E. C. No. 811

ESTIMATES COMMITTEE
(1974-75)

(FIFTH LOK SABHA)

SEVENTY-SIXTH REPORT

MINISTRY OF AGRICULTURE AND IRRIGATION
(Department of Agriculture)

PRODUCTION OF FOODGRAINS

LOK SABHA SECRETARIAT
NEW DELHI

April, 1975/Chaitra, 1897 (Saka)
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CORRIGENDA
TO

THE SEVENTY SIXTH REPORT OF ESTIMATES COMMITTEE (FIFTH LOK SABHA) ON THE MINISTRY OF AGRICULTURE AND IRRIGATION (DEPARTMENT OF AGRICULTURE)- PRODUCTION OF FOODGRAINS.

Page	Para	Line	Correction
(i)		6 from bottom	For '18' read '183'
9	1.6	12, Sl. No. 2	For 'Jowa' read 'Jowar'
9	1.6	12, Sl. No. 2	For '152' read '155'
13.	1.30	4	For 'Actaul' read 'Actual'
17	1.38	2 from bottom	For 'cocerned' read 'concerned'
28	1.50	5 from bottom	Omit the line
40		7 from bottom	For 'hibh' read 'high'
49		2 from bottom	For 'shal' read 'shall'
58		4	For 'adn' read 'and'
96	Table	4 from bottom	For '269' read '669'
183	6.2	9	For 'eacb' read 'each'
86	Table	Col. 1.	For 'aharashtra' read '7. Maharashtra'
04	Table	4, Sl. No. 9	For '6,00,00' read '6,00,000'
04	Table	6, Sl. No. 11	For '29 38' read '29138'
45		20	For 'o' read 'only'

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Shri G. D. Sharma—*Chief Financial Committee Officer.*

INTRODUCTION

I, the Chairman, Estimates Committee, having been authorised by the Committee to submit the Report on their behalf, present this Seventy-Sixth Report on the Ministry of Agriculture and Irrigation (Department of Agriculture)—Production of Food-grains.

2. The Committee took evidence of the representatives of the Ministries of Agriculture and Irrigation (Department of Agriculture, Research and Education, Food and Irrigation), Energy, Petroleum & Chemicals, Heavy Industry and Finance (Department of Expenditure) and the Planning Commission on the 5th and 6th December, 1974. The Committee wish to express their thanks to the officers of these Ministries for placing before them the material and information which they desired in connection with the examination of the subject and for giving evidence before the Committee.

3. The Committee also wish to express their thanks to Shri N. N. Kashyap, Vice-Chancellor, Haryana Agricultural University, Hissar and Dr. M. S. Randhawa, Vice-Chancellor, Punjab Agricultural University, Ludhiana for furnishing memoranda to the Committee and also for giving evidence and making valuable suggestions.

4. The Committee also wish to express their thanks to all the Associations, Bodies and individuals who furnished memoranda on the subject to the Committee.

5. The Report was considered and adopted by the Committee on the 21st April, 1975.

6. A summary of recommendations/conclusions contained in the Report is appended to the Report (Appendix I).

7. A Statement showing analysis of recommendations/conclusions contained in the Report is also appended to the Report (Appendix II).

NEW DELHI;
April 28, 1975.
Vaisakha 8, 1897 (*S*).

R. K. SINHA,
Chairman.
Estimates Committee.

CHAPTER I

DEMAND AND PRODUCTION

A—Introductory

India with an area of 328 million hectares is the seventh largest country in the world. The country's total population, according to 1971 census, was 548 million, the second largest in the world. 439 million persons or 80 percent of the population of the country live in rural areas. The net domestic product of India in 1969-70 at current prices aggregated to Rs. 31,968 crore, out of which agriculture and allied activities contributed nearly 50 percent.

1.2. It is common knowledge that food shortages have been endemic in India. Ever since 1947 when India became independant, the nation has been waging a constant struggle to achieve self-sufficiency in foodgrains. But the objective has been eluding us, though since 1951-52, when the First Five Year Plan became operative, the production of foodgrains has nearly doubled from 55 million tonnes in 1950-51 to 104 million tonnes in 1973-74. There has been no period during the last 25 years when we had not imported foodgrains from abroad. Even during the First and Second Five Year Plan periods when the production exceeded the targets laid down, our annual foodgrain import bill was of the order of Rs. 100 crores on an average. During the Third Plan period, the imports rose to an annual average figure of over Rs. 200 crores and in the following 3 years (1966, 1967 and 1968) a total quantity of 25 million tonnes of foodgrains was imported, valued at Rs. 1416 crores, averaging nearly 8 million tonnes, valued at Rs. 472 crores annually. During the Fourth Plan period, though a deliberate attempt was made to reduce the quantity of foodgrain imports but the advantage was lost on account of a general rise in the prices of foodgrains in the exporting countries, so much so that for the import of 3.6 million tonnes of foodgrains in 1973, the bill was of the order Rs 320 crores. Apart from other considerations, financial strain of this magnitude for import of foodgrains alone, together with the heavy burden on account of international oil crises are too much for the country's resources to bear. The situation is all the more grim because of the depletion of the buffer stock of foodgrains due to the drought in 1972-73.

1.3. The population of the country is increasing fast. 1971 census indicated a decinnial rate of growth of population (between 1961 and 1971) of 25 per cent. The annual compounded rate of growth of

production of foodgrains between 1960-61 and 1971-72 was, however, only 2.64 per cent. The ever increasing population, slow rate of growth of domestic production, a phenominal rise in prices of foodgrains, both domestic as well as international, resulting in a heavy import bill, and above all socio-political ramification of a people continuing to live at subsistance level are the stark realities that the country has to face. The situation calls for an urgent reappraisal of the problems confronting agricultural development particularly the production of foodgrains with a view to secure conditions for its maximum development in the shortest possible time.

1.4. The Estimates Committee (1973-74) had dealt with the subject of "Availability and Distribution of Foodgrains" along with several other essential commodities in their 61st Report on "Civil Supplies Organisation" presented in April, 1974, but in view of the importance of the subject, this Committee decided to take up the subject of "Production of Foodgrains" for detailed examination during 1974-75. The result of the study made by them is contained in the present Report.

B. Collection of Data re. Area and Production

(a) *Machinery for Data Collection*

1.5. Estimate of production of a crop is calculated on the basis of the area under that crop and its average yield per hectare. Area under principal crops is collected by field to field enumeration by the lowest level revenue functionary of the State Revenue Department. His work is, of course, supervised by supervisory staff at different levels. In recent years there has been a provision for supervision over this task by the statistical staff.

1.6. Yield estimates are, since 1959 made by crop cutting experiments by random sampling method. In this method a pre-determined number of villages is selected at random for each crop and in each selected village two crop fields are selected at random and in each field a plot of defined size (ordinarily 5x5 metres) is located at random. The yields in all such plots are computed and an average figure is arrived at. These experiments/surveys are designed, organised and conducted, either by the State Bureau of Economics and Statistics or the State Department of Agriculture or Land Records, under the overall technical direction of the National Sample Survey Organisation of the Ministry of Planning. The field work is generally entrusted to the staff of the Revenue/Land Records/ Agriculture/Development Department. The Directorate of Economics and Statistics in the Ministry of Agriculture has the primary

responsibility for compilation and co-ordination of agricultural statistics at the all-India level.

Advance Estimates of Production

1.7. The production estimates under the above enumeration procedures are available only after harvesting while production data are required much earlier for the purpose of policy making. The Central Government therefore call for from the State Governments advance estimates of likely production. These estimates are framed by State Governments on the basis of weather and crop conditions and other information available such as inputs and execution and functioning of other development programmes. Where advance estimates are not furnished by the State Government, Central Government themselves form Provisional Estimates "on the basis of crop and weather reports and information gathered from knowledgeable persons, from State Governments as well as from others." Government admit that "by their very nature these estimates are tentative" and serve only as "indicators to the prospects and probable size of the crop."

Scheme for Timely Reporting of Estimates of Area and Production

1.8. To improve upon the existing system of making advance estimates of production prospects, a scheme known as the scheme for "Timely Reporting of Estimates of Area and Production" is in operation since the beginning of the Fourth Five Year Plan (1969-70). The basic provision of the scheme envisages complete enumeration of one out of 5 villages selected at random from each "patwari" circle. The enumeration is required to be done in advance of the period prescribed in the land records manual but consistent with the sowing operations of different crops in a season. In addition to ensuring the quantum of supervision provided for the departmental staff in the manual, a special provision has been made in the scheme for augmenting this supervision through appointment of whole time statistical staff with a view to ascertaining the type and extent of errors in collection, compilation, aggregation and transfer of crop areas at different levels. The scheme is intended to furnish reliable estimates for framing policy and its administration much in advance of the availability of estimates of area based on complete enumeration of all villages. The special emphasis on timeliness and accuracy in nearly 20 per cent of the villages every year is expected to bring about an overall improvement in reporting of estimates of area and production in all the villages over a period of five years.

The scheme is a centrally sponsored scheme and an outlay of Rs. 3 crores has been approved for the Fifth Plan period. During evidence, the representative of the Ministry of Agriculture amplified that under the scheme the Central Government had agreed to pay to the State Governments, an amount of money which would enable them to pay the salaries etc. of the additional statistical staff employed by them for the purpose.

1.9. As regards the results of the operation of the scheme during the Fourth Plan period, it is stated that it has been possible to reduce the time lag in the despatch of schedules relating to crop cutting experiments by the primary staff and that, based on partial data relating to crop cutting experiments, the State Governments have been able to make available advance estimates of production of principal crops during all the three seasons.

During evidence before the Committee, the representative of the Ministry of Agriculture also stated:

> "The basic objective of the scheme for timely reporting of estimates of area and production of principal crops is to have reliable estimates of area under principal crops immediately after sowings in kharif and rabi seasons, and to frame preliminary estimates of production by using these area figures and preliminary estimates of per hectare yield of principal crops based on partial receipt of data relating to crop cutting experiments organised by the State Governments. A schedule of dates for making available estimates of area of principal crops has been fixed in consultation with the State Governments. A review of the functioning of the scheme during 1972-73 and 1973-74 has shown that the scheme has been able to meet its objective of furnishing estimates of area under principal crops, much in advance of the availability of area based on complete enumeration of all villages. It has also brought out that in the States where the scheme was in operation for two-three years, estimates are framed according to the time schedule and in States where the scheme has been initiated only recently, there are still delays and there is scope for streamlining the organization for prompt and timely furnishing of data at different stages of the schemes."

Coverage under the Scheme

1.10. The scheme is being implemented in a phased manner. At present it is in operation in 11 States. Proposals for extending it

to J. & K., Punjab, Kerala, Orissa and West Bengal are at various stages. Asked to state the latest position in this regard, the Ministry of Agriculture have stated in January, 1975 that the scheme covering Punjab has been sanctioned while the proposals received from J & K are under the consideration of Government. In regard to Kerala, Orissa, West Bengal, a decision was taken that there should be a separate scheme for establishing a reporting agency for collection of agricultural statistics during the Fifth Five Year Plan as a Centrally Sponsored Scheme. A provision has accordingly been made for implementing the scheme in a phased manner during the Fifth Plan period. A beginning is proposed to be made during 1974-75 by pooling the existing resources and by creating additional resources in Kerala and Orissa through the centrally sponsored scheme. The approach in West Bengal is to have the work done through payment of honorarium to the part-time staff of Naib Tehsildars and the provision for this purpose would be made under the centrally sponsored scheme. The proposals received from State Government are under consideration of the Government.

New Scheme for improvement of crop statistics

1.11. In addition to the scheme for timely reporting of estimates of area and production of principal crops, there is also a proposal to strengthen the supervision organised by the National Sample Survey Organisation of the Central Government on acreage enumeration and crop cutting experiments. The proposal in brief provides for inspection of crop area enumeration in a sample of 10000 villages: 5000 will be entrusted to the staff of the National Sample Survey Organisation and 5000 to whole time statistical staff under the State Governments. In each village, a sample of 20 survey numbers will be selected where physical checking of crop acreage will be done by the supervisory staff in respect of entries made by the patwaris in the khasra registers. In addition, the page totals and crop-wise total of the areas under different crops in the village khasras will also be checked. The supervisory staff will also arrange to inspect at harvest about 30,000 crop cutting experiments spread over different crops. The results of supervision by both Central and State staff would serve to frame advance estimates of area and production of principal crops. It will also provide the basis for checking the accuracy of overall data. This would further indicate the directions where lasting improvements could be effected in the crop estimation system in different states.

Earlier Recommendation of Estimates Committee

1.12. The Estimates Committee had, in paragraphs 2.2 to 2.7 of their Sixty-First Report (Fifth Lok Sabha) on the "Civil Supplies Organisation", dealt with the various programmes undertaken for the collection of data regarding area and production of crops. The Committee had found that the data collected under the existing schemes was neither reliable nor timely and had recommended that Government should closely watch the results of the working of the scheme so as to effect improvements without further delay. Replying to the recommendation in January, 1975, the Ministry of Agriculture had stated:

> "The National Sample Survey Organisation of the Department of Statistics had only limited staff resources till 1973-74 for organising supervision on crop cutting experiments and land utilisation statistics. The supervision of field work of crop cutting experiments was largely intended to ensure uniformity in concepts and definitions and other procedures rather than for working out correction factors. The supervision of land use was carried out only on a nominal scale and was intended to indicate broad areas which required improvement.
>
> It may be mentioned that the scheme of the Ministry of Agriculture for timely reporting of estimates of area and production of crops has helped greatly in collecting reliable and timely production data in the States. The experience of running the scheme in the States has been that, by and large, the scheme has been able to meet its objective of providing fairly reliable estimates of area under different crops immediately after sowings and very much ahead of the availability of data based on complete enumeration of all villages. The scheme has also been able to provide estimates of production based on the partial receipt of data relating to crop cutting experiments. Since the scheme was not in operation in all the States, it was not possible to build up estimates of different crops at the all-India level. It is expected that with the implementation of the scheme in all the States it would be possible to have timely estimates of area and production of principal crops.
>
> It is anticipated that the scheme of the National Sample Survey Organisation for supervision of crop cutting experi-

ments and land-use statistics would also prove effective. The object of the supervision till recently was only to find out the departures in the field of prescribed procedures. It is only the new scheme under which supervision would be carried out in a sample of 10,000 villages, that would provide valid correction factors for both area under crops and their yield rates. The Committee has recommended that the Government should keep a close watch on the results of the working of the scheme so as to effect improvements without delay. As mentioned already the scheme consists of two parts (i) inspection by the Central staff in a sample of 5000 villages and (ii) inspection in 5000 villages by the State supervisory staff. It has so far been possible to get the sanction of the Government to implement only the central part. Proposals for assistance to the State Government for entertainment of additional supervisory staff to be able to organise inspection in a sample of 5000 villages are still under the consideration of the Government. It is expected that a decision would be taken so that it would be possible to request the State Governments to undertake this programme from the ensuing rabi season. It is relevant to mention that the Governing Council of the National Sample Survey Organisation under the Chairmanship of Prof. V. M. Dandekar, Director, Gokhale Institute of Politics and Statistics, keeps a close watch on the functioning of the scheme and reviews both the organisational and technical aspects of the programme as also the results thereof."

1.13. Food is the basic human need. It is, therefore, imperative that its overall availability and production should be most carefully watched. The indigenous production of foodgrains is to be planned on a long term basis as well as from season to season. For any developmental planning on a realistic basis it is absolutely necessary that the planning agency should be properly armed with basic data which is fairly accurate and is available on a timely basis. This is possible only if the data collection procedure and machinery are streamlined. The Committee regret that the existing procedure and machinery for the collection of agricultural statistics have not been able to throw up accurate data on a timely basis so as to be useful for effective planning of production of foodgrains. The Estimates Committee had on an earlier occasion also commented upon the paucity of data in this regard. In paragraph 2.7 of their 61st Report (Fifth Lok Sabha) on the Civil Supplies Organisa-

tion, the Committee had observed that "unless Government arranged to assess reasonably correctly the crop prospects they would not be able to take timely measures to procure the foodgrains within the country and/or import them from outside or initiate concerted measures for implementing contingency emergency agricultural production programmes". The Committee reiterate the need for a streamlined system of data collection in respect of crops, particularly of foodgrains. Noting that Government propose to implement certain new schemes for collection of agricultural data during the Fifth Plan period, they would like that the working of these schemes should be kept under constant review so as to ensure that the data collected is timely and reliable to form a sound basis for policy formulation and production planning in respect of foodgrains.

1.14. The Committee find that Government are taking considerable time in extending the scheme of "Timely reporting of Estimates of Areas and Production" to all parts of the country. The advance data on production cannot be complete unless it is simultaneously collected from all parts of the country by an effective machinery. The Committee therefore desire that Government should expeditiously extend this, or any other suitable scheme to the States where advance data collection machinery either does not exist or is not effective.

(b) *Area Under Foodgrains*

1.15. The estimates of area under foodgrains are available only upto 1972-73. These have been indicated by the Ministry as follows:

(In million hectares)

1955-56	110·56
1960-61	115·58
1964-65	118·11
1965-66	115·10
1969-70	123·57
1970-71	124·32
1971-72	122·62
1972-73	119·28
1973-74	126·13

1.16. Crop-wise, the estimates of area under production have been indicated as follows:—

Estimates of Area under various crops

(In Lakh hectares

Product	1964-65	1965-66	1971-72	1972-73	Net increase between 1964-65 and 1971-72	Net increase between 1965-66 and 1972-73
1. Rice	365	355	378	367	13	12
2. Jowa	181	177	165	152	(—)13	(—)22
3. Bajra	118	120	118	118	0	(—)2
4. Maize	46	48	57	58	11	01
5. Ragi	26	27	24	23	(—)2	(—)4
6. Small millets	45	45	44	43	(—)1	(—)2
Wheat	134	126	191	195	57	69
8. Barley	27	26	25	25	(—)2	(—)1
9. Gram	89	80	79	70	(—)10	(—)10
10. Tur	26	26	23	24	(—)3	(—)2
11. Pulses (other than gram & Tur)	124	121	119	115	(—)5	(—)6
12. Food grains	1181	1151	1226	1193	(+)45	(+)42

Land Utilisation Statistics

1.7. Government have furnished to the Committee the land utilisation statistics which are available with them upto 1971-72 only. Comparative figures for the period 1965-66 and 1971-72 are as follows:—

(million hectares)

Item	1965-66	1971-72
1. Net area sown	136	139
2. Current fallows	13	13
Total Cultivated area (1+2)	194	152
3. Land under miscellaneous tree crops and groves not included in net area sown.	4	4
4. Culturable waste	17	16
5. Fallows land other than current fallows	9	9
Total cultivable area	179	181

1.18. It is observed from the above statements that the increase in the area under foodgrains has been only marginal being 2.56 million hectares between 1969-70 and 1973-74. Crop-wise increase in area has taken place in the case of wheat, rice and maize only. In the case of other crops, the area has generally shrunk. It is further noted that in 1971-72, an area of 16 million hectares was in the category of "Culturable waste" which could be reclaimed for agricultural purposes.

Centrally Sponsored Scheme for Reclamation of Alkaline and Acidic Soils:

1.19. *Alkaline Soils*: It has been estimated that in India there are about 7 million hectares of salt affected soils, spread over the Indo-Gangetic plains of Punjab, Haryana and Uttar Pradesh and in certain areas of Maharashtra, Karnataka, Madhya Pradesh, Gujarat, Andhra Pradesh, Rajasthan, West Bengal and Orissa. In the Indo-Gangetic plains of Haryana, Punjab and Uttar Pradesh there are about 3 million hectares of Alkali soils, out of which about 2 million hectares are having serious problems of alkalinity.

1.20. The Central Soil Salinity Research Institute was set up under the Indian Council of Agricultural Research at Karnal in 1969 to develop the technology for the improvement and utilisation of salt affected soils in different parts of the country and to serve as a centre for advance post-graduate research and education in the field of soil salinity and related subjects. The institute has undertaken studies and survey in the Indo-Gangetic Plains particularly Haryana and U.P. The actual expenditure of the institute from 1969-70 to 1973-74 has been Rs. 6.5 crores.

1.21. Under a Centrally sponsored scheme, it is proposed to amend an area of 1 lakh hectares through the use of gypsum in two districts of Punjab, two districts of Haryana and three districts of Uttar Pradesh during the Fifth Five Year Plan. The project will be confined to those soils only where the quality of water irrigation is satisfactory and have a high potential for multiple cropping and do not call for heavy investment on items like drainage. Only small farmers with holdings upto 4 hectares would be covered under the Scheme. The main feature of the Scheme is to apply ten tonnes of gypsum per hectare. For amending an area of 1 lakh hectares, 11 lakh tonnes of gypsum will be required. To encourage the use of gypsum in these selected areas, it is proposed to supply gypsum to the farmers at 50 per cent subsidy which will

involve an expenditure of Rs. 8.72 crores. The Scheme will be implemented by the State Governments as a Centrally sponsored scheme. Outlay for the Fifth Five Year Plan agreed to by the Planning Commission for this scheme is Rs. 9 crores.

1.22. *Acidic Soils*: The problem of soil acidity is wide spread and acute in the States of Assam, Bihar, Kerala, Karnataka, Orissa and West Bengal. Most of the soils of hilly areas of Uttar Pradesh, Himachal Pradesh and Jammu and Kashmir are also acidic in reaction. The area under acid soils in the various States is estimated to be of the order of 8 million hectares. Lack of use of lime in acid soils is a limiting factor in getting potential yields and also proper response to the application of fertilizers. During the Fifth Five Year Plan, it is proposed to take up the application of lime or basic slag to the highly acid soils in the States of Assam, Bihar, Kerala, Karnataka, Orissa and West Bengal. It is proposed to cover an area of nearly 2 lakh hectares. The scheme will be implemented in the areas which are highly acidic having full irrigation potential and can undertake multiple cropping. The main feature of the scheme is to apply 3 tonnes of lime/basic slag per hectare. For liming an area of 2 lakh hectares, 5 lakh tonnes of lime will be required. To encourage the use of lime in these selected areas, it is proposed to supply lime to the farmers at 50 per cent subsidy which will involve an expenditure of Rs. 3.71 crores. The scheme will be implemented by the State Governments as a Centrally sponsored scheme. An outlay of Rs. 4 crores has been approved by the Planning Commission for implementation of the scheme during the Fifth Five Year Plan.

1.23. Thus, out of an estimated total of 15 million hectares of the alkali or acid affected area in the whole country, the schemes propose to amend an area of about 3 lakh hectares at an overall cost of Rs. 24.86 crores, half of which is to be spent by the farmers themselves and the other half, namely Rs. 12.43 crores, is to be met by the Central Government by way of subsidy. The proposed expenditure represents the cost of about 11 lakh tonnes of gypsum and 5 lakh tonnes of lime which will be used for amending the alkali and acidic soils respectively.

1.24. Asked to indicate the latest position in regard to the implementation of the scheme, Government have in January, 1975 stated that the two schemes "as approved by the Planning Commission have been sent to the Ministry of Finance for obtaining approval of Expenditure Finance Committee. Meanwhile, individual schemes of some of the States have been received and are under the examination of the Ministry of Agriculture."

1.25. The Committee note that in 1971-72 an area of nearly 160 lakh hectares was in the category of "culturable waste" which could be used for agriculture purposes. In view of the continuing shortfall in the production of foodgrains to meet the demand in the country, the Committee recommend that Government should launch a time-bound programme to reclaim "culturable waste" for agricultural purposes and to increase the area under foodgrain production so to maximise production and achieve self-sufficiency in this vital field.

1.26. The Committee note that the Central Salinity Research Institute, Karnal has been carrying on study, research and developmental work in the field of soil salinity since October, 1969 when it was set up and that a sum of Rs. 6.5 crores has been spent by it during the Fourth Plan period. The Committee recommend that the research and development work done by the institute and its achievements in extension work may be critically assessed by an appropriate technical authority with a view to improve and intensify its activities.

1.27. The Committee welcome the scheme for reclamation of Alkaline and Acidic soils proposed for implementation during the Fifth Plan period. The scheme should have a proper in-built control mechanism to ensure that it is actually implemented in the field to the benefit of the small farmer and enables him to reclaim the land and achieve the desired agricultural production level. The Committee stress that Government should ensure that the scheme of 50 per cent subsidy on use of gypsum or lime which would entail an expenditure of Rs. 12.43 crores in Fifth Plan should receive close attention with a view to achieve the desired objective.

1.28. The Committee note that the data regarding estimates of area under production of fooodgrains is available with the Government only upto 1971-72. The Committee desire Government to streamline the procedure of collection of data so that it is available not later than six months after the conclusion of the year for which the data relates.

C. Demand and Production of Foodgrains

(a) *Targets and Achievement upto end of Fourth Plan Period.*

Demand and Production upto the end of Third Plan Period

1.29. It is stated that the demand for foodgrains by the end of the First Five Year Plan was worked out "firstly in relation to the

then existing levels of *per capita* (adult equivalent) daily consumption of cereals and pulses", and secondly on the basis of a slightly higher requirement "to improve the diet". The demand thus assessed for both categories was 61.7 million tonnes and 66.4 million tonnes respectively. In the Second Five Year Plan, the demand of foodgrains by 1960-61 was estimated at 71.6 million tonnes. A second estimate of 76.2 million tonnes was made on the basis of "a specified rise in *per capita* consumption". In the Third Five Year Plan, one of the principal aims was "to achieve self-sufficiency in foodgrains and increase agricultural production to meet the requirements of industry and trade". Assuming that an "appreciable increase in *per capita* availability would be possible", the demand by the end of the Third Plan was assessed at 101.6 million tonnes.

1.30. The production targets and actual production in the end years of the first three plan-periods are indicated as follows:—

(In million tonnes)

	Production Target	Actaul Production (End year of the Plan)
First Plan end (1955-56)	62·6	69·34
Second Plan end (1960-61) .	76·2	82·33
Third Plan end (1965-66) . . .	101·6	72·35

Demand and production targets during the Fourth Plan Period

1.31. In the Fourth Five Year Plan, the target of foodgrain production for 1973-74 was indicated as 129 million tonnes. Subsequently, the target of production during the end year of the Fourth Plan (1973-74) was reduced from 129 million tonnes to 115 million tonnes. Government were asked to state as to how the revised target was arrived at. In reply they have stated that the new target was fixed at the time of finalisation of the Annual Plan after realistically viewing the constraints in the supply of inputs particularly fertilisers. According to them, the original target of 129 million was based on the supply of 5.5 million tonnes of fertilisers in 1973-74 as against the assumed base level consumption of 1.69

million tonnes in 1968-69. In the second half of the Fourth Plan it became clear that the supply of fertilisers would be significantly below the expected level due to shortfall in indigenous fertiliser production and non-availability in the international market. The actual level of fertiliser consumption (in terms of nutrients) was only 2.26 million tonnes in 1970-71, 2.66 million tonnes in 1971-72 and 2.77 million tonnes in 1972-73. It is contended that the use of fertilisers being a key element in the new strategy of foodgrain production, the shortfall in the supply of fortilisers was bound to affect the target of foodgrain production. The scaled down target of production of 115 million tonnes corresponded to the assumed availability of 3.8 million tonnes of fertiliser nutrients. Further, according to Government, the problems encountered in the extension of area under high yielding varieties of rice in the main kharif season as also under jowar and bajra led to the downward revision of the target. Lack of progress in the evolution and introduction of short-duration high yielding varieties of pulses was also taken into account by Government in fixing the revised target.

Production during the Fourth Plan Period

1.32. The year-wise production of foodgrains and rate of its growth during the Fourth Plan period has been indicated as under:—

Year	Prouction (Million tonnes)*	Percentage increase (+) or decrease (—) over the preceding year
1	2	3
1968-69 . . .	94·01	
1969-70 .	99·50	(+)5·8
1970-71 .	108·42	(+)9·0
1971-72	105·17	(—)3·0
1972-73	97·03	(—)7·7
1973-74	103·61	(—)6·8

Production during 1973-74

1.33. The revised target of foodgrain production for 1973-74, the terminal year of the Fourth Plan, was fixed at 115 million tonnes, comprising 67 million tonnes for the kharif season and 48 million tonnes for the rabi season. The actual foodgrain production during 1973-74 has been estimated by Government at 103.61 million tonnes, of which the kharif crops account for 66.72 million tonnes and rabi crops for 36.89 million tonnes. Thus, the kharif target has been more or less achieved and the shortfall is mainly in the rabi season. The main reasons that have contributed to the shortfall are stated to be "absence of winter rains in major producing areas, cold spell in the first week of February and the shortage of critical inputs like fertilisers and power. The actual availability of fertilisers in 1973-74 was around 30 lakh tonnes as against the targetted figure of 38 lakh tonnes."

1.34. During evidence before the Committee, the representative of the Ministry stated:

> "There were no other reasons except these and shortage of fertilizers. If there had been enough fertilizers, even with that weather and the water availability, the production would have been a little more."

1.35. In view of the fact that, at present, the production targets were related to the demand, the representative of the Ministry was during evidence asked as to how the shortfall in the achievement of Fourth Plan production target to the extent of about 25 million tonnes affected consumption. He replied:

> ".....this shortage of nearly 25 million tonnes.....certainly produced conditions of scarcity, high prices and a general inflationary situation. But one of the fallacies in this calculation is that, unlike many countries where agricultural production is entirely in the hands of a very small percentage of the population and the bulk of the population is engaged in industry or supplies of an urban or service nature and only a small number of people produce all the food required for the country while the other people buy it with money, in India, a large part of the consumption is by the producers themselves and when the crop is poor, the actual purchasing power of the farming community generally and the agricultural labour in particular gets affected, so that while in terms of physical requirements from a nutritional standard

there would be no change in the calculation, the effective demand in economic terms itself comes down. In fact, during the years of scarcity either in small areas or large areas, deliberate relief works are undertaken or gratuitous relief is given in order to give purchasing power to people who have been affected by agricultural failure, even for buying imported foodgrains carried to those areas.

So, to summarise it, I would submit that the demand and anticipated production of 129 million tonnes were actually inter-related and not independent of each other. The production of 129 million tonnes was dependent on factors which did not get realised and when the production was less, the demand also decreased, except that part of the gap was met by imports."

However, expressing the concern of the Government at the low production of foodgrains during 1973-74 and the slow rate of its growth, he said:

"The situation is one which should cause concern to all of us, because even if we had no compunction in accepting food aid, the present situation is that there is very little surplus foodgrain available anywhere in the world, at least within the very short run, which we could get. We certainly do not have money to buy all the foodgrains from abroad that would be required to make up the deficit but there is a further problem also. A majority of people who draw their sustenance from agriculture get their purchasing power also from agricultural production. If the actual production falls, it is not only that they have less food to eat, but they also have less money with which to buy food. The question of rapidly increasing the production not only of foodgrains but also non-foodgrains—the distinction between them is sometimes artificially made is now very urgent, and we in the Ministry feel terribly concerned about it."

1.36. In a subsequent written reply, Government have further stated that of the two important factors influencing the demand, one was the projected growth of *per capita* income and consumption. The increase in per capita income visualised in the Fourth Plan period was 16.5 per cent from Rs. 552 in 1968-69 to Rs. 643 in 1973-74 (at 1968-69 prices). The actual increase during this period, however, was marginal, the rise between 1968-69 and 1972-73

being only 2.3 per cent. Government therefore maintain that the much smaller growth of *per capita* income influenced significantly the consumption.

(b)—*Demand and Production Targets for Fifth Plan Period*

1.37. The output of total foodgrains production has been projected to be 140 million tonnes in 1978-79, *i.e.*, the last year of the Fifth Five Year Plan. Its breakup by major crops is as under—

Break-up of Foodgrains production during the Fifth Plan

(in Million tonnes)

Crop	Production during 1973-74	Targetted Production in 1978-79
Rice	44	54
Wheat	22	38
Maize	6	8
Jowar	9	11
Bajra	7	8
Other Cereals	6	7
Pulses	10	14
Total Foodgrains	104	140

1.38. It is stated that in woirking out the above targets, the relevant demand and supply factors have been fully taken into account. The demand for foodgrains, etc., has been estimated with the help of a Consumption Model built up on the basis of data on consumption expenditure by commodities and size classes thrown up by the successive rounds of the National Sample Surveys. An additional factor taken into account has been the envisaged reduction in inequality of incomes. Provision for feed, seed, industrial use and wastage is made on the basis of conventional estimates derived from marketing surveys. As regards inventories, it is pointed out that there is generally the difficulty of making precise estimates of requirements at different levels, particularly at the farm and trade levels. Since the Fourth Plan provision has been made for the building up of a buffer stock. So far as the supply factors are cocerned, these broadly include, the existing levels of production and projected increases in cropped area, area under irrigation, in-

creases in supplies of various inputs, such as fertilizers, pesticides, improved seeds and credit. Consideration is also given to the various economic and institutional factors which induce the cultivators to adopt the new agricultural technology. In the Fifth Plan, the targets of foodgrain output have been estimated on the basis of an input-output matrix. It is envisaged that fulfilment of these targets will make the country not only self-sufficient in respect of food-grains but also leave a cushion for building a buffer stock.

1.39. It is further stated that in the Fifth Plan, unlike the previous Plans, the main targets of crop production have been conceived for the five year period as a whole. For operational purposes, base level and peak level annual production targets have also been worked out. The intention behind this approch is, it is stated, to determine the tasks of the Plan against the time horizon of the entire plan period and thereby even out fluctuations on account of seasonal factors. Apart from the country as a whole, state-wise five-yearly targets have also been worked out. The success of the Plan is intended to be measured primarily by the extent to which these targets are fulfilled irrespective of the weather conditions in the terminal year of the Plan. State-wise targets of foodgrain production fixed by the Planning Commission for the assumed base level 1973-74, 1974-75 *i.e.*, the first year of the Fifth Five Year Plan, and 1978-79 *i.e.*, the last year of the Fifth Plan as well as the target for the five years of the Fifth Plan are given below. The targets for 1975-76 to 1977-78 will be fixed at the time of the Annual Plan discussions for each of these years.

State-wise Foodgrains Production Targets

(Lakh tonnes)

State	Anticipated Production for 5 years of IV plan	Target for 5 years of V Plan	Assumed base level 1973-74	Targetted production 1974-75	Peak Targetted production 1978-79	Annual compound growth rate per cent (col. 5 over col. 3)
(0)	(1)	(2)	(3)	(4)	(5)	(6)
1. Andhra Pradesh	344·54	415·00	75·00	78·00	93·00	4·0
2. Assam	106·30	135·00	24·00	25·00	32·00	6·0
3. Bihar	424·31	525·00	90·00	103·00	120·00	6·4
4. Gujarat	184·00	245·00	44·00	47·20	60·00	6·4
5. Haryana	229·00	280·00	46·00	48·50	61·00	5·8
6. Himachal Pradesh	49·27	62·50	11.00	11·40	14·00	5·0
7. Jammu & Kashmir	48·57	52·00	11·00	11·50	14·00	5·0
8. Karnataka	287·48	349·00	61·00	64·00	75·00	4·2
9. Kerala	66·97	86·00	14·17	14·75	22·00	9·2
10. Madhya Pradesh	540·05	660·00	118·00	121·00	150·00	5·0
11. Maharashtra	271·00	370·00	66·00	73·00	85·00	5·2
12. Manipur	10·53	16·00	2·83	3·05	3·75	5·8
13. Meghalaya	6·06	8·00	1·45	1·50	11·70	3·3

State	1	2	3	4	5	6
14. Nagaland	3·75	4·70	0·80	0·84	1·10	6·6
15. Orissa	251·85	320·90	55·00	57·00	70·00	5·0
16. Punjab	380·00	475·00	82·00	85·00	103·00	4·7
17. Rajasthan	322·15	390·00	71·00	73·50	88·00	4·4
18. Tamil Nadu	346·46	418·00	74·00	77·00	91·00	4·2
19. Tripura	12·82	17·00	3·01	3·30	3·64	3·9
20. Uttar Pradesh	924·00	1150·00	200·00	210·60	250·00	4·6
21. West Bengal	381·11	460·00	80·00	85·00	105·00	5·6
22. Union Territories	22·33	29·30	5·37	4·15	6·44	3·7
23. All-India	5200·00	6450·00*	1140·00	1180·00*	1400·00*	4·2

*All India target is kept lower than the aggregate of the targets of the States.

1.40. The importance of agricultural production in satisfying the minimum needs of the people was prominently emphasised by the Finance Minister in his speech in Lok Sabha on the 28th February, 1975 while presenting the Budget of the Government of India for 1975-76. He said:

"Our ability to meet the minimum basic needs of our people depends crucially on the trend in agricultural production. It is in this light that I regard the claims of agricultural growth as the first charge on our developmental resources. Modern agriculture is inter-linked with industry. Fertilisers, pesticides, agricultural implements and equipment, besides supply of power, determine agricultural, productivity as much as seeds and water. The sectors of our industry which supply these vital inputs to our agriculture, therefore, merit the highest priority.

The continued sluggishness of Indian agriculture since 1971-72 has contributed significantly to the distortions which have emerged in our econnomy in the last two or three years. The causes for this sluggishness have been carefully analysed; we have identified a series of measures directed towards imparting a new momentum to this vital sector. The prospects for the forthcoming Rabi crop are encouraging. This should not, however, make us complacent in our drive for higher productivity from the land and labour employed in agriculture. A sustained increase in productivity will call for action on many fronts.

The first priority is, of course, the supply of good quality seeds of the high-yielding varieties. A major National Seeds Project for large-scale production of quality seeds has been launched. This project will cover production, processing, marketing and quality control of seeds. Regional and State-level Seed Corporations, with a time bound programme of self-sufficiency in meeting in full the demand for high quality seeds are being established. Agricultural Universities will be involved in the work to ensure equality. The research and teaching staff as well as the students are to be involved in solving the practical problems of seed production and supply. Arrangements are also being made for an effective seed certification programme, and for the build up of national and local bufferstocks to meet emergency needs. The financial and other requirements of this programme will be fully met.

Secondly, fertilizer production programmes are being pushed through, notwithstanding the escalation in project costs of the new units. The public, the cooperative as well as the private sectors have been given a role in bringing to fruition additional fertilizer capacity during the Fifth Plan period so that dependence on imports—which is costly and unrealiable at best—could be mitigated if not done away with altogether.

