971 and to 50.2 in 1981. Of course, the ratio was much better in urban areas than in rural areas. For instance, in 1981, the ratio was 67.0 in urban areas and only 40.5 in rural areas.

However, there is a disconcerting feature about the progress of schooling which is present in respect of both males and females as also both rural and urban areas. Judged by the data for the three years, 1961, 1971, and 1981, the rate of increase in the proportion of males or females with any schooling is declining. For intance, in urban areas, the proportion of males with any schooling increased by 17.45 percentage points between 1961 and 1971 but by only 6.25 points between 1971 and 1981. It means that, if the present trend continues, the proportion of males with any schooling will soon cease to increase in urban areas, and will stagnate at around 60 per cent. On a similar consideration, in rural areas, it may stagnate at a little over 30 per cent. Similar estimates regarding proportion of females with any schooling are a little over 40 per cent in the urban areas and 12.5 per cent in the rural areas. These are projections based on the data for only

three years and must not be taken too literally. But, they help to bring out the limits in the growth of schooling inherent in the present situation and underline the need for corrective action.

Evidently, promotion of literacy without formal schooling also has not made much progress. In fact, the proportion of males with literacy but no schooling dropped sharply between 1961 and 1971; from 31.22 per cent in 1961 to 17.61 in 1971 in urban areas and from 23.54 per cent in 1961 to 13.38 in 1971 in rural areas. But, thereafter, it seems to have settled down at around 15 per cent in urban and rural areas both. Similarly, the proportion of females with literacy but without schooling dropped sharply between 1961 and 1971 and then seems to have settled down at around 15 per cent in urban areas and a little under 10 per cent in rural areas.

If we add the proportions of male literates with and without schooling where they seem to be stagnating or stabilising, the prospects are that, without serious corrective action, it may be difficult to push male literacy much beyond 75 per cent in urban areas and 45 per cent in rural areas. Similar prospects for female literacy are 55 per cent in urban areas and 25-30 per cent in rural areas. We repeat that these projections should not be taken too literally based as they are on data for only three years. Nevertheless, they undoubtedly demand serious attention.

TABLE 13. LITERACY WITH AND WITHOUT SCHOOLING

		19	61			19	71		1981				
	With Schooling		Without Schooling		V Scho	With Schooling		Without Schooling		With Schooling		Without Schooling	
_	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
All India	15.36	5.25	25.03	10.08	31.68	13.97	14.27	8.00	37.77	18.97	15.72	9.51	
Rural	10.72	2.62	23.54	7.51	26.17	9.4	13.38	6.12	30.96	12.53	15.78	8.13	
Urban	34.77	17.93	31.22	23.03	52.22	33.01	17.61	15.83	58.47	40.32	15.54	14.11	

Source : Respective Census Reports.

In Table 14, we show male and female population with any schooling classified into two classes : Those with primary or middle school but no more, briefly denoted by primary + middle; and those who attained matriculation or more, briefly denoted by matriculate +.

First, considering the All India situation, we notice that the proportion of males (all age groups) with Primary + Middle was 11.76 per cent in 1961, that it increased to 24.63 per cent in 1971, and to 25.82 per cent in 1981. Thus, there are signs of the proportion tapering off so that, if the present trends continue, the proportion of the male population not going beyond the primary + middle level of education may stabilise somewhat below 30 per cent. In urban areas, the proportion increased from 22.25 per cent in 1961, to 32.80 per cent in 1971, but then tapered off at 32.10 per cent; probably, it will stabilise somewhere below 35 per cent. In rural areas, the proportion increased from 9.25 per cent in 1961 to 22,43 per cent in 1971 and it seemed that the rural areas

lagged behind the urban areas only by a decade. But, the proportion increased to only 23.75 per cent in 1981 and may stabilise around 25 per cent only.

The situation regarding the primary + middle level of education of females in urban areas seems to be comparable or a little better than the corresponding situation of male education in rural areas; the proportion of females with primary + middle level education in urban areas increased from 14.51 per cent in 1961 to 24.82 per cent in 1971, and to 26.43 per cent in 1981; probably it will stabilise somewhere below 30 per cent. The situation in rural areas is much poorer; the proportion of females with primary + middle increased from a meagre 2.47 per cent in 1961 to 8.77 per cent in 1971, and to 10.85 per cent in 1981; probably it will stabilise below 15 per cent.

Compensating the apparent stagnation of proportions of population at the primary + middle stage is the fact that there has been a more rapid increase in the education at the matriculation and plus stage. Thus, in the urban areas, the proportion (for all ages) of males reaching matriculate + stage increased from 12.52 per cent in 1961, to 19.42 per cent in 1971, and to 26.37 per cent in 1981. It is difficult to imagine where it will reach. The same is true, though at a much lower level, of the female education at matriculate + stage in the urban areas. The proportion increased from a meagre 3.42 per cent in 1961, to 8.19 per cent in 1971, and to 13.89 per cent in 1981. In 1981, the proportion of females with matriculate + education was still only half of the same among males; but the increase in female education at this stage

is much more rapid compared to the same among males and the former may eventually catch up with the latter. This is equally true of the situation in the rural areas though, of course, at a much lower level. Thus, in the rural areas, the proportion of males having reached matriculate + stage almost doubled each decade from 1.47 per cent in 1961 to 3.74 per cent in 1971 and to 7.21 per cent in 1981. The proportion of females having reached this stage, though at a much lower level, increased even more rapidly; from 0.15 per cent in 1961, to 0.63 per cent in 1971, and to 1.68 per cent in 1981.

TABLE 14. MALE FEMALE EDUCATIONAL LEVEL

		19	61			19	71		1981			
	Primary+middle		Matriculate & above		Primary+middle		Matriculate & above		Primary+middle		Matriculate & above	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Total	11.76	4.54	3.60	0.71	24.63	11.88	7.05	2.09	25.82	14.46	11.95	4.51
Rural	9.25	2.47	1.47	0.15	22.43	8.77	3.74	0.63	23.75	10.85	7.21	1.68
Urban	22.25	14.51	12.52	3.42	32.80	24.82	19.42	8.19	32.10	26.43	26.37	13.89

Source : Respective Census Reports

We may also examine the number of males and females who were degree and diploma holders. But the numbers are so small that to present them as percentages of the total population may not be very instructive. Hence, in Table 15, we give the number of degree or diploma holders as recorded in the 1971 and 1981 censuses.

 TABLE 15. NUMBER OF DEGREE AND DIPLOMA HOLDERS

 RECORDED IN 1971 AND 1981 CENSUSES

	1971	1981	Ratio 1981/1971
Male	3,323,477	8,191,631	2.46
Female F/M %	839,450 25.26	2,667,030 32.56	3.18

Source : Respective Census Reports

Thus in the decade 1971-81, the number of male diploma or degree holders multiplied almost 2.5 times while the number of female diploma or degree holders multiplied more than 3.0 times. As a result, the ratio of female to male diploma or degree holders increased from 25.56 per cent in 1971 to 32.56 per cent in 1981.

In Table 16, we classify the diploma or degree holders into three broad classes : Degree holders, Non-technical diploma or certificate, and Technical diploma or degree holders. Thus, in 1971, 80 per cent of the diploma and degree holders were indeed degree holders and the balance was more or less equally divided between nontechnical and technical diploma or certificate holders. In the decade 1971-81, the proportion of non-technical diploma or certificate holders went down, adding mainly to the proportion of degree holders and only marginally to the proportion of technical diploma or certificate holders. Remarkably, there was little difference between males and females in these respects. Incidentally, the male degree or diploma holders constituted 3.0 per cent of the male literates in 1971 and 5.1 per cent in 1981. For females, the corresponding percentages were 2.0 per cent in 1971 and 3.3 per cent in 1981; in this matter, the distance between the males and females was of less than one decade.

				(Per 1000	
	1	971	1981		
	Male	Female	Male	Female	
Degree or above	798.7	817.7	870.9	884.9	
Non technical diploma or certificate	110.3	103.5	17.8	29.3	
Technical diploma or certificate	91.0	78.8	111.3	85.8	
Total	1000.0	1000.0	1000.0	1000.0	
Per cent of the literate	3.0	2.0	5.1	3.3	

TABLE 16. DEGREE OR DIPLOMA HOLDERS FURTHER CLASSIFIED

Source: Estimated from the relevant census data.

In view of their preponderence, we give, in Table 17, a further classification of the degree holders by major branches though this information is available only for the urban areas. It will be noticed that the non-technical degree holders, graduates and postgraduates, predominate accounting for over 80 per cent of the degree holders with a marginal increase during 1971-81 and with little difference between males and females. Among other branches, females predominate in teaching, are well represented in medicine, but have only a small representation in engineering and technology.

TABLE 17. DEGREE HOLDERS IN URBAN Areas CLASSIFIFIED BY MAJOR BRANCHES

				(Per 1000)
	19	971	1	981
	Male	Female	Male	Female
Non-tech. degree	647.9	650.3	668.6	668.1
Non-tech.	174.3	180.9	170.7	184.5
Postgrad. degree				
Eng. & tech.	7 6 .0	4.6	69.5	4.5
Medicine	45.8	36.5	36.7	26.0
Agr., dairy. & Vet.	8.2	0.7	6.7	1.0
Teaching	43.8	125.1	47.0	116.4
Others	4.0	1.9	0.8	0.7
Total	1000	1000	1000	1000

Source: Estimated from the relevant census data.

SOCIO-ECONOMIC CONSEQENCES OF LITERACY AND EDUCATION AMONG WOMEN

Socio-economic consequences of literacy and education among women are many and farreaching. We shall mention only two : Age at marriage and Number of children born; because they are immediate and of urgent importance. In

Table 18, we give a distribution of women, with different levels of education in 1981, by age at marriage.

The evidence is clear that with education, even with mere literacy, women's age at marriage rises and that, with more education, it rises further. For instance, the average age at marriage, in urban areas, was 16.7 among illiterate women, 17.4 among literate with no more than primary schooling, 18.1 with schooling below matriculation, 19.8 with matriculation but not graduation, and finally 21.7 with graduation and above. In rural areas, the average age at marriage is a little lower at all levels of education but shows the same rising trend.

The effect of education comes out even more clearly in the distribution of women with different levels of education by their age at marriage. Consider, for instance, the proportion of women with age at marriage 15 or below. In urban areas, this proportion was 42.1 per cent among the illiterate women, 32.1 per cent among women with no more than primary schooling, 22.5 per cent among women with less than matriculation, 8.9 per cent among matriculates and a mere 3.0 per cent among graduates. In the rural areas, these proportions are in all cases somewhat higher but, with education, they decline in the same manner as they decline in the urban areas.

Again, consider the other end of the distribution, namely, the proportions of women with age at marriage 24 and above. Among the illiterate women, in urban areas, this proportion was a mere 2.1 per cent. It gradually increases to 3.6 per cent among women with less than matriculation. Thereafter, there is a marked jump to 10.0 per cent among matriculate but not graduate women, and another jump to 25.4 per cent among graduate women. This large difference that matriculation and graduation makes to the women's age at marriage begins with proportion of women with age at marriage 20-21. In fact, if we add the proportions of women with age at marriage 20-21, 22-23, and 24+ and get the proportion of women with age at marriage 20+, that proportion, in urban areas, is 22.0 among women with less than matriculation wherefrom it jumps to 43.0 per cent among matriculate but not graduate women and further to 72.4 per cent among graduate women. These proportions in rural areas are slightly lower but the trends are the same. In fact, with education, the difference between women in urban and in rural areas narrows down and, among graduate women, there is hardly any difference; as already mentioned, in urban areas, the proportion of graduate women with age at marriage 24+ is 25.4 per cent; the same proportion in rural areas is 25.2 per cent.

the women's age at marriage beyond 19, then it is important and urgent to promote their education beyond matriculation. There is a long way to go. In 1981, only under 30 per cent of women were literate and 3.3 per cent of them had a diploma or a degree. In other words, only one per cent of all women had gone beyond matriculation.

The message is clear. If it is important to push

WITH DIFFERENT LEVELS OF EDUCATION BY AGE AT MARRIAGE: 1981 Illiterate Age at marriage in Literate but below Middle but below Matric but below Graduate vears middle matric grad. and above U R U R U R Ü R U R 42.1 - 15 48.2 32.1 36.3 22.5 27.5 8.9 13.6 3.0 6.1 16 - 17 19.5 17.2 24.7 24.1 25.6 25.6 16.5 18.8 5.3 6.8 22.0 18-19 14.9 12.5 20.0 25.9 18.4 24.4 24.6 13.4 13.6 20 - 21 10.9 10.5 11.3 10.3 13.7 12.6 22.0 19.2 24.9 22.8 22 - 23 22.1 19.6 1.6 1.3 3.0 2.6 4.7 4.3 11.0 9.4 1.8 8.5 8.9 2.3 3.0 25.4 24 +2.1 2.6 3.6 5.5 10.0 25.2 Age not stated 8.9 5.5 5.9 6.0 5.0 5.9 6.4 5.6 Total 100 100 100 100 100 100 100 100 100 100 Average age at mar-16.7 16.4 17.4 17.1 18.1 17.8 19.8 19.3 21.7 21.3 riage

TABLE 18. DISTRIBUTION OF EVER-MARRIED WOMEN IN RURAL AND URBAN AREAS

U: Urban, R: Rural

Source: Census of India 1981. Special Tables Series 1, Part II, F-2 Tables.