Thirdly programmes designed to ensure optimum utilisation of surface and ground water to aid agricultural production will be pushed through. Command area programmes under major irrigation projects will be supported by sufficient inputs of men and materials so that the new potential is taken advantage of by farmers with the least deley and for maximum social benefit. Inter-State river disputes which unfortunately have been dragging on without solution for a number of reasons in the past are now being looked into with a special sense of urgency. As a result the progress in some of the cases has been quite appreciable. Failure to settle these disputes is leading to waste of water and sacrifice of additional agricultural production that the country so desperately needs.

Fourthly special efforts are being made to organise Farmers' Service Societies to provide credit to the farmers in time, to arrange for inputs and to help in processing and marketing of the produce. A high-powered group which examined this problem has formulated a scheme for the formation of viable multi-purpose societies linked to Central Cooperative Banks or commercial banks as the case may be. These recommendations have been accepted by the Government and the Departments concerned are working out a programme of action in order that the objective of timely and adequate supply of credit backed by physical inputs and covering processing and marketing, is realised, particularly for the benefit of the small and medium farmers."

1.41. The Committee are greatly concerned to note that the foodgrain demand and production target of 129 million tonnes for 1973-74, the last year of the Fourth Five Year Plan was scaled down to 115 million tonnes. According to Government the production targets had to be scaled down on account of shortage of fertilisers, pro-

blems encountered in the extension of area under high yielding varieties of rice, jowar and bajra and lack of progress in the evolution and introduction of short duration high yielding varieties of pulses. In this context, the representative of the Ministry, during evidence, mentioned as a mitigating factor the fact of non-materia-isation of the projected growth in the per capita income on which the demand and production targets for foodgrain were supposed to be based. The Committee do not consider the reasons for scaling down the production targets satisfactory as the problems faced in stepping up production of foodgrains are well known and should have been taken care of in advance. They further feel that the assessment of demand for foodgrains on the basis of the projected growth of per capita income and then to determine the production target on the basis of the demand thus arrived at, is not at all realistic. Food is the basic need of man and foodgrains not only provide his staple diet but also are the cheapest source of nourishment. A growth in the per capita income may enable him to improve his diet but it would hardly affect his need for a minimum meal of bread or rice. The Committee have, in paragraph 2.6 of their Sixty-First Report (Fifth Lok Sabha) on "Civil Supplies Organisation" and again in para 3 of Chapter I of their Seventy-First Report (Fifth Lok Sabha) on Action Taken thereon already stressed that the assessment of demand for foodgrains in the country on the basis of minimum consumption requirement is necessary for need-based planning of production and imports. The Committee reiterate their earlier recommendations and suggest that Government should assess the demand on the basis of minimum consumption requirement and the projected growth of population, and fix the production targets on a realistic basis to meet this demand in full.

1.42. The Committee note that production of foodgrains which reached a record level of 108 million tonnes in 1970-71, registering an increase of 9 million tonnes over the previous year, declined to 105 million tonnes in 1971-72 and to 97 million tonnes in 1972-73. It registered an increase of 7 million tonnes in 1973-74 reaching a production of 104 million tonnes in the last year of the Fourth Plan period. The reasons advanced for the low production achieved during 1973-74 are the failure of the Rabi crop in the absence of winter rains, cold spell in the first week of February and shortage of critical inputs like fertilisers and power. The Committee are distressed at this decline in foodgrains production. They are disappointed that, despite major resource commitments for development of agriculture particularly production of foodgrains, 'research' and 'extension' has

lagged behind and agriculture still remains, as it were, "a gamble in weather conditions". The Committee feel that if Government had kept a close watch on the situation in regard to the production of foodgrains in the earlier years of the Fourth Five Year Plan period, and taken timely action to overcome the problems hampering agricultural growth, the production reached would not have been as low as it came to be in the last year of the Plan period. They expected that having reached the figure of 108 million tonnes in 1970-71 it should have been possible to consistently maintain the rate of growth in production in view of advanced technology, development of high-yielding seeds etc. The Committee hope that this unimpressive performance would not be repeated during the Fifth Plan period and effective measures would be taken to ensure that there is no slowing down or stagnation in agricultural production. In this connection they note that the Finance Minister in his Budget (1975-76) speech mentioned the "continued sluggishness of Indian Agriculture since 1971-72" and said that he regarded "the claims of agricultural growth as the first charge on our developmental resources." He also indicated priority action on many fronts to achieve a sustained increase in production. The Committee feel that if such a policy had been adopted and implemented in a sustained manner, the current bleak situation in the agricultural sector would not have come about. The Committee stress that Government should lay down realistic targets of production of foodgrains during the Fifth Plan period and take concerted measures to see that these are achieved. A close watch on the performance is all the more necessary particularly because the base level production of 114 million tonnes during 1973-74 has been assumed for fixing the targets of 118 million tonnes for 1974-75 and 140 million tonnes for 1978-79, the first and the last years of the Fifth Plan, while the actual production during 1973-74 was less than 104 million tonnes.

(C)—*Buffer Stock*

Policy re: Buffer Stock of Foodgrains

1.43. Apart from considerations of national security, a buffer stock of foodgrains is essential not only to meet emergencies such as natural calamities, but also to impart inter-seasonal stability to internal price level. For estimating the desirable size of the buffer-stock for the Fourth Five Year Plan, data on production of cereals for a period of 16 years (1949-50 to 1964-65) and annual fluctuations therein were studied. The analysis showed that buffer stock amounting to 7 per cent of the average production in this period would be

adequate to meet situation of fluctuations in supply in two out of three years. On this basis, a buffer stock of 7 million tonnes was considered desirable. Even though initially the Fourth Five Year Plan target was fixed at 5 million tonnes in view of the constraints of finance and storage, the target was later raised to 7 million tonnes.

Progress in Building up Buffer Stock

1.44. On the eve of the Fourth Five Year Plan, *i.e.*, at the end of March, 1969, total physical stocks of foodgrains with the Government (Centre and State) were 4.5 million tonnes. These stocks progressively increased to 6.6 million tonnes at the end of March, 1972. Taking into account the 3 million tonnes as operational stocks, the buffer stocks with the Government was about 3.6 million tonnes at the end of March, 1972. The total physical stocks with the Government reached a peak level of 8.8 million tonnes at the end of June, 1972 and thereby the original target of 5 million tonnes was exceeded. But on account of drought in various parts of the country and consequently large scale supplies of foodgrains to the State Governments, the stocks came down to 2.3 million tonnes at the end of March, 1973. At the end of 1973, commoditywise stocks held in the Central Pool and with the State Governments were as follows:

(In million tonnes)

Rice	1·44
Wheat	1·02
Course Grains	0·52
Total	2·98

Monthwise stocks of foodgrains in the Central Pool and with State Governments since the beginning of 1974 are indicated as follows:

Month	(Quantity in million tonnes)
1	2
(1974)	
January	2·94
February	3·45
March	3·47

1	2
April	3·44
May	3·36
June	3·76
July	3·99
August	3·84
September	3·32
October	2·73
November	2·34

1.45. It may be mentioned that Government also have to keep certain stocks of foodgrains for the operational needs of the public distribution system. According to the latest accepted definition, such stock is calculated on the 1st of April on the basis of 2 months' offtake of wheat, 6 months' offtake of rice and 7 months' offtake of coarse grains. On the above principle and on the experience of current offtake, it is estimated that operational stock will be of the order of 3 to 3.5 million tonnes. In this context, it is admitted that the stocks held by Government are not sufficient even to meet the normal operational requirements of the public distribution system.

1.46. During evidence in December, 1974 before the Committee, the representative of the Government admitted that "it has not been possible to build any substantial reserve out of the procurement made and the import that was planned in the last couple of months". However, replying to the point raised whether Government were finding any difficulty in importing foodgrains on account of the current world food shortage, he said: "eventhough the world food position continues to be very difficult, we are reasonably confident that whatever quantity we project for import we will succeed in getting it within the definite time-limit."

1.47. A buffer stock of foodgrains is essential not only to meet emergencies arising out of natural calamities, but also to impart stability in the internal prices of foodgrains with which the general price level is intimately connected. The existence of a buffer stock of foodgrains tends to impart immunity against international pressures. It would also help negotiations for purchase of foodgrains from abroad as imports could be planned at a time when it is economically most beneficial for the country. Above all, the importance

of a buffer stock of foodgrains for national security and internal stability cannot be over emphasised. The Committee are constrained to note that the buffer stock of 8.8 million tonnes built up by June, 1972 got exhausted in circumstances largely beyond our control. The current stocks of foodgrains with the Central as well as with the State Governments are insufficient even for the orderly operation of the public distribution system at the existing level. The Committee recommend that apart from stepping up procurement of foodgrains, Government should take effective steps to replenish the buffer-stock at least to the peak level reached during the Fourth Plan period.

(d) *Imports*

Imports upto end of Fourth Plan period

1.48. The planwise figures of import of foodgrains as furnished by Government are as follows:—

	Quantity (million tonnes)	Value (Rs. crores)
First Plan (1951-55)	12·32	593
Second Plan (1956-60)	17·32	673
Third Plan (1961-65)	25·42	1011
1966 1967 1968	24·72	1416
Fourth Plan		
1969	3·87	253
1970	3·63	208
1971	2·05	123
1972	0·45	23
1973	3·62	320
1974	4·87	463

Imports during Fifth Plan period

1.49. Import arrivals of foodgrains between April and September 1974 are indicated as 20 lakh tonnes including 10.86 lakh tonnes of wheat imported from U.S.S.R. on loan basis which was contracted for in the previous year but actually arrived in the current year (1974-75). The F.O.B. value of foodgrains contracted for import from countries other than U.S.S.R. is indicated as $56 crores.

As regards the details of imports during the next four years of the Fifth Plan period ,it is stated that "it does not seem feasible to indicate the volume of foodgrain imports in the coming years as it would depend upon many factors, namely, domestic production, requirements, foreign exchange availability and prices of foodgrains in the international markets."

Procedure for formulating Import Requirement

1.50. The Ministry was asked to indicate the procedure observed by them for formulating the import requirements and actual placement of orders for import of foodgrains. In reply they have stated that the import requirements are formulated after taking into account the crop prospects, availability of foodgrains in the country, stock of foodgrains available with Government, the anticipated requirement of the public distribution system, the likely level of procurement, the overall foreign exchange position, the price trend in the international market and other related factors. The overall assessment, indicating the level of imports during a particular period, is considered at the highest level and the clearance of the Ministry of Finance (Department of Economic Affairs) obtained from the foreign exchange angle. Indian Supply Mission, Washington, is the authorised agency for purchases from Americas. The purchases are made by that agency keeping in view the international trend of prices and also keeping in view the delivery and shipment requirements. In regard to purchases to be made from other exporting countries like Australia, European Economic Community etc., the concerned Ambassadors/High Commissioners are advised to explore the possibilities with appropriate authorities in accordance with the made by these agencies at a time when they are most advantageous made by these agencies at a time when they are most advantageous to the country keeping in view the likely monthly requirements. The import requirements are kept under constant periodical review and purchasing agencies are authorised to make purchase of additional quantities if considered necessary.

1.51. Regarding assessment of crop prospects for formulation of import requirements on a realistic basis, Government have stated that for planning imports on a realistic basis advance estimates have to be complied either before the harvest of the crop or soon thereafter. Admitting that although scientific methodology is being adopted to compile estimates of area and production of different crops the advance estimates by their very nature are tentative and subject to revision Government have stated that efforts are being

made by them to reduce the timelage and improve the reliability of the production data.

1.52. Asked to indicate how it is ensured that imports are arranged in time and at most competitive rates, Government have stated that on the basis of total authorisation issued, the purchasing agencies are advised about the shipping time on the basis of which "these agencies arrange to make purchases either on the spot basis or on the basis of forward deliveries. The purchasing agencies plan a strategy of purchase and delivery according to the time schedule and shipment indicated to them and effect purchases at a time when it is in the best interest of the country to do so".

Formulation of Import requirement on long term basis

1.53. As already stated, Government are formulating the import requirements of foodgrains on year to year-basis. They were asked state whether it was not possible to draw up the import requirements on a long term basis so that purchases could be made at a time and price most beneficial to the country. In reply Government have stated that in view of the announced policy to achieve self-sufficiency in foodgrains, it has not been possible to formulate a long term import policy. Any long term import programme will necessarily mean definite commitment to buy a required quantity of foodgrains at the prevailing international prices. Depending on the food and agricultural situation developing from time to time, import programmes are formulated which are capable of suitable adjustments with the level of production of foodgrains in the country, the likely demand for the same, foreign exchange availability, prices of foodgrains in the international market and other relevant factors. It is maintained that since food is a very sensitive subject in regard to its imports, it has always received highest priority and despite foreign exchange constraints import of foodgrains has been made. From the point of view of the importing country, the possibilities of prices remaining firm due to long term import commitment cannot be ruled out. Therefore, no long term programme of import indicating the volume during the Fifth Plan period is being formulated by Government.

1.54. It is further stated that world food situation and the difficulties arising out of abnormally high price of foodgrains and their availability was discussed at the World Food Conference held in November, 1974 at Rome where appropriate measures to evolve machinery for import of foodgrains by the developing countries

through the assistance of international agencies were considered. Certain proposals for foodgrains reserves at the national and international level were also discussed.

1.55. During evidence also, the representative of the Ministry of Agriculture stressed the point that "in the context of the announced policy to achieve self-sufficiency in foodgrains, it has not been possible to formulate a long term import policy and particularly mention the same in the Plan document because if the foodgrain output continues to be the same as projected, then perhaps the necessity of importing the foodgrains may not arise."

Inspection before Import

1.56. A point was raised during evidence whether there was any procedure for proper inspection and quality control over the foodgrains imported from abroad and in this context the recent case of 'Dhatura' seeds being found in the milo imported from U.S.A. was cited. Reply to the point, the representative of the Ministry of Agriculture stated:

> "So far as the Americas are concerned, inspection before export is mandatory. It is done by the authorized inspectors of the U.S. Department of Agriculture. It is so in Argentina as well. But in regard to certain other countries where official inspecting agencies are not available, the international superintending firms are asked to do the survey....All exports are done according to their specifications. They have got export specifications in regard to wheat, and it should conform to these specifications. So far as milo is concerned, there was no instance of dhatura being there in the earlier shipments. When it was first noticed, we immediately raised the question as to how dhatura seeds found their place in milo. It was explained that in the United States where there is mechanical harvesting, dhatura which is a kind of weed, gets mixed and it is not physically possible to segregate it from milo. Also they explained that they did not consider in their specification, the presence of a few dhatura seeds as something toxic. Thereafter the question was taken up at higher levels. They also said that this was according to their export specifications. Since they could not avoid the admixture, they could not do much. But it came into conflict with our prevention of Food Adulteration Act. There is a margi-

nal tolerance limit provided for the presence of such a weed seed in wheat and other grains. It can happen anywhere."

Price paid for foodgrains purchased from abroad during 1974

1.57. The price range of foodgrains purchased from abroad since January, 1974 has been indicated to the Committee as follows:

	Period	FOB Price range Per Metric ton (in US Dollars)	FOB Price range per quintal in Indian Rupees ($ = Rs. 7·98)
Wheat			
USA	April—Nov.	132—191	105—153
Canada	August	165	131
Argentina	August—Sept.	163—166	130—133
Australia	Feb.—Sept.	176—183	141—146
E.E.C.	Nov.—Dec.	183—186	146—149
Milo			
Argentina	April—July	81—95	65—76

It is observed from the above figures that the FOB price of wheat purchased from foreign countries during 1974 varied between Rs. 105 and Rs. 153 per quintal. The landed (CIF) price would naturally be on the higher side.

1.58. Replying to a question during evidence whether the prices being paid for purchases of foodgrains from abroad were really competitive international prices, the representative of the Ministry of Agriculture expressed satisfaction over the prices at which the foodgrains were being imported and said that our agencies "have been buying on the basis of the market information readily available with them and they are fully aware of the various fluctuations and ups and downs." He further stated that if we analysed the overall purchases made since February, 1973, we would find that we paid "somewhat below the market price."

1.59. The Committee are perturbed at the recent spurt in the prices of foodgrains in the exporting countries of the World due to which the cost of import of foodgrains has considerably gone up

even though the imports are now at a much reduced level. The Committee hope that the Government would continue to project the case of the developing countries for availability of foodgrains at a reasonable price in the interest of World peace and prosperity.

1.60. The Committee have alsewhere in the Report stressed the need for building up buffer stocks so as to ensure that the public distribution system is not exposed to any uncertainty. Adequate buffer stocks have a great stabilising effect on prices of foodgrains. In fact as has been remarked by an eminent authority that political stability cannot be based on empty stomachs. The Committee would like Government to take full advantage of the present forecast of a bumper Rabi crop to build up buffer stocks. Government should also pursue with the Food and Agriculture Organisation and the United Nations the question of having suitable buffer stocks which could be drawn upon in times of need by developing country like India. This is all the more necessary as the prices of foodgrains are showing a marked tendency towards steep increases and it would be increasingly difficult for the economy of a developing country like ours to afford such costly imports.

CHAPTER II

SEED, WATER & POWER

(A) Provision of Quality Seed

Arrangements for Production of Seed

2.1. It is stated that the production and distribution of seeds required for coverage of targets set under the Plan is primarily the responsibility of the State Governments. The All-India Seed Producing Organisations like National Seeds Corporation, State Farms Corporation of India and Tarai Development Corporation supplement the steps taken by the State Governments in the matter of production of seed. Breeder seeds are produced by Indian Council of Agricultural Research and the various Research Institutions under them as also State Agricultural Universities. Foundation Seeds are produced by the State Agricultural Universities and research Institutions and the National Seeds Corporation. Certified seeds are produced by National Seeds Corporation, State Governmental undertakings and the State Departments of Agriculture who produce such seeds in the State Government farms or through a system of contract with seed growers. Some private agencies including cooperatives also produce certified seeds. Certification of seed, is, however, voluntary under the Seed Act, 1966. The Seeds Act also stipulates that once seed of a variety or kind is notified, then no person can sell, or offer to sell, seeds of such notified varieties which do not meet the minimum standards of germination or purity as laid down under Section 6 of the Act and Marked and labelled as required under the provisions of the Act and rules made thereunder. Thus, in addition to certified seeds, "Truthfully Labelled" seeds of a minimum quality are also being marketed.

Fourth Plan Targets of Production and Achievements

2.2. During the Fourth Plan period, it was intended to cover nearly 72 million hectares under improved seeds—about 25 million hectares under HVP, 15 million hectares under multiple cropping, about 8 million hectares in assured rainfall areas and 24 million hectares in dry cultivated areas. According to the Fourth Plan document, for the accomplishment of this programme the following were to be the main components for supply of seeds:

(i) Continuous supply of breeder stock

(ii) adequate arrangements for production of improved seeds

(ii) adequate arrangements for production of improved

(iv) seed certification.

It was stated that these aspects would be given requisite attention. Government were accordingly asked to indicate the targets and achievements in respect of production of breeder, foundation and certified seed of various foodgrains on the basis of the targets laid down for area coverage. They have in reply stated that the Government had not laid down any specific targets for production of breeder, foundation and certified seeds for the different varieties of foods crops during the earlier Plan periods. As regards the achievements in the Fourth Plan period, it is stated that the State Departments of agriculture used to supply foundation seeds from their own farms and as such "it would be difficult to indicate the precise targets or achievement in respect of breeder, foundation and certified seeds of different foodgrains in the Fourth Plan period." In regard to area under high yielding variety, however, Government have indicated the achievement during the Fourth Plan period in terms of area covered. According to them, the target of 25 m/ha for the Fourth Plan period had been achieved. (High Yielding Varieties programme has been dealt with separately in a subsequent paragraph).

Targets of Production during Fifth Plan

2.3. In the Fifth Plan, foodgrains production is projected at 140 million tonnes and one of the major planks in an effort to achieve the targetted level of production is the expansion of the area under high yielding varieties of crops from a base level of 25 million hectares in 1973-74 to 40 million hectares by the end of 1978-79. Based on the projected coverage under high yielding varieties programme by 1978-79 effective seed requirements of cereals in the Fifth Plan will be as under:—

Name of Crop	Fifth plan target for coverage under certified seed of HYV (in million ha.)	Effective seed requirements (in tonnes)
Paddy	16·50*	48,500
Wheat	15·00*	1,38,000
Maize	1·00	15,000
Jowar	2·50	24,000
Bajra	5·00	20,000
	40·50*	2,45,500

*Fifth Plan targets of coverage based on Annual Plan 1978-79 (Draft) in respect of Paddy land Wheat are indicated as 17·00 million hectares and 16·00 million hectars respectfully.

2.4. The following special steps are proposed to be taken by Government to attain the targets of production.

Production of Breeder/Nucleus Seed: The proposed State Seed Planning and Coordination Committees are expected to identify the institutions from where supplies of breeder seed would be obtained for each State. The financial outlays will form part of the outlays of agricultural Universities or research institutions during the Fifth Plan period.

Production of Foundation Seed: The National Seeds Corporation will continue to be the principal agency for the production of foundation seeds of hybrids and varieties of all-India importance. The Corporation has two large sized farms but considering the large quantities of foundation seed to be handled during the Fifth Plan, it is proposed to organise foundation seed production on the farms of State Farms Corporation of India under the guidance of National Seeds Corporation. Other institutional farms such as those of State Governments or agricultural universities are also proposed to be utilised by the NSC in organising foundation seed production. The share capital of the Corporation is to be built up to Rs. 500 lakhs, which is the authorised capital. Till the end of the Fourth Plan, the Government of India's contribution to its share capital was Rs. 310,00 lakhs. A provision of Rs. 400 lakhs in the Central Sector for the expansion of its activities has been made in the Fifth Plan.

In so far as the production of foundation seed of local importance is concerned, the State Governments have been advised to identify the foundation seed production agencies. The foundation seed production by the State Governments has to be taken up in adequately large-sized farms with adequate facilities and with good technical staff. This would involve an expenditure of approximately Rs. 1500 lakhs in the State Plan during the Fifth Plan.

Production of Certified Seed: Besides the there National level seed producing organisations namely the National Seeds Corporation, Tarai Development Corporation and State Farms Corporation of India, there are two all-India associations of seed producers i.e. All-India Seed Growers, Merchants and Nurserymen Association and

All-India Crop Improvement and Seed Producers Association. Some of the State Governments have also established State Seed Corporations. The National Cooperative Development Corporation has also undertaken to promote the setting up of seed cooperative units and a such units were set up during the Fourth Plan. In some of the States, quasi-Government institutions such as Agro-Industries Corporations have undertaken to produce Certified Seeds. Besides these, a number of private seed producers have entered the certified seed market. In the Fifth Plan, certified seed producing organisations will be further strengthened.

2.5. Indicating the steps taken by the Government to extend effective seed support for achieving the coverage targets laid down for the Fifth Plan, the DGICAR stated during evidence:

> "One of the problems has been timely supply of good quality seeds. . . . There has to be some sort of a discipline in terms of seed production . . . . . In our country, somehow, so far, it has not been possible to instil in the States the need for a properly disciplined and organised machinery. . . Several reviews have been made. . . . .But apart from the National Seeds Corporation which produces the foundation seeds, there is very little of organised effort in several States. . . . We have requested the National Seeds Corporation, the State Farms Corporation as well as organisations in the States to indicate very clearly the total quantity of nucleus seeds or breeder seeds they need depending upon their programme. This has been done. In fact, the States, for example, have given to the ICAR their requirements of nucleus seeds for the next year. We have identified institutions and more than institutions individuals who have been given the responsibility that they should produce so much quantity of seeds. The State Governments will have to do the same thing in relation to the universities. They have to indicate very clearly their

requirements in regard to quantity, variety and so on. Unless this is done, it will be difficult for the universities to take up a planned programme.....I can only assure you that at the Central level, this coordination has been brought about and we know clearly what exactly is the quantity which should be produced."

2.6. The representatives of the Ministry of Agriculture also during evidence made the following suggestions to improve the seed support for the production programmes:

(1) Total quantity of seed required should be anticipated two or three years in advance.

(2) Seed Act may be amended to provide that as in economically more advanced countries, the use of seed of certified high quality only will be allowed.

Existing Production/Availability of Seed

2.7. As regards the existing actual production/availability of seeds it is stated that "in view of multiplicity of the seed producing agencies and lack of information about the programmes undertaken by them, it is not possible to estimate the existing production/availability of seeds (breeder, foundation or certified)." Replying to the point as to how, in the absence of this information Government Plan the production and distribution of seeds of various kinds, Government have stated:

"Information relating to seed production programmes organised within the State can only be coordinated and consolidated by State Departments of Agriculture as there are a number of agencies within the State. Quite often the State Governments have not been able to get full details about the seed production programmes organised by agencies other than the State seed multiplication farms. Similarly, information relating to the production of seeds at the agriculture university or the central institutes of research could not also be consolidated since quite often information was not received.

Recently, however, a much more detailed exercise is being carried out by the State Governments in the assessment of the requirements of seeds and it has been possible to

estimate the seed production programmes. However, these exercises will have to be continued in a more intensive manner before it is possible to really estimate with the requisite degree of precision the quantities of seed actually produced."

It is maintained that in the light of the various steps taken by Government, it is expected that the seed requirements for the High Yielding Variety Programme will be met.

Production by National Seed Producing Organisations

2.8. As already stated earlier, national seed producing organisations namely the National Seed Corporation (NSC), Tarai Development Corporation (TDC) and State Farms Corporation of India (SFCI) supplement the efforts of the State Governments in the production of foundation and certified seed. Production of seeds by these three organisations during the Fourth Plan has been indicated as under:

(Quantity in '000 quintals)

Year	N.S.C.		T.D.C.	S.F.C.I.
	(Foundation Seed)	(Certified Seed)	(Certified seed)	(Quantity Seed)
1969-70	30	97	132	38
1970-71	32	114	178	37
1971-72	40	208	166	72
1972-73	40	183	210	102
1973-74 (Estimated)	53	306	372 (unprocessed)	165

Surplus of Foundation and Certified Seed

2.9. The National Seeds Corporation had undertaken during the years 1966-67, 1967-68 and 1968-69 an ambitious programme for the production of certain newly developed high yielding variety seeds of sorghum (Jowar), Bajra and Maize, on the basis of area coverage anticipated during the Fourth Plan period. The implementation of the Fourth Plan was deferred and instead we had three annual plans during the period 1966-67 to 1968-69. The area coverage provided

for in the Fourth Plan document, on the basis of which the production programme was undertaken, did not materialise and the off-take of seeds was much less and the Corporation had accumulated large quantities of foundation and certified seeds. Till 1970-71, the N.S.C. and other seed producing organisations like the State Government of Maharashtra and Karnataka and even private seed companies had large quantities of accumulated stock of both foundation and certified seed of maize and millets. The Seed production programmes of the Corporation and other Seed producing agencies was latter curtailed and now the Corporation has developed a system of undertaking seed production on the basis of firm orders backed by a certain percentage of payment being made in advance. This has been done to avoid building up of surplus stocks and base the production programme on actual requirements of customers.

2.10. Indicating the reasons for lesser area coverage under the hybrid crops, Government have admitted that though in the initial stages a great deal of demand had been built up for hybrid seeds of Jowar, Bajra and Maize but the popular trend could not be maintained due to various reasons including high susceptibility to pests and diseases in the case of Jowar and Bajra. New varieties of Bajra and Jowar have however been developed and research is in progress to ovecome some problems still being encountered. In the case of hybrid Maize, it did not become very popular with the farmers initially as a result of the marketing problems and also because the crop did not fit in with the cropping programmes where Rabi crops had to be raised.

Adequacy of production to meet requirement

2.11. It is admitted by Government that following the curtailment of seed production from 1969-70 onwards, some shortage of seeds was experienced during 1972-73. It is stated that by and large the supply of maize and jowar seeds was satisfactory in 1973-74 and only in the case of hybrid bajra some shortage was experienced in 1974 on account of the setback to the seed production programmes of hybrid bajra organised in kharif 1973 due to unseasonal rains in Maharashtra and Gujarat. As regards paddy, it is stated that there would be no difficulty in meeting the requirements except in case of newly released varieties in the initial years after their release. In so far as wheat seed is concerned, it is maintained that shortages of good quality wheat seeds had been experienced since the Eastern States were not able to raise their own seeds and store them in good conditions. The State Governments concerned are being pursuaded to place firm orders on the seed producing organisations like the National Seeds Corporation on timely basis.

Zonal Seed Conferences .. .. ..

2.12. The Union Ministry of Agriculture convene Zonal Conferences with representatives of the State Governments and the All India Seed Producing Organisations twice a year, to review the assessments done by the State Governments in regard to the requirements of seeds, and the seed production programmes organised within the State in order to meet the requirements of the farmers, not only for the ensuing seasons, but also to identify the seed requirements at least two-three years ahead. In the light of the requirements, if it is not possible to meet the full quantity from out of the States' own seed production programmes, State Governments are requested to place firm orders on the All India Seed Producing Organisations. Recently, the Government of India have instructed the State Governments to make all these assessments variety-wise instead of crop-wise, which had been the practice in the past, so as to avoid a situation wherein there may be a surplus of one variety, but shortages in respect of the others. Government, however, admit that such detailed exercises have commenced only recently. The State Governments have been initially finding it difficult to assess the seed requirements with any degree of precision and it was only in the last Zonal Conference that it was possible to get at least a rough idea of requirements of seeds of different varieties. But even now many of the State Governments were not in a position to say what sort of seed production programmes in respect of different varieties have been organised in the respective States. Further, the State Governments had not been able to organize Conferences, prior to the Zonal Conferences organised by the Union Ministry, with the local seed producing agencies so that full details of the seed production programmes in the State could be obtained. By and large, they have been furnishing information only on the seed production programmes organised on the State Seed Multiplication Farms. According to Government themselves, some more effort would be necessary on the part of the States to get a precise idea as regards the requirements as also the seed production programmes.

Hibh Level Coordination Committee

2.13. A High Level Seed Coordination Committee was set up in September, 1974 by the Government of India under the chairmanship of Director-General Indian Council of Agricultural Research and Secretary in the Department of Agriculture Research & Education to identify and locate suitable breeder and foundation seed producing agencies, finalise the production programme of breeder

seeds and their allocation to different foundation and seed producing agencies and lay down guidelines for allocation of foundation seeds to the certified/quality seed producers. Asked to indicate the details of work done by this Committee so far, Government have stated:

"This Committee has met once on the 28th of October, 1974.... The consensus in this Committee was that it is really for the State Governments to play the key role in seed planning and organization of seed production programme. A decision, therefore, was taken that the State Governments should be instructed to set up a Seed Planning and Coordination Committee, under the Chairmanship of Director of Agriculture of the State with which the scientists of the Agricultural University and the Seed Production Agencies should be associated....This Committee should project the seed requirements in respect of each of the varieties of different crops two-three years ahead and then cast specific responsibility for the production of breeder/nucleus and foundation seed....The State level Seed Planning Committee should place firm indents with the State Agricultural University for the production of nucleus seeds and in the event the State University cannot do so, then place firm orders on other Universities/Central Research Institutions.

As far as foundation seed is concerned, it was decided that the State Department of Agriculture should itself take the responsibility for production of such seed on selected State Seed Multiplication Farms which have the necessary facilities of producing good quality foundation seeds....State agricultural university could also be expected to multiply foundation seeds under arrangement with the State Department of Agriculture. To the extent the foundation seed production cannot be organized within the State, firm orders should be placed on agencies, like the National Seeds Corporation.....This work will have to be done by a number of agencies in a State like the State Department of Agriculture on the State Seed Farm, Cooperative institutions and State Governmental institutions like the State Seed Corporation or Agro Industries Corporation. In certified seed Production, Progressive farmers should also be closely associated."

When agencies have been identified by the State Governments for the production of nucleus and foundation seeds, a consolidated list of such agencies would be compiled by the Central Government and circulated so that the certified seed production agencies would know which are the agencies which are to take up nucleus or foundation seed production in respect of different varieties.

2.14. Based upon the decisions in the first meeting of the High Level Coordination Committee on Seeds, the Central Government have recommended to the State Governments that they should set up a State Planning and Coordination Committee. The system evolved by the Government of Karnataka has been endorsed to all the State Governments for adoption with suitable modifications wherever necessary.

2.15. The Committee note that in the Fourth Plan Document, the target of coverage under improved seeds was indicated as 72 million hectares including 25 million hectares under High Yielding Varieties. Government have, however, not been able to indicate to the Committee the actual achievements against the target, except in the case of H. Y. V. where the target of coverage of 25 million hectares has been claimed to have been achieved during the Fourth Plan period. They also note that for the Fifth Plan period "the effective seed requirement" and targets of "area coverage" have been indicated only in respect of High Yielding Varieties as 2.46 lakh tonnes and 40 million hectares respectively. As for collection of demand data and supply programme, the Committee observe that an attempt is being made to co-ordinate the demand and supply of seeds on a zonal basis at the Zonal Seed Conferences which, according to Government's own admission, is inadequate. They also note that the High Level Committee appointed as late as October, 1974 under the Chairmanship of the Director General, Indian Council of Agricultural Research to finalise the production programme of breeder seeds and allocation of breeder and foundation seeds among identified seed producing agencies has desired the State Governments to individually assess their requirements and to plan and organise the seed production programme primarily within the State and taking, if necessary, the help of the national seed producing agencies.

The Committee are surprised that while the foodgrain production targets were laid down on the basis of extension of area under certified/quality seed, until recently, there was no system of even assessing the demand of various varieties of quality seeds of different food crops on all India basis, much less of keeping

a coordinated watch on their availability to ensure that these were available to the former in time. The Committee would like to emphasise that certified/quality seed is an essential input for stepping up production of foodgrains and as such its timely availability has to be ensured to the farmer. For this purpose, it is necessary that the requirement of seed is assessed properly and its production is planned and ensured, as is being done in the case of other agricultural inputs. The Committee, therefore, recommend that Zonal Seed Conferences should be proceded by State level seed conferences at which a detailed analysis of seed requirements and supply sources within the State should be undertaken. The projected requirements of the States which have to be met from outside sources should be discussed at the Zonal Seed Conferences. Central Government should play a pivotal part not only in coordiated planning but also in production of seed, particularly Breeder/ Foundation Seed, on the basis of state-wise requirements for proven varieties of seeds for different crops and make them available to the States on a timely basis so that the efforts to maximise foodgrain production do not suffer for want of good quality seed. Special attention should be paid by the Central Government and the National Seeds Corporation to meet the seed requirement of those States who do not have requisite quantity and quality of seeds available in their area.

High-Yielding Varieties Programmes

2.16. Before 1960, the agricultural promotional programmes operated largely within the limitation set by existing crop varieties which had relatively low response to fertilizers. The introduction of hybridization techniques for maize and millets in 1960, the Maxican variety of wheat in 1963-64 and TN-I variety of paddy in 1965 caused a major change in the production programmes. The strategy of agricultural production drawn up for the Fourth Plan period therefore included "full exploitation of the possibilities of raising yields provided by the new seed varieties in the case of cereals". The Plan laid down year-wise targets of area coverage under HvP programme. The programme aimed at an increase in area coverage under HVP programme from 9.2 million hectares at the base level 1968-69 to 25 million hectares by the end of 1973-74. The targets and

achievements during each year of the Fourth Five Year Plan are indicated as under:—

Targets and Achievements of HVP during Fourth Plan Period.

	Target	Year-wise		Achievements		(Figures in million hectares)
		1969-70	1970-71	1971-72	1972-73	1973-74 (likely)
Paddy	10·10	4·25	5·45	7·20	8·11	9·40
Wheat	7·70	5·00	6·54	7·86	10·01	11·30
Maize	1·20	0·42	0·47	0·49	0·61	0·65
Jowar	3·20	0·55	0·80	0·69	0·87	1·10
Bajra	2·80	1·14	2·03	1·77	2·50	3·00
All Grains	25·00	11·38	15·30	18·00	22·10	25·00

2.17. The year-wise total area under high-yielding varieties and its percentage to total area under foodgrains is indicated below:—

(Million Hectares)

Year	Total area under foodgrains	Total area under High-Yielding Varieties Programme	Percentage of Col. 3 to Col. 2
1969-70	123·57	11·38	9·2
1970-71	124·32	15·30	12·3
1971-72	122·62	18·00	14·6
1972-73	119·28	22·10	18·5
1973-74	126·13	25·00	19·8

2.18. It was pointed out during evidence that experience showed that high-yielding varieties of seed were more susceptible to disease. Dealing with this point, the Director General, Indian Council of Agriculture Research stated that in high-yielding variety programme there were five crops: Wheat, rice, bajra, jowar and maize. Indicating the crop-wise position, he admitted that the Kalyan Sona variety of wheat released in 1964 "has become susceptible to some of the new races of rust." According to him, the TN-I strain of rice

did well in the first year which was a drought year and when the normal monsoon came "it became highly susceptible to bacterial pests." In Jowar, he said, "our problem has been mainly of pest which is well known." He, however, added: "Partially, this problem can be solved if the farmers try to co-operate and grow varieties of the same maturity in an area. Control measures are available." As for Bajra he said that initially the hybrid strain developed by the Punjab Agricultural University in 1965 "went up very well ....but, unfortunately, the female parent from which our hybrid bajra is developed is very highly susceptible to pest. There was one reconstituted HB3 variety which we thought was resistant, but this year we found that it was also attacked by pest." In the case of maize, according to him, the hybrid programme "is not spreading (but) not because of any major disease problem" though he admitted that "there are certain areas like Karnataka and so on where disease problems have developed". The Director General, Indian Council of Agricultural Research added:

> "It takes about 3-4 years for a new strain to appear in sufficient quantity to make an impact on the plant. That is one of the reasons why we consider normally the average life of a variety to be about five years. In the United States, it has been four years."

Further, according to him:—

> "We have conditions favourable throughout the year for the growth of pests.... The only way of really tackling it in a country like ours would be to have some degree of crop sanitation and co-operative endeavour on the part of the entire village community. One farmer alone cannot easily control it....the small farm has tremendous potential for labour intensive and high intensity farming. But, on the other hand, it has also a number of inherent handicaps in terms of management of problems of water and pests, which have to be overcome."