TABLE 19. DISTRIBUTION OF MARRIED WOMEN IN RURAL AND URBAN AREAS WITH DIFFERENT LEVELS OF EDUCATION AND NUMBER OF CHILDREN BORN

Educational level		No. of children born					
		0	1	2	3	4 and higher	Total
Graduate and above	U	14.92	28.10	30.22	12.81	13.95	100.00
	R	19.00	29.33	26.35	12.06	13.26	100.00
Matric but	U	13.01	19.85	24.92	18.64	23.58	100.00
not graduate	R	18.76	22.42	22.81	16.12	19.89	100.00
Middle but below	U	10.80	14.84	17.62	17.98	38.76	100.00
matric	R	16.59	19.12	18.91	16.26	29.12	100.00
Literate but below	U	10.47	12.06	13.87	15.03	48.57	100.00
middle	R	14.55	14.27	14.85	14.46	41.87	100.00
Illiterate	U	10.96	12.21	12.68	12.83	51.31	100.00
	R	13.96	11.82	12.25	12.40	49.57	100.00

U = Urban, R = Rural

Source: Census of India, 1981. Special Tables, Part A and B, Table F 12.

Almost as a corollary, with literacy and more education of the mothers, infant monality declines. In Table 20, we present some available data. Clearly, with literacy and some education of the mothers, which as we have seen, does not go much beyond primary and middle school, the infant mortality drops to almost half, both in the rural and the urban areas.

marriage and partly due to changes in attitudes and motivations caused by education, we should expect fewer children to be born to women with more education. To examine the point, we need a much more indepth analysis; for instance, we should at least take into account the present age among the illiterate women is about 50 per cent

Partly as a consequence of the rising age at of women. In Table 19, we present what data we have from the 1981 Census. It gives the distribution of married women with different levels of education by the number of children born to them. Effect of education is clear in the proportion of women with 4 or more children. This proportion

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in both the urban and the rural areas. Among matriculates but not graduates, the proportion is less than 25 per cent and among, the graduates, it is less than 15 per cent.

TABLE 20. INFANT MORTALITY RATES AMONG INFANTS OF MOTHERS WITH DIFFERENT LEVELS OF EDUCATION

Mothers' education	Rural	Urban	
Illiterate	32	81	
Literate but below pri-	105	59	
mary			
Primary and above	64	49	

Source : Survey of Infant and Child Mrortality, 1979. Office of the Registrar General of India.

As we said, the socio-economic consequences of literacy and education among women are many and far-reaching. Instances can be multiplied; but

there is no need to. If literacy and education of men is good for the society, so must be the literacy and education of women.

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THE ESTABLISHMENT OF BRITISH RULE IN INDIA AND THE INDUSTRIAL REVOLUTION IN ENGLAND

N.V. Sovani

The well-known proposition in the Marxian interpretation of Indian history, that the plunder of India in the second half of the eighteenth century was the hidden source of capital accumulation which made possible the Industrial Revolution in U.K., is empirically tested and shown to be untrue. From the statistics recently worked up by scholars it appears that the possible contribution of the plunder from India to the capital formation in U.K. never amounted to more than 15 percent in any year and was much lower most of the time.

The time periods that historical tradition assigns to the "so called" Industrial Revolution in England (1760-1830) and the inception and spread of British rule in India (1757-1820) are just about identical. It was, and is, tempting to read a causal correlation between the two. Though this was not done till near the end of the nineteenth century it was then done, or seems to have been done, in support of an ideological hypothesis in the Marxist historical tradition. Marx assumed that the massive investment of capital that was, according to his theory, necessary for the inception and progress of the Industrial Revolution in England must have come or in fact came, from overseas exploitation as the then prevailing feudal economic structure in that country was incapable of generating it internally [Marx, 1928, p.790]. This was the basis of the argument developed first, it seems, by Brooks Adams in 1896 that the Industrial Revolution in England was made possible and built upon the "loot" of India following the establishment of British rule there¹ [Adams, 1948, 290-300]. The formulation was very much acceptable to the Indian nationalists though most of them were not of the Marxist persuasion. It was extensively quoted in nationalistic literature in India² and the proposition became a part of the long tradition of writings on Indian economic history of the British period.³

In his book, "The Law of Civilization and Decay", published in 1896, Adams observed: "The savings of millions of human beings for centuries, the English seized and took to London, as Romans had taken the spoils of Greece and Pontus to Italy. What the value of the treasure was, no man can estimate but it must have been millions of pounds - a vast sum in proportion to the stock of precious metals then owned by Europeans."

"Therefore the influx of Indian treasure, by adding considerably to the nation's cash capital,

not only increased its stock of energy, but added to its flexibility and the rapidity of its movement."

"Very soon after Plassey, the Bengal plunder began to arrive in London, and the effect seems to have been instantaneous, for all authorities agree that the 'Industrial Revolution' began with the year 1760 Plassey was fought in 1757, and probably nothing has equalled the rapidity of the change that followed. In 1760, the flying shuttle appeared and coal began to replace wood in smelting. In 1764, Hargreaves invented the spinning jenny; in 1776 Crompton contrived the mule; in 1785 Cartright patented the power loom and in 1786 Watt matured the steam engine, the most perfect of all vents for centralizing energy. But though these machines served as outlets for the accelerating movement of times, they did not cause the acceleration. In themselves the inventions were passive, many of the most important having lain dormant for centuries, waiting for a sufficient store of force to have accumulated to set them working. The store must always take the shape of money, and money not hoarded, but in motion."

"Before the influx of Indian treasure, and the expansion of credit that followed, no force sufficient for this purpose existed; and had Watt lived fifty years earlier, he and his invention must have perished together."

"Agriculture, as well as industry, felt the impulsion of the new force. Arther Young remarked in 1770 that 'within ten years there had been more experiments, more discoveries, and more general good sense displayed in the walk of agriculture than in an hundred preceding ones' and the reason why such a movement should have occurred seems obvious. After 1760, a complex system of credit sprang up, based on metallic treasure, and those who could borrow had the means at their disposal of importing breeds of cattle, and of improving tillage as well as of

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organizing factories like Soho and nothing better reveals the magnitude of the social revolution wrought by Plassey, than the manner in which the wastes were enclosed after the middle of the century Possibly since the world began, no investment had ever yielded the profit reaped from the Indian plunder, because for nearly fifty years Great Britain stood without a competitor" [Adams, 1948, 297-300].⁴

Brook Adam's proposition was restated soberly but more elaborately by R. Palme-Dutt in 1940 in his book 'India Today'.⁵ He quotes with approval the above passage from Adams. Dutt's formulation is avowedly Marxian. He writes:

"Three main periods stand out in the imperialist rule in India. The first is the period of Merchant Capital, represented by the East India Company, and extending in the general character of its system to the end of the eighteenth century. The second is the period of Industrial Capital which established a new basis of exploitation of India in the nineteenth century. The third is the modern period of Finance Capital, developing in the distinctive system of the exploitation of India on the remains of the old, and growing up from its first beginnings in the closing years of the nineteenth century Marx dealt with the first two periods, of Merchant Capital and Industrial Capital, in relation to India" [Dutt, 1970, p.97].

In the section "India and the Industrial Revolution" Dutt begins by asserting that" on the basis of the plunder of India in the second half of the eighteenth century, modern England was built up" [Dutt, 1970, 108].

"In the middle of eighteenth century England was still mainly agricultural". The woollen industry was still the main industry; in 1770 woollen exports comprised between one third and one fourth of all exports. "The machines used in cotton manufactures writes Baines (*History of Cotton Manufactures*) were upto the year 1760 nearly as simple as those of India" [Dutt, 1970, 115].

"Socially in respect of the division of classes, the creation of a proletariat and the establishment of secure bourgeois rule, the conditions were ripe for the advance of industrial capitalism. The commercial basis had been laid. But the advance to the industrial capitalist stage required also an initial accumulation of capital on a much larger scale than was yet present in England of the middle of the eighteenth century ..."

"Whence came the sudden access to the accumulation of capital in the second half of the eighteenth century? Marx has shown how the primary accumulation of capital of the modern world, alike in the earlier stages of bourgeois growth and its further development, derives above all from the spoils of the colonial system, from the silvers of Mexico and South America, from the slave trade and from the plunder of India."

"Then in 1757, came the battle of Plassey and the wealth of India began to flood the country in an ever growing stream ... And the sudden access of capital in England in the second half of the eighteenth century came above all from the plunder of India". And then Dutt quotes the passage from Adams reproduced earlier and concludes: "In this way, the spoliation of India was the hidden source of accumulation which played an all important role in helping to make possible the Industrial Revolution in England" [Dutt, 1970, p.109-112].

It will be enlightening to recall the theory of primitive accumulation that Marx had developed. In the concluding chapters (or sections) 26 to 33 of Volume I of *Capital*. Marx begins by posing the question facing him, in this way. "We have seen how money is transformed into capital; how by means of capital, surplus value is made, and how out of surplus value, more capital is made. But the accumulation of capital presupposes surplus value; surplus value presupposes capitalist production; capitalist production presupposes the existence of considerable quantities of capital and labour power in the hands of the producer of commodities. The whole movement, seems, therefore, to turn in a vicious circle, out of which we can only make our way by the assumption that, as prelude to capitalist accumulation, there has been a process of primary accumulation (Adam Smith terms it "previous accumulation") - an accumulation which is not the outcome of capitalist method of production, but the starting point thereof" [Marx, 1928, p.790].

Then Marx delves into history to delineate the process of primitive accumulation by describing the break up of feudal society. "The so-called primary accumulation is nothing other than the historical process whereby the producer is divorced from the means of production . Great masses of human beings were suddenly and forcibly torn away from the means of subsistence and hurled into the labour market as masterless proletarians. ... The spoliation of the property of the church, the fraudulent alienation of State domains, the theft of common lands, the transformation of feudal property and clan property into modern private property (a usurpation effected by a system of ruthless terrorism) - these were the idyllic methods of primitive accumulation. They cleared the ground for capitalist agriculture, made the land part and parcel of capital, while providing the needs of urban industry for the requisite supply of masterless proletarians" [Marx, 1928, Pp.812-813].

"When part of the rural population was set free from land, the means of subsistence with which they had been nourished as landworkers were also set free. Such means of subsistence were transformed into the material variables of variable capital As it happened with the means of subsistence, so did it happen with the raw materials that were agricultural means of production. These were transformed into an element of constant capital" [Marx, 1928, p.826].

This was however, one phase of the process of primary accumulation. The other phase, the emergence of capitalist order was discussed by Marx from chapter (section) 31 to the end of the book. This is more relevant to the problem under consideration here. Here it is money capital that is being discussed. The Middle Ages had handed down two distinct forms of capital, userers' capital and merchants' capital ripening under extremely different socio-economic auspices.

"In the country districts, the feudal structure of society, and in the towns, the guild organization, hindered the transformation of money capital into industrial capital - the transformation of the money capital that had been formed by means of usury and commerce. Those hindrances vanished when feudal society was dissolved. The new manufacturers were inaugurated in sea ports, or else the part of the countryside where the old urban system did not run, and where the guilds that were a part of that system had no say."

"The discoveries of gold and silver in America; the extirpation of indigenes, in some instances their enslavement or their entombment in mines, in others; the beginning of the conquest and

looting of the East Indies; the transformation of Africa into a precinct for the supply of negroes who were the raw material of the slave trade these were the incidents that characterised the rosy dawn of the era of capitalist production. These were the idyllic processes that formed the chief factors of primary accumulation. Hard upon their heels came the commercial war between European nations, fought over the whole surface of the globe. It opened when Netherlands broke away from Spain; it assumed gigantic proportions in England's anti-Jacobin war, and it found a recent sequel in the opium wars against China."

"The various factors of primary accumulation may be classed more or less chronologically, and with special reference to certain countries, such as Spain, Portugal, Holland, France and England. In the last named, at the end of the seventcenth century, they were systematically assembled in the colonial system, the national debt system, the modern system of taxation, and the modern system of production. To some extent they rested in brute force, as, for instance, in the colonial system ... Force is the midwife of every old society pregnant with a new one. It is itself an economic power" [Marx, 1928, Pp. 831-833].

As is obvious in all these remarks the point of reference is the many countries in Western Europe though Marx draws pointed attention to England as the most capitalistically developed country. As our focus here is on England and India as related in a colonial system it is relevant to note the following regarding that system:

"Under the influence of the colonial system, commerce and navigation ripened like hothouse fruit. Chartered companies were powerful instruments in promoting the concentration of capital. The colonies provided a market for the rising manufactures, and the monopoly of the market intensified accumulation. The treasures obtained outside Europe by direct looting, enslavement, and murder, flowed to the motherland in streams, and were then turned into capital" [Marx, 1928, p. 835].

On this wider background we can now concentrate our attention on the suggested correlation between the Industrial Revolution in England and the loot that flowed into England as a consequence of the establishment of British rule in India. The suggested causal relation between the two has never been statistically or empirically tested mainly because of the lack of statistical data till recently. Though fairly good estimates of the loot from India in the second half of the eighteenth century were available the corresponding estimates of the then current rate of capital investment in England were not. These have now been painstakingly worked out by British and other researchers in recent years. It has therefore become possible to compare the relative magnitudes of the two and so to test the suggested correlation.

capital investment in Great Britain because it enables us to also examine the more basic proposition as to whether the Industrial Revolution did represent a very marked spurt in capital investment and without which such a revolution would not have been possible. In Table I are presented Feinstein's estimates of capital investment and its proportion in the gross national product in Great Britain for the period 1760 to 1840 together with the new revised estimates by Craft regarding the proportion of capital investment in the gross national product.

It is convenient to begin with the estimates of ment in the gross national product.

Period	Feinstein	Feinstein's Estimates		Craft's Revised Estimates	
	Annual rate (=aver- age of decade rates) Current prices (£ million)	Proportion of Gross National Product %	Period	Proportion of Gross National Product %	
1761-1770	36.8	8	1760	6	
1771-1780	39.9	9			
1781-1790	68.0	13	1780	7	
1791-1800	114.1	13	1801	7.9	
1801-1810	203.8	11	1811	8.5	
1811-1820	265.4	11	1821	11.2	
1821-1830	313.3	12	1831	11.7	
1831-1840	404.8				

THE FLORE COMPANY FOR A DESCRIPTION OF THE PROPERTY DISTORTS IN A

Sources: 1. C.H.Feinstein, "Capital Formation in Great Britania "in Mathias & Poston (Ed), Cambridge Economic History of Europe, volume 7, Part I, Cambridge, 1978. 2. N.F.R. Craft, British Economic Growth during the Industrial Revolution, Oxford, 1985, p73.

Feinstein's estimates of the proportions of capital investment to gross national product have been regarded as overestimates, and hence the revised estimates of Craft. In regard to these Craft observes: "In calculating gross domestic investment as a share of gross national expenditure Feinstein used his constant price estimates for capital formation and calculated national income in constant prices working backwards from 1851-60 using Dean's and Coles' estimates of growth Dean's and Cole's estimates of growth are too high, which would imply that Feinstein's estimates of national expenditure, particularly in earlier years are too low, thus causing his estimates of investment as proportion of national expenditure too high. The new estimates do much to restore the picture of gradual advance in the share of expenditure devoted to investment advanced by Dean and Cole. The advance in the investment ratio does not match the expectations

of Rostow and Lewis if the "Industrial Revolution" (or "take-off") is seen as a twenty year period at the end of the eighteenth century. However, a doubling of the investment rate between 1760 and 1830 is shown by these estimates, and moreover the investment share of expenditure of 11.7 per cent in 1831 is almost three times the figure for 1700. The new estimates, of course, show a less rapid rise in investment rate than do Feinstein's figures. They also do not repeat Feinstein's surprising result that investment as a share of GDP peaks at the time of the start of the wars with France" [Craft, 1985, p.73].

Craft concludes "that the industrial revolution down to the end of wars with France did not see any dramatic rise in the investment rate. The rise in the savings rate between 1760 and the 1820s is much what might be expected from the conventional consumption function theory, and does not indicate any spectacular success in financial institutions' mobilizing of funds as opposed to the effects of rising productive potential" [Craft, as Marx was led to assert by his own theoretical formulations. Feinstein's estimates of the sec-

There was no dramatic spurt in capital investment in the latter half of the eighteenth century as Marx presumed. Neither did the main part of the gradual increase in investment originate abroad as Marx was led to assert by his own theoretical formulations. Feinstein's estimates of the sectorwise origin and size of gross fixed capital formation for the period 1751 to 1860 presented in Table 2 clearly show that most of the capital originated at home.

TABLE 2. SECTORWISE GROSS FIXED CAPITAL FORMATION IN GREAT BRITAIN BY ORIGIN AND SIZE 1751-1860

Sector		s		
	1751-70	1791-1800	1821-30	1851-60
Agriculture	1.20	3.41	4.00	6.90
Industry and Trade	0.77	2.75	11.50	20.67
Transport	0.84	2.45	4.45	18.12
House Building and Social	0.87	2.80	11.38	12.30
Total	3.68	11.41	31.38	57.99

Source: C.H. Feinstein, 'Capital Formation in Great Britania', in Mathias & Poston (Eds), Cambridge Economic History of Europe, Vol.7, Part I, Cambridge, 1978, Table 7.

To turn more specifically to the problem we are discussing here, our next step is to present the estimates of the loot from India that the British derived as a result of the establishment of their rule in India.

The battle of Plassey in 1757 was won by the British, and the East India Company became a territorial entity in India which it was never before. With the acquisition of the Diwani of Bengal the Company gained another source of income besides its trading activities. The Company received the revenue from Bengal and had to run the administration of the land. After meeting the cost of administration what remained out of the total revenues collected, or the revenue surplus, came to be known as the annual investment of the Company. By using this surplus the Company bought goods in India for export to England and the sales proceeds of these flowed into the coffers of the Company in England. From these funds accruing in England the Company paid its taxes to the Home Government, paid salaries to its employees and dividends to its shareholders and defrayed other administrative expenditure. This flow of income from overseas has been described as the "loot" from India as it amounted to unrequited exports from India to England.

We refrain from going into the hairsplitting debate about whether all these amounts can be regarded as "loot" from India. We assume, for argument's sake, that it was all "loot". A related

point, however, can and should be made. Both Adams and Dutt imply that the loot mostly consisted of specie and was almost bodily taken to England to augment specie supplies at home. This does not seem to be so. The transfer of funds was mostly through trade and bills of exchange and very little specie was involved in all those transactions. What, however, happened was that whereas before Plassey the East India Company had to import every year specie from England to liquidate the Indian favourable balance of trade, after Plassey this became unnecessary. As a result the specie supplies in England ceased to be depleted every year by Indian trade but there was no net addition to the supplies of specie in England on account of India.

The next question is the magnitude of this "loot". R.C. Dutt was the first to try to estimate the amount of this "loot" with the aid of original Parliamentary Papers. Later researchers who went into the same exercise came to believe that R.C. Dutt had underestimated the "loot". They proceeded to correct for this and presented revised estimates of the same. J.C. Sinha estimated that during the twenty three years between 1757 and 1780 the total tribute from Bengal amounted to £ 38.4 million at current prices [Sinha, 1927, p.52]. This comes to an annual average of £ 1.66 million. N.K. Sinha estimated that between 1783 and 1793 the annual tribute from Bengal amounted to £ 1.80 million at current prices [Sinha, 1956, p.225].

The "loot" however cannot be taken wholly as

an addition to capital investment in England as is implied and suggested in the passages quoted above from Marx. That is inconsistent with what Marx himself had said earlier in the volume from which we have quoted. In Chapter twentytwo of Vol. I of Capital entitled "Transformation of surplus value into capital" in section 3, Marx had observed: "In the last chapter we considered surplus value, or surplus product, solely as a fund for individual consumption on the part of the capitalist; in the present chapter, we have hitherto been considering it solely as a fund for accumulation. But it is not exclusively one or the other: it is both at once. Part of the surplus value is consumed by the capitalist as revenue; the other part is employed as capital or accumulated. In the case of a given amount of surplus value, one of these parts will be larger in proportion as the other is smaller. Other things being equal, the ratio in which this thing is effected determines the magnitude of the accumulation."

Along these lines the "loot" that flowed into England from India became the revenue of the East India Company and was paid out to the Home Government as taxes, to its shareholders as dividends, to the employees as salaries, etc. In other words, the "loot" became the incomes of persons and institutions. How much of these incomes was saved and consumed needs to be ascertained because clearly what was saved could only be regarded as investible funds going into capital formation. Looking at the new statistical estimates of savings out of income during the latter half of the eighteenth century it appears that the proportion of savings out of incomes was on the average about 20 per cent or one-fifth of total income. Generally supposing that the incomes paid out by the East India Company were mainly not to workers or the proletariat but to middle class and well-off persons whose rate of savings can be expected to be higher than the average, let us take it to be 33.3 per cent or one-third of incomes. On this reckoning the savings out of the "loot" of £ 38.4 million during 1757-1780 must have been a total of £ 12.8 million or an annual average of £ 5.6 lakh. Similarly, during 1783-1793 the annual savings could have amounted to £ 6.00 lakh.

Now going back to Feinstein's estimates of annual average capital formation in Great Britain in the same period if we take the average for the decades 1761-1770 and 1771-1780 as around £ 38 million the contribution to it from the Indian "loot" comes to a little short of 15 per cent. That by any standards cannot be regarded as a substantial contribution. Similarly, if we take the average of annual investment in 1781-1790 and 1791-1800 around £ 9.0 million the contribution from the Indian "loot" would amount to 6 or 7 per cent, a very small contribution indeed.

The "loot" from India therefore, did not contribute sizeably to capital investment in England during the period of the Industrial Revolution. Adams' and Dutt's assertion regarding the Industrial Revolution in England having been built up on the spoliation of India does not conform to facts or ascertainable facts.

FOOTNOTES

1. As far as can be ascertained Brooks Adams was the brother of President Adams and his book was published first in 1896. A second edition seems to have been issued in 1910. It was reissued by Knopf in 1948 with an introduction by Charles A. Beard. Beard observed that the book "is entitled to rank among the permanent classics of American thought" and "should be included among the outstanding documents of intellectual history in the United States, and in a way, the Western World" (Pp. 3-4).

2. See for example, [Lala Lajpat Rai, 1967.] The book was originally published in 1917 by B.W. Huebsch, New York and was banned for many years in India.

3. Interestingly it is, in fact, a double etendre. A proposition parallel to the above that British rule smothered the incipient industrial revolution in India in the middle of the nineteenth century was inspired by Marx's direct writings on India in the New York Herald Tribune (New York) in 1853. In these articles Marx asserted that England had broken down the entire framework of Indian society. Mirroring the mid-nineteenth century attitudes he expected an imminent industrial revolution to arise from the ruins. He wrote:

"I know that the English millocracy intend to endow India with railways with the exclusive view of extracting at diminished expenses the cotton and other raw materials for their manufactures. But once you have introduced machinery into the locomotion of a country, which possesses iron and coals, you are unable to withhold it from its fabrication. You cannot maintain a net of railways over an immense country without introducing all those processes necessary to meet the immediate and current wants of railway locomotion, and out of which there must grow the application of machinery to those branches of industry not immediately connected with the railways. The railway system will therefore become in India the forerunner of modern industry Modem industry resulting from the railway system, will dissolve the hereditary divisions of labour, upon which rest the Indian castes, these decisive impediments to Indian progress and Indian power" [Marx, 1853].

4. This is cited in [Dutt, 1970, Pp 109-112]

5. The 1940 edition of R. Palme - Dutt's book was revised in 1970 to which the reference is made at the end of the quotation in the text.

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JAN-APRIL 1990

COMMENT AND CLARIFICATION

In this section, we shall publish brief comments on articles previously published in this Journal together with brief clarifications by the Authors.

COMMENT

CLARIFICATION

INSTITUTIONAL CREDIT FOR AGRICULTURE IN INDIA.

Rath mentions the regional disparity in crop loan disbursment disfavouring the four eastern and two central Indian states. The question arises whether this disparity is intentional or circumstantial i.e. is it the cause of the agricultural backwardness of these states or is it an effect? The above article, in my opinion, suggests the former. But the experience of the N.E. states suggests that flooding of an agriculturally underdeveloped region with institutional finance only leads to its diversion in consumption activities. In my humble opinion modernisation of agriculture has to precede any accelerated credit flow if it is to be ensured that it should be gainfully utilised and timely repaid. This modernisation can begin with creation of infrastructure (mainly communication, irrigation and electrification) and dissemination of the knowledge of better farming practises.

The present distortions in credit flows are merely a representation of the credit needs of different regions depending on their level of agricultural development. Saying it the other way would be placing the cart before the horse.

Kailashahar 799 277

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To the best of my understanding I have nowhere in my article suggested that the regional disparity in crop loans or term loan disbursement was "intentional" on the part of the financial institutions. If I have presented the data on regional disparity in detail, it was in the context of the nationalisation of commercial banks and their induction into the field of rural credit to bring about "more equitable distribution of resources among different regions and groups", (p. 243) and to compensate for the failure of cooperatives which were burdened with over dues and had little chance of reviving. (p. 244) The data go to show that both purposes were not achieved: The performance of commercial banks on both counts was no better than of the cooperatives, but sometimes worse. The reason or reasons for these had little to do with the basic character of the credit organisation. "Thinking in terms of institutional types in this matter has resulted in neglect of basic issues offering rural credit." (p. 245) I surely do not suggest that more loan can also be given in agriculturally less developed states. I have said, "Unless there is a production base which credit can help farmer to exploit, credit alone can be frustrating and worse. And, banks cannot necessarily be expected to create this base or environment". (p. 250)

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BOOK REVIEW

Higher Education in India, The Deepening Financial Crisis by J.L. Azad, Radiant Publishers, New Delhi, 1988, Pp. 257, Price Rs. 85/-.