2.19. The Committee are constrained to observe that the high yielding varieties developed in respect of several food crops have, after initial success, become disease prone. The Committee underline the need for the exercise of greater caution in releasing the new varieties for mass cultivation. The new varieties should be subjected to repeated and exacting trials and these should be released only after their proved success under ordinary conditions so as to specially save the small and marginal farmer from disastrous consequences.

At the same time, the research institutions concerned should keep a constant watch on the field results of the new varieties and, as soon as any disease is noticed under ordinary conditions of mass cultivation, suitable control and remedial measures should be initiated promptly. The Committee have dealt with the problem of timely availability of pesticides in a subsequent section. They, however, take another opportunity to emphasise the need for taking concerted and coordinated measures against spread of plant diseases through use of pesticides etc. Further as the average life of a high yielding variety is stated to be about five years, it should be ensured that the concerned variety is replaced in time by a more suitable variety and full publicity should be given thereto through the mass media and other means.

Distribution of Seeds

2.20. The existing arrangements for distribution of seeds have been indicated as follows:—

Breeder|nucleus seed: The production of these seeds is undertaken by the Central Research Institutes of the Indian Council of Agricultural Research and Agricultural Universities. These are directly distributed to foundation seed producing agencies.

Foundation Seed: The production of this seed is organised in respect of varieties of All-India importance by the National Seeds Corporation, some Agricultural Universities and a few State Governments. The State Governments, by and large, organise production of foundation seeds of local importance. The foundation seed is sold by the National Seeds Corporation through its net work of dealers and also to the State Governments direct. The distribution of foundation seeds by the State Governments is done through the normal departmental agencies.

Certified|quality Seeds: These seeds are produced by the National Seeds Corporation, State Farms Corporation of India and Tarai Development Corporation. In addition, most of the State Governments undertake to multiply quality seeds on the State seed multiplication farms. There is also one association of seed grower called "The Indian Crop Improve the Seed Producers Association". Besides, there are a number of co-operative seed producing units in the country. In some States organised seed industry in the private sector has also grown up. The seed produced by the National seed producing organisations are distributed by them directly through their own dealers and also to the State Governments. The seed produced by the State Governments is distributed by them through

the normal departmental agencies. The seed produced by the private organisations is also distributed by them directly.

2.21. The Ministry of Agriculture were asked to state the nature of regulations and control that was being exercised by Government on the distribution of seed to ensure that it was not cornered by a small section of traders or big farmers. In reply, it is stated that there is no statutory control on the distribution of seed but "since a number of governmental undertakings or the State Governments themselves distribute substantial quantities of seeds, it is possible to ensure that fair distribution takes place." It is further stated that "it is possible to see that all the seed stocks are not cornered by a small section of traders or by the farmers and that the National Seeds Corporation or the Tarai Development Corporation take action against the dealers if they market seeds at prices higher than the listed prices."

2.22. The Ministry was also asked to indicate the positive steps taken by them to ensure that quality seeds are available to farmers in the remote and backward areas in the country. In this connection, it is stated that an ambitious programme of certified seed production is to be taken up in the Fifth Plan period. It was proposed to expand the seed production programmes of the national seed producing agencies and the State Governments have also initiated steps to set up State Seed Corporations. Besides, the reserve stock of foundation and certified seeds is also being built up to meet the unanticipated demands arising out of natural calamities and State Governments were also being asked to build up their own reserve stock of seeds. It is maintained that these steps would ensure that much larger quantities of good quality seeds are available for distribution during the Fifth Plan period. Government maintain that distribution of seeds in the remote and backward areas of the country would be possible "as the National seed producing agencies have developed a network of dealers all over the country and substantial quantities of seeds are also being marketted through departmental agencies."

2.23. In order to make the food production programme a success, it is necessary that good quality seeds are available in time to the farmers in all parts of the country, particularly in the remote and backward regions. In view of the fact that at present there is no statutory control over the distribution of seed, it is all the more necessary to systematise the distribution of seeds of various kinds. The Committee recommend that the Central Government may make a detailed study of seed distribution arrangements in each State and

the arrangement found most successful should be recommended to the State Governments and other seed distribution agencies for adoption. Alternatively, Government could try out composite pilot schemes for distribution of seeds and other inputs in any of the Union Territories and after successfully operating them, these could be commended to the State Governments and other seed distribution agencies concerned for adoption.

Adulteration of Seed

2.24. In a large number of memoranda received by the Committee from non-officials it has been represented that the seed available to the farmers does not correspond to the description given. The use of such seed not only results in loss to the farmers affecting their very livelihood but also to the Nation in so far as it affects production besides acting as a disincentive to the use of seeds of improved variety|quality. Quality control measures adopted by the Government are broadly classified under two main heads: (a) Seed Certification and (b) Seed law enforcement.

Seed Certification

2.25. Certification under the Seeds Act is voluntary. The Act however provides that the State Governments shall notify an agency for the certification of seed if desired by any party. So far nine States have notified seed certification agencies and for the rest, the National Seed Corporation continues to be the certification agency. In view of the importance of maintaining uniformity in the certification procedures and to facilitate inter-State movement of seeds, the Seed Act has recently been amended to provide for a Central Seed Certification Board to advise and coordinate the functions of State Seed Certification Agencies. An outlay of Rs. 2 crores has been provided in the Central Sector to assist the State Seed Certification Agencies during the Fifth Plan period.

Seed Law Enforcement

2.26. Under the Seeds Act, the seeds of notified varieties should conform to the minimum standards of germination and purity before these can be marketted. To ensure this the State Governments are enjoined upon to appoint Seed Inspectors. The State Governments have, however, appointed the officers of the Agriculture Department to act as Seed Inspectors in addition to their multifarious duties. In view of the importance of maintenance of quality of inputs, it has been decided to create a separate composite inspectorate for regulating the quality of all the three vital inputs

i.e., seeds, fertilizers and insecticides by appointing one wholetime inspector at district level. The requirements of funds during the Fifth Plan period are estimated at Rs. 50 lakhs of which the Central share on 50.50 basis will be Rs. 25 lakhs.

2.27. Another important measure of quality control is the setting up of fully equipped State Seed Testing Laboratories and a reference laboratory at the Central level. The strengthening of the State Laboratories with properly trained staff and physical facilities is proposed to be taken up as part of the State Plan schemes involving an outlay of Rs 30 lakhs in the Fifth Plan period.

2.28. Replying to the point raised during evidence that the Seeds Act should be amended to provide for the farmers being compensated for the losses likely to be suffered by them on account of defective seeds, the representative of the Ministry of Agriculture stated:

> "It was examined whether the Act itself could provide for the farmers being compensated for the losses likely to be suffered by them on account of defective seeds. It was explained that it is very difficult to prove whether the losses suffered by the farmer were due to defective seeds.
>
> Therefore, making a provision for compensation is difficult....In the light of this, *rule 23-A has been formulated and approved. Action to publish the rules is in hand. This would provide that....the Seed Inspector shall take the labels, receipts and containers from the complainant for establishing the source of supply....The State

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*The newly introduced Rule 23A of the Seed Rules reads as follows:

23A. Action to be taken by the Seed Inspector if a complaint is lodged with him—

(i) If farmer has lodged a complaint in writing that the failure of the crop is due to the defective quality of any seeds of any notified kind or variety supplied to him, the Seed Inspector shall take in his possession the marks or labels, the seed containers and a sample of unused seeds to the extent possible from the complaint for estalishing the source of supply of seeds and shall investigate the causes of the failure of the crop. The Seed Inspector shall send samples of unused seeds of the same lot to the Seed Analyst for detailed analysis at the State Seed Testing Laboratory. He shall thereupon submit the report of his competent authority.

(ii) In case, the Seed Inspector comes to the conclusion that the failure of the crop is due to the quality of seeds supplied to the farmer being less than the minimum standards notified by the Central Government, the competent authority shal launch proceedings against the supplier for contravention of the provisions of the Act or these Rules."

Governments have been urged to set up effective organizations for the enforcement of the Seed Act and Rules."

2.29. In regard to the complaints regarding adulteration of the seed, he stated:

"The State Governments have not made any report as such about adulteration to the Centre; but some Press reports had appeared about movement of foodgrains under the guise of seeds from the Terai region of U.P. Cases of this kind are investigated by the investigating agencies of the State Government. Their final reports are awaited."

Another point made by the representative of the Ministry of Agriculture was that there being no embargo on the movement of seed while ordinary grain was subject to movement restriction, "people have been taking advantage of this" and moving foodgrains in the guise of seed.

2.30. Sale of sub-standard goods is reprehensible and calls for strict preventive measures, but it is more so in the case of seed as the consequences not only affect the very livelihood of the farmers but also the overall availability of food in the country. Some special control measures are, therefore, necessary to control the menace of seed adulteration. Under a scheme approved for introduction during the Fifth Plan period, the creation of a distinct composite seed quality control inspectorate and of laboratory facilities for quality testing of seeds is proposed with the financial assistance from the Central Government. While stressing the need for expeditious implementation of the scheme, the Committee suggest that the working of the scheme in the field should be watched and reviewed in time to plug loopholes and to improve it further. The Committee would also suggest that the efforts to increase production of quality seed should be accompanied by wide spread publicity for the use of such seeds in the interest of the farmer himself as also of the nation.

Seed Processing

2.31. It is necessary to process the seed before it can be stored for future use. The capacity for processing of seeds created up to the end of the Fourth Plan period, is stated to be approximately 1 lakh tonnes. It has been estimated that to produce about 2.33 lakh tonnes of certified seeds by the end of the Fifth Plan, the processing capacity should be of the order of 4 lakh tonnes. This would

enable at least about 2.50 lakh tonnes of certified seeds to be produced. In case the requirements of the farmers for fresh certified seeds increase during the Fifth Plan period and accordingly the production of certified seeds increases, Government propose to take further steps to extend the processing capacity. The National Seeds Corporation and the Tarai Development Corporation have planned to establish additional processing capacity to cope with their own seed processing programme. At least 200 processing plants are expected to be set up in the States. A financial outlay of Rs. 9.50 crores has been worked out for the creation of additional processing capacity at the national level. The processing facilities to be set up by the State Governments have been included as part of the State plan scheme.

Seed Storage

2.32. The National Seeds Corporation has set up two air-conditioned specialized seed stores with a capacity of 900 tonnes at Hyderabad and Delhi. These are stores where temperature and humidity are controlled. The Corporation intends to put up additional air-conditioned stores at their farms in Hempur and Nandikutkur each with a capacity of 100 tonnes. It is also setting up additional seed storage capacity to the extent of 1800 tonnes of less sophisticated type. It has been decided to create less sophisticated seed storage facilities at district level to ensure timely availability of seed to farmers. In all the State Plans also proposals exist for setting up seed storage facilities. Full details of the capacities set up by the State Governments and the additional capacities to be set up during the course of the Fifth Plan are not available in the Ministry of Agriculture. The requirements of funds for building up seed stores in the State Plan during the Fifth Plan is stated to be Rs. 2 crores. In addition, the foundation seed processing agencies will be setting up specialised seed stores at cost of Rs. 20 lakhs.

Reserve Stocking of Seeds

2.33. It is stated that experience has shown that the availability of certified seeds of high yielding varieties of cereals is often inadequate to meet unforeseen demand arising from crop failure, dry spell, floods and other natural calamities. In such a situation, farmers are forced to use inferior seed to the detriment of agricultural production. Recognising the need for providing cushion of buffer stock of certified seeds to stabilise the supply line during difficult period, it has been decided to assist the National Seeds Corporation in building up buffer stock of about 579 tonnes of foundation seed and 7,800 tonnes of certified seeds and a provision of Rs. 300 lakhs in the Central Sector has been made for the Fifth Plan period.

State Seed Corporations

2.34. As stated earlier, seed production and distribution is primarily the responsibility of the State Governments. In order to make the States self-sufficient to meet seed requirements for the planned crop production programmes, they will be assisted to set up State Seed Corporations during the Fifth Plan period with the participation of the National Seed Corporation in their equity capital. An outlay of Rs. 300 lakhs has been provided in the Central Sector for assistance to the National Seeds Corporation for participation in the equity capital of the State Corporations.

2.35. The Committee note the provisions made in the Fifth Five Year Plan for the creation of facilities for seed processing and storage and for building up a reserve stock of seeds for use during lean periods. The Committee would like Government to work out in advance the details of the various schemes meant for implementation during the Fifth Plan period and to keep a close watch so that the agencies responsible for the implementation of these programmes actually fulfil the envisaged targets in time. The Committee would also like to point out the need for proper coordination of the programmes for production, processing and storage of seeds so that the slow progress of one does not affect adversely the progress of others in the interest of ensuring better and timely supply of quality seeds to farmers.

B. Provision of Irrigation Facilities

Importance

2.36. It is stated that 'Farming in India is a gamble in weather conditions.' The importance of Irrigation as an important means of freeing Indian agriculture from the vagaries of the monsoons is all the more because agriculture has always been and continues to be the principal occupation of about 80 per cent of India's population. Recurring droughts have underlined the need for greater efforts in providing irrigation in the country to meet the rising demand for foodgrains to feed the rapidly increasing population. The advent of the high yielding varieties of crops which involve the use of better irrigation facilities, the progressively greater use of fertilisers and the need for intensive cultivation of available arable land, most of which is already under the plough, make it imperative that the utilisable water potential is developed as fast as possible and the potential for irrigation already created is utilised to the maximum extent in a scientific manner.

2.37. The Department of Irrigation deal with major and medium irrigation projects. All works depending on ground water and the smaller surface water irrigation works costing less than Rs. 25 lakhs (Rs. 30 lakhs in hilly area) each come under the category of minor irrigation which is being dealt with by the Department of Agriculture.

Progress in Development of Irrigation Facilities

2.38. When the First Plan was launched in 1951, the area under major and medium irrigation projects was 9.7 million hectares and the area under minor irrigation projects was 12.9 million hectares. The development of irrigation in the country upto the end of the Fourth Plan is indicated below:

(Million Hectares)

Sl. No.	Item	Ultimate Potential	1950-51		1968-69		1973-74	
			Pot.	Utl.	Pot.	Utl.	Pot.	Utl.
1.	*Surface Water*	72	16·1	16·1	25·1	24·0	28·6	26·6
(a)	Major & Medium	57	9·7	9·7	18·1	17·0	21·1	19·1
(b)	Minor	15	6·4	6·4	7·0	7·0	7·5	7·5
2.	Ground Water (Minor)	35	6·5	6·5	12·0	12·0	16·0	16·0
	Total	107	22·6	22·6	37·1	36·1	44·6	42·6

Major and Medium Irrigation Projects

Financial Outlay and Potential Created

2.39. Since 1951, major and medium irrigation projects have created an additional irrigation potential of 11.4 million hectares upto the end of the Fourth Plan bringing the total to 21.1 million hectares. The Table below shows the outlay and irrigation potential created by major and medium irrigation projects taken up during

the Five Year Plans and Annual Plans and utilisation thereof:

(Area in million hectares)

Period	Outlay (Rs. in crores)	Additional Potential created	Gross area cumulative	
			Potential	Utl.
Pre Plan	N.A.	..	9·70	9·70
First Plan	380*	2·48	12·18	11·90
Second Plan	380	2·14	14·32	13·10
Third Plan	576	2·23	16·55	15·20
Annual Plans (1966-69)	429	1·55	18·11	16·75
Fourth Plan	1186	2·98	21·09	19·06

*includes an expenditure of Rs. 80 crores prior to First Plan period.

Implementation of Scheme before the Commencement of Fourth Plan

2.40. It is stated that from 1951 till the end of April, 1969, 76 major and 457 medium irrigation projects were taken up for implementation. Of these, 16 major and 300 medium projects were completed and the remaining 60 major and 157 medium schemes spilled over into the Fourth Plan period.

Implementation during Fourth Plan

2.41. The number of major and medium irrigation scheme taken up for implementation during the Fourth Plan and the position at the end of the Plan period is as under:

	Third Plan schemes spilled over in Fourth Plan	New Schemes taken up in Fourth Plan	Total under construction in Fourth Plan	Schemes completed or nearly completed in Fourth Plan	Fourth Plan Schemes spilled over in Fifth Plan
Major Projects	60	18	78(81)*	6	75
Medium Projects	157	59	216(213)	58	155

*Three medium schemes were upgraded as major schemes due to escalation of cost.

2.42. It is noted that out of 81 major schemes under construction in the Fourth Plan (out of which 60 were spill-over schemes of the Third Plan), only 6 were completed in Fourth Plan period. Similarly, out of 213 medium schemes under construction in the Fourth Plan (out of which 157 were spill-over projects of the Third Plan), only 58 were completed. Government were asked to state the reasons for the extremely slow progress in the completion of these projects and also to state as to how was it being ensured that the projects were completed according to schedule. In reply Government have stated that many spill-over schemes in the Fourth Plan have been "substantially completed leaving very little outlay for completing them in all respects." It is further stated that most of the major original schemes, although not complete in all respects, start yielding benefits during the stage of construction and more than 50 per cent of the potential of the on going schemes has already been achieved.

2.43. The reasons for delay in completion of the projects, according to Government, are:

1. the severe financial constraint,
2. in some cases, changes in the scope of the project on technical and other considerations, and
3. in some cases, difficulties experienced in acquisition of land likely to be submerged under reservoirs.

2.44. As regards keeping a watch on implementation, it is stated that the Annual Plans of the State Governments are drawn up after discussions in the Planning Commission. Prior to the meeting in the Planning Commission, the question of outlays on the ongoing and new major/medium irrigation projects are discussed by the State representatives with the officers of the Central Water Commission and the Ministry of Agriculture and Irrigation. The progress and programme for these scheme is discussed during these meetings. Emphasis is also laid during these discussions for providing adequate fund for speedy execution of the ongoing projects. In case of inter State projects, joint meetings are held with the representatives of the concerned States during Annual Plan discussions so that adequate funds are provided by State Governments concerned to the projects. Reviewing Committees for about 25 major ongoing projects with one of the Members of the Central Water Commission as Chairman and with the representatives of the Ministry of Agriculture and Irrigation, concerned State Chief Engineer and Officers of the State Agricultural Departments as Members have been set up to review the progress of these projects and to ascertain

the bottlenecks which are required to be removed so that the projects may progress according to the schedule. The Reviewing Committee meetings are usually held twice a year.

2.45. Regarding the remedial action taken in this regard, it is stated that State Governments have been advised to concentrate on projects in advanced stage of construction so that they may be completed without further delay and benefits realised earlier. In the Fifth Five Year Plan it is proposed to set up monitoring organisations for the major ongoing projects with a view to keep closer contact with the project authorities, ascertaining the bottlenecks and taking expeditious measures for their removal to achieve speedy completion of such projects.

Programmes for the Fifth Plan

2.46. The Fifth Plan proposals have yet to be finalised by the State Governments and the Planning Commission. In the Draft Fifth Plan, it has been stated that the following general principles have been kept in mind in making provisions:—

(i) All medium schemes which will continue into the Fifth Plan period will be fully provided for so that these get completed.

(ii) As regards the major irrigation projects continuing in the Fifth Plan period, effort will be to complete all projects which are in an advanced stage of construction.

(iii) Emphasis will be given to the modernisation of the older irrigation projects for better control in distribution of water and augmentation of supplies. Some irrigation structures though still in service may need replacement because they are no longer reliable and safe.

(iv) In adopting new schemes priority will be given to those which benefit chronically drought-affected, tribal and backward areas. As major irrigation schemes take considerable time to be completed, an adequate number of new schemes will be taken up to maintain continuity in the development of irrigation and to ensure that in the Sixth Plan too requisite additional irrigation potential becomes available.

2.47. There are 230 on-going projects of Fourth Plan consisting of 75 major and 155 medium which have spilled over to the Fifth Plan. Apart from these continuing schemes, it is proposed to take up work on over 105 major projects and over 313 medium projects

during the Fifth Plan period. It is estimated that total irrigation potential of 6.247 million hectares will be created from continuing and new schemes during the Fifth Plan. The break-up of the potential likely to be created is as under:

Continuing Schemes.	
I. Major	4·813 million hec.
II. Medium	0·707 ,, ,,
Total	5·520 million hec.
New Schemes	
Major & Medium	0·727 million hec.
Grand Total	6·247 million hec.

2.48. The Fifth Plan programme under the irrigation sector provides for a total outlay of Rs. 2401 crores as per break-up given below:

	Rs. crores
Continuing Schemes	1254·83
New Schemes	1003·36
Investigation and Research & Miscellaneous	53·57
Union Territories	16·78
Central Sector	52·90
	2401·44

The outlay for major/medium irrigation schemes proposed for 1974-75 is about Rs. 346 crores. It is stated that, since the bulk of the additional potential is targetted from ongoing scheme, it is necessary to make efforts to complete projects in an advanced stage of construction by providing additional outlays for the same. It has now been assessed that the outlay in the Fifth Five Year Plan would need to be increased to Rs. 3750 crores so as to achieve the target laid down. One of the steps being taken in the preparation of the Annual Plan 1975-76 is to make maximum feasible provision for ongoing schemes which can yield benefits by June 1976 or June 1977 and to avoid taking up of new projects as far as possible. In order, however, to maintain the constant pace of irrigation development in the future Plans, it is necessary to take up new schemes in

the Fifth Five Year Plan itself. It has been suggested to the State Governments that wherever possible taking up of new schemes may be deferred to the third or subsequent year of the Fifth Plan.

Modernisation adn Replacement of older projects .. ..

2.49. The draft Fifth Plan has provided for the modernisation and replacement of older irrigation projects. Accordingly, proposals have been drawn up with an estimated cost of Rs. 352.21 crores. The Fifth Plan outlay under the scheme is Rs. 131.07 crores and the outlay for 1974-75 is Rs. 20.24 crores.

Assistance by Central Government

2.50. The financial and technical assistance given by the Government of India to the State Governments for the execution of major/medium irrigation schemes has been indicated as follows:—

Financial Assistance:—Irrigation is a State subject and irrigation projects are implemented by the State Governments within the framework of their developmental plans. During the Fourth Plan, Central assistance to the State Governments was given in the form of block loans/grants which are not related to any individual schemes or heads of development. The block-loans or grants formula was that, after providing for the requirements of Assam, Jammu and Kashmir and Nagaland, the Central assistance to the remaining States was to be distributed to the extent of 60 per cent on the basis of their population; 10 per cent to States whose per capita income was below the national average; 10 per cent on the basis of tax effort in relation to per capita income and 10 per cent in proportion to commitments in respect of major continuing irrigation and power projects. The remaining 10 per cent was to be distributed to States with certain special problems relating to metropolitan areas, floods, chronic drought and tribal areas. The criteria to be followed for determining the Central assistance to States during the Fifth Plan is to be enunciated by the Ministry of Finance.

Technical Assistance.—Being a State subject irrigation projects are planned, formulated, investigated and implemented by the State Governments themselves. The Central Water Commission in the Ministry of Agriculture and Irrigation, however, having the requisite expertise assist the State Governments at various stages if and when necessary. The

Commission have issued guidelines for investigations and formulation of irrigation and multipurpose projects. The Commission has also set up a number of Gauge and Discharge Stations at key points on various inter-State rivers with a view to collecting hydrological data of these river basins which is very essential in the formulation of irrigation projects. A number of problems also arise during construction and operation of irrigation projects. The Central Water Commission assist the State Governments in these matters as also in the designs of various complicated structures involved in such projects. The Government of India also use their good offices in resolving inter-State Water disputes as far as possible. During the implementation of the projects, the Government of India also help the State Governments in removing bottlenecks such as procurement of scarce materials like cement, steel, explosives etc.

2.51. The Committee are extremely disappointed at the slow pace of implementation of major and medium irrigation schemes. They note that out of 81 major schemes and 213 medium schemes under construction in the Fourth Plan period, only 6 major and 58 medium schemes were completed and the rest spilled over to the Fifth Plan period. The reasons for slow progress are stated to be severe financial constraint, changes in scope of schemes and difficulty in acquisition of land likely to be submerged. The Committee further note that in the Fourth Plan period, an irrigation potential of 3 million hectares was created by the major and medium schemes at a cost of Rs. 1186 crores. The Draft Fifth Plan envisages the creation of a potential of 5.5 million hectares by major and medium schemes. Although the financial outlay provided therefor in the Draft Plan is Rs 2401 crores (including Rs. 74 crores for Research and Miscellaneous), according to latest assessment the outlay would need to be increased to Rs. 3750 crores so as to achieve the physical target laid down. The programme drawn up for the Fifth Plan period accords priority to on-going schemes which can yield benefits in short-time. It is also proposed to set up monitoring organisations for the major on-going projects with a view to keep closer contact with the project authorities, ascertaining the bottlenecks and taking expeditious measures for their removal to achieve speedy completion of such projects.

The Committee have been able to glean out two major reasons for the slow implementation of the irrigation projects (1) severe financial constraints and (2) absence of close watch on implementation of projects. As for the first the Committee need not emphasise

the importance of development of irrigation facilities for increasing the production of foodgrains and hope that under the policy of regarding the claims of agricultural growth "as a first charge on our developmental resources", the financial constraints would now be less severe.

As regards the second reason, the Committee observe that although 81 major schemes and 213 medium schemes were under construction during the Fourth Plan period, 'Review Committees' were set up to watch the progress of the schemes in respect of only 25 schemes. They also observe that although one year of the Fifth Plan period has passed by, the proposed monitoring organisations to watch the progress of the projects and to achieve their speedy completion have yet to be set up. The Committee have a feeling that if there had been a detailed and integrated planning of schemes and a proper monitoring organisation at the Central level to watch the progress of the schemes and to remove the bottlenecks in their speedy execution, much of the delay in the implementation of the projects would have been cut out leading to greater benefits being available to the farming community and to the nation in the shape of increased yield, particularly of foodgrains. They recommend that the proposed monitoring organisation should be set up without any further delay. They would also suggest that the procedures to be evolved for monitoring the progress in the implementation of the schemes should include the use of PERT system.

2.52. The Committee gathered an impression during their tour that a number of important irrigation schemes which can materially contribute towards increased agricultural production have not made much headway. For example, Rajasthan Canal which was started long time back has not yet been completed although it is admitted by all authorities that it can make a great impact in the matter of providing water in an area which is prone to droughts. Similar is the case with the Sarada Sahayak Canal where major earth work has been completed but not much progress has been made thereafter for lack of funds.

The Committee stress that in the interest of achieving self-sufficiency in foodgrains at the earliest such projects as have great potentialities for increasing production of foodgrains should be completed on priority basis.

Utilisation of Potential Created

2.53. It was observed from the figures supplied to the Committee that while the total irrigation potential created by the major and

medium irrigation schemes by the end of the Fourth Plan period was 21.1 million hectares, the utilisation of the created potential was only 19.1 million hectares. Government were asked to state the reasons for the under-utilisation of the irrigation potential. They have in reply stated that the utilisation during the Fourth Plan works out to about 90 per cent of the potential created which, according to them is quite satisfactory. However, in respect of certain individual major projects the utilisation has not been of the order of the national average. It is further stated that the figures of potential and utilisation are as at the end of the Fourth Plan *i.e.*, March 1974. A part of the potential created during 1973-74 can be utilised only during the Kharif season of 1974-75 when water would be available following the monsoons. They feel that it would be more appropriate to compare the utilisation with the potential created in the previous year. Moreover, according to Government, it has been the experience even in other countries that the development of the full utilisation of the potential takes about a decade. India is however, taking steps to reduce this period to about 5 years. Indicating the steps being taken to improve utilisation, Government have stated that since most of the shortfall in utilisation is from major irrigation projects, the Fifth Five Year Plan envisages setting up of Command Area Development Authorities for about 50 major projects covering an area of 15 million hectares. These Authorities will take necessary measures for speedy construction of field channels, preparation of land by land shaping and levelling, providing adequate drainage facilities etc., so as to bridge the gap between potential created and its utilisation and ensure more economic use of water and its efficient distribution.

2.54. The Committee note that as a result of completion of major and medium irrigation schemes at a cost of about Rs. 3,000 crores by the end of the Fourth Plan period, an irrigation potential of about 21 million hectares had been created. The actual utilisation of this irrigation potential was however 19 million hectares only. The Committee further note that a further irrigation potential of about 6 million hectares will be created from the continuing and new schemes during the Fifth Plan period. The Committee regret to observe that the irrigation potential which has already been created at such a heavy cost to the country, is not being fully utilised. They need hardly emphasise that immediate steps should be taken by Government to reduce the gap between irrigation potential already created and that actually utilised. Farmers in the command areas of irrigation Projects nearing completion should be educated well in time as to the value of the project for them so that as soon the project is completed they are ready to utilise the benefits to the full after making due payments. Government should also initiate critical study of cases where

there has been a heavy shortfall in utilisation in order to lay guidelines to prevent the occurrance of such cases. The Committee also stress the need for reduction of losses in transmission of water by attending promptly to leakages in the supply lines. It is also necessary to educate the farmer in water utilisation so that optimum use is made of the water available.

2.55. The Committee note that Government are envisaging the setting up of Command Area Development Authorities for about 50 major projects, covering an area of 15 million hectares during the Fifth Plan period and that these development atuhorities will take necessary measures for speedy construction of field channels, levelling of land, providing adequate drainage facilities etc., to bridge the gap between potential created and its utilisation as also to ensure more economic use of water and its efficient distribution. The Committee recommend that before setting up such Authorities, the financial implications of the scheme should be properly worked out and a constant watch should be kept that the overhead expenditure are the minimum and that the Authorities actually subserve the objective of securing cent percent utilisation of the potential created. The Committee would suggest that the scheme of Command Area Development Authorities should be first tried out on a pilot basis in respect of one irrigation project and such Authorities should be set up in respect of the other projects only if the pilot scheme is found successful.

Centrally Sponsored Watershed Management Scheme

2.56. A centrally sponsored scheme for soil and water conservation in the catchments of major river valley projects has been approved for implementation during the Fifth Plan period with a total outlay of Rs. 36 crores for the Fifth Plan period. It is stated that the country has invested over Rs. 3,000 crores in more than 300 River Valley Projects and some more are in the offing. The country cannot afford the wastage of these assets through soil erosion, flood and sedimentation. The project of soil conservation in the catchments of Bhakra, Machkund and Damodar Valley Corporation was started during the Second Plan. A Centrally Sponsored Scheme came into operation in the Third Plan and 13 major river valley projects were taken up under this programme. The programme was continued in the three Annual Plans and in the Fourth Plan. In the Fourth Plan, the scheme covered 21 projects. The expenditure on the scheme has been as follows:—

Third Plan .	Rs. 1108·64 lakh
Annual Plans (1966—69) . .	Rs. 983·04 lakh
Fourth Plan	Rs. 2313·68 lakh

2.57. It is proposed to continue the watershed management programme in the Fifth Plan. Besides the 21 Projects on which work was taken up during the Fourth Plan, three more Projects have been taken up in the Fifth Plan and a few more are being selected for inclusion. The programme is being executed through the State level agency on 50 per cent grant and 50 per cent loan basis. In case of Damodar Valley Corporation, the 50 per cent grant used to be provided by the Ministry of Agriculture and the portion corresponding to 50 per cent loan by the erstwhile Ministry of Irrigation and Power in the form of grant.

2.58. Asked to state as to how the Central Government ensured that the money placed at the disposal of the State Governments was being actually spent by them for the purpose, it is stated that although the scheme is implemented by the State Governments, it is monitored by the Central Government from the stage of plan formulation till the evaluation. The suggested sites for taking up the work, the type of treatments, the potentialities of the agency, requirement of personnel, expenditure proposed etc. are scrutinised at the Central level before issuing sanction. A close watch is kept by the Ministry through tours of the officers and by obtaining regular progress reports to see that the allocations are spent for the purposes of soil conservation in the catchment areas.

2.59. In regard to the question whether any check was being exercised by the Ministry of Agriculture and Irrigation to ensure that the works claimed by the States have been actually so completed, it is stated that the Ministry keeps a check on the claims of States regarding the completion of work through the inspections on the sites. Periodically, clarifications are obtained by sending for reports and asking more information to find effectiveness of the works as claims by the States.

2.60. As for the evaluation of the scheme made in the past, it is stated that a study was made by the Natural Resources Committee of the Planning Commission in 1966. The report reaffirmed the urgency of the Project in view of the heavy investment and risk involved. Soil conservation measures in places have, it is stated, improved the revenues through the regeneration of trees and grasses, introduction of better crops including horticultural plants and through introduction of marginal irrigation in pockets. They have also created additional employment opportunities near the villages for the people who are under-employed in many parts of the year. However till date practiced norms are yet be developed for proper assessment of these benefits.

Inter-State River Water Disputes

2.61. Most of the rivers in India are inter-State in character and differences arise amongst the States concerned in the planning or operation of the projects on such inter-State rivers. The major difference concerns the utilisation of waters for various purposes. Article 262 of the Constitution relating to disputes over inter-state rivers or river valleys reads as follows:—

"262(1): Parliament may by law provide for the adjudication of any disputes or complaint with respect to the use, distribution or control of the waters of, or in, any inter-State river or river valley.

(2) Notwithstanding anything in this constitution, Parliament may by law provide that neither the Supreme nor any other Court shall exercise jurisdiction in respect of any such dispute or complaint as is referred to in clause (1)".

Under this article, the Inter-State Water Disputes Act, 1956 (33 of 1956) has been enacted by Parliament providing for reference of any water dispute to a Tribunal for adjudication on receipt of a formal request in this behalf from any of the concerned States, provided that the Central Government is of opinion that the disputes cannot be settled by negotiations. The Tribunal shall consist of a Chairman and two Members nominated in this behalf by the Chief Justice of India from amongst persons who, at the time of such nomination, are judges of the Supreme Court or of a High Court. The decision of the Tribunal is final and binding and there is no provision for appeal to the Supreme Court or any other Court.

2.62. It is stated that as far as possible, efforts are made to resolve the Inter-State River Waters disputes between two or more State Governments by negotiations. Through the good offices of the Centre, a number of inter-State problems and disputes relating to irrigation, flood control and hydro-power have been settled. For those disputes which are not settled by negotiations, Tribunals are set up under the Inter-State Water Disputes Act, 1956. The major differences at present concern the utilisation of waters of the inter-State Rivers Krishna, Godavari, Cauvery, Narmada and some other rivers.

2.63. At present the number of Scheme pending clearance is as follows:

Basin	No. of pending schemes	
Godavari	51	— Pending since early sixties
Narmada	11	— Pending since 1963
Cauvery	25	— Pending since 1970
Yamuna	8	
Ravi-Beas	4	
Others	7	
	106	

The Godavari and Narmada water disputes are under adjudication. Even so, in Godavari Basin, one new major project in Orissa and 20 new medium irrigation projects in Maharashtra were approved, after obtaining the concurrence of the basin States. Efforts are also being made by the Centre to evolve a consensus on further new schemes in the Narmada basin which may be taken up in the concerned States without prejudice to their claims before the Tribunals. Substantial progress has been claimed in resolving the differences on the Cauvery and Ravi-Beas issues. Efforts are continuing for resolving differences relating to the Yamuna and other basins.

2.64. Government were asked to indicate the steps proposed to be taken by them to accelerate the process of finding solutions for these disputes in the interest of expeditious utilisation of the river water resources of the country. They have stated that a proposal for constituting a high powered National Water Resources Council to evolve a national water policy and guide its implementation and to resolve inter-State water disputes expeditiously has been under the consideration of the Government for some time. As a first step proposals to amend some provisions in the Constitution were referred to the State Governments for their comments. While a few States expressed themselves against the amendments, most of the States felt that the scope of the amendments should be limited to disputes on inter-State waters only and that the existing powers of the States in regard to the use and control of water should continue as heretofore. The matter is stated to be under further study in the light of the views expressed by the State Government.

2.65. As for the effect of delays in providing irrigation facilities in the various States, it is stated that while the development of irrigation potential suffered in some of the river basins where there are disputes, the funds available for irrigation and power development during the various Plans were fully utilised on developing the potential under undisputed projects. Thus for the country as a whole, benefits of irrigation have not been appreciably affected.

2.66. The Committee consider it rather unfortunate that on account of long standing inter-State river water disputes, a number of irrigation scheme continue to remain outside the consideration zone for being taken up for implementation and the areas comprising the schemes are suffering for want of water for irrigation purposes. The Committee note that although the Inter-State Water Dispute Act 1956 provides for reference of such a dispute to a Tribunal, such references have been very few and the disputes continue to remain outstanding. The Committee desire that Government should energetically pursue with the State Governments their proposal to set up a high-powered body at the national level to resolve these disputes expeditiously so as to derive full benefit from the available water resources in augmenting agricultural production. They also recommend that, the proposed high-powered body should attempt to formulate a National Water Policy so as to make for integrated planning and implementation of the irrigation schemes all over the country and prepare a perspective plan for proper exploitation of water resources for agricultural purposes.

Minor Irrigation

Definition

2.67. According to the criteria in vogue, schemes costing Rs. 25 lakhs or less in the plains and Rs. 30 lakhs or less in the hill area come under the purview of minor irrigation. Major component of minor irrigation is ground water development programme such as wells, tubewells etc. which comes exclusively under this sector. Minor irrigation programmes also include surface water storage and diversion projects located in the small and medium tributaries of the rivers, micro-storage works (check dams, ahars, bundhies rapats etc.) and lift irrigation projects pumping water from rivers, lakes, streams etc.

Allocation of Resources

2.68. Government were asked to indicate their approach in the matter of allocation of resources as between minor irrigation pro-

gramme and major/medium irrigation projects. They have in reply stated:

> "Both major/medium and minor irrigation works have their own advantages, Considering the urgent need to extend irrigation facilities to as large an area as possible, the Government of India are pushing ahead all types of irrigation schemes at the maximum speed. Draft Fifth Five Year Plan envisages creation of additional irrigation potential of 6.2 million hectares by major/medium schemes and 6 million hectares by minor irrigation works. No conflict has so far arisen with regard to allocation of funds for major/medium and minor works.....
>
> Central assistance for all developmental schemes including major-medium and minor irrigation projects is given in the bulk form (70 per cent loan and 30 per cent grants) and the discretion for allocation of resources to different sectors rests primarily with the State Governments. The Planning Commission and Central Ministries concerned only provide a broad guilding role. The present policy in allocation of plan sector resources is that as far as minor irrigation is concerned maximum efforts are being made to mobilise institutional resources such as the land development banks, Agricultural refinance Corporation, commercial banks etc. to finance these schemes. Plan sector outlays are limited to public surface water flow irrigation projects and some lift irrigation projects (for which it has not yet been possible to mobilise institutional resources), subsidy made available to the small farmers, surveys and investigations and strengthening State organisations."