The book under review addresses itself to the problem of "the deepening financial crisis" facing higher education in India. Evidently in a situation of acute financial stringency the issue of prioritisation, say, between different layers of education (elementary, secondary, higher, vocational, technical and so on) or, again, between different aspects at a given layer (e.g., quantitative expansion versus qualitative improvement or accent on centralisation versus decentralisation in decision-making), becomes extremely crucial. Under these circumstances one is required to view the problem of even the financial crisis from a wider perspective to enable one to bring into common focus several interrelated issues. J.L. Azad's analysis in the book seems to be guided by some such approach. That is probably why in his Foreword to the book Malcolm S. Adiseshiah describes the standpoint of the author as that of an educator, as distinct from that of a financial expert or an economist or even a planner.

The Study and its Method

The author firmly believes "that the inadequacy of finance is an important causative factor in slowing down most of our schemes of educational reforms" (Azad, p.2). It is, however, made clear that inadequacy here refers to "not only the quantum of finance", but also to "the policies, patterns and procedures of financing of programmes of higher education" (Azad, p.2). This clearly provides a wide canvas for analysing the problem of financial crisis in a meaningful fashion.

The author sets about his task of delving "deep into the intricacies of the financial mechanism, its incongruencies, inconsistencies and inbuilt inadequacies" by making an in-depth study in relation to four States in India selected from four different regions, *viz.*, Haryana from the Northern Region; Gujarat from the Western Region; Andhra Pradesh from the Southern Region and Orissa from the Eastern Region (Azad, p.3). To facilitate analysis a data schedule was drawn up to elicit the relevant information from institutions of higher education (colleges and universities) in

these States, for the preceding five years. Additionally, a comprehensive questionnaire "listing, among other things, various problems relating to policies, procedures and patterns of state and central government's financing of higher education was canvassed" (Azad, p.5). Then again, there were personal discussions with state government officials, university officials and principals of colleges. "In some cases, the views of the Vice-Chancellors of the various Universities were also solicited" (Azad, p.5). It appears that the response to data schedule and questionnaire was not unsatisfactory in the case of either Andhra Pradesh or Gujarat. The same cannot be said about the response from institutions in Haryana or Orissa. The author, however, feels that personal interviews compensated partly for the inadequate response from respondents in Haryana and Orissa. The Report is presented in two parts. The first part gives an aggregative picture for the country as a whole, though the data for the four states selected comes in handy in several places to strengthen the analysis. In this part an analysis of the system and pattern of financing of higher education by the state and central governments provides a backdrop to an attempt "to draw conclusions and discuss policy issues pertaining to the system of higher (education) in India as a whole" (Azad, p.7). The second part of the Report delineates the case studies relating to Andhra Pradesh, Gujarat, Haryana and Orissa.

The Aggregative Scenario, Its Pluses and Minuses

The information marshalled in the book yields a picture of changes in expenditure on education in general, and higher education in particular, which has its pluses and minuses. Since 1950-51 expenditure on education has expanded at a rate faster than the Gross National Product. However, this expenditure has not been able to keep pace with ever-growing requirements in the country in respect of education. Moreover, the large increase in expenditure over the years is only at current prices; the increase in real terms is quite moderate. Thus "the increase in per student expenditure at current prices was from about Rs.45 in 1951 to Rs.283 in 1981 signifying about 6 times increase". On the other hand the per student expenditure at constant prices increased only marginally from Rs.52 to Rs.77 (Azad, Pp. 16-17).

Furthermore, "there have been considerable shifts in the inter-sectoral priorities within the education sector" (Azad, p. 20). The elementary education accounted for 56 per cent of the total outlay on education in the First Plan; in the Seventh Plan this proportion slided down to 29 per cent. The proportion in the case of higher education (including technical education) was rather low at 22 per cent in the First Plan. It went on increasing from Plan to Plan, reaching a maximum of 38 per cent in the Fourth Plan. It then came down, but was still 30 per cent in the Sixth Plan.

One more point which merits attention is the author's observation that the Central Government has been spending proportionately smaller amounts on the educational sector. The author arrives at this conclusion on the basis of a comparison between the proportions of expenditure on education to the total revenue budget of (a) the Centre and (b) the States (Azad, p. 22). One does notknow how the comparison would appear if we were to relate the expenditure on education on both revenue and capital accounts to the corresponding total budget. A few facts based upon data presented in the book may, however, be noted. The state government is indisputably the predominantly major source of income to Universities. In the case of a component of this income. however, viz., that supporting non-recurring expenditure (on capital items like buildings, etc.), the University Grants Commission (U.G.C.) accounted for 88.9 per cent of assistance in Andhra Pradesh, 62.5 per cent in Gujarat, 51.1 per cent in Haryana and 72.5 per cent in Orissa in 1976-77 (Azad, p. 29). It is true that the per student income of Universities for non-recurring purposes was much less than that for recurring purposes (i.e., for revenue purposes). Thus in Gujarat the former was a little over 1/5th of the latter in 1976-77 (Azad, p. 140). Then again, assistance by the Centre to colleges has been minimal. All this merely underscores the dominating position of the state government

(relatively to the central government) as a source of income to the institutions of higher education. One is still at a loss to know how the relative position of the two governments as sources of income (for recurring and non-recurring purposes) to these institutions, has *changed* in recent times.

Issues and Perspectives

On the basis of information gathered for the four States as also statistical data on certain aspects for the country as a whole, the author analyses a host of relevant issues with a view to indicating policy perspectives with regard to higher education. It is beyond the scope of this review to make a reference to all these issues and perspectives. Only a few of these are touched upon here.

There is no denying the fact that the institutions of higher education have come to depend heavily on the governmental sector for financial support. Correspondingly, private sources, comprising student fees and voluntary donations, have dwindled in importance. For one thing, such a state of affairs does not augur well for the autonomy of institutions of higher education. Furthermore, state governments, in a tight spot due to precarious budgetary position, may gradually think of curtailing their commitments to higher education. In fact, a former Secretary to Government of Maharashtra, Finance Department has argued as much: "The main thrust of the State Government will have to be on providing free and universal primary education. The responsibility for providing higher education will have to be borne by the Society at large. This would be particularly true for higher and university education". (Godbole, p. 52). The author, therefore, rightly analyses the possibility of mobilising resources through alternative channels.

Voluntary contributions as a source of receipts to educational institutions has more or less dried up in the post-independence period. The author, however, is somewhat optimistic on this score. Probably he is right in stating that "the general public (can be) persuaded to release the strings of the purse if the community feels that the education being imparted in educational institutions is relevant and purposeful". (Azad, p. 90). This evidently devolves on the institutions of higher education an enormous responsibility.

A ticklish problem is the one relating to fees payable by students. The current system provides an across-the-board subsidy to all and sundry, whether they need it or not. The author makes two suggestions to remedy the situation. One is in favour of levy of developmental fees for specific purposes. Such a levy, being non-recurring, may not be opposed, particularly if it is linked to specific purpose, which the students may regard as important. This appears to be a workable solution. But the fact that the levy should not recur and that it should be for a purpose deemed worthwhile by students reduces the potential of this device for yielding sizeable financial resources.

The other suggestion of the author is for "a system of 'differential' fees under which the economically richer will pay the bulk of the costs of education and the socially disadvantaged and economically weaker, but meritorious students. will contribute according to their capacity" (Azad, p. 92). This sounds reasonable. However, given the political clout of the economically richer sections, it is doubtful whether the proposal would be acceptable to the powers-that-be in a state. One may note that if "the economically richer" are to bear "the bulk of the costs of education", the fees payable by them will have to rise manyfold. These sections who are organised and vocal would resist any such change. All this does not detract from the merit of the proposal; it ought to form a part of the agenda for reform of the financial system for higher education. But it has to be recognised that a supreme effort will have to be made consistently by educators to overcome motivated opposition, if the change proposed is to be effected.

The system of 'differential fees' is both a device for reducing relative dependence of educational institutions on government and also for promoting justice between sections of population. Another suggestion designed to bring about equity is the one in favour of selective discrimination among institutions in the provision of in several institutions of higher education. grants by government, those catering to the Unfortunately, the fear is that those who should

weaker sections or located in rural areas being preferred for the purpose. It is worth-noting that a large majority of respondent-institutions in the four States selected for study, supported such a grant-in-aid system. One need have no quarrel with this system, but it would justify itself only to the extent that the quality of education in the preferred institutions keeps on improving. There is a need for a close and continuous monitoring of the progress of the favoured institutions in this direction. The ultimate objective has to be to tone up the educational input in the handicapped institutions, so that in course of time selective discrimination for the purpose would cease to be relevant.

Finally, we may refer to a "disquieting feature" mentioned by the author, viz., "that proportionately larger expenditure is being (made) on staff salaries to the comparative neglect of other important items" (Azad, p. 35). For example in Andhra Pradesh, Haryana and Orissa, over 80 per cent of expenditure in 1980-81 was on staff salaries in colleges, the percentage for Gujarat being a little over 70. As for Universities in the four States, the proportion in 1976-77 (for which information was available) ranged between 55 and 65 per cent. Over the years the salary scales of College and University staff have been raised upwards periodically, thanks to efforts made by the U.G.C. A partial protection against rising prices has also been provided through upward revisions of dearness allowance. In consequence the College and University teachers are now among the fairly highly-paid sections of the population.

The raison d'etre of such a policy consists in the expectation that better salaries would attract better talent in the academic profession. It would be rather difficult to sustain the view that this expectation has been fulfilled. The reason for this state of affairs is not far to seek. Though the salary scales have improved, the conditions of service from the point of view of a devoted scholar have unfortunately deteriorated, what with poor library facilities in several places, mechanical rules regarding load of work, not to speak of an environment of politicking which vitiated conditions be the standard bearers of reform in higher education, are proving unequal to the task. One hopes for the emergence of a scenario in which the accent is one on reasonable scales of pay, to be sure, combined with much better conditions of work conducive to good academic work in our colleges and universities.

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Anand S. Nadkarni Indian School of Political Economy.

The Political Economy of Forest Use and Management, by M.V. Nadkarni with Syed Ajmal Pasha and L.S. Prabhakar, New Delhi,Sage Publication, 1989, Pp. 182. Rs. 150 (Hard Cover), Rs.75 (Paper back).

This is a welcome publication on the forest economy of India, possibly one of the very few published in recent years. Forest is the largest single public domain, of more than a century and quarter old. But until the environmentalists raised serious questions about the conservation of our forest a couple of decades ago, not much public and professional attention (other than the forester's) was given to our forest resources, except of course at the local level from time to time. The steadily declining total forest produce, both in physical and value terms, at a fairly high rate since the middle of the 1970's has not drawn as wide an attention as it deserves. Against this back-Nadkarni's book is welcome and ground. the attention of all scholars, deserves administrators and public men.

The book is divided into three parts. In the first part, entitled 'the local versus the large economy and the State' the author describes and reviews the four stages in the emergence and development of policy, its implementation and conflicts, since the beginning of the 19th century, with special reference to the Western Ghats region of North Karnataka. The second part, entitled 'the class character of the local economy and its forest dependence', is concerned mainly with the contribution of forests to the commercial crop and livestock economy of the region, based on

primary data from households in four small and not-so-small villages in the region. The last part, 'conclusions', summarises the findings and suggests institutional devices for the proper management and exploitation of both reserve as well as village forests.

The first chapter in the first part begins by pointing out the conflicting interests of various social groups in the conservation and exploitation of forests, interests which cannot be reconciled through some maximisation process, as is suggested by Arrow in his analysis of social welfare function. This is the basis of Nadkarni's political economy of forest management when different interests have to be reconciled through political processes. He conceptualises four stages of development in forest use and management: the pre-commercial-cum-pre-capitalist, the commercial stage - both early and late, the industrial use stage, and the emerging enlightened stage. There are three dimensions underlying all these four stages: technological change, commercialisation and integration of the local forest region into the larger economy. The five subsequent chapters deal with these four historical stages.

The second chapter of pre-commercial stage states that forest, by and large, waspublic domain, though, in principle, private property in forest was not unacceptable. But local communities had well recognised rights on the forest, without any ownership, like free access into forest for grating, for collecting fuel wood, timber for construction and agricultural implements, stakes for hedges and fencing, and leaves for green manure. Even shifting cultivation, with a 12 or 13 year cycle was permitted. All these were essentially for personal use of villagers, not for commercial purposes. Interestingly enough, products like sandal wood, teak and ivory which even then entered into trade in the larger economy, were state monopoly in this region. Despite public ownership, there was evidence of differential rights or rather influence in the use of forests by local people even in this earlier stage: some had acquired parts of forest for their private betelnut garden or for shifting cultivation, while others were mainly their tenants. Secondly, despite the relatively low demand of the local economy on the forest, there is evidence of development of treelessness over stretches and conversion of parts of forest land into cultivated land leading to reduced flow in the
streams. These are seen as signs of ecological deterioration even in these early pre-commercial times.