2.69. In regard to the question whether the development of minor irrigation would produce better results at a comperatively less cost, it is stated: "although Minor Irrigation does not necessarily provide irrigation at a comparatively lesser cost (particularly if the private investment of the farmers on the programme is taken into account), the minor irrigation programme does have the advantages that the schemes are completed quickly, utilisation of potential is quicks and also participation of the farmers is secured to a large extent."

Financial Outlays

2.70. The following table gives the progressive figures of the State public sector outlays and the institutional investment since the begin-

ing of the First Five Year Plan:—

(Rs. in Crores)

Period	Public Sector Investment	Institutional Investment(Net)	Private Investment	Grand Total
1	2	3	4	5
First Plan	65·62	N.A.	N.A.	65·6
Second Plan .	143·28	28·00	N.A.	171·28
Third Plan	327·85	100·00	N.A.	427·85
1966-69	314·37	205·18	N.A.	519·85
Fourth Plan * (anticipated) .	522·43	625·00	450·00	1597·43
1969-70	92·86	112·59(a)	N.A.	205·45
1970-71	98·08	130·97 (a)	N.A.	229·05
1971-72 .	100·87	114·65 (a)	N.A.	215·52
1972-73 . (anticipated) .	111·10	N.A.	N.A.	N.A.
1973-74 . . (approved outlay)	109·00	N.A.	N.A.	N.A.
Fifth Plan	772·55	1462·00	500·00	2734·55

(a) Gross

*As furnished by the States/Union Territories at the time of discussion of Fifth plan proposals in the Planning Commission.

2.71. The Statewise break up of the expenditure incurred during the Fourth Plan from Public Sector funds and Institutional investment for the individual years of the Fourth Plan is indicated as follows:—

(Rs. in Crore)

Name of State	*Public Sector Investment	**Institutional investment (for first 3 years of the Plan)
Andhra Pradesh	19·70	32·98
Assam	10·00	0·54
Bihar	43·73	17·55
Gujarat	35·56	51·22
Haryana	7·20	17·31
Himachal Pradesh	2·72	0·23
Jammu & Kashmir	7·75	0·12
Karnataka	35·59	13·83
Kerala	11·44	5·32
Madhya Pradesh	43·83	26·71
Maharashtra	80·28	46·35
Manipur	0·46	—
Meghalaya	1·06	
Nagaland	0·58	..
Orissa	15·39	8·95
Punjab	16·17	33·08
Rajasthan	12·35	10·28
Tamil Nadu	35·74	62·72
Tripura	1.41	..
Uttar Pradesh	108.00	39·00
West Bengal	30.70	2.31
Total States	519.66	388·31
Union Territory	2·77	0·28
All India	522·43	388·59

* These figures are furnished by the states at the time of Fifth Plan discussions and are marginally different from the total figures for the individual years.

** Data for subsequent years is not available.

Physical Achievements and Targets

2.72. The following table gives the progressive development of the minor irrigation and the targets for the Fifth Plan period:—

(Million Hectares)

Item	Ultimate Potential	1950-51 Utilisation	1968-69 Uti.	1973-74 Uti.	1978-79 Uti.
1	2	3	4	5	6
Surface Water .	15	6·4	7·0	7·5	9·0
Ground Water	35	6·5	12·0	16·0	20·5
Total . .	50	12·9	19·0	23·5	29·5

2.73. Physical progress relating to important minor irrigation works, in terms of physical units completed, is indicated as follows:—

(in thousand number)

Item	Progressive number at the end of				
	1950-51	1960-61	1968-69	Anticipated at the end of 1973-74	Targetted at the end of 1978-79
1	2	3	4	5	6
Dugwells .	N.A.	4084	5695	6500	7300
Private tubewells .	3	19	266	820	1520
Public tubewells	3	8	15	20	32
Electric Pumpsets .	19	193	1089	2435	4013
Diesel pumpsets . . .	66	230	837	1500	N.A.

2.74. Government had earlier stated that in the Land Utilisation Statistics gross area irrigated was not being collected separately for major medium irrigation schemes and minor irrigation schemes. The

Land Utilisation Statistics were being collected in terms of source-wise net irrigated areas such as government canals, private canals, tanks, tubewells, other wells and others. Hence "Government found it very difficult to separate out from these sources the extent of gross area irrigated from minor irrigation schemes and major medium irrigation schemes." In this context, the Government were asked as to how in the absence of separate statistics in regard to area irrigated by minor irrigation, it was possible for them to judge the physical and concrete achievements in this field against specific expenditure in this sector. They have in reply stated:

> "Based on the progress reports received from the field agencies, the State Governments report consolidated figures of achievements in terms of units of work completed under minor irrigation programmes in various periods. The additional irrigation benefit is calculated on the basis of accepted yard-sticks for irrigation per unit of work. These yard-sticks are presently based on the best informed judgement of the State Governments in consultation with the officers of the Government of India. The State Governments are being repeatedly impressed upon to undertake systematic sample surveys for fixing realistic yard-sticks. The figures of irrigation benefit thus arrived at are then checked back with the increase in the irrigated area as is reflected in the Land Utilisation Statistics. For this purpose the total gross irrigated area as reported in the Land Utilisation Statistics is taken into account and out of this the figure of major-medium irrigation as reported by the States, usually on the basis of demand statement, is substracted. The remaining irrigation benefit is taken to accrue from the minor irrigation schemes."

Programme for the Fifth Plan period

2.75. The total investment in the minor irrigation during the Fifth Plan will be of the order of Rupees 2750 crores. To ensure that this investment is effectively utilised with maximum benefit and minimum of infructuous expenditure, several steps are being taken by Government at the technical and organisational level. Some of important proposals are:—

(1) The States are being requested to create strong ground water organisations.

(2) At the national level, the Central Ground Water Board is being equipped with expertise for proper evaluation of

ground water system design, construction of ground water structures etc.

(3) A model bill for control and regulation of water resources was circulated in December, 1970 to the States for adoptation. It is stated that almost all the States accept the need for introduction of legislation on the lines of the Model Bill. In some States like Haryana, Gujarat, Rajasthan and Karnataka, draft Bills have been framed and are in advance stage of consideration.

(4) World Bank credit for minor irrigation projects channeled through Agricultural Refinance Corporation and Corporation's own refinancing activities are being encouraged to help in extending supervisory credit for minor irrigation and introducing technical discipline in planning and execution of minor irrigation schemes.

(5) Rural Electrification Programme supported by the activities of Rural Electrification Corporation is being activised for development of lift irrigation.

(6) The special programme like Small Farmers Development Agency, Marginal Farmers and Agricultural Labour Agency, Drought Prone Area Programme, Tribal Development Programme and C.S.R.E. etc., which have been initiated during Fourth Plan would improve the irrigation facilities in the backward areas of country.

(7) Special attention is to be paid to the planning, designing and construction of Surface Water flow projects.

Repairs and Maintenance of Old Wells and Tanks

2.76. It is stated that the bulk of the financial investment under the minor irrigation programme relates to ground water schemes. This investment is by and large on new works. Repair of old existing wells is sometimes financed under the programme but the expenditure is very little. In the surface water minor irrigation programme which accounts for about 15 per cent of the total outlay, renovation of old existing tanks is also eligible for being financed under the minor irrigation programme. The works included in the renovation are generally those which had either outlived their lives or have breached due to some sudden cyclonic floods. Regular maintenance of minor irrigation projects is done by the States/Panchayats from funds in the non-plan sector.

Custom Hire service for Tubewells

2.77. Government were asked to state whether they had examined the feasibility of introducing a system of custom hire service for Tubewells and if so, with what results. In reply it is stated that the feasibility of custom hire service for tubewells has not been examined although the scheme for hiring of diesel pumpsets has been in vogue in some States like Assam, Bihar, Tamil Nadu etc. The experience on this scheme of hiring pumpsets has been, according to Government, "not very encouraging and thinking in these States has, over the course of years, emerged in favour of pumpsets owned either by the individuals or by groups of farmers."

2.78. It is recognised that the minor irrigation programme has the advantages that the schemes are completed quickly, the utilisation of the potential created is quick and the participation of the farmer is secured to a large extent. Yet, the total investment in the programme during the Fourth Plan period, both public sector and institutional, was at about the same level as that on the major and medium irrigation schemes, being Rs. 1147 crores for minor irrigation and Rs. 1186 crores for major and medium irrigation projects. The public sector investment in minor irrigation schemes is severely limited and the programme depends upon institutional finance which has to be largely on individual basis. The institutional investment for minor irrigation in the Fourth Plan period is anticipated to be Rs. 625 crores. The draft Fifth Plan envisages a total investment of Rs. 2735 crores (Public Sector—Rs. 773 crores; Institutional—Rs. 1462 crores; Private—Rs. 500 crores). Even with this scale of investment, the utilisation of the potential by the end of the Fifth Plan would be only 30 million hectares as against the ultimate potential of 50 million hectares. The Committee feel that there is need for closer attention being paid to the minor irrigation programme so as to achieve the maximum benefit in the shortest possible time. The progress of implementation of programme, physical as well as financial, should be closely watched and timely action should be taken to remove the bottlenecks in the implementation of the programme, if and when, they arise.

2.79. The Committee would at the same time suggest that Government should initiate a cost-benefit study in respect of minor irrigation schemes to assess the relative benefits from the investment made to facilitate policy formulation.

2.80. The Committee would like to point out that the renovation and major repairs to existing wells/tanks is as important as the creation of new irrigation potential. Mere statistics of newly dug wells/

tanks would have no meaning unless all such wells/tanks are useable. The Committee therefore recommend that the minor irrigation programme should also provide for renovation and major repairs to existing wells/tanks. In this context the Committee would suggest the creation of facilities for shortterm training in tubewell repairs and servicing and the encouragement of service cooperatives of technical personnel who could undertake repairs of tubewells on custom basis.

2.81. The Committee note that the number of Public Tubewells was anticipated to rise to 20 by the end of the Fourth Plan period risen to 20. The Committee would like Government to review and evaluate the scheme of Public Tubewells and if it is found to be successfully working on No Profit—No Loss basis, the scheme should be expanded to cover larger areas as it would serve the larger interests of the small and marginal farmer.

2.82. The Committee recommend that, to keep a watch on the progress of the minor irrigation programme, the Land Utilisation Statistics should indicate the gross area irrigated separately in respect of major and medium irrigation schemes and minor irrigation schemes.

2.83. Minor irrigation largely depends on institutional finance. The figures of institutional investment on minor irrigation during 1972-73 and 1973-74 are still not available with the Government. The Committee emphasise that there should be a regular system of compiling such data so that Government have a complete picture of the achievements and are able to assess the size the problem that has still to be tackled.

2.84. The Committee are unable to appreciate as to why figures of targetted number of Diesel Pumpsets to be made available in the concluding year of the Fifth Plan i.e. 1978-79 are 'not available' with the Government when similar targets have been indicated to the Committee in respect of other items concerning minor irrigation such as Dug Wells, Private Tubewells, Public Tubewells and Electric Pumpsets.

World Bank Assisted Agricultural Credit Projects

2.85. It is stated that following the priority accorded to agriculture by Government of India, major efforts are being made to channel increasing credit into the agricultural sector in order to enable more farmers to adopt improved agricultural practices and to utilise modern production inputs such as high yielding seed varieties, fertilisers and irrigation. In support of such efforts, a number of Agricultural Credit Projects are currently under implementation in the

various States in India and these projects are being assisted by the International Development Association (the soft lending affiliate of the World Bank). All these projects involve lending to individual farmers for investments in minor irrigation facilities such as construcure of dugwells, bore-wells, dug-*cum*-borewells; shallow tubewells; persian wheels, installation of oil engines and pumpsets etc. The individual farmers obtain credit from the financing institutions, namely the Land Development Banks or the Commercial Banks which make suitable appraisal of loan applications. The I.D.A. credit made available to Government of India on standard terms are in turn made available to the Agricultural Refinance Corporation (ARC) under a subsidiary Loan Agreement and the A.R.C. on-lends to the Land Development Bank and the participating Commercial Banks in the project area. The Land Development Banks and the Commercial Banks lend to the ultimate borrowers, namely, individual farmer beneficiaries for the various categories of minor irrigation investments.

The repayment periods for the ultimate borrowers are based on the repayment capacity but for normal lending generally it does not exceed a maximum of 7 years on loans for pumpsets or Persian wheels, whether financed as individual loans or included in masonry well loans, and 9 years on loans for masonry wells, masonry well improvements and tubewells. The small farmers enjoy a certain concession in terms of a larger repayment period and also a reduction in the percentage of down-payment expected from the beneficiary.

Certain technical standards, in particular the criteria for spacing between the wells and density of wells in a certain area, are adopted as laid down by the State Ground Water Directorate.

Investments are evaluated in terms of incremental returns resulting from the additional investments in accordance with evaluation methods adopted by the A.R.C. and security for loans are taken in accordance with arrangements between the financing agencies and the A.R.C.

The borrower is encouraged to sell water surplus to his needs or to participate with one or more farmers in a group investment and operation of an energised tubewell in the event of his own cultivated area being significantly smaller than the area that could be adequately irrigated by the tubewell concerned.

Coverage under the Scheme

2.86. Presently there are 9 I.D.A. Credit Projects under implementation which finance among other things minor irrigation investments and associated land development to individual farmers. Statewise details of the projects under implementation are indicated as follows:—

(Rs. in Crores)

Name of the State	Cost of Project		Assistance from IDA		*Disbursements made as on 30-6-74	
	Total	Minor Irrigation	Total	Minor Irrigation	Total	Minor Irrigation
1	2	3	4	5	6	7
1. Andhra Pradesh	33·80	20·00	18·30	10·50	12·68	11·60
2. Bihar .	45·00	45·00	24·00	24·00	2·25	2·25
3. Gujarat .	50·20	41·00	26·25	20·48	36·84	34·45
4. Haryana .	45·30	9·06	18·20	3·30	13·08	13·08
5. Karnataka . .	54·90	18·72	30·00	9·53	11·10	10·18
6. Madhya Pradesh	45·20	45·20	23·99	22·90	4·32	4·32
7. Maharashtra	38·15	30·20	21·83	16·51	16·94	16·94
8. Tamil Nadu	46·76	32·63	26·25	17·00	20·99	20·59
9. Uttar Pradesh .	54·38	54·38	28·50	28·50	6·20	6·20

*Disbursements made by Agricultural Refinance Corporation.

Evaluation of the benefits under the Scheme:

2.87. No evaluation has yet been made about the impact of the various projects assisted by the I.D.A. on the production of foodgrains.

Achievements of targets set for Commercial Banks:

2.88. It was observed from the information furnished to the Committee by the Government of U.P. that the disbursements by the Commercial Banks participating in the Scheme were extremely poor. In U.P., during 1973-74, while the Land Development Banks disbursed Rs. 6.20 crores against the target of Rs. 6.05 crores, the

disbursements by the Commercial Banks amounted to Rs. 86 lakhs only against the target of Rs. 2.70 crores. Asked to indicate the reasons therefor and the steps contemplated to ensure that the targets of disbursements are achieved both by the Land Development Banks as well as the participating Commercial Banks, Government have in a reply furnished to Committee stated:

> "Periodic assessments and review undertaken by Government of India also indicate that the targets visualised for the Commercial Banks in the project area are not usually fulfilled. As there is no exclusive earmarking of area for the financing institutions, the Land Development Banks can step in to disburse credit if the targets meant for the Commercial Banks are not fulfilled for certain reasons so that the flow of credit to the beneficiaries does not suffer. Appropriate remedial action however is also taken in consultation with the Department of Banking and the A.R.C. so that the commercial banks also play a more significant role in the project area."

2.89. The Committee note that the progress of implementation of the World Bank assisted Agricultural Credit Projects is very slow particularly in the State of Bihar, Madhya Pradesh and Uttar Pradesh while it is quite impressive in the States of Tamil Nadu and Maharashtra. In the case of Bihar and Madhya Pradesh, against the Project cost of Rs. 45 crores each, the total disbursements were only Rs. 2 crores and Rs. 4 crores respectively. In the case of Uttar Pradesh, against the Project cost of Rs. 54 crores, the disbursements by 30-6-1974 were only Rs. 6 crores. In the case of Tamil Nadu and Maharashtra, however, against the Project Costs of Rs. 47 crores and Rs. 38 crores, the disbursements upto 30-6-1974 were as much as Rs. 20 crores and Rs. 17 crores respectively. The Committee are unable to appreciate as to why there has been so much imbalance as between the different States in the implementation of the Projects. The Committee are surprised that on the one hand there is the plea of financial constraints for not making sufficient progress in schemes for agricultural production, on the other hand there is lack of utilisation of large credits and finances which are available under the World Bank Schemes, particularly in States like Uttar Pradesh, Bihar, etc. This is indicative of lack of determined efforts, coordinated and advanced planning and building up of field organisations so as to put to effective use the finances which are already available. The Committee would like the Planning Commission, the Department of Agriculture and the Department of Banking to review at the highest level the lack of progress in implemen-

tation of the World Bank Schemes with the State Governments concerned, particularly Uttar Pradesh, Bihar etc., so as to speed up the implementation of these projects. Government should lay down firm physical time targets and prepare a time bound programme for implementation of these Projects. The State Governments as well as the financial institutions concerned should be directed to create, on an urgent basis, adequate organisation to utilise the funds and achieve the physical targets laid down for them. There should also be a system of monitoring on a centralised basis the progress of the Projects to ensure their timely implementation. The Committee also stress that the benefits available under the World Bank Schemes should be adequately publicised through Block Committees etc. so that useful schemes which could effectively contribute towards agricultural production are generated at the grass root level.

2.90. The Committee stress that the Department of Banking should keep a special watch on the role and performance of lead banks in the matter of evolving a meaningful agricultural programme and channelising credit which is now available under the World Bank Scheme.

Centrally sponsored Scheme for Strengthening Ground and Surface Water (Minor Irrigation) Organisation in States

2.91. Centrally Sponsored Scheme for strengthening of Ground and Surface Water (Minor Irrigation) Organisation in the States has been approved for implementation during the Fifth Plan period. The total outlay approved for the scheme for the Fifth Plan is Rs. 10 crores. The scheme has two components: one relating to the programme of Groundwater Development and the other to that of Surface Water Minor Irrigation Development.

Ground Water

2.92. It is stated that the annual outlay on Ground Water Development is of the order of Rs. 250 crores and it will be increased substantially during the Fifth Plan period. To ensure that these large scale investments in Ground Water Development are effectively utilised and give maximum economic benefit, it is important that the planning and formulation of schemes should be based on a careful study of hydrological formations. Although most of the States have set up some sort of organisation for Ground Water Investigation, their activities are limited because of lack of expertise and adequate financial resources. It is proposed under the present scheme to make available Central grants (to the extent of 50 per cent of the total cost) for strengthening the existing State Ground-

water organisations by setting up additional units comprising technical officers who have basic academic qualifications as well as aptitude for performing the desired functions. 50 per cent of the total cost of the specialised studies undertaken by these units together with the cost of equipment/instruments required for such studies would also be financed under the scheme.

Minor Irrigation

2.93. It is stated that a sizeable investment on these projects is being made under the minor irrigation programme but the accrual of benefits is not found to be commensurate. An important reason is that there are some serious weaknesses in the planning and implementation of these works. Therefore an urgent need was felt for strengthening minor irrigation organisations responsible for planning, execution and maintenance of these projects, and for setting up strong planning and design cells equipped with experienced and trained hands in the disciplines of hydrology, agronomy and minor irrigation engineering. It is proposed under the scheme to make available Central grants to the extent of 50 per cent of the total cost of the case studies or other work undertaken by these cells together with the cost of equipment/instruments required for these studies.

2.94. As for the implementation of the scheme, it is stated that a provision of Rs. 50 lakhs was made for the year 1974-75 but it was reduced to Rs. 25 lakhs due to general reduction in the Plan Budget. The Ministry of Finance have now advised that the scheme may be postponed till 1976-77. The Ministry of Agriculture, however, propose to take up the case again with the Ministry of Finance for reconsidering the scheme for implementation from 1975-76.

2.95. The Committee note that the implementation of the centrally sponsored scheme for strengthening of State Organisations for Minor Irrigation, which was approved for implementation during the Fifth Plan, has been postponed till 1976-77. The Committee feel that for implementing the irrigation programme the technical organisation in the States needs to be strengthened. They therefore recommend that in view of the importance of the scheme, Government may reconsider its implementation at least from 1975-76. If for the reason of financial constraints it may yet not be possible to implement the scheme, the scheme may be tried out on a pilot basis in one or two States.

C. Provision of Power

Power Consumption in Rural Areas

2.96. Electricity can play a very vital role in the process of socio-economic transformation of rural India. It is stated that in view of

the acute power shortage in the country and the need for attaining self-sufficiency, the emphasis has been on the use of electricity, for energisation of irrigation pumpsets and tubewells particularly during the last 6-7 years. In 1951, barring a few States like Tamil Nadu, U.P. and Karnataka, the use of electricity for irrigation was practically negligible and the total number of pumpsets and tubewells using electricity was of the order of 21,000 only. As against this, up to the end of 1973, there were about 24 lakhs of energised pumpsets all over the country. At present, about two lakhs of pumpsets on an average are being energised every year. This has materially contributed towards increased food production in the country.

2.97. The following table shows the State-wise position of energy consumption in rural areas as against the total energy consumption during 1973-74:

ELECTRICITY CONSUMPTION—1973-74

[Figures in million kwh (Provisional)]

State (1)	Total Consumption (2)	Agricultural Consumption (3)	Percentage of 2 to 1 (4)
Andhra Pradesh	2473	588	23·8
Assam & Meghalaya	380	2	0·5
Bihar	2686	74	2·8
Gujarat	4046	628	15·5
Haryana	1401	528	37·7
Himachal Pradesh	250	2	0·8
Jammu & Kashmir	208	16	7·7
Karnataka	3633	259	7·1
Kerala	1793	92	5·1
Madhya Pradesh	2541	126	5·0
Maharashtra	8812	488	5·5
Manipur	9	Nil	..
Nagaland	19	Nil	
Orissa	1553	8	0·5
Punjab	2746	710	25·9
Rajasthan	1328	281	21·2
Tamil Nadu	5629	1659	29·5

(1)	(2)	(3)	(4)
Tripura	10	Negligible	..
Uttar Pradesh	4151	841	20·3
West Bengal	5063	30	0·6
Union Territories			
Chandigarh	85	1	1·2
Delhi	1324	6	0·5
Pondicherry	93	26	28·0
Rest of Union Territories	126	Negligible	
GRAND TOTAL	50,359	6,365	12·6

It is observed that in 12 out of 21 States the percentage of energy consumption in Agricultural Sector was less than 6 per cent during 1973-74. In Bihar it was only 2.8 per cent, while in the States of Assam, Himachal Pradesh, Orissa and West Bengal it was less than one per cent. The main reasons for less power consumption in the agricultural sector in these States are indicated as follows:

(i) General backwardness of the State;

(ii) Less attention paid to the developmental aspects in the past;

(iii) Lack of extensive transmission and distribution systems;

(iv) Lack of communication facilities; and

(v) Special features like hilly and tribal areas, extensive rainfall, snow-fall, etc.

2.98. Government were asked to indicate their plans to increase the percentage of energy consumption in the agricultural sector in the interest of increasing the production of foodgrains. They have, in reply, stated that in the past, the emphasis of rural electrification was on providing employment opportunities for the rural masses. However, after the drought conditions experienced during the year 1964-65, the emphasis was re-oriented towards energisation of pumpsets in rural areas to increase the food production in the country, and village electrification became consequential to energisation of pumpsets. This change of emphasis has resulted in a great boost up

in the agricultural production in the country. This policy of giving emphasis to pumpsets energisation programme is proposed to be continued during the Fifth Plan. The progress of rural electrification at the end of the Fourth Plan had been the electrification of about 1.56 lakh villages and energisation of 24.42 lakh pumpsets. During the Fifth Plan, it is proposed to energise more than 15 lakh pumpsets and as a result of this programme, about 1.1 lakh villages are also expected to be electrified. The total expenditure on rural electrification from all sources in 23 years from the beginning of the planning era to the end of the Fourth Plan had been of the order of Rs. 1250 crores only, while nearly Rs. 1100 crores are expected to be invested during the Fifth Plan in this sector.

Outlay for Fifth Plan

2.99. During the Fifth Plan, the target is to energise 15 lakhs of pumpsets/tubewells and electrification of 1.10 lakhs of rural localities, with a total investment of Rs. 1098.24 crores as given in the table below:

Item	State	Union Territories	Centre	Total
				(Rs. in crores)
1	2	3	4	5
(a) minimum needs programme .	271.03	1.30	..	272·33
(b) normal State programme .	408·52	17·39	..	825·91
(c) R. E. C. programme	400·00		..	
TOTAL .	1079·55	18·69		1098·24

2.100. According to the detailed programme drawn up, it is proposed to energise 15.78 lakh additional irrigation pumps during the Fifth Plan period bringing the total of irrigation pumps energised as on 31-3-1979 to 40.20 lakhs. The programme includes the electrification of 1.10 lakh additional villages, nearly 36,500 under the Minimum Needs Programme and 73,600 under normal programmes. The total number of electrified villages as on 31-3-1979 would then be 2.66 lakhs as against the total of 5.67 lakh census villages in the country.

Irrigation Pumpsets/Tubewells Energised

2.101. It is stated that by 31-3-1974, the total number of pumpsets/ Tubewells energised were 24.42 lakhs. According to the Draft Fifth Plan programme, 15.78 lakh additional irrigation pumpsets would be energised during the plan period bringing the total by 31-3-1979 to 40.20 lakhs.

Unenergised Irrigation Pumps

2.102. Government were asked to state whether they had compiled figures in regard to Pumpsets/Tubewells which had been installed but remained unenergised on account of shortage of power. They have stated that such figures are not being compiled by the Central Water and Power Commission.

Rural Electrification Programme

2.103. It is noted from the figures supplied to the Committee that there is considerable imbalance in the rural electrification programme drawn up for the Fifth Plan period. For instance, the programmes in the States of Andhra Pradesh, Orissa, Rajasthan, Uttar Pradesh and Bihar are as follows:-

State	Total Census villages	No. of Villages Electrified by 31-3-1974	Additional No. to be electrified during the Fifth Plan (as per Draft Fifth Plan)		Total to be electrified by end of Fifth Plan
			MNP	Normal	
1	2	3	4	5*	6*
Andhra Pradesh	27084	10262 or 37·8%	481	5300	16043 or 59·2%
Bihar	67665	9775 or 14·5%	7500	1542	18817 or 27·8%
Orissa .	46466	8466 or 18·3%	2312	2314	13092 or 28·2%
Rajasthan	32241	5790 or 17·9%	2000	1542	9332 or 28.9%
Uttar Pradesh	112624	29765 or 26·5%	5250	6166	41181 or 36·6%

*Does not include the villages to be electrified under Rural Electrification Corporation programme, the State-wise break up of which is not available in the Draft Fifth Plan.

Government were asked as to how these imbalances were proposed to be reduced. They have stated the "programmes for various plans depend upon the degree of achievement in different developmental sectors, the capability of the States to sustain a given programme and the resources position. While formulating the Draft Fifth Plan, care has been taken to obtain the optimum programmes for rural electrification with the achievement of this programme, it is anticipated that the percentage of rural population benefited by electricity in each State by the end of the Fifth Plan will go up to at least 30—40 per cent." Further, the setting up of the Rural Electrification Corporation in 1969 and the introduction of the Minimum Needs Programmes are cited by them as steps in accelerating electrification of rural areas and removing imbalances in the States in this regard. Another important step taken to accelerate rural electrification in the ten Eastern States of the country, is the constitution of a Committee to identify the reasons for slow progress of rural electrification and to recommend steps needed to be taken to accelerate the progress.

Minimum Needs Programme

2.104. A special programme known as the National Programme of Minimum Needs has been introduced in the Fifth Plan which covers *inter-alia* Rural Electrification Sector. For rural electrification a provision of Rs. 272.33 crores has been made for electrifying 36551 villages during the Fifth Plan period in 15 States and 2 Union Territories. It is proposed that after the implementation of this programme, the percentage of rural population to whom electricity would have reached would rise to at least 30—40 per cent. The programme was launched in 1974-75 and is being handled by the Rural Electrification Corporation. The achievements of this programme up to 30-11-1974 have been indicated as follows:

Name of State	No. of Schemes sanctioned	No. of villages	No. of pumpsets	No. of small Industries	Amount of loan sanctioned (Rs. in lakhs)
1	2	3	4	5	6
Andhra Pradesh . . .	2	36	110	8	18·859
Bihar	2	288	1400	214	170·046

1	2	3	4	5	6
Jammu & Kashmir. . .	3	107	22	107	91·425
Himachal Pradesh . . .	2	794	5	88	73·845
Orissa	4	429	2572	634	179·644
Rajasthan	4	324	1801	243	228·219
Uttar Pradesh . . .	2	233	1080	273	101·730
West Bengal	3	455	1019	338	182·367
Total :	22	2666	8009	1905	1016·138

Achievements of the Rural Electrification Corporation

2.105. The State-wise figures of loans disbursed by the Rural Electrification Corporation during the Fourth Plan (upto 30th November, 1974) have been indicated to the Committee as follows:

(Rs. in Lakhs)

Name of the State	Amount
Andhra Pradesh	192·420
Assam	192·026
Bihar	1300·521
Gujarat	588·774
Haryana	530·794
Himachal Pradesh	415·376
Jammu & Kashmir.	260·496
Kerala	387·921
Karnataka	597·188
Madhya Pradesh	1537·709
Maharashtra	1896·681
Meghalaya	16·371
Orissa	786·698
Punjab	914·735
Rajasthan	1216·618
Tamil Nadu	856·496
Uttar Pradesh	1742·878
West Bengal	1212·378
TOTAL . . .	15746·080
Co-operative Societies	1056·874
GRAND TOTAL . .	16802.954

Assistance to States

2.106. The State Electricity Boards formulate the schemes for power projects which are submitted to the Central Water and Power Commission. This Commission scrutinises, both technically and financially, these schemes and submits its recommendations for the Technical Advisory Committee of the Planning Commission for approval. Thereafter, the scheme is sanctioned by the Planning Commission. The implications of the approval of a power project by the Central Government is that the necessary allocations of funds can be made in the Annual Plans of the States.

2.107. It is stated that Central Financial Assistance is given *en bloc* to all the States based on certain indicators as decided by the National Development Council, and there is no separate assistance to States for power sector.

Proposals for Power Projects Awaiting Clearance:

2.108. According to the information furnished to the Committee, as on 30-9-1974, as many as 98 proposals from States for power projects were awaiting clearance from the Central Government. Out of these, 11 proposals were for schemes yielding benefits during the Fifth Plan and 87 were for schemes yielding benefits during the Sixth Plan. The criteria observed by the Central Government for clearance of power project proposals of State Government are, apart from technical considerations, the following:

(i) Inter-State aspects

(ii) Financial viabilities

(iii) Financial resources

(iv) Demand for power in the State/Region.

Power at subsidised rates

2.109. Government were asked whether they had under consideration any proposal for assisting the farmer in increasing the production of foodgrains by providing power for agricultural purposes at subsidised rates and if so, what was the view of the Government in that regard. In reply it has been stated:—

"Cost of rural electrification in different States is very high on account of extension of long lengths of transmission and distribution networks required and the very low load demand in this sector and its very slow load growth. The

State Electricity Boards have to get a reasonable return on the capital invested. If tariffs for agricultural consumption are based on this premises, i.e., on "services rendered", the tariffs would be much higher than that are charged in different States, at present. In fact, on account of the paying capacity for the rural consumers being limited, the agricultural tariffs are based on "what the traffic can bear" and have been kept reasonably low. From this, it will be seen that the agricultural tariffs in the country are already subsidised at the expense of other categories of consumers."

2.110. The role of mechanisation in the development of agriculture is well known. Mechanisation, however, largely depends on the ready availability of power and diesel at economic rates The share of the rural sector in the total power consumption in the country is at present very low, being only 13 per cent during 1973-74. For bringing the benefits of mechanisation within the easy reach of the farmer and also for achieving the targetted production of foodgrains it is imperative that there is a sizeable increase in the availability of power in the rural sector. The Committee note that nearly Rs. 1100 crores are expected to be invested during the Fifth Plan on rural electrification programme as against the total expenditure of nearly Rs. 1250 crores during the last 23 years up to the end of the Fourth Plan period. The Committee hope that Government will now be able to undertake the rural electrification programme on a crash basis and utilise the outlay earmarked therefor for the Fifth Plan period.

2.111. The Committee note that during 1973-74 there were considerable imbalances in the availability of electrical power as between different States. Out of 21 States in 6 States viz.. Maharashtra, Tamil Nadu, West Bengal, Uttar Pradesh, Gujarat and Karnataka, the availability exceeded 3500 kwh., the highest being 8812 kwh. in Maharashtra. The availability in the case of Bihar, Orissa and Rajasthan was, however, less than 2700 kwh. The Committee recommend that more intensive efforts should be made by Government to make power available for agricultural purposes in the States which have a potential for agricultural development so that the production of foodgrains may be maximised in these States.

2.112. The Committee also note that in 5 States viz. Haryana. Tamil Nadu, Punjab, Andhra Pradesh and Rajasthan the consumption of electricity for agricultural purposes during 1973-74 was more than 20 per cent. the highest percentage being 37.7 in the case of

Haryana. In 12 States, it was less than 6 per cent. In Bihar, it was 2.8 per cent. while in the States of Assam and Meghalaya, Himachal Pradesh, Orissa and West Bengal it was less than 1 per cent. The Committee recommend that Government should take concerted measures with the assistance of Rural Electrification Corporation, State Electricity Boards, etc., so that larger percentage of power becomes available in rural areas for being put to use in the interest of stopping up agricultural production.

2.113. The Committee need hardly stress that power should be made available on assured basis so that the farmer can rely on it for use in their pumpsets, agricultural machines, etc.

2.114. To encourage the use of power Government may retain a reasonable rate. It has, however, been represented to the Committee that in some States, there is a system of charging a flat rate for power consumption for pumpsets, etc., irrespective of the fact whether the power is made available on a regular or intermittent basis. The Committee would like Government to fully go into the matter and take suitable remedial measures so as to remove the cause of this feeling.

CHAPTER III

FERTILISER AND PESTICIDES

A. Fertilisers

3.1. It is estimated that the different agricultural crops in India remove about 4 million tonnes of nitrogen, 2 million tonnes of phosphoric acid and 5 million tonnes of potash per year. The production of larger yields through improved varieties of crops and intensive cultivation will increase nutrient removal still further. Erosion and leaching cause additional loss. It is thus obvious that the current huge drain on nutrient supplies will continue to impoverish the soil unless it is replenished by natural or artificial means. The principal methods of supplementing natural recuperation and for improving production are: (i) to add organic matter to the soil so that, through decay, it may furnish a more or less continuous supply of nutrients for crops. Common organic manures are Farmyard Manure (raw as well as composed), town compost including sewage and sludge and night soil, and green manures(ii) to restore or increase the fund of the deficient nutrients by the application of fertilisers which are variously referred to as Chemical, artificial or inorganic manures.

Method of Assessment of Requirement

3.2. A serious attempt to assess the requirements of fertilisers on realistic basis was started with the setting up in late 1971 of a Working Group under the Chairmanship of Shri Y. T. Shaha to go into this problem. After considering the various factors concerning fertiliser consumption, the group recommended that the assessment should be based on an increase of 15—20 per cent over consumption of the previous Kharif season for Kharif, and an increase of 20—25 per cent. over consumption of the previous Rabi season for Rabi season. Accordingly, for Rabi 1972-73 and Kharif 1973 the method of assessment adopted was based on an increase of 17 per cent for Kharif and 22 per cent for Rabi over previous Kharif and Rabi seasons respectively. The application of this method evoked criticism from many State Governments, who held that the method had no relation to the agricultural production programmes of the States. Accordingly a method was evolved by the Ministry of Agriculture linking the requirements to the production programmes and this method was used for assessing the fertiliser requirements of the States for

Rabi 1973-74 season. However, choice was given to the States to choose between the method of 22 per cent increase over the consumption during previous season and the method based on production programmes.

3.3. Since it was felt that the method may need improvement it was announced in the Zonal meetings that a committee would be formed to suggest alternative suitable method or any modification in the proposed method if desired. Accordingly a Committee was constituted by Government under the Chairmanship of Joint Secretary (in puts) to go into the question of the assessment of fertiliser requirements. The Committee has yet to finalise its report. But broadly it has approved of the *ad hoc* method adopted by the Ministry of Agriculture with the modification that comperatively less developed States in fertiliser consumption should be accorded a higher rate of increase in the dosage rate to enable them to gradually catch up with the more developed States. While assessing the fertilisers requirements of the States for Kharif 1974 season, the Ministry of Agriculture classified the States on an *ad-hoc* basis into 8 groups on the basis of their consumption per hectare in an year of good availability and a different percentage increase in the average dose was granted to each group of States. The percentage increase granted varied between 5 per cent to 12 per cent for these 8 groups. States like Punjab were given an increase of 5 per cent only, while the States like Assam, Tripura etc., were allowed an increase of 12 per cent.