The third chapter deals with the early stages of commercialisation, starting with the entry of British power into the region. The demand was for teak, first for the Royal Navy, and later (when Navy ceased using teak) for the railways that started in India from the middle of the 19th century. The first half of 19th century saw reckless exploitation of timber forest by contractors, with no consideration of long-run interests. By the beginning of the 1860's, this led to a realisation of the need to conserve, resulting in the first statement of Forest Policy in 1863 and the subsequent establishment of a separate Forest Department in India (though there was a department in Bombay Presidency since 1806, with very crude and poor operational methods). The first Forestry Act of 1865 empowered Government to declare any forest as Government property without affecting the traditional rights and privileges of local people. The new Act of 1875 recognised reserved, protected and village forests. The local people's rights were recognised in full, for personal use, in village forests and, in a restricted way, in protected forests. The area under reserve forests steadily increased restricting the access of local people to forests. Following the report of Voelcker in 1891, therefore, a new policy statement was made in 1894, recognising the close connection between agriculture and forest and categorising forests into "(a) forests, the preservation of which is essential on climatic or physical grounds; (b) forests which offered a supply of valuable timber for commercial purposes; (c) minor forests; (d) pasture land". Restrictions were absolute for (a) and gradually relaxed as one moved towards (d). This policy thrust has continued since, with no basic change even in 1952.

Nadkarni finds this a very worthwhile development. He finds the overriding consideration of 'public interest' understandable even when this meant subordinating local interest to interest of the larger economy. It is not very clear from the account, however, that such an interpretation could be easily put on this policy statement, in view of the very clear policy in regard to minor forests and grazing lands and limited access to protected forests. Indeed, his major complaint is

not that little forest land was made available for local interests, but that no organisational reform to protect local interest was spelt out, leading to over-exploitation and denudation of these, which later in the book he suggests, can meet more than all local needs if properly managed.

Nor is there any sign of the "colonial" character of the alien government showing its interest in this field, as would appear from his characterisation (Pp. 22, 96). The British, as he says, had no forest policy at home, leading to exhaustion of their hardwoods by the beginning of the 19th century. They did the same in New England and were equally thoughtless in India before 1860. But the local authorities realised the folly and established a Forest Department on which a German was invited to be the first Chief since no Britisher knew anything about it. Surely, there is nothing "colonial" in all this!

The fourth chapter relates to the commercialisation period from 1894 to the beginning of the Second World War, which saw what the author calls the development of scientific forestry in the interest of sustainable use. Working plans were systematically prepared for every forest block. "The object of the plan is to improve the jungles, and at the same time, to produce the maximum revenue consistent with such improvement". ... "Clearly, profit maximisation was not with reference to only the year concerned. An optimum rotation was decided on the basis of a comparison between the interest cost of waiting for one more year (or period) and the additional revenue expected from the growth of the tree during that period. This principle was applied to the fuel wood forests also". This approach meant selective felling though sometimes it involved clear felling at the level of coupes. Improvement felling to facilitate growth of select species meant neglect of biological diversity in general and fodder, medicinal, etc., trees and plants in particular. This long range plan implied greater emphasis on regeneration, both natural and artificial. The principles approach of the working plan, however, Nadkarni thinks, "did not preclude indiscriminate deforestation, since the trees which had passed the point of economic optimum could be cut, and such trees constituted the bulk". In view of the principle being followed in such instances, the use of the word "indiscriminate" appears inappropriate, though it could be argued that in

the interest of a steady annual flow of timber (and of revenue) this wholesale cutting of all mature trees (where the bulk was such) was undesirable. But in his very next sentence he says that "the demand on forest produce was, however, still limited, at least in Uttar Kannada. ... and forest depletion was still under check". So after all demand was a factor governing felling, and it was not all that "indiscriminate"!

This account of the development of working plans is followed by a detailed account of a policy of extension of reserve forest in Uttar Kannada to the point of local minor forests and grazing lands vanishing and being substituted by departmental fuel depots where fuel wood was available at concessional rate, and limited access into the forest was permitted for grazing at a nominal fee. These naturally caused hardship, particularly to poor people. Between the turn of the century and the middle of the 1930's, there was a steady decline in cropped area under all types of crops, a decline and then relatively slow rise in population, heavy out-migration, severe malaria, etc. And all these were attributed, by the representatives of the local people to the extension of reserve forest to the doorstep of the villages. Nadkarni appears to agree with this. It may be correct; but independent checking with data for other districts in the west coast and other adjacent regions would have been useful to verify these assertions.

This period saw persistent agitation against government policy in regard to forests, and naturally the landed class which stood to suffer the most took the lead, while speaking for all including the poor. From the beginning of the 1920's Government began giving various concessions to villages and village people. The 1927 Forest Act recognised certain rights and privileges of "persons" but not of village communities. Local Forest Advisory Councils were formed which became mainly forums to ventilate grievances. There was little sign of constructive suggestions by local people, or efforts to improve the private forest patches given by the State to local arecanut growers (Betta lands). Villagers were not aware of environmental problems relating to forest exploitation, presumably because none existed in any significant measure.

The fifth chapter deals with the period of

dominance of industrial use. The major technological changes were the use of forest produce for paper, pulp and plywood, extraction of sandal oil from wood, and charcoal for industry. This brought about massive exploitation of forest resources, so much so that the Forest Department was swept off its feet and all the principles of scientific forestry assiduously cultivated over the first half of the century were virtually given up. Regeneration of forests was neglected and large scale denudation took place.

Nadkarni puts the blame for this on the lack of interest in regeneration on the part of private industry because of the low price charged from it by the Government, a price much lower than the cost of regeneration. He says, "since the industry was getting raw material like bamboo at such low prices it had no interest in their regeneration. The management of resource supply was such that there was a dichotomy between resource use and resource generation, the user having little responsibility for regeneration". If the user industry was not given the forest area on long lease, under which regeneration was the user's responsibility, it is difficult to see how one can talk of the user's lack of interest in regeneration, and what the price, charged as royalty has to do with it. If the user has long lease for supply of the produce as raw material for the factory, then it would regulate exploitation such as to ensure steady supply over the years, unless it sees prospects of alternative raw material at competitive prices within a relatively short period of time. The price by itself cannot affect the rate of use of renewable resource; if it is low, it should release larger funds from the greater profits for regeneration. If the user is not responsible for regeneration, then a low price will surely affect the Government's ability to undertake regeneration; but there is no point in complaining about the user's lack of interest in it!

Besides industrial use and use of wooden poles for transmission of electricity, forest area was lost due to hydro-electric projects. (Out of the first 5 items in Table 5.1 constituting the loss of forest area due to hydel projects, what is the first item when the next four appear to be details of the reasons for loss of forest area due to it?)

Denudation of forests, particularly of protected and minor forests as well as "Betta" lands with arecanut growers increased greatly over the years. The greatest single factor has been the increased need for fuel wood. The concessions to local interests have been used by all classes to overdraw from the forest for commercial purposes. Efforts for the less expensive natural regeneration have suffered through related fashion of implementation. Demand, the author shows has outrun supplies, which have steadily dwindled since the latter part of the 1970's.

Nadkarni notes that the local people were concerned with the deteriorating supply situation only in terms of demand for greater concessions for forest exploitation. It is only in the 80's, thanks to the Chipko movement, that they have become conscious of the deteriorating environmental aspects of forests.

The increased exploitation of forest for industrial use, he shows, did not lead to any very significant absorption of labour in forest based industries, since these were very capital heavy industries with relatively low labour employment potential. In this sense, it gave poor return to the local economy.

The sixth chapter is concerned with the newly emerging trends and possibilities in the field of forestry. Nadkarni argues that the deterioration in the forests is not due to the neglect of local interest by the Forest Department, as is often popularly believed. It is a more complex phenomenon. While local people have not been kept out of the use of forests, they have no say in the management of forests, even minor and village forests. Local interests are also now largely commercial. Forests given to garden farmers (Betta land) have not been properly managed either. On the other hand, with vastly expanded demands for the forest products by the larger economy, the Department has failed in keeping itself regularly informed of changing demands, and designing its plans for exploitation to suit these. A properly worked out working plan system in a slowly changing economy has been thrown out of gear due to the rapid changes in demand that have taken place. The price policy has left little resource at the disposal of the Forest Department for regeneration, natural or otherwise.

As corrective steps, Nadkarni suggests development of vast areas of wasteland for suitable forest cover that can meet a large part of the need of local and larger economy. Various

possibilities, from public corporations to handing over wasteland to private persons for forest development, to farm forestry as well as better pricing of forest produce by Government are mentioned. The author comes back to some of these in the last part of the book.

The second part of the book reports on the forest economy of four selected villages. It shows that the private forest (Betta) lands are mostly with the larger farmers (what he calls landlords and capitalists). But these lands, used essentially for supply of leaf manure to the arecanut gardens, are steadily denuding over the years. The author says that the paddy yields of these farmers is also high mainly because of the concentration of garden and Betta Lands with them (p. 119). This may not be quite the case; it is more likely that those who had more of grazing (Bena) land and cattle per acre of paddy had better yields. These Betta and Bena lands, though under private control, are ill cared for, ill protected. Every type of villager has encroached on forest land for adding to his betta, bena or cultivated lands, though here again the bigger landowners have the lion's share of it.

The author estimates the benefits the villagers derive from this forest land, through garden farming and livestock raising as well as fuel. (In estimating returns from livestock, the author excludes returns from it in form of labour on farms, without giving any reason. This naturally under states the total returns). Forests appear to supply more than 15 per cent of the income of the villagers. Nevertheless, there is apathy leading to degradation of the forests. He says, "The major reason for this apathy seems to be the acute class differentiation in the local economy, giving rise to unequal benefit from forests, and the lack of any communitarian institution to make a sustainable use of them". This is not easy to understand, at least in the case of "betta" lands which are under private occupation and used by the upper classes, but neglected nevertheless to their own disadvantage. It is easier to appreciate the point in regard to the common forest lands.

In the last chapter of the book Nadkarni discusses certain policy issues in the light of the failure of all parties, most important of all the state in proper management of forests. He says that the "concern of environment should be the first and foremost task of forest management, rather than productivity of forests in the narrow sense of annual increment per hectare". But he immediately adds that if demand for supply of forest produce cannot be matched through improvement in productivity, the environment itself would be in danger. But in discussing this he suggests, in line with the draft policy statement of 1987, that forests with environment protection as the main goal should be left to the Forest Department, while in other type of forests other people should be involved.

The author here does not appear to take note of the severe inconveniences suffered by people in and around reserve forest areas, mostly inhabited by tribals, where since 1980 no roads, canals, schools or hospitals or electrical line can be built or put up without the permission of the Ministry of Environment. In discussing the 1952 Act (p. 67) Nadkarni was unhappy that the Act did not give weightage to different objectives or at least fix priorities. In practice, one often hears of priority being given to "environment" at the cost of services mentioned above. The same is often the case in regard to submergence of forest land in hydel or irrigation projects. The real difficulty is that no clear objective weights can be attached to these a priori. That was precisely the Arrow point. It is an advantage that weights have not been attached to these goals in the Act; each case has to be discussed on merits, along the lines of what Nadkarni calls "political economy". A clearer discussion of these aspects would have been useful and illuminating.

Secondly, talking about waste land and village forests he advocates community institutions on cooperative lines to manage these. While he finds farm forestry now practiced on dry agricultural lands by private farmers worthwhile, he considers a similar development on government wasteland, or even "betta" lands, another matter. He thinks Government will have no machinery to supervise the proper use of such land by private parties. If farmers are converting their farm land to use as forest, is there any strong reason to suspect any other use of degraded forest land or wasteland by farmers? In any case, if the Forest Department has today a staff to guard its forests, the staff can do the less strenuous and time consuming job of seeing that the land given to private parties for forestry is being used for the purpose.

The failure of the "betta" lands, in the light of dry land farmers converting their farm lands to forest, deserves greater examination. Surely, the Uttar Kannada garden land farmers are not a very different breed from the dry land farmers of Kamataka! Could it be that the restricted right of use of trees as timber on betta lands has been one dissuading factor? The "tree patta" scheme for wasteland development appears to have similar restriction on use of the produce on this land. These questions deserve more careful examination before they can be dismissed as unworkable, in the face of the farm forestry efforts of dry land farmers.

Certainly the management of village forest land by the village community on cooperative lines is worth trying. But the voluntary agency managed village common lands is no example for this purpose. What will happen when such an agency is not there, or withdraws? Nor is Pani Panchayat an appropriate parallel: water is sold for use to individual farmers on their farms. In case of forestry, the entire enterprise is on cooperative lines (like cooperative farming). Will the influence of the richer class in the village not come in the way of equitable operation of the village forest? These questions cannot be wished away, but require careful examination in the light of varied experience.

The problem of forest has acquired serious dimensions. Nadkarni has written a careful and closely argued book on it that deserves everyone's attention.

N. Rath Indian School of Political Economy

Pricing of Postal Services in India by Raghbendra Jha, M.N.Murty and Satya Paul, National Institute of Public Finance and Policy, 1990, Pp.99, Price Rs.100/.

Costing and pricing of products and services of the Public Sector present complex problems as is illustrated in the book under review viz.'Pricing of Postal Services in India'. This is a study commissioned by the Expert Committee on Excellence in Postal Services, Ministry of Communications, Government of India, in February 1988 and is concerned mainly with evolving principles for determining the structure of tariff for services provided by the Indian Postal Department (IPD). In view of the prominent part played by the postal services in the economic life of our country, the pricing of their services is a matter of considerable importance. Unfortunately, there does not exist much analytical/ empirical work on this subject and the present study aims at bridging this gap. It is mentioned that "this is perhaps one of the first attempts to suggest ways of designing the structure of the postal tariff in the country on rational principles." Although there are several aspects of the economics of Post Offices, such as quality and type of service, ability to absorb new technologies in communication and transport and the capacity to adjust to these and other changes, the Report concerns itself mainly with the problems of pricing and related issues of postal services. After studying trends in costs and output, efficiency and pricing mechanism, the study offers suggestions for improvement in the pricing structure of a public utility like the postal department with revenue and equity objectives.

Complexities in evolving a pricing formula

The study first makes a survey of the issues involved along with its implications for India. Since the post office has a virtual monopoly over its services, it is possible to have a tariff structure that will yield positive profits. On the other hand, however, postal services are an indispensable tool of mass communication so that benefits from them are typically underestimated. A tariff structure that seeks to earn monopoly profits may stifle demand and have adverse effects particularly in a developing country like India and hence is not favoured by many. However, increasingly it is being realised that uncritical acceptance of large subsidies to the post office is also unjustified. This throws up the question of how best to fix postal tariff. Full cost prices with the balanced budget that are mostly adopted by the developed countries may not be appropriate for India since the postal services are the only means of communication available to poor people separated by long distances. Certain social objectives like equity and dissemination of information also influence the decisions regarding the postal tariffs. In this context, the pricing schemes involving either cross-subsidisation with the balanced budget for IPD or price subsidies to certain postal

services with the budgetary deficits of IPD financed from the general revenue become relevant options.

Although the complexities of evolving an ideal cost and price formula are recognised, the authors feel that the pricing practised by our IPD does not follow any rational principle and is the out come of *ad hoc* decisions concerning subsidies for cerain services and mark-ups for the others. As a result, there is an overall deficit subsidised by the general budget.

In the light of the general discussion, the problem of tariff fixing has been considered at two levels viz. (a) aggregate and (b) micro levels.

Issues at an aggregate level

The principal concern with respect to aggregate issues is whether and to what extent the Post Office can and should earn a return over its cost. One argument would have a tariff structure that will yield positive profits and the other would suggest that it need not always be so, especially in a country like India where the spread of mass communications leads to benefits which are more important than financial profits, and rate fixing is also influenced by social objectives. A balanced view would favour a tariff structure that yields "adequate" revenue and simultaneously ensures maximum possible traffic. The authors recognise that these two are conflicting objectives and evolving a consensus is difficult. The current practice of financing the deficits of IPD from the general revenues of the government may be legitimised, if the deficits are shown to be the result of price subsidies to meet the social objectives like the rapid dissemination of information and income distribution. They emphasise that if there are large losses, they must be adequately justified. In any case, the argument regarding the spread of mass communications should not be allowed to become a cover for inefficiency which unfortunately has tended to happen in India.

Distinguishing between the general subsidy to the Postal services as a whole and crosssubsidisation within the Postal services, the authors have argued that it is hard to justify the former. Also, a wrong pricing structure within the

postal services might lead to a mis-allocation of resources as between the services and lead to larger losses in the aggregate. In the context of the discussion on the recent hike in postal rates, the following observations are worth noting : "There is a popular fallacy that low postal rates (and hence large postal losses) are beneficial in that they facilitate economic development, while raising them to a level which will cover the cost of the service, including depreciation and replacement of equipment, is inflationary. It is possible, however, that low rates by distorting demand and upsetting the balance between productivity and the real value of the service to the user, might actually fuel inflation. Similarly, one has to evaluate the inflationary impact of the subsidy given to the post office. The subsidies to postal services may result in a rise in the prices of some other commodities if such subsidies are financed by either increasing commodity taxes or deficit financing. One must also remember that the resulting inflation would penalise non-users as well, hence there would be some kind of inequity built into this" (Raghbendra et al, p.4).

Micro issues

Micro issues deal with the structure of prices and costs within the IPD. Here the concern is with pricing of individual items of the postal services and the relationship between such prices. The authors have attempted an evaluation of the varying opinions and have found that it is hard, *a priori*, to unambiguously favour one approach to the other. The study then highlights some of the weaknesses of the current practices for fixing postal tariffs in India and on that basis recommends principles of an appropriate tariff policy.

At the broadest level, there are three possible approaches to the pricing of individual postal services. These are : (i) "political" rates, (ii) commercial rates, and (iii) economic rates. Postal pricing in India seems to have been based on an amalgam of all the three approaches. The principle behind the political rates appears to be that prices of postal services have an important social function and, therefore, social/ political considerations prevail over others in their determination. In contrast, commercial rates tend to exploit, for profit, the monopolistic position of the post office.

Both of these cannot be adopted uncritically. Pricing on political considerations alone may confer unduly large benefits on sections who do not deserve it and place the burden on weaker sections. Similarly, for reasons mentioned earlier, monopoly profits are not favoured. Hence the need for adopting economic principles, whereby the services provided by post offices do not lead to waste and inefficiency and simultaneously the objectives of social justice are also taken duly and explicitly into account. The study, therefore, concentrates exclusively on economic rates.

Economic pricing

Four approaches to economic pricing along with their welfare properties are identified as follows:

i) First best/ cross-subsidy-free prices with a balanced budget for the postal department: With this method prices of individual postal services reflect fully allocated costs. It would then follow that the department would be supplying its services in the most efficient manner and correspondingly, its budget would be exactly balanced. ii) Two-tier pricing with cross-subsidy-free prices and an overall subsidy -- the eclectic approach: The formula suggested in (i) above might involve "high" prices for several items and might conflict with the social objectives. It is, therefore, suggested that when it is felt that the full cost prices of items used in relatively large amounts by the less well-off sections of society are too high, there might be a case for subsidising some of these items. That is to say, the equity objectives can be taken care of by transfers from the general budget. This eclectic approach combines efficiency within the postal department with the redistributive objectives of the government.

iii) Second best prices: Where competitive efficiency is not the sole consideration and the government has specific redistributive objectives, it might become necessary to compute second best prices by taking into account government's welfare objectives. Since this welfare maximization is subject to budget constraints, the resulting postal prices are second best optimal. "We would typically expect them to involve lower prices for distributionally significant items such as letter cards and post cards and higher prices for less significant items such as registered letters in comparison to first best prices."

iv) Cross-subsidisation with overall budgetary deficit: This is the approach currently practised by the IPD. According to the authors, this method does not have any welfare optimality properties. And in any event, they point out, all pricing strategies that prescribe cross- subsidisation involve the risk that successful competitive services may eventually be provided by private agencies.

In the study, the first best and second best pricing strategies have been discussed exhaustively, because according to the authors, the rules in such pricing are the bases that any sound pricing strategy must adopt. They have, therefore, worked out average price computations under these two regimes.

Other issues

The study also considers the frequency of tariff revision and feels that the tariff should not remain out of line with postal costs for too long. It, therefore, recommends an annual revision of tariffs.

Further, the study examines the common belief that the IPD has been operating inefficiently and comes to the conclusion that estimates of productivity of the IPD do not support this view. In fact, on the whole, efficiency has been gradually rising though there have been fluctuations in some years. For a fuller discussion, one will have to go to the book itself. However, the authors feel that demand projections for postal services have not been properly worked out. After examining the data on output and cost of IPD during the period 1950-51 to 1982-83 the authors conclude that IPD has planned its expansion in disregard of the demand for its services. The increased expansion of capacity coupled with the economies of scale of joint production has contributed to the presence of excess capacity in the IPD. It has, therefore, been suggested that matching of capacity expansion with the growth of demand for its

services should be an important consideration for the planned development of IPD in the future.

The book contains several useful and detailed Tables covering information on various aspects spanning the period right from 1950-51 to 1983-84.

> P.S. Palande Indian School of Political Economy

Zenab Banu, Politics of Communalism, Bombay; Popular Prakashan, 1989 Pp XIII+226, Price Rs.200/-

Communal riots have become endemic in independent India and this book* is an attempt to test a hypothesis in respect of the causation of communal riots. Even after India adopted the Constitution which provides for a democratic and secular polity, why have there been persistent and bloody communal riots between Hindus and Muslims? In fact, next to Hindu-Muslim riots, there have been riots between the caste Hindus and the Dalits, *i.e.*, persons belonging to the Scheduled Castes. Such riots have of-late increased in number and can be seen as part of the reservation controversy. If Hindu-Muslim riots have been due to religious consciousness or feeling of insecurity on the part of the Muslims, an attempt must be made to diagnose the causes of such insecurity. It is true that Muslim fundamentalism as well as Hindu fundamentalism have been reinforcing each other and their growth has doubtless contributed to the heightening of tension between the two communities. But why has such fundamentalism grown? It is often said that Hindu communalism/fundamentalism is a reaction to Muslim communalism/fundamentalism. And it is also claimed that Muslim fundamentalism/communalism is the result of the majority community's militant and aggressive communalism/fundamentalism. The author of this book has tried to put forward the view that such fundamentalism itself is the consequence of various socio-economic and political factors. As reservations in jobs and in educational institutions fuel Dalit-Savarna conflict, Hindu-Muslim conflict also must be the result of similar clash of economic interests. The author analyses this problem and suggests that the roots of such communal riots lie not in cultural differentiation between the two communities but in their rival claims for share in power and economic resources (including opportunities). In a democracy, the numbers count and since Muslims can never match Hindus in numerical strength, they have to rely upon the preservation of their separate identity which unfortunately they see in the outdated provisions of their personal law and the sustenance of separatist image. Is it not a fact that Indians settled abroad, even in advanced countrieslike U.S.A. or Canada, yearn for their identity and often try to re-furbish it through revival of out-dated rituals or traditions? So Muslims in India are apprehensive of any reform of their personal law and feel threatened by the majority's talk of a uniform civil code.

It is true that in India other minorities such as Christians, Parsis, etc., have separate identities and yet they have rarely been involved in riots involving the majority community. There have been occasional commotions when mass conversions of Hindus to Christianity took place. But such occasions have been rare.

The author discusses various theoretical explanations of communal riots such as minority self-preservation, communalism as an antidote to secularism, religious and cultural differences. historic struggle for power, etc. The author, as we have already said above, agrees with the last explanation. However, there are other socioeconomic factors such as increasing lumpenization in society which have also contributed to the frequency of riots. Now we have political goons who do violence for a consideration. The influx of black money also makes engagement of such lumpen elements for communal riots possible. Unemployment, black money, restricted opportunities of participation in the political process and erosion of the legitimacy of the Indian State are some of the grounds responsible for increase in communal violence. Use of religion for political purposes is now done unashamedly. The word 'Secularism' is used by all political parties but almost all parties have used religion for political benefit. We would not insist on stringent standards of secularism. One may be religious in personal life and yet be non-communal in public

life. Religious persons are not necessarily communal as secular persons are not necessarily non-communal. But being religious is one thing - to be fundamentalist is another. Being secular is not enough - one must be a humanist. Secularism must also imply humanism and rationalism. Who is to tell the minorities that in the name of religion what their leaders are trying to preserve is their backwardness? Since the Indian State is committed to bringing about social change through law, can it leave out the minorities altogether from social reform and if it does so, is it not going to have adverse effect on social reform which it undertakes pertaining to the majority? We do not suggest that any change should be imposed on minorities but law can certainly catalyse such change and the political leadership must show courage in facilitating it. There has to be a gradualist approach in respect of social reform. But must the State not even start? Must it not at least show the direction of its movement? The Muslim Women's Bill as well as chicken hearted approach to Ram Janma Bhoomi demand are examples of appeasement of fundamentalism of both the communities.

The author narrates her findings arrived at through her empirical study of communal riots with special reference to Jaipur and Ahmedabad. She has collected information from a sample of about 280 persons. These persons were selected from among riot victims, leaders of different parties, newspaper editors and reporters, students, trade-union leaders, intellectuals, elected representatives of local bodies, religious leaders, social workers and representatives of different class and caste groups. The author admits that this group was 'heterogeneous'. On the basis of such investigations, the author comes to the conclusion that riots in post-independence period arose mainly out of the desire to have a larger share of political and economic power. To this reviewer, this conclusion seems to be only partially true. Rival claims for share in economic and political power is certainly one of the factors. But that cannot explain the entire genesis and causation of communal riots.

This is a typical Ph.D. thesis which uses questionnaire method for a purpose for which it is most ill-suited. In the opinion of this reviewer, the VOL. 2 NO. 1

causation of communal riots is not provided just by such competition for a share in power. Such competition is bound to exist in any democratic and developing society. We have given some of the causes above. Moreover, so far as Muslims are concerned, the existence of a separate Islamic State of Pakistan, its Pan-Islamism and the attitude of a large number of illiterate Muslims of looking to Pakistan for moral support are doubtless other reasons for such confrontation. The remedy certainly is not to suspect all Muslims but to understand why they look to Pakistan. The

question of minorities, including Muslims, has to be attended from human rights perspective. Our polity must work more vigorously to create a feeling of one nationality among all Indians irrespective of religion. The fact remains that we have not yet been able to achieve this. Muslims must get equal opportunities in jobs and education. A strictly secular polity is the answer to most of such problems.