3.4. Many States complained that the percentage increase accorded to developing States were too meagre. On the other hand States like Punjab protested that the increase allowed to them was smaller than warranted. For assessing Rabi 1974-75 requirements, the States were grouped on and *ad hoc* basis into 9 classes with the percentage increase in average dose rate varying from 5 per cent to 20 per cent as under:

	Groups	Percentage increase in dose.
1.	Pondichery	5
	Punjab	5
2.	Tamil Nadu	6
3.	Delhi	8

	Group	Percentage increase in doze.
4.	Andhra Pradesh	11
	Kerala	11
	Uttar Pradesh	11
5.	Gujarat	13
	Haryana	13
	Goa	13
6.	Karnataka	14
	West Bengal	14
7.	Maharashtra	16
	Bihar	16
8.	Himachal Pradesh	17
	Jammu & Kashmir	17
	Orissa	17
	Madhya Pradesh	17
9.	Rajasthan	20
	Manipur	20
	Assam	12
	Tripura	20
	Others	20

3.5. In September, 1974 another Committee under the Chairmanship of Shri Sivaraman, Member (Agriculture), Planning Commission was appointed to go into the question of priorities to be observed in the distribution of available fertilisers including the method of assessment of requirements of fertilisers for different States. The report of this Committee also is still awaited.

3.6. The main reason for the Committees not being able to arrive at agreed conclusions is the sharp divergence of views between the developing States and the comparatively developed States in regard to the assessment of fertiliser requirement. These are summarised below:

"The main point of the representatives of the developing States was that due to certain historical reasons, the fertiliser application in their respective States has remained at lower levels. But now the farmers have realised the advantages of the use of fertilisers. Moreover, the infrastructure facilities (like increased irrigation) have also been developed and that therefore, it is necessary that such developing States are given higher percentage increase in the average dose, so that their requirements are assessed at a higher level. The developing States also argued that if their consumption of fertilisers in the past was at a low level, it does not mean that they should

continue to have low levels of consumption in future also.

The comparatively developed States like Punjab, Tamil Nadu etc. argued that the farmers in their States have made substantial investments in building up infrastructural facilities like digging of tube-wells etc. and that if now the farmers are deprived of requisite levels of fertilisers to maintain and increase the level of application so as to get adequate return on their investment, the agricultural operation would become uneconomic seriously hampering the production. They also argued that because of higher levels of application already achieved, the soils have got exhausted comparatively more consequently requiring a higher level of application in order to maintain or increase the level of production. Further the backward States may not be able to consume all the fertilisers, if disproportionately large quantities of fertilisers are allotted/supplied to these States. It takes considerable effort and time to achieve higher levels of application. The representatives of the developed States, therefore, held that a higher percentage of allocation should be made to the States who are already at higher levels of application."

3.7. In this context, Government were asked as to what special steps were being taken by the Central Government to assist the States which were comparatively less developed in agriculture to catch up with the developed States so as to maximise production of foodgrains. In reply it is stated that agricultural production in a State can be substantially increased by the use of fertilisers. In some of the States which are comparatively less developed in agriculture the consumption of fertilisers is also low partly because of the lack of complementary factors whose presence is necessary to enable the farmers to take to the use of fertilisers and partly because of the low availability of fertilisers in such States in recent years. In the former category, come factors like the availability of irrigation infrastructure, education and motivation of the farmers regarding the use of fertilisers, economic condition of the farmers etc. According to the Government, efforts are already being made by them to create these conditions in such States by taking appropriate measures in this regard. Besides, it is maintained, the general profitability of the use of fertilisers has created an awareness in the mind of the farmers of such developing States to apply fertilisers on their soils and therefore the demand for

fertilisers is rising in such States. However, to meet the increasing demand of fertilisers from the farmers of such States, and to make more fertilisers available to the farmers of such States, Government of India have adopted the policy of according *weightages* in favour of such States while assessing their fertiliser requirements, so that the fertiliser requirements of such States are assessed at a comparatively higher level and these States become eligible for increased quantities of fertilisers.

Allotment of Fertilisers against Assessed Requirements

3.8. After the requirement of the States have been assessed, the position in regard to the overall requirements of the country *vis-a-vis* the availability for the season both from Pool and Non-Pool sources is examined by the Ministry of Agriculture. Usually, the overall availability is found to be much less as compared to the requirements of the State etc. assessed in the Zonal Conferences mainly due to shortage of fertilisers from domestic sources and in the world market. In keeping with this availability position and after giving some weightages to the States contributing to the Central Foodgrains Pool, the overall allocations to be made to different States (from the Pool and manufacturers) is decided by the Ministry of Agriculture by and large on proportionate basis *i.e.* by reducing the approved requirements in proportion of the availability percentage. From the overall allocation the supplies promised to be made by manufacturers are deducted and the balance quantities are allotted from the Pool.

3.9. Government maintain that no complaints have been received regarding the relative priorities in allocation but admit that representations are received from almost all the States regarding cut in their own allocations as compared to their approved requirements and regarding any shortfall in actual supplies against the allocations made.

Actual Supplies

3.10. Even the quantities allotted to different States often do not actually reach them. It is stated that quite often the actual arrivals from abroad fall short of the allotments as the contracted quantities do not arrive in time from abroad due to various reasons. In such cases standing instructions to Food Corporation of India are to make supplies proportionately to different States, *i.e.* in proportion to balance allotment due for supply to different States. Certain percentage and preferences are also given to some of the States in the matter of physical despatch of stocks also. It is fur-

ther stated that since the actual arrivals and operational factors differ from zone to zone and from port to port, the proportions of supplies in relation to allotment to different States do not quite follow the pattern envisaged in the allotment and imbalances develop. The system of supplies being proportionate to residual quantities mentioned above, implies a built-in system for correction of imbalances. The position is, however, reviewed from time to time by various Food Corporation Zones for the supplies within their zone and by the Ministry for the country as a whole and action taken to make specially enhanced supplies to the States concerned which have received low supplies, in order to quickly reduce the major imbalances. In doing so, the position is seen mainly in the context of Pool supplies, but the overall relative position in different states of Pool and non-pool supplies is also kept in view.

3.11. The Committee note that, despite the appointment of several committees, it has not been possible for the Government to arrive at an agreed formula for assessing the requirements of fertilisers of the States. These requirements continue to be computed from season to season by adopting different criteria. The Committee are given to understand that the main reason for this situation is the divergent view-points as expressed by the comparatively developed States and the developing States in this regard. The Committee consider that it should be possible for the Central Government to assess the requirements of fertilisers of the States Government on the basis of their production programmes for the various crops during the year, the facilities like irrigated area, high yielding varieties of seeds etc. available and their capacity to utilise the fertilisers. The Committee therefore recommend that Government should assess the overall demand for fertilisers in the country on the basis of the approved programme for agricultural production by the various States and meet the same through domestic production to the maximum extent possible and the balance by import, only where necessary.

3.12. The Committee note that even at the stage of allotment and actual supplies of fertilisers to the States, certain weightages are being given and supplies are redirected on various consideration which, according to Government's own admission, result in imbalances as between different States. While the Committee appreciate that the actual supplies of fertilisers have to depend upon their availability by domestic production and imports, they feel that after the requirements of States have been assessed, any system of weightages or reduction of supplies at the stage of

actual distribution of available supplies runs counter to the principle of equitable distribution. A fair system would, in the opinion of the Committee, be to set apart, out of the available quantity of fertilisers a certain portion for meeting unforeseen requirements of any State and the rest being distributed, as far as possible, proportionately between different States on the basis of their assessed requirements linked to agricultural production programmes. The Committee stress that a close watch should be kept at the Centre on the progress made in the field in the matter of implementation of agricultural production programme so as to see that the physical availability of fertilisers matches the requirements. In any case before re-allocating the fertilisers from one state to another the Government should specially see that it would not in any way adversely affect the on going programmes of agriculture production.

Availability upto end of Fourth Plan

3.13. The position regarding the actual production, imports, stock held and total availability of fertilisers upto the end of the Fourth Plan is indicated below:

Progress made in the plan period in increasing availability of Chemical Fertilisers (in Terms of Nutrients)

'000 tonnes

Period	Actual Production		Actual Import			Stocks			Availability			
	N	P	N	P	K	N	P	K	N	P	K	N+P+K
End of First Plan (1955-56)	80	12	54	..	10	NA	NA	NA	134	12	10	156
End of Second Plan (1960-61)	98	52	119	*	23	NA	NA	NA	217	52	23	292
End of Third Plan (1965-66) .	233	111	326	14	85	NA	NA	NA	559	125	85	769
Annual Plans												
1966-67 .	308	145	632	148	118	111	48	138	1051	193	256	1500
1967-68	367	190	867	349	270	313	86	67	1547	625	387	2509
1968-69	543	210	842	138	213	512	294	159	1897	642	372	2911
Fourth Plan												
1969-70	716	222	667	94	120	639	260	202	2022	576	322	2920
1970-71	830	229	477	32	120	787	333	183	2094	594	303	2991
1971-72	952	278	481	248	268	269	208	105	2102	714	373	3209
1972-73	1060	326	665	204	325	304	176	97	2029	706	422	3157
1973-74 . .	1060	317	675	267	347	181	107	58	1916	691	405	3012

*200 tonnes only.

It would be seen from the statement that the total availability as at the end of First Plan was 1.6 lakh tonnes of nutrients only. It rose to 2.9 lakh tonnes at the end of Second Plan, 7.7 lakh tonnes at the end of Third Plan and 30 lakh tonnes at the end of Fourth Plan period. The availability has increased because of increasing domestic production and Imports. The production increased from 92,000 tonnes of N&P to nearly 14 lakh tonnes of N&P between 1955-56 and 1973-74. Similarly imports also increased from 64,000 tonnes in 1955-56 to nearly 13 lakh tonnes in 1973-74. It is stated that the availability of fertilizers during the year 1973-74, would have been higher but for the fact the actual imports fell far short of the contracted quantities due to difficult supply position in the world market.

Production and Import Targets for Fifth Plan

3.14. The estimated production and likely imports during the Five Years of the Fifth Plan are indicated below:—

Estimated Production and Imports requirements of fertilizers (in terms of nutrients) during Fifth Plan period

(In lakh tonnes)

	Estimated Production			Import requirements					
	N	P	Total Quantity	N	P	K	Total Quantity	Value in lakh $	Total Estimated Availability
Fifth Plan									
1974-75 . .	15	4	19	14·7	5·4	5·16	25·26	14,120	44·26
1975-76 . .	20	7·3	28	13·3	3·05	6·5	22·85	12,266	50·85
1976-77 . .	27	8·6	35·6	12·1	3·8	7·5	23·4	11,892	59·00
1977-78 . .	30·8	10·2	41	14·2	4·75	8·6	27·55	14,044	68·55
1978-79 . .	40	12	52	12	6	10	28	13,230	70
								65,552	

It will be seen that the production is expected to increase from 19 lakh tonnes of N&P in 1974-75 to 52 lakh tonnes of N&P in 1978-79. Similarly imports are likely to increase from 25.26 lakh tonnes to 28 lakh tonnes in 1978-79. The finances required for import and distribution of the given quantities will, it is stated, be determined by the prices prevailing in the World Market, shipping freight rates etc. However, on the basis of current prices and freight rates and assuming that our N, P & K requirements will all be met through Urea, Diammonium Phosphate and Muriate of Potash, the cost of imports has been assessed at nearly be $ 656 crores (nearly Rs. 5200 crores) for the whole plan period.

Revised estimates of production during 1974-75

3.15. The requirement of fertilisers for 1974-75 based on the production programme for that year was assessed as 42.6 lakh tonnes of nutrients, including 26.7 lakh tonnes for Rabi 1974-75. As against the demand of that order, it was expected that 19 lakh tonnes would be produced indigenously. According to the latest estimates, however, the production level likely to be reached by the end 1974-75 (April-March) would be of the order of 15.5 lakh tonnes only. The actual production during the first half of the year 1974-75 (April-Sept.) is stated to be only 6.7 lakh tonnes. Even if the expected production of 15.5 lakh tonnes materialises, it would fall short of the original estimate by nearly 3.5 lakh tonnes. The reasons for the shortfall, which are stated to be mainly in Nitrogen, are indicated as follows:—

I (a) Damage to certain sophisticated equipment of the Madras Fertilisers Limited Plant as a result of power failure;

(b) An explosion in the ammonia plant of Madras Fertilisers Limited in June, 1974 which necessitated plant shut down for 3 weeks; and

(c) Failure of the reformer tubes when the plant was restarted after the annual maintenance turn-around which resulted in a prolonged shut-down of the plant.

II. Prolonged shut down of the Kota fertiliser plant in connection with the linking up of the existing-facilities with the expansion plant, followed by failure of some equipment in the reformer section of the ammonia plant.

III. The Durgapur plant of FCI has still not been able to stabilize production due to the inherent technological problems and also frequent failures in the power supply system.

IV. Inadequate supply of power to the Nangal fertiliser Plant. The supply of power is only around 72 MW as against the full requirement of 164 MW. The Cochin unit of FACT has also fallen short of the target mainly due to the strike which lasted from the 10th of May till the 15th of July, and the inherent technological difficulties in stabilizing production at a high level.

V. Technical difficulties and equipment failure in the fertilizer plant at Goa also resulted in a shortfall in production during April-September, 1974.

VI. In addition to the above factors, the ageing condition of the plants as at Neyveli and Sindri and the feedstock and technological difficulties as at Rourkela and Neyveli also contributed to a shortfall in production.

VII. There has been also some delay in the commissioning of the Barauni and Namrup plants of FCI and Tuticorin project of SPIC which were expected to be commissioned in October-November 1974. As a result, the production that was expected to become available from these plants would now not be available during the year 1974-75.

Availability during 1974-75

3.16. As stated earlier, the demand for fertilisers during 1974-75 was estimated as 42.6 lakh tonnes of nutrients. As against the demand, the availability is indicated as follows:—

(i) Estimated production Jan-Dec. (revised)	14·31 Lakh tonnes
(ii) Stocks in hand as on 1-2-74	1·14 Lakh tonnes
(iii) Imports (January December)	13·87 Lakh tonnes
TOTAL	29·32 Lakh tonnes.

The above figures indicate that there would be a gap of nearly 1.3 million tonnes between the assessed requirements and availability during 1974-75. The reasons for this gap are stated to be "shortfall in domestic production and less than the target level of imports due to difficult availabilities of fertilisers in the world market and the steep increase in their prices."

Availability for Rabi 1974-75

3.17. The requirements for Rabi 1974-75 were assessed at 26.7 lakh tonnes of fertilisers nutrients. As against this requirement, the availability was around 18.88 lakh tonnes of fertiliser nutrients, indicating a gap of 29 per cent between the requirements and availability. However, steps were taken to ensure that the loss to agriculture production is as little as possible. The States have been

requested to prepare plans for using fertilisers on top priority crops like HYV Cereals and export oriented crops and to make distribution arrangements accordingly. Guidelines prepared by the I.C.A.R. in this regard have been circulated to the States, suggesting various measures like better tillage, better water management and plant protection etc., and balanced uses of fertilisers. A massive campaign has also been organised for production and utilisation of rural compost in the country and States have been requested to utilise these fertilisers. Steps are also being taken to ensure that unduly large quantities of fertilisers do not remain in stocks for a long period. To cut on the delays of movement, distribution zones for domestic manufacturing units have been demarcated in consultation with the Ministry of Railways. By periodic reviews, a watch on the availability of wagons is also being kept. The entire prodution of the indigenous factories has been covered through orders under the Essential Commodities Act, directing the manufacturers to sell specified quantities to specified States during a given period.

Revised Estimates of Production for 1975-76

3.18. The revised demand of fertiliser nutrients during 1975-76 (February-January) has been assessed as 45-88 lakh tonnes of fertiliser nutrients. As against the demand, the production was originally estimated to be 28 lakh tonnes. This estimates of production has now been revised and the production during 1975-76 (April-March) is now expected to be only 20.9 lakh tonnes indicating a reduction of the target by 25 percent. It is stated that efforts are being made to reduce this gap to the minimum by contracting maximum possible quantities of fertilisers from imports. However, the position about the exact quantities of fertilisers likely to be available from imports is not yet clear.

Revised production targets for the Fifth Plan

3.19. The estimated production by the end of terminal year of the Fifth Plan i.e., 1978-79 was earlier placed at 52 million tonnes of nutrients. Government have indicated that this target is not likely to materialise and the production by 1978-79 is expected to be of the order of 42.0 lakh tonnes only, out of which 26.0 lakh tonnes is likely to be in the public sector and the rest in the private sector. In reply to the point whether on the basis of the pace of industrial development in the field of fertilisers, the Fifth Plan production targets both in the private and public sector are likely to be achieved, Government have stated that "as per current

expectations" the revised target of production in the terminal year of the Fifth Plan (42.0 lakh tonnes) are "likely to be achieved."

3.20. Government were also asked to indicate the main snage and difficulties impeding the faster development of fertiliser industry and how these could be removed. In reply, the following points have been submitted:—

(i) Fertiliser industry requires very heavy investment and a long gestation period with comparatively low return on investment in relation to other industries. In view of this, there is a natural shyness on the part of private enterpreneurs to invest in this field. As a result, the main burden of expansion of fertiliser industry has fallen on the shoulder of the public sector. In the planning of development of fertiliser industry in this sector, Government has to reckon with the constraints of indigenous resources and foreign exchange availability.

(ii) India has made considerable studies in fertiliser technology and has developed facilities for Design, Engineering, Research and Development, Erectioning and Commissioning of fertiliser plants. A large number of heavy engineering plants and workshops in the country are geared to supply the specialised plants and equipment required by the industry. Considerable emphasis is also being laid on the standardisation of capacity to minimise the efforts involved in Design and Engineering of plant and equipment so that the fabrication of equipment within the country can be expedited. In view of the sophisticated technology required in the fertiliser industry, it is still necessary, however, to import process designs and know-how, equipment not available in India and the services of experts in certain very sophisticated fields.

(iii) The two main factors that have inhibited the faster development of the fertiliser industry are the availability of funds and the supply of equipment and machinery. A large sized fertiliser plant at today's prices is likely to cost anything in the range of Rs. 130 to Rs. 150 crores. In the Private Sector, it is not possible for any promoter or group of promoters to raise funds of this magnitude to finance the project and, therefore, dependence of financial institutions for long-term assistance becomes unavoidable. In the context of the overall shortage of Rupee funds, raising the necessary capital by way of

equity/loan to finance an investment of this magnitude has of late been posing serious problems.

(iv) In the wake of the oil crisis and the consequent escalation in the world market, supplies of plant and equipment from outside have also become uncertain. The manufacturers of fertiliser equipments both abroad and at home have for various reasons not been in a position to supply plant and equipment on scheduled dates. As a result there have been serious delays in the commissioning of some of the plants. Delays in the delivery of indigenous equipment have been even more serious. It would, therefore, be necessary to gear up the production of plant and equipment at home in order to meet the time schedule of a fertiliser plant.

3.21. It was also revealed during evidence that the three coal based fertiliser plants at Talcher, Korba and Ramagundum in the Public Sector have not been completed as per schedule. The representative of the Ministry of Petroleum and Chemicals stated that the reason for the delay in their erection and commissioning was that the country was "for the first time entering into this field of having a coal gasification plant of this size." According to him, the construction of the Korba plant "has just been started" while the other two plants (at Talcher and Ramagundum) were "in an advanced stage of construction."

Dependence on Imports

3.22. Government have assessed the import requirements of fertiliser nutrients as between 23 and 28 lakh tonnes per year even with a progressive increase in production reaching the level of 52 lakh tonnes in the terminal year of the Fifth Plan i. e. 1978-79. With the reduction in production target for 1978-79: From 52 lakh tonnes to 42 lakh tonnes, the dependence on imports was likely to increase if the assessed requirements were to be met in full. Government were therefore asked to indicate as to why it was not possible to plan indigenous production during the Fifth Plan so as to keep dependence on imports to the minimum extent possible. They have in reply stated:—

"Maximum possible planning for increase in indigenous production has been made during the Fifth Plan with a view to keep dependence on imports to the minimum extent possible. This can be gauged from the fact that the production both of Nitrogen and Phosphates is likely to be

more than three times of the production in 1973-74 by the terminal year of the Fifth Plan i.e. 1978-79."

3.23. The Committee are concerned to note that soon after the Draft Fifth Five Year Plan was formulated, the fertiliser production targets have had to be revised down-ward substantially. The production envisaged in the Draft Fifth Plan for 1974-75, 1975-76 and 1978-79 was 18, 28 and 52 lakh tonnes respectively. The actual production during the first half of 1974-75 was however only 6.7 lakh tonnes and the revised estimates of production for the whole year are indicated as 15.5 lakh tonnes only. The targets of production for 1975-76 have also been reduced from 28 lakhs tonnes to 20.9 lakh tonnes and for 1978-79, the terminal year of the Fifth Plan, from 52 lakh tonnes to 42 lakh tonnes. Even under the original plan projections, the import requirements for meeting the demand for fertilisers were sizeable. With the down-ward revision of production targets, the pressure on imports would increase substantially if the demand was to be met in full.

The Committee, in paragraphs 2.75 and 2.76 of their 40th Report on Fertilizers (1972-73) had observed the considerable delays taking place in the commissioning of fertilizer projects in the Public Sector.. At that time, the Committee were informed that Co-ordination Committees had been appointed for Cochin and Durgapur projects to review critically the progress of implementation of these projects at regular intervals. The Committee were also informed at that time that the procedure for economic appraisal of the projects and the release of foreign exchange therefor was being streamlined and the engineering and equipments for the fertiliser projects were being standardised so as to facilitate setting up of identical plants speedily. The Committee had suggested that Co-ordination Committees on the pattern of those of Cochin and Durgapur projects should be set up for each of the other projects then under implementation. The Committee regret that despite these earlier observations and recommendations of the Committee, little progress has been made in setting up the licensed capacities in the Public Sector and that many units have not gone on-stream for years. The Committee would like to point out that delays in commissining of the fertilizer plants are leading to progressive escalation of cost of setting up the projects and continuing drain on the public exchequer on account of imports which have now become very costly in view of their scarcity value in the internal market. They, therefore, emphasise the imperative need for reducing the

period for the commissioning of the plants to the minimum and to maximise indigenous production of fertilizers so as to achieve self-sufficiency in the matter of fertilizers at an early date. They also recommend that all factors coming in the way of fuller utilisation of the existing installed capacity should be attended to on an urgent basis. At the same time, a time bound crash programme should be formulated for the creation of additional production capacity in the country to meet the demand.

3.24. The Committee are greatly concerned to note that the total availability of fertilisers by domestic production as well as import during 1974-75 will fall short of the demand by nearly 1.3 million tonnes and that during 1975-76 the gap between the demand and the estimated production is likely to be of the order of 2.5 million tonnes which will have to be filled by imports if the agricultural production programmes laid out for that year are to be implemented. The Committee are informed that Government are making efforts to reduce this gap to the minimum by contracting maximum possible quantities of fertilisers from imports. Meanwhile, a campaign has also undertaken for prudent use of available fertilisers and for production and utilization of rural as well as urban compost. The Committee stress that timely action should be taken to see that the fertilizers in requisite quantities are made available to the growers. They would, at the same time, recommend that in view of the general scarcity and high cost of fertilizers, Government should launch a massive programme through mass media in local languages to educate the farmers in the correct doses and time of application of fertilizers for the main food crops so as to derive maximum benefits out of the available quantities of fertilizers.

Reserve Stock of fertilisers

3.25. The reserve stocks with the Government during the Fourth Plan period are indicated as follows:

(In thousand tonnes)

1969-70	1101
1970-71	1108
1971-72	982
1972-73	577
1973-74	346

As on 1st February, 1974 the stock in hand with the Central and State Governments was only 1,14,000 tonnes. Asked to indicate the policy of the Government in regard to the building up of a buffer stock of fertilisers to meet emergencies, the Ministry of Agriculture have in reply stated:

> "This Ministry has always held that about 20 per cent of fertiliser requirements should always be available in stocks. In fact, this principle has been conceded by the Department of Economic Affairs also. But due to difficult availability of fertilisers in the world market, only limited quantities of fertilisers could be imported in the country, even though adequate funds were made available for the purpose. It was solely due to difficult availability of fertilisers in the international market and lags in domestic production that the stocks of fertilisers could not be built to the extent required."

3.26. The Committee are concerned to note that as a result of a consistent run on the reserve stock of fertilisers during the Fourth Plan, the stock, built up to the level of 1.1 million tonnes in 1970-71, was reduced to 3.5 lakh tonnes only by 1973-74. They, however, appreciate the policy decision of the Government to maintain a reserve stock of fertilisers to the extent of about 20 per cent of the requirement. The Committee recommend that to build up buffer stock of fertilisers, Government should plan their purchases from the international market at the most propitious time taking, if necessary, the help of Food and Agricultural Organisation and other international organisations.

Distribution of Fertilisers

3.27. It is stated that the State Governments are normally authorised to reallot and distribute Pool Fertilisers only through public institutionalised channels like Cooperatives and Agro-Industries Corporations. Besides, according to the representative of the Ministry of Agriculture during evidence, "on the whole, about 50 per cent of the indigenous production is being canalised through public channels." Thus, of the total quantity of fertilisers distributed, nearly 75 per cent is being distributed through co-operatives and other public channels.

3.28. The Ministry of Agriculture were asked to state whether any complaints had been received from the consumers about the public distribution system for fertilisers. They have stated that

the internal distribution of fertilisers has so far been left entirely to the State Government. So, the public distribution of fertilisers would actually mean the system of distribution as prevalent in the States. For the equitable distribution of fertilisers in the prevalent context of scarcity and particularly to safeguard the interest of small and marginal farmers, most of the State Governments have introduced card/permit system. It is admitted that quite a few complaints were received from the manufacturers as well as the consumers against the card/permit system prevalent in the States and that the system was acting as a bottleneck in the smooth flow of fertilisers to the consumers. The situation was, according to the Ministry, reviewed immediately and the Minister for Agriculture requested the Chief Ministers of all the States to review the entire system of distribution prevalent in the States and as a result of this endeavour, the States have "now relaxed this card/permit system to a great extent."

3.29. The Committee note that almost 75 per cent of the fertilisers available in the country from domestic production and imports are being distributed through institutionalised and public channels under the control and supervision of the State Governments. Under such a system, normally there should be no complaint of mal-distribution or black marketing. However, as there have been complaints about the distribution system introduced by the States the Committee desire that the need for a periodical review of the distribution system should be emphasised upon the State Governments with a view to make sure that no malpractices creep in and to ensure ready availability to the farmers. In this context, the Committee would suggest that Central Government may work out a model distribution system and commend it to the States for adaptation according to local conditions.

Availability of fertilisers at subsidised prices

3.30. It has been represented to the Committee that the current fertiliser prices are coming in the way of their extensive use by the average farmers. The representative of the Government was during evidence asked whether in the interest of increasing production of foodgrains they had considered any scheme for making.

available fertilisers to the farmers at a subsidised rate. He replied that on account of nearly four-fold rise in the prices of imported fertilisers, with effect from 1st June, 1974 Government have introduced a system of weighted average price for all fertilisers distributed in the country—domestic as well as imported—which sets off the profit on domestic fertilisers against the loss on imported fertilisers. According to him, though "theoretically from 1st June, 1974 there is no subsidy.....if the share of domestic production falls and the same prices are maintained, there will be a net loss which will amount to subsidy." He, however, admitted that with the upward revision of the fertiliser prices in the country, "the objective of getting the poorest farmers as well to increase their productivity is not likely to be served." In the course of an answer to another question, he said:

> "I would suggest to the Government and to the Committee that at least as a first step....if not in the form of a subsidy in the price of fertilisers generally for every body, the use of fertilisers by certain crops which are of great importance to us, will need to be encouraged in some way or the other, if necessary by giving a subsidy.....The subsidy will depend on whether it fits in the budget."

3.31. As regards the steep rise in the export prices of fertilisers by countries having surplus production, the representative of the Ministry stated that according to his information, due to increase in the petroleum crude prices, there should have been only a very small increase in the price of fertilisers. In our own country, he said, the cost of production had risen by about 30 to 40 per cent only but the cost of imported fertilisers had lept from about Rs. 1300 per tonne before the petroleum crude price rise, to about Rs. 4000 per tonne now. According to him "fertiliser producers in the world were just taking advantage of the crop failure over a large part of the world and the anxiety of the different countries to increase their (agricultural) production in any way they could." Replying to the question regarding domestic pricing policy of other countries in respect of fertilisers he said:

> "They (USA) have not come up with an official price control but there is an agreement between the U.S. fertiliser industry and the U.S. Government, under which the US fertilizer industry sells fertilisers at low prices within that country. There is no price control on exports, but the

quantity to be exported is being regulated. The only official information I have is about New Zealand which was giving 40 per cent subsidy to farmers for fertilisers. I now understand that the subsidy has been reduced to 15 per cent. About other countries also, I have learnt—at international gatherings—that they have a dual price policy with regard to fertilizer. All the fertilizer-surplus countries try to see that it is sold cheaper within the country."

3.32. The Committee consider that the present level of fertiliser prices in the country are very high and act as a disincentive to their use, affecting adversely the agricultural production. For most of the farmers, particularly small and marginal farmers, fertilisers has now become out of reach. This would obviously affect their contribution in the overall effort for higher production of foodgrains in the country. The Committee recommend that Government may consider the feasibility of introducing a scheme for making available fertilisers at subsidised rates at least to small and marginal farmers for production of foodgrains.

Quality Control on Fertilisers

3.33. It is stated that with the increase in consumption of fertilisers the possibilities of adulteration and mal-practices in their marketing have increased to a considerable extent. To exercise check on such mal-practices and for strict enforcement of the various provisions of the Fertiliser Control Order, the need for drawing of fertiliser samples at regular intervals, analyse them and take action against traders who indulge in adulteration of fertilisers and sale of sub-standard fertilisers, has been increasingly felt. A Centrally Sponsored Scheme for quality control of three agricultural inputs—Seed, Fertilisers and insecticides—has accordingly, been included in the Fifth Five Year Plan with an approved outlay of Rs. 5 crores. It is proposed under the scheme to set up 36 Composite Laboratories for fertiliser and insecticide analysis with individual capacities of 2,000 to 2,500 samples per annum during the Fifth Plan period. The State Governments will set up these Laboratories and create a separate cadre of Quality Control Inspectors for the three agricultural inputs with the financial assistance by way of grants from the Central Government.

3.34. As for the latest position in regard to the implementation of the scheme, the Ministry of Agriculture have stated that the scheme, as approved by the Planning Commission has been sent

to the Ministry of Finance for obtaining the approval of the Expenditure Finance Committee and they hope that it will come into effect from 1975-76*.

3.35. For the success of the programme for development of production of foodgrains, it is necessary that the agricultural inputs made available to the farmers conform to standard quality. The Committee are disturbed to note that in the wake of scarcity and high prices of fertilisers, adulteration has become a widespread menance. This has obviously to be effectively checked and eradicated completely. The Committee are surprised that although one full year of the Fifth Plan has passed, the Centrally Sponsored Scheme for Quality Control of Inputs which was programmed for implementation during the Fifth Plan period has not yet been finally cleared by the Expenditure Finance Committee. The Committee would stress the need for early decision being taken on the scheme to ensure quality control of agricultural inputs. Pending establishment of the machinery for quality control, the Committee desire that it should be made binding on all the indigenous manufacturers of fertilisers to ensure that their sale agencies supply fertilisers of standard quality and free from adulteration to the farmers. Government should also tighten their existing agricultural machinery in the field to see that the evil of adulteration of fertilisers and other agricultural inputs is effectively checked.

Programme for Organic Manures

3.36. Use of organic manures in conjunction with chemical fertilisers is very essential for preserving nutritional balance and fertility of the soil. Therefore, the production and utilisation of organic manuers constitutes an important activity under the agricultural production programme. Various schemes for the development of local manurial resources namely rural compost, urban compost, sewage/sewage sullage utilisation, green manuring etc. have been in operation.

Urban Compost Scheme

The scheme has been in operation through out the various plan periods. By the end of First Plan 21.2 lakh tonnes of compost was produced in 2251 urban centres. This increased to 4.5 million tonnes by the end of the Fourth Plan, covering 3200 centres under the purview of town compost scheme.

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*At the time of factual verification, Government have stated that the Scheme has since been deferred by the Planning Commission to mid-year Review in 1975-76.

Rural Compost Scheme

The scheme for larger and better utilisation of local manurial resources for compost production in rural areas was launched in the States towards the end of the Second Five Year Plan. Rural compost production in the terminal year of the Second Plan was 66 lakh tonnes. This has been increasing steadily through the Plan periods and reached the level of 170 million tonnes anticipated by the end of the Fourth Plan.

3.37. In the present context of short supply of chemical fertilisers, the scheme for development of local manurial resources has assumed added importance in the Fifth Plan. Comprehensive programmes for the production and use of organic manures primarily with the objective of augmenting supply of chemical fertilisers have been prepared for the Fifth Plan. The target is to produce 205 million tonnes of rural compost and 4.8 million tonnes of urban compost during 1974-75 and to raise it to 350 million tonnes and 7.50 million tonnes a year respectively by the end of the Fifth Plan period. It is also planned to utilise the potential of sewage/sullage for irrigation. The State Governments have been advised to organise special campaigns twice a year synchronising with Kharif and Rabi reasons for massive production and use of rural compost. A total plan outlay of Rs. 9 crores has been tentatively provided in the state plan sector. An equal outlay of Rs. 9 crores has been provided under the central sector also for the following key programmes which are expected to bear definite and quick results:—

(1) Setting up of 27 mechanical compost plants in cities having population of 3 lakhs and above to manufacture compost manure from city wastes. During 1974-75, one compost plant will be set up in Ahmedabad. Central assistance by way of grant-in-aid to the extent of 33 per cent of the capital cost will be given to Municipal Corporations/ Agro-industries Corporations volunteering to set up these plants.

Giving the economic viability of such a plant, Government have stated that the capital cost of a compost plant varies a great deal depending upon the degree of mechanisation, capacity of the plant etc. On an average, the capital cost of a 100 tonne capacity compost plant will be about Rs. 60 lakhs. A compost plant of that capacity will yield 60 to 70 tonnes of finished compost per day

with an average nutrient content of 1.3 per cent N and 1.1 per cent each of P2 O5 and K2 O. The cost of manufacture per tonne of compost will be about Rs. 40 to 60. The cost of its transport upto a distance of 30 kms. would add another Rs. 20 to 25. Thus, the cost of manufacture and transportation alone of compost would be about Rs. 80 to 85 per tonne. These are estimated figures as no actual cost data on the working of a compost plant in the country are available.

(2) 200 sewage/sullage utilisation schemes in cities/towns where such potentialities exist, will irrigate an area of 24,000 hectares. 40 schemes are proposed to be taken up in 1974-75. Central assistance by way of grant-in-aid to the extent of 33 per cent of the capital cost will be given to the Municipal Committees/Corporations taking up such schemes.

(3) Setting up of 1,00,000 gobar gas plants in rural areas for production of gas for fuel purposes and good quality manures for agricultural production: 20,000 plants will be set up in 1974-75 and 1975-76 as a 'seeding programme' for which purpose 25 per cent subsidy on the capital cost will be given to the beneficiaries. Besides, loan assistance from the nationalised Bank will also be provided.

(4) Award of prizes to local bodies and grampanchayats doing excellent compost work.

(5) Organisation of demonstration-cum-training camps by the Farmers' Associations regarding production and use of organic manures. 200 such camps will be organised every year and a grant of Rs. 250 per camp will be made avaliable to these Associations.

The above programmes will result in making available plant nutriats (NPK) totalling 6.391 million tonnes by the end of the Fifth Plan.

Green Manuring

3.38. Green Manuring is an age old form of supplying the much needed nutrition to the soil, which is now receiving considerable attention on account of shortage of chemical fertilisers. Coverage under green manuring by the end of the Fourth Plan is estimated to be of the order of 6 million hectares. It is stated that the Minis-

try of Agriculture are giving due attention to the development and popularisation of green manuring. But in the wake of introduction of multiple cropping and intensive cultivation programmes, the scope of intensive green manuring has become limited. In such a system of farming, the purpose of green manuring is served by including a short duration leguminous crops in the corporation. Besides, the use of foliage and loppings of various types of wild/ semi-wild leguminous trees and plant is being popularised for green leaf manuring. In areas not covered by multiple cropping system the green manuring practice is being popularised. As an incentive, green manure seeds are generally supplied on subsidised basis by the State Governments and in some cases irrigation water for raising green manure crops is also supplied at concessional rates or free of cost.

3.39. During their study tour, the Estimates Committee saw certain varieties of trees developed by the Kosbad Agricultural Institute (Near Bombay) which were said to be very useful for green manuring. The Government of Maharashtra had sanctioned special fund for this particular programme and during this year (1974-75) about a lakh of seedlings had already been produced and about 2-3 lakhs of plants of this legume were further planned for production and distribution particularly in rice fields for green manuring purpose. It is stated that the I.C.A.R. has asked for planning in this direction in other Institutes like Indian Grassland & Fodder Research Institute for stepping up the production of seeds of green manuring plants on the line of the work of the Institute. The National Seeds Corporation has also been advised to take up seed production of green manuring plants along with other crops.

3.40. In view of the wide gap between the requirement and availability of Chemical fertilisers and their high prices in the international as well as domestic market, the Committee appreciate the ambitious programme envisaged for implementation during the Fifth Plan period for the production and popularisation of the use of rural and urban compost and the utilization of the city sewage and sullage to get over the problem of shortage of chemical fertilisers. They note that the above programmes will result in making available plant nutrients (NPK) totalling about 6 million tonnes by the end of the Fifth Plan. The Committee trust that the various programmes for increasing production of organic fertilisers during the Fifth Plan would be energetically implemented and adequate publicity would be given to the use of organic ferti-

lisers by undertaking demonstration and communication programmes through mass media suitably designed to catch the imagination of the farmers. The Committee also recommend that these production and publicity programmes should be kept under constant review so as to take timely action to get over the problems that may be encounted in the implementation of the programme.

3.41. The Committee would also like Government to pay greater attention to the development of green manures and the popularisation of its use in areas where multiple cropping system does not exist.

B. Plant Protection

3.42. Crops in the field and the agricultural produce in storage and transit are susceptible to ravages of pests and diseases. In India, according to rough estimates, the loss on account of insects, rodents and other animal pests is about 10 per cent while diseases, weed and parasitic flowering plants cause another 10 per cent damage. Thus, the total damage caused on account of pests and diseases is as much as 20 per cent of the total production. Much of this damage can, however, be prevented if adequate plant protection measures are undertaken. Besides, for deriving full benefits from the huge investment that is being made on development of new seed varieties, irrigation projects and production of fertilisers, it is necessary to adopt plant protection measures at all stages of the growth of the crop so that pests and diseases may not act as a limiting factor in crop production and the expenditure is not wasted.

Directorate of Plant protection, Quarantine and Storage

3.43. The Directorate of Plant Protection, Quarantine and Storage is the agency under the Ministry of Agriculture and Irrigation which is responsible for plant protection and allied activities throughout the country.

Central Plant Protection Stations

3.44. There are 9 Central Plant Protection Stations working all over India. These are located as follows:—

- Gauhati (Assam)
- Cuttack (Orissa)
- Bihar Sharif (Bihar)
- Bilaspur (Madhya Pradesh)
- Pathankot (Punjab)
- Ernakulam (Kerala)
- New Delhi (Delhi)
- Tiruchirapalli (Tamil Nadu)
- Marmgao (Goa, Daman & Diu)

3.45. The functions of Central Plant Protection Stations are:—

(1) to help the States to fight out the epidemics in the States as and when needed by way of supplying inputs, man-power, machinery.

(2) to issue the equipments on hire basis at nominal costs and pesticides at no-profit-no-loss basis so as to encourage the farmers to undertake control measures on more scientific lines.

(3) to impart training in collaboration with the agriculture authorities of the State Government to the farmers in the use of modern machinery for spraying and dusting.

(4) to maintain liaison between the State Governments and the Central Directorate of Plant Protection Quarantine and Storage. The officers are also assisting in the evaluation of the results of control operations in the States under endemic area scheme.

(5) to help the States in the survey of the crops and fruit trees which are not covered under the surveillance scheme.

3.46. The actual expenditure incurred on the Stations is stated to be Rs. 5 lakhs for 1972-73 and Rs. 5.5 lakhs for 1973-74. It is stated that by 1973-74, the terminal year of the Fourth Plan, plant protection practices were extended to an area of nearly 63 million hectare which comprised seed treatment, intensive ground and aerial spraying, weed control and other control measures.

Plant Protection Programmes

3.47. The programmes undertaken by the Central Government are briefly indicated below:—

A. *Central Plant Protection Training Institute, Hyderabad*:

This institute was started in 1966 to meet the need for plant protection training and applied research in the field of plant protection. It conducts the following courses|programmes:

(i) Three months advanced training course.

(ii) Short term course on plant quarantine, pest and disease surveillance, weed control, pesticide formulation, analysis, etc.

(iii) Seminars, work-shops, group discussions, etc.

It is stated that the primary purpose of setting up Central Plant Protection Training Institute at Hyderabad was to give an advanced in-service training to the Plant Protection Officers of the States. The intention is to ensure that the Plant Protection Officers working in the field are kept abreast of the latest developments. In the Fifth Five Year Plan it is proposed to strengthen the various facilities in the Institute. During the Fifth Plan period it is also proposed to introduce a 9 months diploma course. The Fifth Plan outlay for strengthening of the Institute is Rs. 65 lakhs while the budget provision for 1974-75 is Rs. 8 lakhs. In addition, assistance from U.N.D.P. Special Funds is also available to the Institute.

B. *Pests and Diseases Surveillance Service*: This service is a combination of the following schemes:

(i) *Pests and Disease Surveillance Service*: This scheme started functioning with full complement of staff in early 1974. while under this scheme quantitative data on population counts of pests and diseases is being collected, collated and analysed. Copies of such reports are sent to the respective State Directors of Agriculture for necessary action. At present, four principal crops, namely, paddy, wheat, sugarcane and potato, have been taken up for survey. There are at present 12 Surveillance Stations located in 9 States. It is proposed during the Fifth Plan period to strengthen the organisations of, and facilities available at, the existing stations and set up 7 new such stations for greater coverage.

In reply to the question whether the scheme was meant to act as an "Early warning system" for the control of pests and diseases, Government have stated that in order to forecast any incidence it would be very necessary to get data over a number of years. According to them "it is too early to assess the results for a scheme like this."

(ii) *Plant Quarantine and Fumigation Facilities*: This scheme is for detecting plant pests and diseases and for undertaking preventive measures. This scheme is being operated at 15 Plant Quarantine and Fumigration Stations in the country. During the Fifth Plan, it is proposed to improve the capacity of these stations for detecting plant pests and diseases. Besides, it is proposed to set up three new such stations.

(iii) *Study of pest infestation in export-oriented stored agricultural and other commodities*: It is stated that the work on this scheme was started late during the Fourth Plan and it is proposed to continue the work on this scheme during the Fifth Plan period at the existing level.

(iv) *Locust control and field investigation*: The object of this scheme is to find ways and means for the prevention of locust upsurges through studies on locust ecology in the field. During the Fifth Plan period it is proposed to continue these studies and in addition study the potentialities of certain desert reptiles and birds in controlling the locusts. Besides, studies on Bombay locust and grasshopper are also to be taken up.

The total Fifth Plan outlay for all these schemes including that for re-organisation and strengthening of the Directorate of Plant Protection, Quarantine and Storage, clubbed under the general heading "Pests and Disease Surveillance Service" is Rs. 75 lakhs while the budget provision or 1974-75 under this omnibus heading is Rs. 8.6 lakhs.

C. *Pilot Project for Control of Pests*

This scheme was started as a pilot project during the Fourth Plan for introducing biological control of insect pests and weeds in the country. Three regional stations under the project have already been set up during the Fourth Plan and two such stations are proposed to be set up during the Fifth Plan period. The Fifth Plan outlay for the pilot project is Rs. 25 lakhs and the budget provision for 1974-75 for this scheme is Rs. 4.5 lakhs.

D. *Central Insecticides Laboratory*

It is proposed to set up a Central Insecticides Laboratory with modern facilities during the Fifth Plan period. It is also proposed to strengthen the Secretariat to provide expert help to the Central Insecticides Board and the Registration Committee constituted under the Insecticides Act. The Fifth Plan outlay for this scheme is Rs. 2 crores while the budget provision for 1974-75 is Rs. 10 lakhs.

Centrally sponsored scheme for eradication of pests in endemic areas:

3.48. The object of this scheme is to reduce, to the extent possible, the incidence of a pest|disease in an area to which it has become endemic, by persistent chemical treatment over a number of years. The scheme was taken up during the Fourth Plan period with a plan outlay of Rs. 4.3 crores. Under this scheme the pests/diseases which are of endemic nature were identified in respect of various crops and various areas in the States and successive chemical spraying in such areas were undertaken by the State Governments.

Central assistance was given up to a ceiling of Rs. 7 per acre in the case of aerial spraying and Rs. 3 per acre in the case of ground spraying. The cost of pesticides was, however, to be met by the

State Governments from their own funds. Upto the end of Fourth Plan period, nearly 41 lakh acres were covered under the scheme against the target of 61 lakh acres and the expenditure during the Fourth Plan was Rs. 2.4 crores against the financial target of Rs. 4.3 crores. The reasons for shortfall are stated to be mainly:

(a) the occurrence of drought resulting in non-built up of pests and consequently non-requirement of chemical control and

(b) incessant and heavy rains or occurrence of strong winds preventing successful aero-chemical operations and

(c) occurrence of floods in certain areas resulting in natural eradication of pests.

It is proposed to continue this scheme during the Fifth Plan period. An outlay of Rs. 5 crores has been approved for this scheme. It is proposed to identify more areas in the various States which are susceptible to pest disease attacks of endemic nature and to tackle such areas through intensive chemical spraying over a period of years so as to completely eradicate the pest/disease, or bring down the pest population or incidence of the disease to a negligible level. A target of 18.20 lakh acres per annum has been set for coverage under the scheme. The budget provisions for this scheme for 1974-75 is Rs. 75 lakhs.

3.49. The Ministry of Agriculture were asked whether any assessment has been made of the effectiveness of the scheme in eradicating the pests/diseases in the areas of operation. In reply it has been stated: "the Government of India have instructed the State Governments to appoint an Evaluation Committee consisting of the State Department of Agriculture and the scientists of the Agricultural Universities to evaluate the performance of spraying operations each year so that it would be possible to determine the extent to which reduction in pest population has been achieved. The reports of the evaluation organised in the States are not still available with us and analysis on a scientific basis has not yet been made."

Assessment of Requirement of Pesticides

3.50. It is stated that till the Fourth Plan the Ministry of Agriculture used to fix up the plant protection targets on the basis of areas coverage rather than in terms of consumption of pesticides. For the Fifth Plan period, however, Government have made a very detailed exercise for assessing the requirements of pesticides on the

basis of their end use during the Plan period. It is, however, maintained that the assessment of requirement of pesticides is an extremely complex exercise as the largest quantity of pesticides are used for control of pest or disease epidemics and it is difficult to forecast what exactly would be the requirements of pesticides if there is a serious pest or disease epidemic. Indication of the requirement with a great deal of precision for any particular year or a season is therefore considered not possible. Despite this some attempt has now been made to estimate the pesticides requirements on the basis of the projections of areas likely to be brought under plant protection and the adoption of spraying schedules recommended by extension agencies.

3.51. Government were asked whether the production during the Fifth Plan period has been so planned as to meet the assessed demand for pesticides in full. In reply it has been stated that the steps to be taken for increasing the indigenous production of popularly used pesticides and whether it is economically feasible to set up plants of economic size has been "looked into" but where quantities of pesticides required are small, it would be difficult to encourage setting up of protection capacities. At present, about 75 per cent of the annual requirements are indigenously manufactured and the balance is imported.

Measures taken to develop Pesticides Industry

3.52. It is stated that to encourage proper development of the pesticides industry the following major steps have been taken by the Government:

(i) Production for pesticidal chemicals has been included in the Core Sector for licensing under the Industries (Development and Regulation) Act.

(ii) For the purpose of import of raw materials, this industry is listed under Priority Industries and is also eligible for import under IDA Credit.

(iii) To develop and sustain the formulation industry, pesticides are allowed to be imported only in commercially pure form.

(iv) To make available the various formulations to the farmers at a reasonable cost, customs duty on import of some selected pesticides and chemical raw materials to encourage basic manufacture, has been reduced to 10 per cent *ad valorem*.

(v) Banning or restricting the import of items competing with the indigenously produced materials.

(vi) To regulate the import, manufacture, sale, transport, distribution and use of insecticides, with a view to prevent risk to human beings or animals, the Insecticides Act has been introduced.

(xii) To create additional production capacity for technical grade pesticides, new formulation capacity is allowed only when it is linked with production of corresponding technical material.

Government expect that these measures will go a long way to help setting up of adequate capacities for various pesticides.

Production Programme during the Fifth Plan

3.53. The provisions made in the draft Fifth Plan for setting up capacities by the Hindustan Insecticides Limited and the likely date of implementation of the projects have been indicated as follows:—

Name of the Project	Capacity	Provision made in Fifth Plan (Rs. lakhs)	Likely date of implementation
Endosulfan	1600 TPA	941	1977-78
Malathion	1800 TPA	220	1977-78
DDT	5000 TPA	739	1977-78
Caustic Soda/Chlorine	2×25 TPD	600	1977-78
BHC granulation	6600 TPA		1975-76
TOTAL		2500	

In addition a provision of Rs. 2 crores has been made for advance action in respect of the Organo phospherous compounds project of the Hindustan Insecticides Limited.

Import of Pesticides during the Fourth Plan period

3.54. The imports of various pesticides during the Fourth Plan have been indicated as under:

	Tonnes	Rs. Crores
1969-70	2042	2
1970-71	5495	5
1971-72	5156	6
1972-73	9117	8
1973-74	10500	9
(Estd.)		30

Estimated imports during the Fifth Plan period

3.55. As per assessment made by the Task Force on pesticides set up by the Planning Commission, foreign exchange requirements for the imports of pesticides and their raw materials during each year of the Fifth Plan period are as under:—

	Rs. Crores
1974-75	23
1975-76	27
1976-77	28
1977-78	18
1978-79	19
	115

Agency for Import

3.56. It is stated that as per Import Policy, import of endrin is canalised through S.T.C. since 1971-72. However, import of D.D.T. and B.H.C. also whenever needed are being canalised through S.T.C. Carbaryl, the import of which is organised through Union Carbide of India, is also effected through S.T.C. for meeting the requirements of formulators other than UCIL.

Shortage of pesticides

3.57. It is stated that till about 1972-73 the requirements of pesticides were being met by and large. From 1972-73 there had been "some difficulties in meeting the requirements of pesticides and in-

secticides and especially of some of the popularly used pesticides like BHC, DDT etc." The reasons for the shortage are indicated as follows:—

(i) The National Malaria Eradication Programme had entered the market for procurement of sizeable quantities of BHC for the anti-malaria programme and the sudden increase in the demand of BHC had posed problems of supply.

(ii) the production also could not be increased on account of difficulties in obtaining raw materials like Benzene or chlorine and power shortages.

(iii) acute power situation had hampered the production of chlorine in addition to affecting BHC production also.

(iv) on account of oil crisis, the position of supply of many of the pesticides which were petroleum based had also created problems.

3.58. In reply to an Unstarred Question answered in the Lok Sabha on the 17th March, 1975, it was stated that due to world shortage of pesticides, some difficulty was being felt in arranging imports. As far as indigenous production was concerned, the pesticides industry had been placed in the core sector and efforts were being made to maximise production. The farmers were also being educated/informed about the use of pesticides through the existing State/Central extension services.

Buffer Stock of pesticides/insecticides

3.59. Neither the Central Government nor the State Governments have any scheme for maintaining Buffer Stocks of any insecticides/pesticides for use during emergencies. The Central Government, however, hold some stock of pesticides for anti-locust operations which are principally the responsibility of the Central Government. The Central Plant Protection Stations under the Directorate of Plant Protection, Quarantine and Storage are, it is stated, unable to keep stocks of insecticides/pesticides on account of their limited Budget.

3.60. Some State Governments, however, themselves market the pesticides after purchasing the formulated material from the local market. In a number of States *e.g.* Tamil Nadu and Punjab, the Agro-Industries Corporations Marketing Federations have also decided to set up formulation capacities. Handling of large quantities of pesticides enables the State Governments to rush pesticidal mate-

rial in times of emergencies. The Ministry of Agriculture have suggested that "it would appear to be a good idea if the Central Government could also maintain buffer stocks of commonly used pesticides with a revolving fund of Rs. one crore for this purpose."

Distribution of pesticides

3.61. The production of pesticides is primarily the responsibility of the Ministry of Petroleum and Chemicals. The Ministry of Agriculture indicate to that Ministry the requirements and arrange imports if the production does not meet the requirement. They are also responsible for the distribution of pesticides. It is stated that at present there is no statutory control over the distribution of pesticides. Inadequate indigenous production to meet the requirements and the increase in demand on account of malaria eradication programme has resulted in shortages of some popular pesticides. There has also been a steep rise in the price of pesticides partly on account of a rise in the cost of raw materials and partly because of their short availability. With a view to stabilising the situation, the Ministry of Agriculture have, in consultation with the Ministry of Petroleum and Chemicals, formulated a new arrangement whereby 50 per cent of the indigenously manufactured pesticides in respect of 6 popularly used chemicals are to be routed to the non-associated formulators through State Governments. Further, 50 per cent of some of the imported technical material would be available to the organised sector, the balance 50 per cent would be made available to the small scale units on the basis of letters of authority issued by State Governments to the extent of quantities allotted to each State Government. The scheme presently applies to the following pesticides which are of special importance for plant protection purposes:—

(i) Endrin—Canalised through STC.

(ii) Carbaryl—Canalised through STC.

(iii) Endosulfan—imported on Actual Users' Basis.

(iv) Texaphene—imported on Actual Users' Basis.

3.62. The State Governments have been asked that the technical grade materials should be further allocated amongst the formulators within and outside the State after they enter into suitable contract formulation arrangements. This would enable the State Government to have sizeable quantity of formulated pesticides at negotiated prices. This would also help in stabilising the prices of pesticides on account of substantial quantities of formulated materials being

sold through State Governmental agencies.

3.63. Plant protection chemicals play as important a role in agricultural production as other inputs like high yielding seeds, fertilizers, etc. To reap the benefits of the new varieties of seeds and other inputs, it is necessary to save the crops from plant pests. Moreover, in the context of rising demand for food and the food production in the country having not kept pace with it, the importance of minimising losses on account of plant pests and diseases, which are currently estimated to be of the order of 20 per cent of the total production, cannot be over-emphasised. The Committee consider that plant protection schemes are even more important then others, as plant diseases destroy the crops after heavy investments on seeds, fertilisers and irrigation have already been made thereon. They recommend that, in order to reap full benefit from huge investments made for the development of agriculture in terms of inputs, plant protection services, both preventive and curative, should be further intensified and their coverage should be increased, so that the benefit of these services accrues to the largest number of farmers. At the same time, it is very necessary that the various plant protection schemes undertaken at the expense of the Central Exchequer, are kept under constant watch and periodical evaluation so as to assess their impact in the field and ensure that the resources spent on them are commensurate with the benefits.

3.64. The Committee would further like to stress that plant protection schemes should pay greater attention to the requirements of small farmers who constitute the majority and who are generally not aware of such schemes and thus do not derive full benefit from them It is imperative that special attention is paid to the needs of small and marginal farmers and their crops protected from pests and diseases. The Committee would like to be informed of concrete action taken in the field in pursuance of this objective.

3.65. The entire plant protection scheme of the Central and the State Governments depends upon the timely availability of pesticides at reasonable prices. Yet, until the end of the Fourth Plan period, Government had no system of assessing the requirements of pesticides/insecticides and the available of this commodity was being arranged in an ad hoc manner. The Committee feel that the problem of shortage of pesticides and consequent rise in their prices noticed after 1972-73, would not have been so acute, had Government realistically projected the requirements of pesticides keeping in view the diverse pressures on the market and import limitations and taken timely measures to overcome it by increasing indigenous production and/or imports.

3.66. The Committee note that imports of pesticides increased from Rs. 2 crores in 1969-70 to Rs. 9 crores in 1973-74 and that the total imports during the Fourth Plan period amounted to over Rs. 30 crores. They further note that by the end of the Fifth Plan period, the annual import bill for technical grade material and pesticides would amount to Rs. 19 crores for the year 1978-79 and that the total estimated imports of pesticides during the Fifth Plan period as a whole, would be of the order of over Rs. 115 crores. The Committee, therefore, underline of the need for making maximum efforts to increase the indigenous production of technical grade material and pesticides which are at present being imported. Government should undertake a detailed exercise as regards the capacity required to establish production according to the needs of the country and give adequate publicity to it so as to attract prospective enterpreneurs who could take up production of technical grade material and pesticides within the country on emergent basis. Expeditious decisions should be taken on applications for the issue of industrial licenses for establishing the required capacities and a constant watch should be kept so that the capacities licensed actually fructify within the time limits laid down therefor.

3.67. The intensity of plant protection service has to vary according to the incidence of the pest infestation and disease. Government should, therefore, have adequate stock of certain commonly used pesticides/insecticides for use during emergencies. The Committee recommend that Government should create a buffer stock of well proven pesticides of a modest size to meet the emergent requirements of the Central schemes and of the State Governments.

3.68. The Committee welcome the new informal arrangement with the indigenous manufacturers whereby 50 per cent of certain popularly used indigenously manufactured or imported pesticides/ chemicals are to be routed through the State Governments to the small scale units other than the associated units of the established companies. The Committee hope that the new system would secure to the State Governments control over the manufacture and distribution of 50 per cent of the pesticides available in the country and will lead to their timely availability at reasonable prices. In case, however, this informal arrangement with the pesticides manufacturers is found un-workable, Government should not hesitate to take recourse to statutory measures to regulate production and distribution of popular pesticides/insecticides.

3.69. The Committee would like to point out that while the use of pesticides as a plant protection measure helps to increase the

yield per acre by saving the crops from pests and diseases yet there are many pesticides which may have harmful effects on soil organism and may pose a grave danger to the health of consumers of foodgrains. The Committee would, therefore, like Government to undertake studies regarding the adverse effect of application of insecticides on crops as also the possible danger of pollution of environments resulting from the use of the various pesticides so as to keep abreast of the latest technical developments in this field and recommend for use by the farmers only those pesticides which are safe as plant protectants. The knowledge already available in this respect and the results of our own studies should be kept strictly in view while granting licenses for manufacture/formulation of pesticides/insecticides and there should be a system of a contemporaneous review to take no chances with chemicals which may affect adversely the health of the nation.

CHAPTER IV

AGRICULTURAL MACHINERY AND CREDIT

A. Agricultural Machinery and Implements

Role of Mechanisation in Agriculture

4.1. During First, Second, and Third Plan periods the emphasise was on introduction of improved, manually operated and animal drawn implements. With the introduction of high yielding variety seeds and the system of multiple cropping during recent years, the value of mechanisation of agriculture has come to be recognised. The period between the harvesting of one crop and the sowing of another in the same field is so critically short that the farmer can no longer afford to adopt traditional methods. Farm operations such as shaping and grading of land, preparation of fields, sowing operations, application of fertilizer, irrigation, control of weeds, spraying of pesticides/insecticides etc. can be performed easily, quickly and at less cost with the help of mechanical devices. Recent studies by National Council of Applied Economic Research have found that increase in the productivity due to mechanised farming has been of the order of 56 per cent in case of small medium sized farms and as much as 132 per cent in respect of large farms.

Demand for Tractors during the Fifth Plan period

The National Council of Applied Economic Research has assessed the annual requirements of tractors during the Fifth Plan as under:—

	(in '000)
1974-75 .	45·6
1975-76 .	52·2
1976-77 .	60·0
1977-78 .	68·8
1978-79 .	78·9
	305·5

The Council has, however, indicated that the demand could vary with the decrease in price or an increase in price disproportionate to the rise in prices of agricultural produce.

Production Capacity

4.3. The total licensed capacity for the production of tractors, according to the preliminery material furnished by the Ministry of Agriculture in June, 1974, was for the manufacture of 1,47,000 tractors per annum.

Production and Import of Tractors

4.4. The indigenous production and imports of the tractors during the Fourth Plan period has been indicated as follows:—

	Indigenous Production	Imports	Total availabi-lity
1969-70 .	18,120	12,701	40,821
1970-71 .	20,099	16,679	36,778
1971-72 .	18,100	19,739	37,839
1972-73 .	20,802	1,650	22,452
1973-74 .	24,425	1,100	25,525

The production during 1974-75 was originally estimated to be 40,000, but the current estimates place it at 32,000 only. The reasons for the likely short fall in production are stated to be "massive power cut imposed on industry in almost all States, shortage of imported components and tyres etc."

Import of Tractors

4.5. It is stated that the Government have decided not to import tractors. Only indigenous tractors are now being distributed by the indigenous manufacturers through their dealers or through State Agro-Industries Corporations. This decision however does not cover the import of tractors under the credits available from International Development Association (World Bank) for agricultural development projects. Explaining the position during evidence before the Committee the representative of the Ministry of Agriculture stated:

> "The general commercial imports are not being made because the indigenous capacity has picked up sufficiently and the present position is that there is a decision not to import tractors under the normal commercial imports but only under the IDA schemes, if farmers prefer."

He however added:

> "The total number (to be imported under IDA credits) originally was 22,200 in all the seven agricultural development credit projects but as things have been developing, I do not think more than 4000 or 5000 tractors are likely to be picked up under this scheme".

As regards the effect of the import of tractors under IDA credits on the domostic industry, the representative of the Ministry of Heavy Industry stated that the imports being of very low order, it was not going to affect the indigenous industry. According to him the preference of customers had been noticed for the indigenous tractors and the effect of the policy in general was "to the good of the industry".

Standardisation of Tractors and Agricultural Machinery

4.6. It is stated that the Tractor Testing Station at Budni has intimated the Indian Standards Institution to sandardise some of the important assemblies and components of tractors and such equipment as power threshers, ploughs, seed drills, agricultural discs etc. The Testing Station also assists the Indian Standards Institution in the formulation of new standards for agricultural equipment which are suitable for Indian conditions. About 90 implements and components are stated to have been standarised.

Pricing of Tractors

4.7. Government have removed the statutory price control on tractors with effect from 29th October, 1974. It is stated that the main consideration for discontinuation of price control was substantial increase in the level of production of tractors during the last few years. Moreover, according to Government, the fixation of price under the statutory price control had become a self-defeating exercise in a hyper-inflationary situation prevailing in the country.

4.8. The system of price control has now been substituted by a method of self-dicipline of prices through fixation of pricing norms. These norms are based on 90 per cent utilisation of capacity, 16 per cent return of capital employed or 9 per cent return on net worth. This means that if the manufacturers cannot utilise 90 per cent of their installed capacity, they will not be entitled to price increase. Under this system, the price fixed by the manufacturers within the parametres of the pricing norms mentioned above, are subject to check by the Cost Accounts Branch of the Ministry of Finance.

As regards the effect of decontrol on the prices of tractors, Government have stated that according to their understanding, some of the manufacturers have increased the price of their tractors but "latest information is not available" with them. It is further stated that indigenous tractors are subject to sales tax which vary from State to State. In Punjab, Himachal Pradesh and Jammu and Kashmir the sales tax is only Rs. 100/- per tractor, in Rajasthan only 2 per cent, in the States of Tamil Nadu, Bihar etc., sales tax at 7 per cent to 9 per cent is charged. The Ministry of Agriculture are of the opinion that a uniform and low rate of sales tax for tractors, agricultural implements and spare parts will reduce their selling prices to the farmers.

Distribution of Tractors

4.10. The distribution of tractors has been brought under the statutory control from 1st September, 1971 with the promulgation of the Tractors (Distribution and Sale) Control Order, 1971. Under this Order, the manufacturer is prohibited from sale or disposal of tractors assembled or unassembled except in accordance with the provisions of the Order. The Controller has the authority to fix special quotas of tractors to meet the requirements of the Government or any Government body or local authority.

4.11. The Ministry of Agriculture have indicated to the Committee the State-wise figures on tractor population upto 1971 only. The latest figures are not available with them. The tractor population in 1971 is indicated as follows:

	Rs.
Andhra Pradesh	6,000
Bihar	7,000
Gujarat	12,000
Haryana	20,000
Jammu & Kashmir	*
Kerala	2,000
Madhya Pradesh	5,000
Maharashtra	5,000
Mysore	6,000
Nagaland	*

	Rs.
Orissa	2,000
Rajasthan	12,000
Uttar Pradesh	30,000
West Bengal	1,000
Andaman and Nicobar Islands	*
Dadra and Nagar Haveli	*
Delhi	1,000
Goa, Daman and Diu	*
Himachal Pradesh	*
Laccadive etc. Islands	*
Pondicherry	*
Punjab	47,000

*Less than 500

Allocation of Imported Tractors

4.12. Government have furnished to the Committee the figures relating to allotment of imported tractors to the various States. It is noted from the statement that between 1970-71 and 1973-74 the tractors allotted to West Bengal and Orissa numbered only 203 and 445 respectively while those allotted to Rajasthan, Tamil Nadu and Maharashtra were as many as 2817, 2446 and 2561 respectively.

Facilities for repairs|servicing of tractors

4.13. The different indigenous manufacturers have set up their own workshops throughout the country for providing aftersale service facilities. Arrangements from the manufacturers side however exist generally where the tractor population is high. As for imported tractors, the distributors namely the Agro Industries Corporations, have set up their own workshops.

4.14. It is stated that even though during the past few years, a large number of workshops had been set up by the dealers of tractor manufacturers, Agro-Industries Corporations etc., in such of the areas where the machines have been thinly distributed, some difficulty is being experienced by the farmers. Efforts are being made to provide these facilities in the interior parts by setting up workshops either through the Agro-Industries Corporations or by initiating the entrepreneurs through setting up of agro-service centres

Some of the Agro-Industries Corporations e.g. Punjab, have introduced mobile vans to provide after-sale service to the tractors in the interior of the State.

Machinery Hiring Centres

4.15. It is stated that, recognising the need for strengthening after-sale service facilities during the Fourth Five Year Plan, programmes of establishment of agricultural machinery hiring centres and agro-service centres were taken up. The Agro-Industries Corporations have accordingly set up workshops and agricultural machinery hiring centres and such centres are now stated to be 184 in number. It is stated that some of the hiring centres and workshops are running at a loss. The Ministry of Agriculture are of the opinion that if the programme has to be expanded substantially, some incentive in the form of subsidy would be required especially for areas where the population of machines is not large and it would be difficult to maintain a workshop on a self-supporting basis.

Agro-Service Centres

4.16. The Scheme for training and financial assistance to entrepreneurs for setting up of Agro-Service Centres was cleared by the Expenditure Finance Committee in December, 1971. This scheme has been formulated by the Ministry of Agriculture with the twin objective of providing self-employment opportunities to technical personnel and providing the much needed technical services to the farming community. The centres are aimed to provide integrated services and supplies in the rural areas, depending upon the local needs. These are as under:

Service

(i) Agricultural Machinery Hiring;

  (a) for land preparation, inter-cultivation, harvesting and post-harvest handling;

  (b) land development;

  (c) tubewell drilling and well deepening

(ii) Installation of pumpsets and other farm equipment, maintenance and servicing;

(iii) equipment and implements rental;

(iv) plant protection services;

(v) facilities for storage and processing;

(vi) consultancy in soil analysis; fertilizer and pesticides selection, irrigation, land improvement, management etc.

Supplies

(i) Fertilizer, pesticides, seeds, etc.

(ii) Engineering Stores of day-to-day use on the farm;

(iii) Spare parts of agricultural machinery;

(iv) Fuel oils and lubricants.

So far about 1740 agro-service centres have been set up in different parts of the country. Under the Fifth Five Year Plan programme it is envisaged that about 2500 such centres would be set up.

4.17. Supplementing the information furnished by the Ministry of Agriculture to the Committee, the representative of the Ministry of Agriculture during evidence stated:

"....the agro-service centres started by the Engineering Graduates or Agricutural Graduates with a bank loan are designed to offer these services to the farmers on payment of a certain amount per hectare.... it was a very ambitious scheme, but it did not make the kind of progress we thought it would make. It has picked up a little this year. The Fourth Five Year Plan scheme was that of establishing 7,000 agro-service centres in the country, but the scheme itself was added on, I think, after the mid-term review as part of the special employment scheme for the educated unemployed, when only about two or two and a half years of the Plan period were left for implementation. The initial difficulty of selecting entrepreneurs, giving them reasonable orientation and training, putting them in touch with Banks, helping them to fill in forms and comply with conditions under which they can be given loans from the Banks, helping them to select land and giving them other facilities for starting their centres and workshops etc. took too much time and, very soon, it was felt that 7,000 in the Fourth Five Year Plan was quite out of question. So, the target was reduced from 7,000 to 2,500. We have actually ended up with 1,700, but it has been continued into the Fifth Five Year Plan. Actually, there are nearly five or six thousand to be able to give these services effectively to the farmers of the type we have in mind, we would have to have at least four or five

such centres working in every block and we would need about 20,000 for the country; of course the concentration would vary from one part of the country to another."

In regard to the experience of the Government of the working of the scheme, he stated:

"There are some in the cooperative sector....and their experience is variable. The National Alliance of Young Entrepreneurs organised a seminar in May, 1973 or thereabouts and another conference lately, at which I had occasion to hear some of these people and also representatives of the commercial banks and of the agro-industrial centres etc. who are connected with this. They are having problems at many places, all of which have not been overcome. In some areas they are doing well, but in other areas, either because of the delay or difficulty in getting loans from the Banks or due to apathy or lack of efficiency on the part of the Agro-Industries Corporation which is expected to be the prime mover of this kind of people, the progress has not been very satisfactory. In the meantime, the prices of tractors went up and some of the loans sanctioned had to be resanctioned."

Testing and Training Centres

4.18 At present there are only two stations at Budni and Hissar for the testing of agricultural machinery and training programmes in agricultural machinery utilisation. During the Fifth Plan period it is proposed to expand the testing and training facilities at these stations and to set up a third station at Mysore. For this purpose, a provision of Rs. 1.5 crores has been made in the Draft Fifth Five Year Plan as follows:

	Fifth Plan Provision	Provision for 1974-75
	Rs. lakhs	Rs. lakhs
Budni expansion	35	9·30
Hissar expansion	25	4.85
New Mysore Centre	80	4·54
Special programmes Users' Survey, quality control on machinery, exhibition, production of audio visual aids etc.	10	
TOTAL	150	18.69

Number of persons trained

4.19. The training facilities available at Budni and Hissar Stations are only for training 480 persons per centre per year. Since the inception of these Stations upto the end of 1973, about 6,000 persons have been trained in the operation and maintenance of tractors and other agricultural machinery. Asked to state whether the training facilities available were adequate to serve the need of the ever increasing tractor population, the Ministry of Agriculture have stated that recognising the need for expansion of training facilities, it has been decided to set up a Third Training Centre in Mysore as a scheme under the Fifth Five Year Plan. They hope that during the subsequent Plan periods, similar centres would be set up in the regions presently not covered by the existing Training Centres.

4.20. The Committee note that the import of tractors on commercial account is banned since 1972-73 for the reason that indigenous capacity has picked up sufficiently to meet the demand. They, however, observe that while the annual availability of tractors during the first three years of the Fourth Plan varied between 31 and 38 thousand the availability was less than 26 thousand during the last two years of the Plan period when the import ban was in operation. Further, the assessed demand of tractors for 1974-75 is about 46 thousand but the latest estimates place indigenous production during the year at no more than 32 thousand. The net effect of the current ban on import of tractors has, therefore, been to reduce the overall availability of tractors in the face of rising demand. The rise in prices of tractors could have been also due to their short availability in the country. The Committee recommend that Government should make a critical analysis of the reasons for not achieving the envisaged production even when the capacity licensed was for the manufacture of 1.47 lakh tractors per annum and take suitable remedial steps to fully meet the requirement of tractors.

4.21. The Committee recommend that Government may have a study made by an appropriate technical body as regards the type and size of tractors which would be best suited for the geo-physical conditions obtaining in the country and with reference to the operating costs and the need for trouble-free sustained service. On the basis of the result of this study an attempt should be made to standardise indigenous production so as to make for rational utilisation of available production capacity.

4.22. In the earlier paragraph, the Committee have already emphasised the need for increasing the indigenous production of tractors to meet the demand in full which is bound to have a sobering

effect on prices. The Committee recommend that a continuous watch should be kept on the prices of tractors and they should not be allowed to rise unless it is absolutely justified after undertaking a proper cost analysis. The Central Government may also take up with the State Governments at the highest level the question of bringing about a reduction and uniformity in the rate of sales tax on tractors so as to reduce their selling prices to the farmers.

4.23. The Committee note that although the distribution of tractors is being controlled by the Government, there is a wide variation in the tractor population as between different States. They also note that Government themselves have maintained wide divergence in allotment as between different States. The Committee consider that since tractor is a vital input related to agricultural production programme, Government should evolve and observe definite criteria for allotment of tractors so as to make for an equitable distribution as between different States and avoid any criticism of partiality in allocation of tractors, both indigenous as well as imported.

4.24. Most of the land-holdings in our country are small and the farmers are unable to afford the ownership of heavy agricultural machinery. The Machinery Hiring Centres set up by the Agro Industries Corporation are at present the only way through which the benefits of mechanisation can be availed of by the small farmer. The Committee are informed that the Machinery Hiring Centres and Workshops in the remote areas of the country where population of machines is not large to make the Centres/Workshops self-supporting, are running at a loss. The Committee recommend that Government may investigate the reasons for losses sustained by such Machinery Hiring Centre and Workshops lest they may be on account of bad management or other shortcomings which could be avoided. The Government may also consider other alternatives for making available the benefits of mechanisation to the marginal and small farmer in the remote areas of the country.

4.25. The Committee are constrained to note that as against the target of setting up 7,000 Agro-Service Centres by the end of the Fourth Plan period, the number of such centres actually set up by the end of the Plan period, was only 1,700. The Committee recommend that the Agro-Service Centres should really be service-oriented and the Scheme should have a built-in incentive so as to attract young men with technical background to take up the scheme in larger numbers. Government should lay down guidelines for the working of such centres and assist them in establishing themselves.

Government should also have a time-bound programme for setting up of these Centres according to the targets laid down for the Fifth Plan period. There should also be a system of keeping a close watch on the performance of these centres so as to effect improvements and remove impediments in the way of the success of the Scheme.

4.26. The Committee note that at present training facilities in the operation and maintenance of agricultural machines are available only for less than a thousand persons per year in the two existing centres at Budni and Hissar and since the inception of these centres up to the end of 1973, the number of persons trained has been only 6,000. The Committee consider that the training facilities are not commensurate with the growing needs of farm mechanisation in the country. The Committee recommend that adequate attention should be paid to the need for organising short-term training courses in operation and maintenance of tractors and other agricultural machinery at centres which may be dispersed all over the country.

Power Tillers

4.27. Power tillers are small machines which are generally owned and utilised by relatively smaller farmers. A Working Group set up by the Ministry of Agriculture in 1968 estimated the annual demand of Power Tillers by the end of 1973-74 at 80,000. The present licensed capacity for the production of Power Tillers has been indicated as 40,000 while the actual production between 1970 and 1973 has been indicated as under:

1970— 625
1971—1279
1972—1010
1973—1541

4.28. It is admitted that the demand for tillers during the Fourth Plan period has not been appreciable and it is mainly attributed to the increase in their price which is stated to have gone up from Rs. 5000 to about Rs. 12000. The Ministry of Agriculture have stated that while considering the ways and means to reduce the price of power tillers and other agricultural machinery, they took up with the Ministry of Finance the question of exemption of power tillers from the levy of customs duty. The Ministry of Finance have, however, not favoured the proposal. The Ministry of Agriculture consider that the abolition of excise duty on power tillers would go a long way in the reduction of their price.

4.29. The representative of the Ministry of Agriculture informed the Committee during evidence that a Committee has been

constituted under the Chairmanship of Shri Gopal Iyengar (on which the Agriculture Ministry is also represented) to go into the question of bringing down the prices of power tillers. The report of the Committee is awaited.

4.30. Power tillers are utilised by relatively small farmers. The Committee are concerned to note that due to steep rise in the price of power tillers, the demand therefor has gone down appreciably. They, however, note that the Government have recently constituted a Committee to go into the question of bringing down the prices of power tillers. This Committee may also be asked to go into the performance of the power tillers to determine whether the lack of demand could also be due to their performance. The Committee urge that the report of that Committee should be expedited and early decision taken on its recommendations so that the prices of power tillers are within the reach of the average small farmer.