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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

1986

Hasnain, Nadeem, *Tribal India Today*, Harnam Publications, Delhi, 1986, Rs.350/- (Hard back), Rs.100/- (Paper back).

This book tries to provide, in a synthesised but comprehensive form, different facets of life and cultured of the 'exotic', colourful, virile and exploited tribals of India trying to come to terms with the hard realities of transition from the hoary past to the bewildering present.

Starting from the concept and definition of tribe in the Indian perspective, it journeys through its' origin, different facets of its' society and culture, its' problems of administration, welfare and development to a glimpse of it's possible future. Beside such issues as tribal regionalism and debt bondage, narration of the ethnographic profiles of some selected tribes has added to it's utility. The annexure to the book provides a variety of statistical and non-statistical data as a supplement to the preceding narration. The photographs and maps further enhance the value of the book.

Hasnain, Nadeem, Shias and Shia Islam in India: A Study in Society and Culture, Harnam Publications, Delhi, 1986, Rs.160/-.

This book is the first full fledged sociological study of Shia Muslims of India providing multidimensional introduction. It tries to provide different facets of life and culture of the Indian Shias - a classical example of fusion of the Shia traditions of Islam and the local cultures. Starting from the origin and development of Shiaism and it's journey to India it studies social, political and economic life of the community, including such topics as status of women, personal law, birth control and dynamics of Shia-Sunni conflict. The annexure to the book provides a variety of statistical and non-statistical information. It includes population figures and distribution of the Shias, their contribution to the Indian society, places and institution of importance, etc. In a way the book may serve as an encyclopaedia of Indian Shias for the lay readers as well as the interested researchers.

Hooja, Rakesh, District Planning - Concept, Setting and State Level Applications, Aalekh Publishers, Jaipur, 1986, Pp vi+248, Rs.150/-.

This book examines the rational for decentralized planning and the suitability of the district as an appropriate planning unit for India. It also reviews four determinants which form the setting in which district planning has to be attempted -State level planning; the district level delivery system, prospects of local level projectization in view of the existing administrative milieu and such factors as lack of sufficient data and planning skills at the district level; and the manner in which the district planning concept evolved in India in both theory and practice. District planning experiences in a few states has been discussed as have the ideas of people like Gadgil,

V.K.R.V.Rao and Lalit Sen.

An exercise in amateur futurology to envisage what the agrarian structure and governmental system will be like in 2000 AD so that we can plan accordingly has been attempted.

The 1984 Hanumantha Rao report and the 1969 Planning Commission Guidelines have been analysed and a personally favoured framework for district planning set forth. Thus the benefits of district planning like integrated multisectoral implementation, locational and spatial growth centre type planning, and the better use of local human and natural resources have been indicated while emphasising what appears possible in Indian conditions.

Subba Rao, N., Economics of Fisheries: A Case Study of Andhra Pradesh, Daya Publishing House, Delhi, 1986, Pp. 160.

This is Subba Rao's first comprehensive and integrated study of the fishery economy of Andhra Pradesh. The book consists of eight chapters. The main aim of this study is to review and examine critically the process and progress of fisheries development during the planning era and to high light some of the problems encountered by the fishing industry. It is intended to provide a better understanding to the reader regarding the various facets of fisheries development in the State. The various issues considered in the study are the parameters of fisheries development, the history of fisheries development in the State, potential fisheries resources, production trends, demand and utilisation pattern of fish and fishing technology. Pointed attention has been drawn to the state of fisheries planning and the policies pursued by the government to develop fisheries. The formation of a study group to go into the various aspects of fisheries development and make concrete suggestions for the removal of present obstacles has been suggested. This multi-dimensional work is a pioneering attempt in the field of fisheries economics in India and should be of immense value to those who are fascinated by fishery economics.

Tilak, Jandhyala B.G., (Ed): Education and Regional Development, Yatan Publications, New Delhi, 1986, Pp. 343. Rs.200/-.

This is a collection of 16 papers presented in an all-India Conference organised by the Society for the Study of Regional Disparities, in addition to an elaborate introductory chapter on the subject on education and regional development. The book focuses on a few major functions of education at regional level of India - employment, migration, earnings, etc., and the differential capabilities of the educational system in performing these functions between different regions in the country. Some major analyses in the book include education and employment, education and earnings differentials, financing of education, optimal role of government in allocation of resources, regional, gender, and group (caste/tribe) disparities in education.

1987

Hooja, Rakesh, Administrative Interventions in Rural Development, Rawat Publications, Jaipur, 1987, Pp. xv+416, Rs.200/-.

The book contains evaluative and analytical descriptions of various types of governmental efforts at transforming rural India. The 23 chapters have been divided into 6 parts. The first two provide an overview of various developmental schemes, the delivery system, roles of the Collector and Panchayat bodies, rural and district planning, and modernization of agriculture. The focus then shifts to individual beneficiaryoriented or target group schemes like SFDA, MFAL, IRD, Antyodaya, Biogas and Tribal Development. A section on area development follows with Command Area Development, credit and agriculture extension, as well as, Land-Water Management, coordinated and intergrated implementation, and peoples participation being emphasised. Recognizing the unique character of rural projects and the lack of a project approach in Indian administration, Part Five goes into details about various types of projectization (or lack of it) being attempted in an Indian state and emphasises that traditional financial, economic, technical and institutional appraisal of projects needs to be supplemented by what may be called "cultural" or "acceptability appraisal". The final section on prescriptions and prospects contains an exercise in utopian thinking, followed by a discussion of possible reforms, and then some speculations about trends in development and the evolution of the agrarian structure and the governmental delivery system in India.

Tilak, Jandhyala B.G., *The Economics of Inequality in Education*, Sage Publications, New Delhi, [Studies in Economic Development Planning Number 44, Institute of Economic Growth] 1987, Pp. 197, Rs.150/- (Hard Cover).

The study analyses the economic returns to investment in the education of the weaker sections as compared to others. The study, which is an application of the rate of return model, with marginal modifications to data on a South Indian district, West Godavari, shows that investment in the education of the weaker sections, viz., backward castes and women in our economy pays dividends, comparable to, if not higher than, investments made in the education of nonbackward castes and men respectively, despite the fact that there exists much discrimination against the weaker sections when it comes to employment and wages. It provides an economic rationale in support of arguments for allocation of more resources for the education of the weaker sections. The study also focuses on inequalities in investment in education between different groups of the population and discrimination in employment and wages.

1988

Subba Rao, N., Mechanisation and Marine Fishermen: A Case Study of Visakhapatnam, Northern Book Centre, New Delhi, 1988, Pp. 268.

This is Subba Rao's second study and it pertains to the marine small-scale fisheries of Visakhapatnam region of Andhra Pradesh. Based on the author's doctoral dissertation, this volume made a pioneering attempt to (1) evaluate the costs and returns of mechanised and traditional boats to determine their relative operational efficiency

and economic viability and (2) examine the effects of mechanisation on employment, income levels and distribution of income, consumption patterns and living standards of fishermen and their social implications. It presents information gained from empirical survey, informal observations, secondary data and other sources in well integrated fashion, so that one gains a cohesive analytical picture in humanistic terms. The book is divided into 11 chapters.

While analysing the merits of the new fishing technology and also the reactions of different groups of fishermen to mechanisation, the study spotlights the short sightedness in the implementation of the programme of mechanisation resulting in a host of negative effects. It also sets forth the valuable lessons which Indian experiences have to offer to the densely populated littoral nations in the Third World. All in all, a genuinely real contribution to knowledge of 'grassroots' situations that will have enduring value and that can be useful in both academic and policy formulation circles.

Sury, M.M., Excise Taxation in India: An Economic Analysis, Commonwealth Publishers, New Delhi, 1988, Pp. 215+xv, Rs.175/-.

The Central excise system, representing the single largest source of tax revenue in India, has grown very vast and intricate in terms of commodity-coverage, rate structure, and the scheme of exemptions/concessions. It is not only a source of revenue but a powerful policy instrument to influence the pattern of production, choice of technology, incidence of taxation, and other declared objectives of economic policy. Although studies by official bodies abound, there has been scarcely any attempt to analyse the excise structure independently and in a book form for the interested reader. The present work is devoted to fill this vacuum. It is designed to explain the structural evolution and the present system of excise taxation in India. The book is divided into 7 chapters. A brief description of the topics discussed in each of the chapters is as follows:

Chapter 1 highlights theoretical aspects of commodity taxation and makes a broad survey of

the issues involved in designing an excise system. Chapter 2 is the introductory chapter on Indian excise taxation. Besides describing excise law and administration, it traces the structural evolution of excise duties with reference to commodity-coverage, revenue growth, and incidence of these duties. Chapter 3 analyses the pattern of excise tariff and the need for its rationalisation. It also examines issues associated with duties on inputs. Chapter 4 reviews excise concessions/exemptions as tools of economic policy with particular reference to small scale industries. Chapter 5 explains the federal aspects of excise taxation. It examines issues pertaining to distribution of excise revenue between the Centre and the States. Chapter 6 is devoted to a topical controversy, viz., the replacement of sales tax by additional duties of excise. Chapter 7 analyses the growth of excise revenue viewed against national income/appropriate bases of taxation.

Tilak, Jandhyala B.G., *Educational Finances in South Asia*, United Nations Centre for Regional Development, Nagoya, Japan, July 1988, Pp. 107.

The study presents a profile of the educational situation in India and other countries with the help of the most recent data available, compiled from various sources. It discusses various dimensions of the educational edifice in the region, including alarming illiteracy figures, low enrolment ratios which are growing only at a slow pace, low survival/high attainments in the labour force, weak bottom and heavy top expansion of the education system, etc. Concentrating on the financial crisis in education, the study analyses declining priority for education, the unit costs, objectwise expenditure, and mechanism of funding of education and several symptoms of under investment in education which lead one to conclude that there are several non-economic, if not irrational factors, that influence policies of allocation of resources to education in these developing economies. It discusses the problems of South Asia in a global context, comparing with developed and other developing countries, and

also to highlight inter-country variations within South Asia. The study also discusses a few major policy questions relating to easing the financial crisis in education, like reallocation of resources within education and cost recovery measures.

1989

Raina, B.L., Social Situation in India, Commonwealth Publishers, 4378/4B Ansari Road, New Delhi-110 002, 1989, Pp. 388, Rs.375/-.

The book is full of rich and up-to-date information on important aspects of social situation in the country, *viz.*, population trends, dimensions of poverty, employment situation, health status and nutrition, education and housing, status of women, crime and drug abuse. The general background which influences social situation is reviewed like geographical, geological and other features, the origin of the people, their languages and religions and unity of India, political system and bureaucracy. The social statistics and development of demographic research and training centres are discussed.

Singh Surjit, *Modelling Indian Economy*, ABS Publications, Jalandhar, 1989.

The study traces the tradition in modelling covering both developed market economies and developing countries and makes useful suggestions for improving the modelling of a developing economy. In the Indian context, the various attempts at modelling have been examined while making distinction between macro-economic models and planning models. It highlights and enumerates certain important facets of the Indian economy that have not received adequate attention in macro-economic models. The performance of the Indian economy through plans is assessed. The study succinctly recognises that the non-fulfilment of targets may be as much due to inadequacies of planning process and strategies as to faulty implementation. The failure of the planning process to evolve adequate instruments for effectively influencing 1990 the composition of investment and ensuring its efficient performance is pointed out. There is lack of synchronization between demand and supply, inadequate implementation and project formulation and lack of coordination between objectives and strategies. The study underlines the importance of mechanism for continuous tracking of the economy. In evaluating the performance of the Fifth Plan model, the imbalances between the targeted and relaized output levels and 'implicit' output levels, which would have resulted from the realized final demand components, have been examined by using the open static Leontief model.

Subba Rao, N., Fisheries Development and Management in India (1785-1986) : A Bibliography, Northern Book Centre, New Delhi, 1989, Pp. 292.

This is the third in the series of books published by Subba Rao. This bibliography contains a classification of all important contributions to the study of fisheries development and management in India which have been published since the 18th Century. It brings together material, both published and unpublished, including doctoral theses, books, journal articles and seminar papers. The literature has been classified into several categories under 13 chapters on the basis of the thematic content of different contributions. These include the importance of fisheries, fisheries resources and exploitation, supply trends, demand and utilisation pattern; processing, marketing and exports; fishing technology, aquaculture, economics of fisheries, infrastructure, finance and cooperatives; socio-economics of fishermen, fisheries statistics, management, administration; legislation and law of the sea. Organised in an alphabetical order by author and subject divisions, this bibliography will serve as a reference tool for natural and social scientists, economists, planners, policy makers, university graduates, and for all those who are concerned with the dynamics of fisheries development.

Hevze, Gerard, Ouvriers d'un autre monde (Workers of Another World), Maison des sciences de l'Homme (House for Human Sciences), Paris, 1989, Pp 400. (English Translation by Oxford University Press, 1990).