4.31. The Committee would further like to point out that in the context of land ceilings and smaller holdings in the country small machines like power tillers would prove popular and would go a long way in maximising food production. It should, however, be ensured that apart from the price aspect, the power tillers manufactured within the country are such as could be put to versatile use and do not pose maintenance and other problems for the farmers. The Committee have in an earlier paragraph already recommended a study to be made in regard to tractors with a view to standardise production. The Committee would like similar action to be taken in regard to Power Tillers.

Agricultural Implements

4.32. It is stated that there is adequate capacity for the manufacture of hand-operated tools, improved animal and power-driven implements and of tractor implements. These are manufactured in the small scale sector. It is however pointed out that one of the major difficulties experienced by the implement manufacturers is the non-availability of special grades of steel in sufficient quantities. Due to scarce supply of steel, they are often required to meet their requirements from the open market at exorbitant rates which unduly increases the price and also makes planned production and distribution difficult.

Besides the manufacturing units in the private sector, some of the Agro-Industries Corporations have taken over agricultural implements factories previously run by the State Governments and

have taken steps to organise production of new implements such as threshers, levellers, etc. These workshops are giving special emphasis on the production and distribution of such of the implements as are required to be popularised and are needed for the agricultural production programmes in their respective areas.

4.34. The Ministry of Agriculture were asked whether there were any arrangements for control, formal or informal, over the quality and pricing of these implements manufactured in the small scale sector. They have in reply stated that to produce quality implements, the small scale manufacturers are given priority allotment of imported and indigenously manufactured steel and other raw materials. Some of the State Governments have set up quality marking schemes under which production is certified. Indian standard Institution has formulated standards on some of the most popularly used agricultural implements such as cultivators' ploughs, seed drills, threshers, agricultural discs etc. and the State Governments have been requested that preference should be given to those implements conforming to the standards laid down. The State Governments have also been requested that they may initiate steps to ensure that Indian Standards Institution marked implements are encouraged for production and distribution.

Credit for purchase of agricultural machinery

4.35. It is stated that the working group appointed by the Board of Agricultural Machinery and Implements has reviewed the existing arrangements regarding credit facilities for the purchase of agricultural machinery and implements and the necessary follow-up action is being taken on the recommendations made by the Group. It has since been decided by the Reserve Bank that Agricultural Credit Societies may be permitted to advance medium term loan repayable in 3 years for purchase of tractors, power tillers and agricultural machinery in excess of Rs. 3500 without insisting on the mortgage of land subject to certain conditions.

4.36. The Committee underline the need for continuous research in evolving agricultural implements—power, animal or hand operated—most suited to Indian conditions, and their standardisation and publicity. There should also be a well co-ordinated programme for their production and distribution, particularly in the backward and remote areas of the country where the need for improvement in the mode of agricultural operations is the greatest.

B. Rural Credit and Cooperation

4.37. Government were asked to indicate the agencywise targets and achievements in providing credit to the farmers for the procurement of inputs during the Fourth Plan period and the targets fixed for the Fifth Plan period. They have stated that separate data for short-term credit disbursed by cooperative institutions to the farmers for purchase of various agricultural inputs during the plan period is not available with them. However, the following statement furnished by them indicates the statewise short-term credit targets during the last year of the Fourth Plan and the anticipated achievements in that regard. The statement also indicates the targets under short-term cooperative credit for the Fifth Plan period:

Short-term cooperative credit-Targets and achievements in the IV Plan and Target for the Fifth Five Year Plan

(Rs. in crores)

State/Union Territories	Fourth Five Year Plan target in 1973-74 (last year of the Plan)		Fifth Five Year Plan target (in the last year of the Fifth Plan)
	Target	Anticipated achievements	
1	2	3	4
1. Andhra Pradesh	28·00	28·00	70·00
2. Assam	2·95	4·00	12·00
3. Bihar	21·00	14·00	40·00
4. Gujarat	90·00	90·00	130·00
5. Haryana	19·00	19·50	45·00
6. Himachal Pradesh	1·50	4·50	9·00
7. Jammu & Kashmir	5·00	5·00	12·00
8. Karnataka	39·00	45·00	75·00
9. Kerala	41·00	40·00	75·00
10. Madhya Pradesh	65·00	62·50	130·00
11. Maharashtra	125·00	130·00	225·00
12. Manipur	0·50	0·40	2·00
13. Meghalaya	0·50	1·00	2·50

1	2	3	4
14. Nagaland	0·03	0·15	0·50
15. Orissa	15·00	18·00	40·00
16. Punjab	65·00	65·00	114·00
17. Rajasthan	14·00	30·00	75·00
18. Tamil Nadu	63·00	71·00	100·00
19. Tripura	1·20	1·25	3·00
20. Uttar Pradesh	60·00	60·00	115·00
21. West Bengal	10·00	10·00	40·00
Total States	666·68	699·30	1315.00
Total Union Territories	2·00	1·44	3·67
All India Total	668·68	700·74	1318·67

It is pointed out that the short-term cooperative credit targets envisaged for the Fourth Plan are not only likely to be fulfilled but may even be exceeded. Notwithstanding the achievement of the overall target of short-term disbursement for the country as a whole, it is noted from the statement that a few States, notably Bihar, would not be able to fulfil the credit targets. As against the credit target of 21 crores envisaged for 1973-74 for Bihar, the anticipated achievements are shown as Rs. 14 crores only.

4.38. Government were also asked to indicate the difficulties and problems encountered in implementing the credit programmes and how they are proposed to be solved. They have stated that the most disquieting factor hampering the growth of credit cooperatives has been the steady increase in overdues. Taking note of the deteriorating situation, the Reserve Bank of India had recently appointed a Study Team to analyse the causes of overdues in the cooperative credit structure and to suggest remedies therefor. The Team has since sumbitted its report. The various recommendations of the Team have been generally approved by the Agricultural Credit Board of the Reserve Bank of India and have now been circulated to the State Governments for initiating suitable action for their implementation.

4.39. The other problem pointed out is with regard to flow of credit to new and non-wilful defaulters of cooperative institutions. In this connection, instructions are stated to have been issued to the

State Governments to consider advising the Central cooperative banks, wherever the resources permit, to finance primary societies irrespective of the latters' level of overdues for providing credit to new and non-defaulting members atleast to the extent of their fertiliser needs.

Multipurpose cooperatives

The Committee were given to understand that in Japan and Taiwan there were farmers organisations in each village covering almost all the farmers in the village. These village cooperatives provided all the requirement of the farmers *i.e.*, credit, fertilisers, seeds, pesticides, pump-sets etc. On the other hand in India a farmer has no such facilities and he has to go to different institutions for securing different inputs. Government were asked whether a study had been made of the rural cooperative system in the aforesaid countries with a view to consider their suitability for introduction in the country. In reply it has been stated that no such study has been made. It has, however, been pointed that the need for setting up of cooperatives to provide integrated services to the farmers has been duly recognised in this country. The National Commission on Agriculture in their Interim Report on credit services for small and marginal farmers and agricultural labourers have *inter-alia* recommended the organisation of special type of cooperatives to provide such integrated services. These recommendations have been accepted and new farmers service societies are being organised in the states to provide integrated credit, supplies and services and disburse all types of credit required, supply inputs, arrange for processing and marketing wherever feasible and undertake all connected activities. So far a total number of 61 such societies have been registered in the different states. It is further stated that recently a high level Group headed by Shri T. A. Pai, Minister of Industry and Civil Supplies, which went into the question regarding the most appropriate institutional credit structure for our rural areas, has endorsed the need for the farmers, especially small/marginal farmers and other groups of rural producers to have an institution as close to their farm land/working site as possible, which will be able to provide them with a full package of services including credit, supply of inputs, marketing services and technical guidance. This approach has been accepted by the Government of India.

4.41. The Committee would like to point out that credit is an essential agricultural input on which the assimilation by the farmer of the new techniques of production largely depends. It is therefore

also in the national interest that the farmer should be assisted by institutional finance in procuring agricultural inputs. In this context, the Committee would like Government to make a distinction between credit to satisfy the personal need of the farmer and the credit for procuring agricultural inputs and the latter should, in the opinion of the Committee, be on comparatively more liberal terms.

4.42. At present the farmer has to go to several organisations for procuring different agricultural inputs. This is very cumbersome and time consuming for him. The Committee recommend that Government should work out and launch a scheme of multi-purpose cooperatives for providing all the requirements of the farmers such as credit, seeds, fertilisers, pesticides, pump sets etc. as existing in some other countries of the world.

CHAPTER V

RESEARCH AND EXTENSION PROGRAMMES

A. Agricultural Research

Financial Outlay and Expenditure during Fourth Plan

5.1. The financial allocation for agricultural research and actual expenditure during the Fourth Plan has been indicated as follows:—

	Allocation (Rs. in crores)	*Actual expenditure* (Rs. in crores)
I. Institutes	28·74	18·49
II. All India Coordinated Research Projects (Agriculture, animal and fisheries sciences including extension education).	32·25	29·04
III. Education	30·39	26·57
	91·38	74·04

An expenditure of Rs. 40.92 crores was also incurred on research from the non-plan sources during the Fourth Plan period. Research was also supported from the cess funds to the extent of Rs. 3.25 crores during the Fourth Plan period. Thus a total of Rs. 118.21 crores was spent from the Central funds for agricultural research during the Fourth Plan period. In addition, State Governments had also financed research on problems of local or regional nature from out of the State sector outlays. The details of the expenditure incurred on agricultural research by the States out of their own funds are not available with the Government.

5.2. Out of the total allocation of Rs. 91.38 crores for the Fourth Plan period, the allocation for the Institutes and Coordinated Projects having direct or indirect bearing on crop research loading to enhanced food grain production was of the order of Rs. 15.66 crores. As against this allocation, the actual expenditure during the plan was Rs. 12.27 crores only. The reasons for the short fall in Plan expenditure is stated to be:

(i) delay in the formulation, finalisation and implementation of certain projects, and

(ii) ban on recruitment in ICAR in 1972 as a result of setting up of the Gajendragadkar Enquiry Commission and on construction as a measure of economy.

Agencies for Agricultural Research

5.3. Indian Council of Agricultural Research (ICAR) is an apex organisation coordinating research and educational activities in the field of agriculture, animal and fisheries sciences in the entire country. Agricultural research in the country is carried out largely through the following agencies:

1. Institutes under the Indian Council of Agricultural Research.

These are at present 24 in numbers. Five more institutes are likely to be set up during the Fifth Plan period making a total of 29 institutes towards the end of Fifth Plan.

2. Agricultural Universities.

There are 20 agricultural universities in the country, each State having one except Maharashtra which has 4 universities.

3. All-India Co-ordinated Research Projects

During the Fourth Plan, as many as 76 All-India Co-ordinated Projects were functioning. Their number has during the Fifth Plan period been reduced to 52.

4. In some States like Rajasthan, West Bengal., and Tamil Nadu, the State Departments of Agriculture and Animal Husbandry still maintain research institutions.

5. Some private institutions like Nimbkar Institute at Phaltan; Maharashtra Association for cultivation of sciences, Poona: institutions like IIT, Khargpur; Oil Technology Institutes at Kanpur and Ananthpur, etc., and also a number of general universities like Osmania University, Calcutta University, Mysore University, etc. have also been concerned in some way with agricultural research.

Adequacy of Agricultural Universities/Institutes

5.4. As already stated the number of agricultural universities in the country is at present 20. Each state has one agricultural university except Maharashtra which has four. The Ministry of Agriculture and Irrigation were asked to state whether the number of agricultural universities was adequate to cater to the different geo-cli-

matic conditions in each State. They have in reply stated that more agricultural universities to represent different agro-climatic regions of a State are not an essential infra-structure for accelerated development of agriculture. According to them:

> "If the concept of agricultural university is properly implemented with the necessary understanding and support from the State Governments which will include organisation of the necessary infra-structure for research in different geo-climatic regions of a state it is not necessary to increase the number of agricultural universities in a state. Increase in the number of agricultural universities would duplicate the programmes of under-graduate and post graduate education in agriculture, animal science, veterinary medicine, agricultural engineering, Home science etc. for which there is no sufficient justification, particularly, in view of the scarce resources. All the training of students that is required for a State could be concentrated at the main campus of the State Agricultural University where coordinated facilities as a resident University campus could be developed with suitable research stations, in different agro-climatic regions along with extension education programmes to ensure the conduct of applied research applicable to a region and its transfer to the farmers in that region could be ensured. Where there is a clear need, more than one campus to include teaching could be set up."

5.5. It is however stated that in some of the States particularly Rajasthan and Tamil Nadu, the State Governments have not transferred the complete research responsibility in the broad field of agriculture to the respective universities. The Government of U.P. have only recently decided to transfer research to the agricultural university at Pant Nagar and to the proposed two new agricultural universities of Kanpur and Faizabad. But even here, the State Government has withheld transfer of the large sector of sugarcane research.

5.6. In this context, the Ministry of Agriculture have mentioned the pattern of land-grant universities in U.S.A. According them in this system the State Governments would be required to entrust the total responsibility for agricultural research and education in the State to their agricultural university, provide from the State budget the necessary operating and development cost with the ICAR sharing in the development expenditure. This system has been, it

is pointed out, successful in certain universities in India also and it could be adopted with advantage by other State Governments.

Problem Oriented Research

5.7. The Ministry was asked as to how it was ensured that the research and development work in the Universities/Institutes is problem-oriented and not merely of academic nature. They have stated that an area of research activity of the university is through the All India Coordinated Research Projects whose objective is to conduct research mainly on applied aspects in a multi-disciplinary manner on a multi-location basis. Besides, each university is obligated to do applied research on its own to tackle the problems of the State or region. Thus most of the university research is presently directed at applied aspects and this is ensured through the evolution of technical programmes in the workshops conducted at the national level. It is however pointed out that the Universities/Istitutes cannot completely divert themselves of their responsibility to conduct basic research because applied research programmes have to have a continuous feed-in of the basic material. Much of their effort is therefore devoted to applied research but they have also got to pursue basic research most relevant to applied research which they may not get from any where else.

Determination of Research Priorities

5.8. Government were asked to indicate the procedure for determining *inter se* priorities for research and development and funding as between different crops and disciplines and for allocation of funds. It is stated that first of all a broad National Policy is evolved for research. For example, during the Third and Fourth Plans the National Policy on agriculture was to develop varieties with high yielding ability. However, the National Policy for the Fifth Plan is oriented towards stabilising yields by the exploitation of the high yielding potentialities of the new strains and varieties. For this, emphasis had been laid on generating new knowledge on crop production and crop production techniques, on promotion of dry land agriculture and, in the wake of energy and nutritional crises, on fertiliser and water use efficiency. The institutes and universities have to operate within the overall research framework thus evolved. The procedure adopted in the Institutes is stated to be that the projects and schemes formulated by the individual divisions/Departments are discussed in the research councils of the respective Institutes. These are further scrutinised at the I.C.A.R. headquarters and finalised for execution. As far as universities are concerned, a simi-

lar procedure is being followed in respect of research done under the All India Co-ordinated Projects which constitutes an important part of their research work. These research programmes are finalised in the All India workshops of the concerned projects at the national level and then in the research councils of the respective universities. They are counter checked at the I.C.A.R. headquarters, finalised and handed down or execution by the universities.

Coordination of Research

5.9. Research in the country in the field of agriculture, animal and fisheries sciences is done in the Institutes under the Indian Council of Agricultural Research at the national level and in the agricultural universities at the State level. The activities of these two sets of Institutions is bridged by the All India Coordinated Research Projects. These projects aim at eliminating the avoidable duplication in scientific effort and thus enable the maximisation of benefits accruing out of unit investment of money, time and manpower. These projects operate through multi-disciplinary research on multi-location basis all over the country. It is stated that certain success achieved in the area of food production during the late sixties and early seventies could be attributed to the effective functioning of the concerned All India Coordinated Projects.

5.10. A total of 76 All India Coordinated Projects were functioning during the Fourth Five Year Plan. Their number has been reduced to 52 during the Fifth Plan. There are 7 such projects concerning the crop improvement covering rice, wheat, Barley, Maize, Sorghum, Millets and pulses, 9 in respect of agricultural engineering and post-harvest technology and one in extension education. The projects work through centres and sub-centres spread throughout India.

5.11. Each Co-ordinated project is headed by a Project Coordinator who is assisted by staff which has a fairly high level of scientific competence. The Centres and sub-Centres are administratively controlled by the respective agricultural universities or State Departments of Agriculture in whose geographical jurisdiction they fall. But they are subject to the technical disciplines of the Project Coordinator. All the scientists concerned with a particular project meet once a year in what is called an "All India Workshop" meeting, pool all their knowledge and material, discuss the relevant issues and draw up a need-based technical programme or the entire project to be executed during the coming year. In between, the Project Coordinator visits the centres and provides on the spot guidance, suggests mid-term corrections, if any, takes stock of progress of

work, identifies new problems and appraises the Indian Council of Agricultural Research headquarters about the significance of the research findings or the production constraints that need immediate research attention, etc.

5.12. During the Fourth Plan the entire expenditure on the all Indian Coordinated Research Projects was borne by the Indian Council of Agricultural Research irrespective of the fact that the Project operated through an Institute under the Council or the agricultural universities/State Departments. With effect from 1st April, 1974, there has been a shift in the funding policy according to which the States have to share to the extent of 25 per cent of the expenditure on coordinated research in the States. It is stated that this fact was brought to the notice of all State Governments and the Planning Commission have ensured that adequate provision has been made for this purpose in the respective State Plans under the head 'Agricultural Research and Education'. The Minister for Agriculture, Government of India also addressed letters to all the Chief Ministers requesting them to adhere to this policy. All the Chief Ministers except the Chief Minister of Haryana have responded positively. Haryana Chief Minister has once again been addressed by the Union Minister for Agriculture. The Indian Council of Agricultural Research has, it is stated, not so far found any difficulty in getting matching grants from the States to finance Coordinate Research Projects to the extent of 25 per cent.

Proliferation of Seed Varieties

5.13. It was pointed out in a memorandum to the Committee that at present no attempt is made to ensure substantial saturation of area under a particular quality seed while the rush of introducing a number of new seeds every year is going on. It was suggested that it would be more economic and practical to evolve a few new seeds, ensure their foundation seeds and have a large seed multiplication and distribution programme through multiple agencies to achieve at least more than 50 per cent saturation with a particular new seed over a period. Government broadly agree that there should not be proliferation of varieties, that before release there should be thorough testing of the varieties from all angles-yield, duration, quality, disease and pest reaction—and that sufficient quantity of nucleus and foundation seeds of proven varieties should be built up rapidly. They, however, maintain that our country is so vast that no one particular variety would satisfy the heterogeneous complex. It is stated that varietal planning based on toposequence

is very essential. In addition farmer's choice to satisfy his varied requirements such as domestic and commercial needs has to be respected and the need for avoiding the danger from disease and pest epidemic inherent in a homogeneous varietal base have to be guarded against.

Banana disease in Nilgiri Hills

5.14. The Committee during their tour of the Southern region observed that 'Bunchy Top' disease (Inoculum) had developed in the banana plantation in the Nilgiri Hill ranges and had assumed a most virulent form. The farmers in the area grow banana as a mixed crop in coffee plantation. The Committee took up the matter with the D.G. ICAR and the Vice Chancellor, Tamil Nadu Agricultural University, Coimbatore. From a written note furnished by the Vice-Chancellor, Tamil Nadu Agricultural University, Coimbatore it is revealed that the disease is no longer confined to Nilgiri Hills (where there is hardly any plantation free from this malady) but has also spread to the adjoining States of Kerala, Karnataka and Andhra. He has further stated that there are as yet no effective fungicidal or biological treatments against the disease and the only solution is to thoroughly eradicate the diesease by destroying every diseased clump of banana and cutting the pseudo-stem and applying kerosene over the cut-end to prevent further sprouting. He has estimated that the cost of eradication alone would, in some States, amount to Rs. 1 lakh. The land owners, being interested mostly in coffee, are not inclined to undertake this drastic but necessary measure. The Vice-Chancellor has suggested to the State Government that disease eradication campaign should be launched on a "war footing" and it should be backed by suitable legislative measures to compel farmers to eradicate the disease and to supervise inter-State and inter-district movement of disease-free plant material. Meanwhile a comprehensive scheme both on the research and development aspects indicating the role of the University and the State Agricultural Department has been submitted by the University to the Tamil Nadu Government and is under their consideration.

Production Potential of Intensive Crop Sequence Under Optimum Input Conditions

5.15. One of the more important of that research projects taken up during the Fourth Plan was on the production potential of intensive crop sequence under optimum input conditions. During 1972-73, this experiment was conducted at 40 Model Agronomic Cen-

tres representing the major soil and agro-climatic regions of the country. It is stated that the results obtained during the past four years indicate that the soil and climate obtaining in the country are no barrier in attaining 10 to 15 tonnes of grain yield per hectare per year, provided suitable crops and their varieties are chosen to be grown in a sequence and the optimum management practices are followed.

Production Potential Under Resource Constraint

5.16. Another research project undertaken during the Fourth Plan period was on the production potential under resource constraint. This was necessitated because of the present day shortage of fertilizers and other costly inputs like irrigation, plant protection chemicals and weedicides. Experiments were conducted at 29 research centres all over India to assess the production potential of intensive crop sequences under 100, 75 and 50/25 per cent of the recommended levels of these inputs. It is stated that useful results have emerged out of these experiments. It has been found that in certain crop rotation in certain areas the application of an input could be reduced to 75 per cent without appreciable decline in yield.

Intensive Farming Systems for Small and Medium Holdings

5.17. In order to examine the feasibility of experimentally proven intensive crop production in large scale plots under actual farm conditions simulated as closely as possible and to provide answers to the immediate and pressing problems of crop production on small and medium (one hectare) labour-intensive farms in different soil and agro-climatic conditions in the country, experiments were conducted. It was observed that with a crop intensity varying from 200 to 300 per cent, the net returns were Rs. 2882, Rs. 8046, Rs. 4970 and Rs. 5226 at Jagudan, Hissar, Mangalore and Bhubaneswar respectively. The net returns were rather low at Jagadan and medium at Mangalore and Bhubaneswar, where there was a need and enough scope for improvement in yields and the resultant income for the maintenance of a family of two adults and three children.

Manurial Requirements of Fixed Crop Rotations:—

5.18. Direct, residual and cummulative effects of application of phosphorous potassium and farmyard manure on the yield of high-yielding varieties of cereals, in a fixed one-year two-crop rotation, were studied. The consolidated analysis over three to four years on four rotations namely, rice-rice, rice-wheat, maize-wheat and Bajra-wheat, were undertaken at six centres. It was observed that

the average yields without fertilizer for High Yielding Variety of wheat were higher than the corresponding yields of Traditional Variety of wheat in all the regions except in Madhya Pradesh. Further, in rice (Kharif-irrigated) the average yields without fertilizer for HYV were substantially higher than the corresponding yields of TV in all regions.

National Demonstrations

5.19. The National Demonstrations Programme on major food crops was taken up in the Fourth Plan period on an All India basis in 100 districts intensively and in the remaining districts of the country extensively. The objective was to demonstrate the potentialities of new agricultural technology through multiple cropping on farmers fields. The minimum yield targets for two and three foodgrain crops in the multiple cropping sequences followed in national demostrations had been fixed at 9 and 11 tonnes/ha. respectively. It is stated that the results obtained from these demonstrations helped to expel doubts of farmers regarding the yield potentialities of high-yielding varieties of foodgrains. As much as 300 to 400 per cent of yields of foodgrains crops over the All-India averages were obtained in National Demonstrations. By and large, in about 60 per cent of the National Demonstrations, the targetted yields of 9 and 11 tonnes/ha. for two or three crops, respectively, were obtained. On the basis of the results of the National Demonstrations and the experience gained therein, a few important rotations could be recommended for different states. The National Demonstrations also proved to be excellent centres for farmers training and transfer of technology to the farming community. On an average 2 to 3 field days were organised at each National Demonstration. Thus, the national demonstrations not only demonstrated the potentiality of a new agricultural technology but also led to the change of outlook of the farming community.

Role of Agricultural Universities in Extension Education

5.20. Government were asked as to what precise role would they like the agricultural universities to play in the extension education programme. They have stated that the primary role of an agricultural University is "to provide the results of research in agriculture to the State Government Development departments" and "to train the functioneries in the art of educating the farmers and in the technique of conducting the demonstrations on farmers' fields". Production of extension literature in the local languages in the way that can be easily understood by the farmers and the use of the various communication media for this purpose has also been suggested for the Universities.

5.21. Government were also asked whether they considered it desirable for the university specialists to priodically visit district and block headquarters in a specified area to train extension workers in the latest techniques of agricultural operations. It is stated that it was "not only desirable but very necessary" that subject matter specialists should be located in the districts and they should regularly visit the areas within the district to keep in touch with the extension workers. It has also been suggested that the universities should conduct periodic training programmes for the workers of the State Development Departments in the latest techniques of agricultural operations.

5.22. Asked whether it would not be appropriate in such a case to reimburse to the universities the amount spent by them on the dispersed extra-academic activities pertaining to extension education and training, the Ministry of Agriculture have stated as follows:

> "The cost of this should appropriately be borne by the governmental agency in the first phase of the modernisation of agriculture. With further development of agriculture and sufficient income accruing to the farmers, certainly, a part of this cost should be shared by the beneficiaries. This may have to come through the Panchayat and District Board budgets which may charge a certain cost to the farmers. But this has to wait till technology has sufficiently benefitted the farmers so that they are prepared to acquire this knowledge by paying to some extent for it."

5.23. National Commission on Agriculture have in their Report also dealt with the responsibilities of State Departments of Agriculture and the agricultural universities as follows:—

> "We recommend that in the area of extension relating to field trials, the responsibility for the extension programme should be with the group of research workers who are concerned with the applied or the adaptive research in the field. The field workers should give them all support in establishing a link with the farmers to enable the trials to be carried out satisfactorily.
>
> The Commission recommends that the involvement of the Scientist in the university with extension on the farmers field in the nature of demonstrations and intensive programmes should be limited. Every scientist in the university having a good research base should have direct

contact with the field so that he can have first hand knowledge of farmers' problems which he would have otherwise overlooked. This should be assured by placing highly trained subject-matter extension specialists in the respective divisions at the headquarters and at each of the regional research stations.

We further recommend that the State Departments shall be made fully responsible for the entire field of extension functions in the states excepting the limited extension functions to be performed by the research scientists in the university as recommended in the above paragraph. The subject-matter extension specialists located in the various divisions in the university and in the research farms, must be available to the extension workers to solve their special field problems. A suitable liaison machinery should be worked out in each state so that expert opinion can be obtained quickly by the field workers when necessary."

Interchange of Experts

5.24. Government were asked whether there was any system of interchange of agricultural experts as between laboratory, academic, administrative and extension work so as to enable them to gain varied experience. They have stated that though there has been no regular system so far, by holding periodical workshops, seminars and symposia etc. scientists are brought together and the exchange of ideas enables them to gain varied experience. They however agree that there is a need to interchang eagriculture experts amongst various departments. In addition, they have suggested that in-service training should be provided to each worker and after two to three years of service, each worker should be called at agricultural university/institute for training purposes.

Evaluation of Extension Work of Universities

5.25. The agricultural universities have departments of extension education attached to them. Government were asked as to whether the extension work performed by the universities has ever been evaluated. It is stated that the evaluation of extension work of the universities is carried out by the universities themselves. It is however stated that the University experts hold periodical discussion with the employees of State Governments and the local farmers to apprise them of the research findings and to educate themselves as to the needs of the farmers and the problems faced by them and

also to assess the reaction of the farmers to the various extension activities. Such needs and problems are, it is stated, kept in view while formulating future extension programmes. In this connection it has been suggested that besides the communication and information services existing in each university at present, it would be useful to attach a Block to each Agriculture University, the agricultural development of which should be in the charge of the University. Farmers Fields in the Block could be used as "Demonstration Farms."

Financial Outlay for the Fifth Plan period

5.26. The proposed Fifth Plan outlay for agricultural research is indicated as follows:

(Rs. in crores)

I. Institutes	57·92
II. All India Coordinated Projects	47·33
III. Education	51·00
TOTAL	156.25

In addition a non-plan investment of Rs. 60 crores and an expenditure of Rs. 7.50 crores out of cess funds are also envisaged during the Fifth Plan period making a total of Rs. 223.75 crores. Of the Central sector allocation of Rs. 156 crores, research on foodgrain crops would amount to Rs. 40 crores. It is stated that with this allocation not much could be planned by way of strengthening or expansion of the Institutes/Projects because of increase in cost of inputs, labour wages, enhanced pay structure, etc. However, sufficient care is being exercised in realligning the priorities in such a manner that core activities are not severely strained as a result of resources constraints.

Research Programmes envisaged for Fifth Plan

5.27. It is stated that the research strategy of the Indian Council of Agricultural Research during the Fifth Five Year Plan is largely to concentrate on consolidation and developing such facilities as would help to increase the per capita productivity of scientists. The agricultural universities would also concentrate on the effective utilisation of the facilities already created and on developing centres of excellence in selected areas. Neglected geographical areas will receive special attention.

Major Objectives and Approach

5.28. The major objectives and approach of the Fifth Plan proposals in agricultural research are summarised as follows:

(a) The immediate need is to step up considerably the productivity and production of rice, jowar, bajra, maize, pulses and oilseeds by bridging the "accomplishment gap" caused by research results not having had an impact on field accomplishments. Only a substantial step-up in the productivity of kharif crops car impart greater stability to total food production and provide the requisite quantities of food and industrial raw material. Efforts to improve the yield potential of all economic plants have to be pursued relentlessly.

(b) In view of the decreasing land-man ratio, stress should be on increasing productivity. Work should seriously begin towards producing more and more food from less and less land. Productivity targets have been fixed for each major food crop.

(c) At present the use of land is largely based on the home-needs of the farmer and the rural population and is not in many cases based on a market and income-oriented agriculture. It is proposed to undertake a classification in each agro-ecological area of the existing cropping and land use patterns on the following lines:—

Low-risk and high-yield potential crops.
High-risk and high-yield potential crops.
Low-risk and low-yield potential crops.
High-risk and low-yield potential crops.

The idea is to develop an integrated land and water use plan for each block based on ecology-cum-economics to help preserve soil fertility and at the same time be more gainful to the farmer and the community at large.

(d) Domestication of soil by tackling the problems of salinity, alkalinity, acidity and erosion.

(e) The water use is at present inefficient and wasteful. The rice crop consumes 45 per cent of our water resources but our rice yield is one of the lowest in the world. There is wastage of water at all points. Water management has therefore to be improved.

Precise Research Strategy and Priorities

5.29. It is stated that the precise research strategy and priorities will vary from area to area. The country has varied agro-climatic conditions. The area under major categories as reported in 1969-70 is as follows:

	In million ha.
Arid (hot and cold desert)	39
Semi-arid	97
Humid and high rainfall	42
Irrigated	30

The research priorities are therefore indicated as follows:

(a) Arid areas

(b) Semi-arid areas (dry land agriculture)

(c) Humid tropics

(d) High-altitude areas

(e) Scientific multiple cropping

(f) Problem soil areas

(g) Operational research

Operational Research Projects

5.30. It is stated that based o nthe experience gained in the National Demonstrations Programme, it is felt that there is a need to extend the concepts of National Demonstrations Programme on area or watershed basis. Keeping this in mind, a few Operational Research Projects having village or watershed area approach have been initiated by ICAR. These projects involve an integrated approach to the rural problems through the cooperation of local agencies, voluntary organisations, Development Departments, Socio-economic Institutes, etc. The Indian Council of Agricultural Research has formulated twenty-three such projects for implementation in the Fifth Five Year Plan.

5.31. The basic objectives of Operation Research Projects are indicated as follows:—

(i) To test, adapt and demonstrate the new agricultural technology on farmers fields on area basis;

(ii) To calculate critically the profitability of new agricultural technology to increase production and economic return substantially;

(iii) To identify the Socio-economic bottlenecks of the new technology; and

(iv) To assess the credit worthiness of the agricultural technology.

It is also stated that if the above data are available it may also become possible to decide whether insurance cover could be provided to facilitate the adoption of the technology. The operational research will be carried out by a number of operational research projects with a whole village approach.

5.32. The Operational Research Projects sanctioned for implementation in the Fifth Five Year Plan are categorised as:

(i) Operational Research Projects involving integrated development of Crop and livestock at Chittorgarh, Karnal, Amravati, Wardha, Puri, Sunderban, 24 Parganas and Bareilly;

(ii) Arid Land Management at Jodhpur;

(iii) Reclamation and Management of problem soils at Karnal (Haryana) and Kapurthala (Punjab);

(iv) Garden Land Cropping at Kasargod (Kerala);

(v) Potato seed production and Tuber crops farming system at Shillong and Patna;

(vi) Nomadic Sheep Husbandry at Malpura (Rajasthan);

(vii) Root wilt control in Coconut Garden in Kerala;

(viii) White Grub control based farming system at Nanded (Maharashtra);

(ix) Insect pest control in Cotton at Ludhiana & Coimbatore and Rice at Puri, Burdwan, Raipur, Warangal, Guntur and Kuttanad;

(x) Lac Production in Chhota Nagpur area;

(xi) Composite Fish Culture in West Bengal;

(xii) Operational Research Project on Rice at Nalgonda, Hoogly and Cuttack.

Projects with the support of outside agencies:

1.	Indo-U. K. Management Project on Black Cotton Soils	Indore
2.	Indo-New Zealand Project on crop & Livestock Production	Palampur
3.	IDRC Rural Agua-Cultural Project on Fish Feeding, Breeding & Management.	West Bengal
4.	Indo-Bulgarian Rural Agro-Industries Project . . .	Chhota Nagpur & Karnataka.

5.33. A meeting was held at Sewagram and Nagpur on 6th and 7th January, 1975, respectively to finalize the action programme and

the effective implementation of such projects. The following major recommendations are stated to have been made:—

1. The Operational Research Project area should be clearly identified and the programme once finalized should be implemented at the earliest. The project area should not be converted into an experimental area.

2. The Plan of operation be formulated at the earliest after bench-mark survey has been carried out. Assessment of the project should be built-in and for this purpose, agro-economic centres of the Department of Agriculture and the Agricultural Economic Departments of the Agricultural Universities may be associated.

3. Two action groups, first a Scientific Consortium, and Second the Project Implementation Consortium be organized immediately for the effective implementation of the project.

4. The selection of villages or the area of the project should preferably be where other infrastructures such as IADP, SFDA, Hill area Development Programme, etc. are being implemented.

5. Annual Workshops for such projects should be held and the reports should include the suggestions for improvement of administrative and technical aspects.

6. The selection of staff and the orientation training for the same should be undertaken by April, 1975. The training may include both farmers of the project area and the staff members.

7. Principal of "Social Audit" be introduced in addition to scientific and financial audits. The social audit criterion be used as a measurement of the benefits accruing to farming families having an annual income of less than Rs. 1000/- per family at the initiation of the project.

8. Krishi Vigyan Kendras proposed to be established by the Council should be effectively linked with the Operational Research Projects.

5.34. Our country is endowed with considerable geo-physical diversity, large tapped and un-tapped water resources, abundant sunlight, a large animal and human population and plenty of human talent. Yet, our agricultural productivity is low as compared

to not only western countries but also some of the far and near eastern countries like Japan and Egypt. A continuous pressure on land due to phenominal growth in population, aberrant weather and improper use and management of resources are to a large extent responsible for it. Our urgent need is therefore to develop and implement an agricultural production technology which will lead to increased productivity and thereby enable us to produce more and more food from less and less land under conditions of resource constraints. In this task, agricultural research has a primary role to play. In view of the urgency to augment the production of foodgrains to feed the ever-growing population and become self reliant in this vital matter, it is necessary that agricultural research institutions and universities should lay more stress on result oriented and applied research which can be of use to the farmer in increasing production. With that end in view the Committee would like to make the following recommendations:

5.35. The Committee note that out of a total plan expendiure of about Rs. 74 crores on agricultural research in the Central Sector during the Fourth Plan period, only about Rs. 12 crores were spent for research institutes and Coordinated Research Projects, having a direct or indirect bearing on crop research leading to enhanced foodgrain production. In the Fifth Plan also, out of the Central Sector allocation of Rs. 156 crores for agricultural research, the allocation for research on foodgrains crops is only Rs. 40 crores. The Committee feel that in view of the urgency of increasing production of foodgrains there is need for greater emphasis being placed on research for increasing productivity in food crops.

5.36. The Committee consider that dual arrangements which exist in some States whereby responsibility for education and research in agriculture is divided between the State Government and the Agricultural University are hardly likely to produce the best results out of limited resources available therefor. Besides, the Committee feel that the effort in research and education is likely to be more meaningful if it is brought under the guidance, supervision and coordination of the university specialists and experts. The Committee therefore recommend that Government should continue to pursue with the State Governments the question of transferring complete responsibility for agricultural research and education to the agricultural university so that there is no overlapping and wasteful duplication of effort, and agricultural research and education is placed in expert hands and that the responsibility for achievements or failures in the field could be clearly identified. At the same time, the Universities should inspire confidence by their work and

achievements in the field of agricultural research and development so as to facilitate the ready acceptance by the State Governments of their pivotal role in this field.

5.37. The Committee also recommend that there should be a system of objective evaluation of the research and development work done in each Agricultural University/Institute by an outside body of experts in related disciplines after every five years, preferably before the commencement of each Plan period. Such an evaluation would enable the State Governments to fully appreciate the work being done in the University and also enable the University itself to learn from the independent assessment of their work and effect improvements.

5.38. The Committee have observed that in the case of the Agricultural University at Pantnagar, the University has achieved self-reliance by the sale of seeds and agricultural produce out of a large agricultural farm attached to it. The Committee suggest that the Central Government should work out a scheme of attaching adequate farm land to each agricultural university/institute the income from which could supplement the finances of the institute/university and to that extent reduce the burden on the exchange.