Ouvriers d'un autre monde provides a detailed study of the people behind the mining industry of Dhanbad, a city 200 km north west of Calcutta, where each year more than 2,00,000 miners carve from the earth 50 million tons of the 'black diamond'. The author starts with the narrowest experience, that of a man, his family and friends, living on the fringes of this old but fast changing industrial region, riddled with holes in the middle of a thirsty countryside, over populated, struck dumb with poverty. He explains first these people and then the inhabitants of the countryside in general in terms of their rela tions with the industry which both puzzles and uses them. Their reactions to work and unemployment are subjected to close analysis and related to their daily lives. The author then shifts to a wider perspective in an attempt to bring out the forces which drive this mining population. Does the old production machine still exploit its work force? Or do we have, on the contrary, the beginning of a strange association of a specific kind of big business with little fold who reject proletarian status, and in so doing void the content of all productivist projects?

Hooja, Rakesh, Planning, Interlocked Markets and Rural Development, Rawar Publications, Jaipur, 1990, Pp ix-146, Rs.150.00.

At one level the book can be read as a review of India's Integrated Rural Development Programme. On another plane it analysis the structures and processes of Indian and State-Level planning and problems of rural planning. In yet another dimension, the book examines the phenomenon of interlocked factor markets in rural India and how this interlinking of land, labour, produce and capital markets with social ties can lead to intra-rural relationships of "reciprocity of wants" where formal markets become less relevant than the interlocking relationships themselves. This examination shows how the planning

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and administrative system (not having analyzed or understood the phenomena of interlocking) responds to interlocked markets in a segmented manner as different departmental efforts and different approaches to development are tried out simultaneously.

All the above mentioned have been marshalled to make out a case for a better, more systematic and detailed, understanding about the constraints that existing planning practices, styles and "planning environments" as well as the extent rural relationships can place on the success of developmental initiatives which may otherwise prove to be well meaning, but not necessarily well thought out.

Tilak, Jandhyala B.G., *The Political Economy of Education in India*, Special Studies in Comparative Education, Number 24, Comparative Education Center, State University of New York at Buffalo, in collaboration with the University of Virginia, 1990, Pp. 62, Price: \$ 6.00.

The study presents a quick review of educational development in India concentrating on the While post-independence period. the achievements of four decades of development planning are impressive, the failures are also shocking. Laudable policy statements are made, and commendable plans are prepared. Yet the results are far from satisfactory. It discusses rather somewhat inexplicable divergences between the policies/plans and their translation into action. As an illustration a few major financial policies in education are discussed. Inadequacy of financial resources is generally felt to be one of the critical factors for the desperate state of affairs in education. In the overall context of the policy objectives, the study briefly discusses the financial issues in Indian education, analyzes the underlying forces that influence the allocation of resources to education, and between different levels within education to differ from desired patterns, examines the nature and scope of the role of the private sector in educational development in India, and finally discusses a proposal on

discriminatory fee and discriminatory incentive system based on socio-economic background of the students, cost of instruction, and the pattern of rewarding education in the labour market, which may not only generate additional resources for education but also promises to make higher education less inequitable.

ARTICLES

Deshi Autar, S., Sunita Handa and Surjeet Singh 'Manpower Forecasting by Skills in a Perspective Planning Frame - Punjab", *Anvesak*, Volume 16, No.2, December 1986, Pp. 29-41.

The paper examines the existing structure of work-force by occupations or skills for Punjab, links the sectoral output and demand for manpower by skills; and formulates a frame-work for estimating the sectoral manpower requirements by skills for 1991 through their integration with sectoral output using 1971 Census data. It finds that the Punjab economy has the potential to absorb increasing number of skilled manpower even if no conscious effort is made to change the basic structure of the economy.

Nagraja Rao, B.R., 'Bearer Bonds Case: Are we Tilting at Windmills', *Journal of the Indian Law Institute*, JILI, 28, 1986, 395.

The issue of Bearer Bonds in 1980 and the upholding of its validity by the Supreme Court, have evoked sharp moral-legal responses. It is argued herein that the scheme affords limited immunities and is no bar to any independent inquest into the income earning activity. Much of the criticism of the scheme is misconceived.

Singh Surjeet, 'Econometric Models for India: A Review' Anvesak, Volume 16, No. 2, December 1986, Pp. 15-27.

The paper surveys Tinbergen-Kiein variety models constructed for the Indian economy and brings out their salient features. Most models did not use prior information. The consumption in function specifications has been neo-Keynesian and public sector treatment is lacking along with employment. Foreign trade sector is also weak in most models. Treatment of prices also left much to be desired. The inter-links of monetary and real sectors was absent or very weak.

Tilak, Jandhyala B.G., 'Political Economy of Investment in Education in South Asia: A Reply', International Journal of Educational Development, VI (3), Pp. 209-214.

Focussing on India and other Asian countries, the paper discusses the rationality of allocation of resources to and within education. Replying to some of the important issues raised by a commentator, the paper discusses inter alia factors relating to the political economy of allocation of resources to and within education.

1987

Hooja, Rakesh, 'Indentifying Rural Development Projects in the Administrative Context of an Indian State', in R. Smith (ed). Proceedings of International Conference on Project Identification for Agriculture and Rural Development in Developing Countries, Institute of Development Policy and Management, University of Manchester, U.K., 1987.

The article concentrates on the creative process of identifying Project ideas which precedes the initial development of the project proposal. After surveying some existing literature regarding possible systematic as well as informal and intiutive and indirect sources of Project Identification, the article turns to how rural project ideas are thrown up by the administrative system and political processes in one Indian state and whether sufficient mechanisms have evolved to screen such ideas and also ensure that good ideas are not lost. Suggestions are then made as to how good project ideas could be generated from various sources and efforts made to ensure that they obtain proper consideration for project formulation in the context of rural India.

Nagraja Rao, B.R., 'Tax Amnesties - Need for Bold New Approach', *Current Tax Reporter*, Vol. 61, May 1987.

The Amnesty Scheme for Income Tax payers which was in force from June 1985 to March 1987 was of damp squib, considering the official estimates of undeclared incomes in our society. The scheme was a string of public circulars manifesting a policy in expimentation and flux. It had glaring discriminatory aspects. A statutory scheme for declaration of all undeclared incomes on no questions asked basis with unwaivable impost of interest and no tax-free threshould is suggested. Such a bold approach alone could bring into open undeclared incomes on a massive scale.

Singh, Surjeet, 'Indian Planning: Demand and Supply Aspects'. *Anvesak* Volume 17, No. 1, June 1987, Pp. 27-44.

The imbalances between the targeted and the realised output levels during the period 1974-75 through 1978-79 are examined using Fifth Plan input-output model. The patterns of implicit sectoral output levels that would have resulted from the realised final demand components in each of the years are examined. The methodology of estimating sectoral final demands and outputs as used in the plan has been used with minor modifications. A persistent shortfall is observed in output levels in the agriculture sectors, other food products, sugar, vegetable oils, etc. Implicit output levels were found to be sensitive to the pattern of final demands.

Singh, Surjeet and Simi Ghai, 'Performance of Machine Tools Industry in Punjab' Man and Development, Volume IX, No. 9, December 1987, Pp. 101-102.

The paper analyses the performance of machine tools industry in Punjab using single factor and total factor productivities. It also looks into the relation between the growth of output and technical progress during 1967-78 using Annual Survey of Industries data. There has been deterioration during 1967-1978 in capital productivity while the labour productivity has increased steadily though a decline has been observed in wages. Technological progress has been a positive factor in the industry's development. Indian economy is estimated. functions have been based on class demand theory and the later developmodels have varied in the case of

Tilak, Jandhyala B.G., 'Costs of Education in Two Clusters in Haryana', *Margin*, XX (1) October-December, 1987, Pp. 74-96.

This paper attempts at a detailed analysis of costs of education in two educational clusters in Haryana, *viz.*, Kherla and Punhana. First the unit costs of education by components are estimated for the two clusters separately and then an attempt is made to present an aggregated picture of the two along with more estimates of costs of education, such as effective costs of education and costs of non-formal and adult education.

Tilak, Jandhyala B.G., 'Educational Finances in India', Journal of Educational Planning and Administration, I (3-4), July-October 1987, Pp. 127-99.

The paper reviews growth of educational finances in India during the post-independence era, diagnoses the problems associated with educational finances and discusses a few suggestions to improve the situation. The paper analyses in detail, at national and regional levels, (a) the growth in expenditure on education in absolute terms and as a proportion of GNP, budget, etc., (b) source-wise analysis of finances of education, (c) patterns of plan and non plan allocation of resources within education, and centre-state transfer of resources; (d) pattern of intra-sectoral allocation of resources within education.

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Singh, Surjeet, 'Consumption Functions in Macro-econometric Models: Experience of Developing Countries and India', *The Indian Journal of Economics*, Vol. LXIX, Part II, No. 273, October 1988, Pp. 163-71.

The salient features of the consumption functions as used in the important macro-econometric models for the developing countries with an emphasis on Indian models have been brought out. Besides, a suitable consumption function for

Indian economy is estimated. Consumption functions have been based on classical consumer demand theory and the later developments. The models have varied in the case of consumption function usage, *i.e.*, from single equation to disaggregated functions. In the Indian case, Keynesian form seems more appropriate. Population variable has an indifferent role to play. The MPC varies from 0.58 to 0.79 for various forms tested during the period 1950-51 to 1980-81.

Tilak, Jandhyala B.G., 'University Finances in India: A Review of Problems and Prospects', *Higher Education*, XVII (6) 1988, Pp. 603-35.

The paper critically reviews some crucial aspects of university finances in India, including the pattern of flow of resources into the university system and the pattern of allocation of resources by the university between its different functions/faculties. Based on a quick review of the macro scene in India, and a critical survey of a few case studies on individual universities, the paper presents an analysis of growth of university finances during the post-independence period, an overall short appraisal of the case studies, and analyses of income and expenditure patterns of the universities and the problems therein, including managerial aspects.

Tilak, Jandhyala B.G., 'Vocational Education in South Asia: Problems and Prospects', *International Review of Education*, Vol. XXXIV (2) 1988, Pp. 244-57.

Focussing on India and other countries in the South Asian region, the paper (a) analyses the growth of vocational education, in terms of enrolment, and public investment, during the last two-three decades, (b) reviews the available evidence on the investment effectiveness of vocational education, and (c) discusses a few major policy questions in this context.

Tilak, Jandhyala B.G., 'Costs of Education in India', International Journal of Educational Development, VIII (1) 1988, Pp. 25-42.

The paper presents an empirical analysis of costs of education in India and makes valuable inferences, conclusions and policy implications relating to a variety of dimensions of the problem. A few major inferences are drawn from the review of the Indian experience, such as importance of costs in educational planning, the complementary role between private and institutional costs, the nature of prediction process in the educational system, regional variations in the costs of education, the relationship between cost of education and economic development, etc. The paper ends with a few general observations on the problem.

Tilak, Jandhyala B.G., 'Economics of Vocationalization: A Review of Evidence', Canadian and International Education: Education Canadienne et Internationale, XVII (1) 1988, Pp. 45-62.

India has decided to vocationalise secondary education. The National Policy on Education 1986 recognised the need for vocational education, and fixed quantitative targets for the next ten years. The paper critically reviews the available evidence with a view to drawing lessons, if any, for India and for other developing economies, on their march towards vocationalisation. The paper discusses (a) does vocational secondary education yield higher returns than general secondary education? (b) is investment in vocational training per se uneconomic? and (c) if economic, should it be provided within the formal system of education or outside it?

1989

Rajan Y.S., 'Globalisation of Technologies, (Some Issues)' Presented during 14th Indian Science Congress, Ahmedabad, Dec. 12-16, 1989.

The globalisation of markets due to the dynamics of growth of the modern science and technologies as well as the compulsions of modern States and firms is described in some detail. Some of the methods of market penetration and its protection by transnational companies is

described. A number of questions to be answered in the Indian context are posed. The main idea of the paper is to introduce the importance of some additional parameters such as technology and markets in dealing with the development of modern societies.

Singh, Surjeet and Irshad Ahmed Khan, 'Automobile Industry in India: Policy Issues and Market Concentration', Asian Economic Review, Volume XXXI, No. 2, August 1989, Pp. 179-236.

A critical analysis of the government's automobile policy in India and the market concentration is attempted. It is found that the policy has not been consistent over the period. The industry has not gone beyond indigenization of imported technology and has not developed or upgraded the technology to keep itself contemporary. The highest concentration has been found in Jeeps segment followed by M&HCV's, three-wheeler, scooter, cars, mopeds, motorcycles, LCV's and tractors' segment of the industry.

Tilak, Jandhyala B.G., 'Education and Basic Needs in India', in *Human Resource Development for Rural Development*, (Eds: M. Kutumba Rao and P.P. Sharma), Himalaya, Bombay, 1989, Pp. 47-67.

Role of education in basic needs framework is a relatively less extensively researched area. The paper opens with a brief summary of research evidence on the role of education in development, and then it analyzes the inter-state variations in basic needs, and the role of education therein. Education is found to explain a significant part of variations in basic needs fulfillment. Education is not only a basic need in itself, but also a basic need satisfaction of which leads to fulfillment of other basic needs.

The Journal will publish in each issue Annotated Bibliography of Books and Articles on Indian Economy, Polity and Society, published after January 1, 1986. Authors are requested to send their entries with full details of publication and annotation not exceeding 250 words for books and not exceeding 100 words for articles. Use separate sheet for each entry.

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