5.39. The Committee feel that in the present context of shortage of food and agricultural raw materials in the country, it is necessary that the agricultural research should be more purposive and direction oriented. The Committee recommend that Indian Council of Agricultural Research should lay down clearly national priorities for agricultural research on the basis of country's needs and problems in the field of development of agriculture particularly foodgrains and the Agricultural Universities/Institutes should be directed to conform to the national priorities so laid down. There should be a system whereby the research projects and the educational curricula of the Agricultural Universities/Institutes are closely scrutinized at the Central level so as to ensure that these subserve the national priorities and that there is no overlapping and duplication of effort.

5.40. There may be more than one geo-climatic regions in a State and the problems of one region may be entirely different from the other. On the other hand, a geo-climatic region may extend to more than one State with common problems. In order that each distinctive region is fully covered and at the same time the utilisation of scarce resources is national and optimum and there is

no duplication of effort, the Committee recommend that the fields of research and related operations of each Agricultural University should be clearly demarcated on the basis of regions and/or crops on which it should be asked to concentrate and produce results.

5.41. The Committee feel that while organising agricultural research on geo-physical basis and keeping in view the specific needs of the various regions in comparatively bigger States, it may be necessary to set up more than one Agricultural Research Institute/ University in a State, as has been done in the case of Maharashtra where there are at present four Universities and in U.P. where, besides the University at Pantnagar, it is proposed to set up two other Agricultural Universities.

5.42. Agriculture in India is carried on mostly in small and medium holdings. In view of the fact that agricultural inputs like chemical fertilisers, irrigation water and power have become not only costly but scarce, the country has the problem of increasing production in small and medium farms by intensive farming techniques under conditions of resource constraints. The Committee desire that this aspect should be given utmost attention in the scheme of agricultural research, particularly in respect of food crops ..

5.43. The Committee suggest that each Agricultural University should select a few farms of the size of land ceiling applicable in the State and demonstrate how yield can be increased by the use of High Yielding Variety Seeds, new technology and improved agricultural practices under local conditions obtaining in the area. Such demonstrations would, in the opinion of the Committee, be more practical and yield better results in convincing the farmers about the utility of new agricultural technology and are bound to change their outlook about the adoption of new techniques extensively.

5.44. The Committee have in a subsequent chapter dealt with the problems of agriculture in dry areas which account for 42 per cent of the food production in the country. They also take this opportunity to emphasise the importance of greater attention being paid to research in the development of seed varieties and production technology suitable to dry areas, drought prone areas and such areas, as for instance in Maharashtra, where the top soil is very thin creating peculiar problems.

5.45. The Committee consider that in the context of their important role in increasing the production of foodgrains, the Agri-

cultural Universities should place greater emphasise on extension services and their performance should be judged by their efforts and achievements in augmenting production in the area or region for which they may be responsible. The Committee suggest that while evaluating the work of an Agricultural University after every five years as recommended in an earlier paragraph, their performance should also be judged on the basis of the increase in agricultural production and awareness of improved agricultural practices among the farmers, brought about by them in their region/area.

5.46. The extension functions of the Agricultural Universities do not end with the periodical training of the higher echelons of officers of the State Departments of Agriculture. In order that the knowledge of improved techniques of production and agricultural practices reach the farmer in the field quickly, the agricultural universities have to establish a direct linkage between the university specialists and experts and the farmers. This can be done most effectively by establishing university research centres at several convenient centres in the State. The university specialists and experts should periodically visit these centres at pre-announced dates and hold discussions and demonstrations for the benefit of the lower level extension functionaries, farm leaders and farmers. Such a system would also have the advantage of a constant feed-back to the university of the farmers' reactions to the new technology and the problems confronted by them in their day-to-day agricultural operations. Krishi Melas organised by some universities notably at Pantnagar (U.P.) and by I.A.R.I. at Delhi etc. at regular intervals is another useful media which could be adopted by all the agricultural universities/institutes for establishing direct two-way communication channel between the universities/institutes and the farmers in the field. Such Melas should preferably be held in each administrative district for the convenience of the farmers. The Committee feel that the cost of these dispersed extra academic activities of the agricultural university pertaining to extension education and training should appropriately be borne by the Government in the first phase. After some time, with the development of agriculture and sufficient income accruing to the farmers, a part of such expenditure may have be borne by the farmers or the Local Self Government.

5.47. The Committee appreciate the efforts being made to coordinate agricultural research on various food and other crops and disciplines undertaken in different agricultural universities and institutes through All India Coordinated Research Projects. Now that

existing system of research coordination has been in operation for some time, the Committee recommend that the role and achievements of the All India Coordinated Research Projects, on which Rs. 29 crores were spent during the Fourth Plan period and a sum of Rs. 47 crores is proposed to be spent during the Fifth Plan period, should be evaluated by a body of experts with a view to locate bottlenecks and suggest improvements in their working. The evaluation study should be made separately in respect of the performance of the Coordinated Projects as a whole and in respect of Projects which may be directly or indirectly concerned with increasing the production of foodgrains.

5.48. The Committee also recommend that in view of the increased emphasis on the production of foodgrains, Government should accord priority in the matter of research and funding to such of Coordinated Projects as are directly or indirectly concerned with increasing the production of foodgrains, as against Projects on more sophisticated areas of research.

5.49. The Committee observe that there has been lately a proliferation of seed varieties of different food crops which have, after short initial success, been found to be highly disease/pest prone. Besides, there is no effort to raise rapidly sufficient quantity of nucleus and foundation seed of the released variety to make for its saturation over the geo-climatic area for which it is supposed to be suitable, before the release of another variety for the same area. The Committee recommend that I.C.A.R. should ensure through appropriate bodies that there is no unbriddled proliferation of seed varieties, that before release there is a rigourous testing of the varieties from all angles-yield, duration, quality, disease and pest reaction—and that sufficient quantity of nucleus and foundation seeds of released varieties are built up rapidly so that quality seeds of proven high-yielding variety are available to the farmers in adequate quantity and on time.

5.50. The Committee feel surprised that although the 'Bunchy Top' disease in the Banana plantation which began in a virulent form in the Nilgiri Hill areas, has spread to the neighbouring areas of Kerala, Karnataka and Andhra Pradesh, no effective control measures have been taken as yet by any agency-State Agriculture Department, Tamil Nadu Agricultural University or the I.C.A.R. The Committee understand that at this stage the only remedy for eradicating the disease is to destroy every diseased clump of banana and cut the pseudo-stem and apply kerosene over the cut-end to prevent further sprouting and that these operations over large areas

may be costly. The Committee recommend that the Indian Council of Agricultural Research should pay urgent attention to the problem and take suitable remedial measures to arrest and eradicate the disease from the Southern region. They would also like the ICAR to devise an Early Warning System whereby the Council keeps itself regularly informed of the incidence of disease or attack of pests so as to enable it to take timely remedial measures when the problem is at the nebulous stage.

5.51. The Committee note the Claim of the Government that the 'National Demonstrations' programme implemented during the Fourth Plan period intensively in 100 districts and extensively all over India has 'led to the change of outlook of the farming community' and these proved to be excellent centres for farmers training and transfer of technology to the farming community. Based on the experience of the scheme, Government have launched, during the Fifth Plan period, a programme of 23 'Operational Research Projects' on area or watershed basis involving an integrated approach to the rural problems through the cooperation of local agencies, voluntary organisations, Development Departments, Socio-economic Institutes etc. The Committee hope that the Projects would be effectively implemented and the cooperation of all the public and voluntary organisations concerned would be forthcoming in larger measure so that the farmer in the field could have the benefit of research and development work being done in the agricultural universities/institutes and at the same time, the nation could also benefit by increased production of foodgrains.

B. Agricultural Extension Programme

(i) *Agricultural Administration in States*

Set up in States

5.52. The agricultural set up at the State level consists of a number of separate departments such as Agriculture, Animal Husbandry, Fisheries, Forestry, Minor Irrigation and Community Development. The actual combination of subjects dealt with by an individual department differs from State to State. However, as a result of the recommendations of the Ram Subhag Singh Committee (Report of the working Group of Inter-Departmental and Institutional Coordination for Agricultural Production 1963), a post of Agricultural Production Commissioner has been created in all the States except Andhra Pradesh, Gujarat, Assam, Mysore, Punjab and Tamil Nadu where it is felt that adequate arrangements for achieving the coordination of various departments concerned with agricultural production already exist.

The Agricultural Production Commissioner acts also as the Principal Secretary of all the agricultural departments and therefore functions as the main agency for securing coordination from the different agricultural departments. Besides, in most of the States there are coordination committees for agricultural production at the Secretariat level presided over by the Chief Secretary and another similar committee at the Cabinet level presided over by the Chief Minister.

5.54. Below the State Secretariat level, there are technical heads of departments i.e. the Director of Agriculture, the Director of Animal Husbandry, the Director of Fisheries and so on. These heads of the technical directorates are responsible for technical guidance and control over the staff under them at the district and the block level and are responsible for detailed planning, programming and supervision over execution. They also advise the State Government on technical matters.

5.55. It was stated in the Preliminary Material furnished by the Government that "in recent years, in some states non-technical administrative officers have been appointed as Directors of Agriculture." Since the Directors of Agriculture are responsible for technical guidance to staff at district and block levels and for detailed planning, programming and supervision in the field of agricultural development and also act as advisers to State Governments on technical matters, Government were asked whether they had impressed upon the State Governments the desirability of appointing technically qualified officers to this post. In reply they have merely stated:

> "The latest information will have to be collected from the State Governments."

5.56. At the District level, according to the normal pattern, the District Collector is responsible for coordination of all development programmes including agricultural production and the District Agricultural officer is administratively responsible to him. But in Maharashtra and Gujarat, the Zila Parishads are fully responsible for implementation of agricultural production programmes and the agricultural staff at the district level is under the Chief Executive Officer of the Zila Parishad.

5.57. At the Block level, in the normal pattern, the Block Development Officer is responsible for coordination of agricultural programmes. The Agricultural Extension Officers are administratively placed under his control. The Block Development Officer himself is responsible to the District Collector. In the Maharashtra and Gujarat, however, the Block Development Officer is under the control of the Panchayat Samiti and answerable to the

Chief Executive Officer of the Zila Parishads. The technical staff thus functions under a kind of dual control: While technically they are under the control of the hierarchy under their own department, administratively they are under the control of Block Development Officer and the District Collector/Chief Executive Officer.

5.58. At the Village level, Village Level Workers (VLW) look after the agricultural extension work. It is stated that according to Ram Subhag Singh Committee "Village Level Worker should devote all his time to agriculture and allied production programmes" but in actual practice, this objective has not been achieved and the VLW still functions as multi-purpose extension workers.

5.59. In reply to a question whether Central Government have emphasised upon the State Governments the importance of implementing the recommendations of the Ram Subhag Singh Committee in regard to the functions of the VLW, it has been stated that the Central Government have repeatedly emphasised on the State Governments that V.L.W. should devote full time to the agricultural development work and he should be relieved of other regulatory functions. The State Governments however do not consider it feasible to relieve the V.L.Ws. of duties other than those relating to agricultural production as it entails employment of additional staff with great financial implications and the V.L.Ws. continue to perform multi-purpose duties.

5.60. In view of the fact that the heads of Agriculture Directorates in the States are responsible for giving technical guidance to the staff at district and block level and for detailed planning, programming and supervision in the field of agricultural development and also act as advisers to State Governments on technical matters relating to agricultural development in the State, the Committee would like Government to pursue with the State Governments, the question of appointing technically qualified and knowledgeable officers to the posts of Directors of Agriculture. To enable such officers to discharge an effective role in coordinating the procurement of various inputs for agriculture for which different departments of Government may be responsible and also in coordinating the multifarious activities of his own organisation, it is also necessary that the Directors of Agriculture should be dynamic officers of proved administrative acumen. For this purpose, the various training facilities available in the country could be availed of.

5.61. The Committee also recommend that the Central Government should impress upon the State Governments the desirability

of combining the departments responsible for Agriculture and Irrigation and placing them under one Minister, as has been done at the Centre, to make for better coordination in closely related fields.

Evaluation of Extension Services in the States

5.62. The Ministry of Agriculture have admitted that a scientific evaluation of the extension services in the various States has not been made so far. However, according to them various Committees and Commissions have been reviewing the extension services and suggesting ways and means for its improvement. These Committees/Commissions were:

(i) Nalagarh Committee (1958)

(ii) Dr. Ram Subhag Singh Committee (1963)

(iii) B. R. Sen Committee (1969)

(iv) National Commission on Agriculture (1973-74)

(v) Cabinet Committee on Food—1974.

The National Commission on Agriculture is, it is stated, making a more detailed appraisal in this field. Recommendations made by the earlier Committees are stated to be "receiving the attention of the Ministry".

5.63. In reply to a question, the Ministry of Agriculture have admitted that in view of the fast changing technology "the existing extension system has been found inadequate". They have forwarded to the Committee the relevant recommendations of the National Commission Agriculture in their interim report. The recommendations of the National Commission on Agriculture in regard to pattern of agricultural administration in the States are as follows:—

"8.9. The Commission recommends that the programme, subject matter and extension specialists at the State Level must be specialists of the highest level possible in their fields of specialisation and they should maintain contacts with the specialists in the university divisions. At district, and tehsil or taluk level, there should be a team of specialists in appropriate fields and in appropriate grades. The team leader and the specialists at tehsil level should preferably be the holders of M.Sc. degree and those at the district level preferably holders of Ph.D. degree. To provide support to VLWs, there should be five to six AEOs who are graduates in agriculture for every block, one of them being under the control of block authorities and the rest under the Department of Agriculture. In

animal husbandry, there should be one graduate field Extension Officer at least at taluk level. In the district where a special programme is being undertaken in animal husbandry or fishery, additional suitably qualified Extension Officer should be posted. The existing VLWs may be encouraged to take higher training to qualify themselves as Agriculture Extension Officers."

5.64. The Committee regret that despite the review of extension services in the country by several Committees and bodies appointed since 1958 who had suggested ways and means for its improvement, the existing extension services in the country are found by Government themselves to be inadequate to cope with the needs of modern agriculture and special agricultural development programmes. The Committee would like to point out that the reports of these Committees contain useful ideas and suggestions for bringing about improvement in the extension machinery and if the Government had taken steps to implement them the situation on the food front would have been quite different. The Committee emphasise the need for early implementation of the recommendations contained in the latest report of the National Committee on Agriculture to revamp the extension machinery so that it is able to cope with the needs of technological developments in agriculture and of the special programmes.

Strengthening of Extension Administration

5.65. Indicating the genesis of the Centrally Sponsored Scheme for Strengthening of the Machinery on Extension Administration in the States/Union Territories at District and Block Levels, the Ministry of Agriculture have stated that the inadequacy of the agricultural administration in general and extension machinery in particular to meet the challenge of increasing production, new technological developments as well as other special development programmes has been engaging the attention of the State Governments as well as the Central Government for quite some time. The previous Committees and Commissions which had considered the problem, had all agreed to the basic needs for proper planning, coordination and leadership at the top level and strengthening the machinery all along the line both qualitatively and quantitatively, so as to attune it to the needs of the new Agriculture. The existing extension machinery is, it is stated, considered unequal to the task of effective implementation of the programmes connected with even the traditional agriculture much less other special programmes like SFDA, MFAL, DPAP, and Intensive

Commercial Crop Production Areas. The gaps in extension machinery have, therefore, to be abridged to gear it up if the objectives of increasing emphasis on agricultural production and rural employment envisaged under the Fifth Plan are to be implemented.

5.66. It is stated that the Group of Ministers on administration had a meeting with the members of the Sub-group on Agricultural Development and considered the reports of the Sub-group regarding Agricultural Administration. This report *inter-alia* envisages division of the country into (i) areas of new agriculture and (ii) areas of traditional agriculture. The areas of new agriculture cover such areas as are having adequate irrigation intensity and assured rainfall, where technological changes in agriculture arising out of new varieties of seeds with high genetic quality of response to fertilizer application should be brought to the field of the farmers. In the other category are the areas where due to nature's deficiency it is not readily possible to extend the new agriculture. Here simple extension programmes and organisational effort mainly towards the supply and services would have to be continued, coupled with alternative and additional production in animal husbandry, poultry etc. which would be fitted into the programmes like Drought Area Programmes, Backward Area Development Programme, Hill Area Development Programme etc. This line of approach has been accepted by the group of Ministers subject to the following modifications:

(a) The VLW would preferably be an Agricultural Graduate. As this may not be feasible for some time yet, the VLW should be adequately trained to equip himself for discharge of the responsibilities which 'new' agriculture entails.

(b) The number of tiers at which technical assistance is to be provided should be reduced and restricted to the village level, the block level and the district level. In the case of large States such as U.P., provision may also be made for an additional tier at the divisional level with devolution of power from the State level to accelerate the process of decision making.

(c) A time bound programme should be drawn up to extend the system for 'new' agricultural to areas proposed to be retained at present under the system of traditional agriculture.

(d) The role and responsibilities of the agricultural universities and the Department of Agriculture should be clearly defined to obviate any over-duplication of effort.

(e) Special organisations needed for special crops should be fitted into the normal administrative pattern taking into consideration the needs of special areas.

(f) Credit, physical inputs and marketing should be interlinked and the model suggested by the National Commission on Agriculture for providing these services adopted with such marginal changes as are considered necessary.

5.67. The Centrally Sponsored Scheme has been formulated in the light of these decisions. The Planning Commission have, it is stated, approved a Fifth Plan outlay of Rs. 25 crores, being the 50 per cent share of the Central Government for its implementation. The Planning Commission have also advised that instead of prescribing a uniform pattern for all the States and Districts, there should be a deliberate flexibility in the approach and the States should be asked to submit proposals indicating the present status of the Extension Agency and the requirements District by District of their State. The Scheme is a staff strengthening scheme and would not have any building or other non-recurring component. It is further stated that as the formalities involved in the creation of the posts, recruitment of the staff etc. will also take some time, no expenditure is anticipated on the Scheme during 1974-75 and the entire outlay of Rs. 25 crores representing the 50 per cent share of the Central Government will be spread over in the remaining four years as under:

	(Rs. in crores)
Cost of Addl. VLWs.	38·32
Cost of up-grading the 15% posts of VLWs for Agricultural graduates	2·48
Cost of Addl. AEOs, ...	7·78
Cost of Addl. Dist. level Specialists	1·42
TOTAL :	50·00
Centres' share @ 50%	25·00

5.68. In a subsequent reply to appoint, the Ministry of Agriculture have stated that the scheme is yet to be cleared by the Ministry of Finance and after is cleared by the Ministry of Finance the State Governments will be approached to find their reaction as they have to share 50 per cent of the expenditure.

5.69. The Committee note that a centrally sponsored scheme for strengthening the Machinery of Extension Administration in the States/Union Territories at District and Block Levels has been ap-

proved for implementation during the Fifth Plan period with an outlay of Rs. 25 crores, representing 50 per cent share of the Central Government, the other 50 per cent to be provided by the State Governments. The scheme aims at strengthening the extension machinery at the District and Block Level which is at present considered 'unequal to the task of effective implementation of the programmes connected with even the traditional agriculture much less other special programmes'. The Committee are distressed to find that although the first year of the Fifth Plan has gone by, the scheme is yet to be cleared by the Ministry of Finance. After its clearance by the Ministry of Finance, the State Governments have to be approached 'to find their reaction as they have to share 50 per cent of the expenditure' and after the States also agree to the scheme, formalities involved in the creation of posts, recruitment of staff etc. have to be gone through. There does not, therefore, appear any likelihood of the scheme being actually implemented even in the second year of the Fifth Plan. The Committee cannot overemphasise the importance of strengthening the extension machenery at the field levels as the transmission of the results of agricultural research and development effort to the farmer in the field depends largely on the effective functioning of the machinery. If the farmer is to get the benefit of technological improvements and the agricultural production, particularly that of foodgrains, is to be increased, maximum attention has to be given to the strengthening and activising of the extension machinery. The Committee recommend that the implementation of the aforesaid scheme should not be delayed any more and advance steps where possible, should be taken to avoid delay in implementation of the scheme after it is finally cleared.

(ii) *Extension Organisation at the Central Level*

5.70. The Directorate of Extension of the Ministry of Agriculture and Irrigation provides leadership, guidance and financial assistance to State Governments in planning, implementing, supervision, coordination and evaluation of the programme relating to Extension Training and Farmers Training and Education. The Directorate is organised into three units, namely, Training Unit, Farm Information Unit and Administrative Unit, each under a Director. On programme basis there is another unit also, namely, Livestock Unit.

The annual expenditure of the Directorate of Extension during last three years of the Fourth Plan has been indicated as follows:

	Rs. in lakhs
1971-72	35·19
1972-73	34·18
1973-74	39·15

The unit-wise break-up of the expenditure incurred during 1973-74 has been indicated as follows:—

Administrative Unit	Rs. 22·36 lakhs
Training Unit	Rs. 8·45 lakhs
Farm Information Unit	Rs. 7·44 lakhs
Livestock Unit	Rs. 9·90 lakhs

Improvement Envisaged

5.72. The Ministry of Agriculture were asked to indicate the changes in the organisational structure of the Directorate of Extension proposed to be made during the Fifth Plan period and their financial implications. It is stated that an assessment reveals the urgent need of equipping the Directorate with necessary Subject Matter Specialists in the area of Farm Management, Agronomy, Nutrition Education and Farmers Training and Education. The estimated financial implication during the Fifth Plan works out to Rs. 22 lakhs for the Directorate of Extension. This includes the cost of some equipment and supplies to run the machines procured under assistance from United Nations Development Programme.

5.73. The Committee are surprised that against the total expenditure of Rs. 39 lakhs on the Directorate of Extension in 1973-74, as much as Rs. 22 lakhs was spent on the Administrative Unit alone. The combined expenditure on the Training Unit, Farm Information Unit and Livestock Unit, which are the operational wings of the Directorate, was only 17 lakhs. The Committee recommend that Government should have the organisation, functions and performance of the Central Directorate of Extension evaluated by a Committee of Experts which may inter alia **include a Vice-Chancellor of an Agricultural University and a representative of the Ministry of Finance. This Committee may also be required to make suggestions for improvement to make the organisation and effective instrument for coordination of Agricultural Extension work in the whole country. The suggestions and recommendations of the Committee should be implemented by the Government expeditiously. Meanwhile, the Committee would like the Directorate of Extension to re-**

duce their administrative expenditure to the minimum and increase the outlay on the operational wings which should have specialised personnel and facilities in required fields.

Training Unit

5.74. The Training Unit of the Directorate of Extension is stated to be responsible for providing leadership, guidance, financial assistance to the State Governments and coordination of programmes in the field of extension education and training. In collaboration with the State Governments and subject matter divisions of the Ministry of Agriculture, training programme are being organised for the entire range of extension functionaries including the instructional staff throughout the country from village level workers to the State level officers connected with the agricultural development programmes. The various training programmes for extension personnel are as follows:—

A. *Programme of Training of Extension Personnel*

(i) Pre-service Training of Village Level Workers.

(ii) In-service Training of Village Level Workers.

(iii) Higher Training of Gramsevaks at the Upgraded Centres.

(iv) Refresher Training Courses for Extension Officers in Agriculture, Animal Husbandry and Agricultural Credit etc.

(v) Staff courses for Senior Officers of the State Agriculture and Animal Husbandry Departments.

(vi) Inservice Training Programmes in subject-matter and Extension Techniques for the instructional staff and Block Supervisory staff at the EEIs.

(vii) *Ad-hoc* training courses and campaigns.

(viii) Pre-service Training of Gramsevikas.

(ix) In-Service Training of Gramsevikas.

(x) Refresher Courses for the Mukhyasevikas in Agriculture and allied subjects.

(xi) Concentrated subject-matter refresher courses for the instructresses of the Gramsevikas Training Centres and Mukhyasevikas.

(xii) Special Training in Domestic Storage of Foodgrains.

B. *Farmers Training & Functional Literacy Programme*

(i) Centrally sponsored scheme for Farmers Training and Functional Literacy.

(ii) Evaluation of Farmers Training and Extension Training activities.

C. *Exchange of Farmers within and outside the country and training of rural youth*

(i) International Farm Youth Exchange Programme.

(ii) Supporting Farmers Voluntary Organisations.

(iii) Organisation of Young Farmers Club around the Gramsevak & Gramsevika Training Centres.

(iv) Extension & Training support to international participants.

Training Centre & Number of Persons Trained

5.75. A State-wise list showing the number of Gramsevak Training Centres and the total number of VLWs trained from these centres as on 31-12-1974 is given below:—

State	G.T.C.	No. of VLWS trained
1	2	3
Andhra Pradesh	4	8320
Arunachal Pradesh	1	691
Assam	3	2370
Bihar	4	11327
Goa	4	199
Gujarat	4	3192
Himachal Pradesh	1	778
J & K	1	680
Karnataka	5	3483
Kerala	3	1943
Madhya Pradesh	6	6827
Maharashtra	9	8179
Manipur	1	Nil

1	2	3
Meghalaya	1	567
Nagaland	1	115
Orissa	3	6222
Punjab	2	2896
Rajasthan	3	5014
Tamil Nadu	5	6270
Tripura	1	454
Utter Pradesh	20	1151
West Bengal	7	4070
		87348
VLWs trained at the centres which have been closed prior to 1969		8106
	86	95454

5.76. It is noted from the above information that the number of VLW Training Centres and trainees in different states are largely unrelated to the size of the States. While a State of the size of Maharashtra for instance has 9 centres with a record of 8179 persons trained, the State of the size of Bihar has only 4 centres with 11327 trainees and Madhya Pradesh has 6 centres with only 6827 trainees. When these facts were brought to the notice of the Ministry of Agriculture, they have admitted that the number of existing Gramsevak Training Centres "has not been directly in proportion to the needs of the States."

Extension Education Institutes

5.77. At present there are only 3 Extension Education Institutes in the country—at Nilokheri (Haryana), Anand (Gujarat) and Hyderabad (Aandhra Pradesh). These institutes provide facilities for improving the technical ability of the instructional staff of the various training centres, and refresher training to the Extension Officers in the field of agriculture and animal husbandary. Government were asked whether the existing number of institutes and facilities for education and training of the type available in these institutes is adequate for the needs of the country. They have in reply stated that the needs and requirements of these institutions are

under constant review and to meet the emerging needs, adequate strengthening as proposed in the Fifth Five Year Plan.

Refresher Training

5.78. It is stated that Gramsevikas are provided two months in-service Refresher Training "after every 3-5 years" to bring them up-to-date in the latest developments in the subject-matter areas. Replying to the point whether a gap of 3-5 years between the initial training and the refresher course was reasonable specially in view of the fact that farm techniques are changing rather fast, the Ministry of Agriculture have stated that the intensity of refresher training at an interval of 3-5 years was planned "at the initial stages" and now "with the increasing number of Gramsevaks and Gramsevikas it has been found possible to give in-service training only once in 7-8 years."

Evaluation Cell of the Training Unit

5.79. An Evaluation Cell has been functioning in the Training Unit of the Directorate of Extension since April, 1973 assessing the impact of the various extension training and farmers education programmes undertaken by the Unit. The experimental evaluation study and *ex-post facto* study in respect of the Centrally Sponsored Scheme for farmers training and functional literacy has already been referred to in an earlier paragraph. Some other studies are stated to be under processing.

Projection for the Fifth Plan

5.80. It is stated that for the Fifth Plan period the major thrust of training programmes would be in the following directions:

(a) expanded, planned and localised in-service training facilities to all categories of personnel according to the agro-climatic and socio-economic consideration;

(b) upgrading the skills and competence of trainers incharge of the training programme both at the field level as well as the institutional level;

(c) special emphasis to cater to the needs of women functionaries in the context of nutritional requirements and subsidiary occupation;

(d) integration of training efforts both of the primary producers and the extension workers from the village to the State Levels to equip them to deal with the emerging priority programmes such as SFDA, MFAL, ICDP etc.

(e) linking related educational agencies such as All India Radio, Agricultural Universities, input suppliers, both private and public sector undertaking, to provide timely information support for mass communication expanding and intensifying the use of audiovisual aids supported by demonstrations in the farmers' fields;

(f) designing special training and educational efforts to cater to the needs of farm youth to develop skill to handle modern agricultural technology and to provide rural leadership;

(g) expanding facilities, support and assistance to Farmers Voluntary Organisations to assume responsibilities and provide support to growing developmental needs;

(h) providing opportunity to farmers and farm-youth to study modern methods of agriculture production and leadership development, through Exchange visits both within the country and outside the country.

(i) arranging International Training facilities in agriculture extension and Farmers Training to the Extension personnel from the Developing countries.

5.81. The Committee are constrained to note that even in the modern era of swift technological developments in the field of agriculture, it has been found possible to give refresher training to extension workers at the grass root level 'only once in 7-8 years'. With an out-dated knowledge, it is hardly possible for the VLW to play any useful role in the national effort to increase agricultural production. The Committee recommend that there should be a system of regularly feeding the VLW with the knowledge of latest advances in the techniques of agricultural production, by way of refresher training courses organised at conveniently located centres, manned by technically competent staff, so that he can really exert an effective influence on agricultural productivity in his area of operations.

5.82. The Committee also note that the number of VLW Training Centres in different States are largely unrelated to the size of the States. For example, while Maharashtra has as many as 9 centres, the States of the size of Bihar and Madhya Pradesh have only 4 and 6 centres respectively. The Committee recommend that Government should impress upon the State Governments, the need for assessing the training requirements of extension workers—initial as well as refresher and setting up training centres according to re-

quirements at convenient locations. The Committee, however, feel that there should be at least one training centre in each division which should have adequate facilities for initial training as well as refresher training of VLWs.

5.83. The Committee recommend that the Government should have the content and quality of the extension education and training imparted by the extension training centres/institutions evaluated by an expert outside body and take steps to give it a field orientation closely related to geo-physical conditions of the areas/zones catered for by these institutions.

Farmers' Training and Functional Literacy

5.84. The Centrally Soponsored for Farmers' Training and Functional Literacy is a joint effort of the Ministries of Agriculture, Information and Broadcasting, Education and Social Welfare and the Indian Council of Agricultural Research with the participation of UNDP and UNESCO. The project aims to increase yields per acre and number of crops per year in 100 selected High yielding Varieties Programme Districts through the main strategy of intensive and non-institutional training and education of farmers (including farm-women) in order to equip them with knowledge and skills necessary for the large scale use of sophisticated inputs and to enable them to keep pace with the rapidly changing agricultural technology relating to seeds, fertilisers, pesticides, implements, water-use etc. The programme has been designed to cater to the requirements of the farm families as a whole and endeavours to take the training to the farmer's door-step rather than bring the farmers to a formal institutional environment. The various components of the training provide the versatility to suit requirements of farmers in varying situations.

5.85. The main components of this programme are—

1. Specialised Subject-Matter Training Courses of short duration for Farmers and Conveners of Farmers Discussion Groups (Churcha Mandals).
2. Farmers Discussion Groups (Churcha Mandals) for Farmers and Farm Women.
3. Production *cum* Demonstration Camps.
4. National and other Demonstrations.
5. Farm Broadcasts by Farm and Home Units of All India Radio.

6. Conducted tours of Farmers, and

7. Functional Literacy for illiterate farmers.

5.86. The programme was initiated in 1966-67 in five districts and in 1971-72 the total coverage extended to 100 districts. The total expenditure on the scheme from 1968-69 to 1973-74 was Rs. 4.29 crores. It is stated that this scheme will be expanded during the Fifth Plan to cover 50 additional districts. The participation of the UNDP will come to an end in April, 1975 and thereafter the scheme will be implemented by the Central Ministries concerned. A sum of Rs. 9 crores has been provided for this purpose during the Fifth Plan period.

5.87. The number of districts taken up in each States and the amount of Grant-in-aid provided to the States during 1973-74 is indicated in the Statement below:

	State	No. of districts covered	Grant-in-aid (Rs. in lakhs)
1.	Andhra Pradesh	7	8·00
2.	Assam	3	2·50
3.	Arunachal Pradesh	1	
4.	Bihar	6	5·00
5.	Gujarat	5	3·00
6.	Haryana	5	5·00
7.	Himachal Pradesh	1	1·00
8.	Jammu & Kashmir	1	
9.	Kerala	4	2·00
10.	Madhya Pradesh	5	4·00
11.	Maharashtra	10	7·00
12.	Meghalaya	1	0·50
13.	Karnataka	6	3·50
14.	Nagaland	1	
15.	Orissa	4	4·50
16.	Punjab	7	5·00
17.	Rajasthan	4	2·00
18.	Tamil Nadu	7	8·00
19.	Tripura	1	1·00

State	No. of Districts covered	Grant-in-aid (Rs. in lakhs)
20. Uttar Pradesh	11	11·50
21. West Bengal	7	2·00
22. Delhi	1	
23. Goa .	1	
24. Pondicherry .	1	..
TOTAL :		75·50

Evaluation of the Scheme

5.87. It is stated that the evaluation of the programme was initiated in 1971-72 with the taking up of the Bench Mark Survey and the evaluation of Farmers Training and Functional Literacy Project in Jaipur. The effectiveness of programme was assessed by collecting information from farmers who had undergone training under this programme on their awareness, knowledge and adoption of various improved practices in regard to varieties, chemical fertilisers, methods of sowing, plant protection measures etc. The salient findings of the study are stated as under:—

1. Most of the farmers have acquired higher level of awareness, knowledge and adoption of various improved practices.

2. The extent of awareness, knowledge and adoption of improved practices exhibited by these farmers has been found to be higher than the bench mark survey.

3. This group is also significantly superior to the bench mark because after receiving training these farmers have adopted more of improved practices.

5.88. Further, an *ex-post-facto* study was started in January, 1973 in four districts *viz.* Agra, Udaipur, Tanjore and Puri, and the data is being processed. The programme Evaluation Organisation of the Planning Commission have also taken up 32 districts for evaluation study. As a result of the evaluation already done, Government have concluded that the programme "has been found to be an effective contributing factor in the popularisation and adoption of improved practices and as such has to play a key role in the process of modernising agriculture."

5.89. Government were asked whether any changes were contemplated in the content of the programme during the Fifth Plan period. They have stated that the participation of the United Nations Development Programme will come to an end by April, 1975 and thereafter the programme will be implemented by the other Central Ministries concerned. It is further stated that the Planning Commission have conveyed their approval to extend the programme in another 50 districts.

5.90. The Committee note that the Centrally sponsored scheme for Farmers' Training and Functional Literacy implemented during the Fourth Plan gradually covering 100 districts at a cost of about Rs. 4 crores, has been found, after evaluation, to have been an effective contributing factor in the popularisation and adoption of improved agricultural practices. It is proposed to continue this scheme during the Fifth Plan period and cover 50 additional districts and a sum of Rs. 9 crores has been provided in the Fifth Plan for this scheme. The Committee would suggest that as far as possible the scheme should be implemented through the existing training centres in the States and Constant watch should be kept on the implementation of the scheme so as to ensure that the benefits of the scheme actually reach the farmer in the field, specially the marginal and small farmer. There should also be a regular system of contemporaneous evaluation of the scheme so as to effect improvements.

Farm Information Unit

5.91. Field information support to research and extension work in agriculture and related fields is primarily the responsibility of the State Agricultural Information Units and the Information Centres of the Agricultural Universities. The Farm Information Unit of the Directorate of Extension at the Centre, however, acts as the national grid of information of all-India character for the States and the Universities, public sector undertakings concerned with the production of agricultural inputs, Central Institutions and Agricultural Field Extension workers all over the country. This unit also lends information support to all the Central or Centrally sponsored schemes, gives out the technical know-how emanating from the Central Research Institutes and Central directives on Kharif and Rabi campaign through popular mass media of communication, e.g., publications, press service, films and news reels, non-projected visuals such as pictorial teaching charts, flannelgraphs, slide sets, exhibition sets mounted on mobile vans etc. It is, in addition, acting as a coordinating agency for agricultural information that is being given out from different sources so as to time and focus them to pur-

poseful end. The agricultural information personnel all over the country are also being given job and inservice training on various aspects of agricultural information communication so as to make them more competent in handling the subjects.

Production of films and newsreels

5.92. A scheme of production of research and instructional films was taken up during the Fourth Plan period at a total cost of Rs. 84 lakhs. It is stated that 100 reels have so far been produced and 35 are under production. Prints of these films are supplied free of cost to various training and information centres. This scheme is being continued during the Fifth Plan period.

5.93. A new scheme for "Production of Agricultural Films—news Reels" has been proposed for implementation during the Fifth Plan period. The scheme is aimed at highlighting selected agricultural achievements by the progressive farmers and the latest developments in agricultural technology for an audience which would draw direct benefit from seeing the agricultural achievements through the news reels. The Planning Commission is stated to have accepted the scheme in principle with a total plan outlay of Rs. 30 lakhs. Formal approval of the Planning Commission to detailed scheme is being awaited by the Ministry of Agriculture.

5.94. The Committee note that the Farm Information Unit of the Directorate of Extension provides information support to all Central and Centrally Sponsored Schemes and gives out the technical know-how emanating from the Central Research Institutes and Central directives on agricultural campaigns. It also disseminates farm information of an all-India character. The information programmes include production of literature, press service, non-projected visuals such as charts, slides and exhibitions and the production of films and news-reels. The Committee feel that the activities of this unit are at best only supplementary as each of the Central Agricultural Institutes and universities and the Indian Council of Agricultural Research itself have full-fledged information units which publicise their activities through various mass media. The Committee apprehend that there being several agencies for dissemination of information of the type being supplied by the Farm Information Unit, there is a possibility of overlapping and duplications of effort. The Committee, therefore, recommend that the role, functions and achievement of the Farm Information Unit including the publicity value of the material produced by it so far should be evaluated by an outside expert body who may also suggest measures to make it an effective instrument for dissemination of extension information.

CHAPTER VI

DRY LAND AGRICULTURE

6.1. About 75 per cent of the cultural land in the country is rainfed contributing 42 per cent of the nations food. Agricultural production in dry areas, however, offers both poor returns and greatest instability due to uncertain rainfall and lack of irrigation facilities. Integrated development of dry land agriculture is, therefore, important for national, economic and social reasons. It is stated that since the Fourth Plan and beginning from 1970-71, special attention is being paid to both research and development aspects of dry farming. The main components are:

(i) Intensive research for evolving techniques which will help to give maximum returns from the available soil and moisture resources in dry areas; and

(ii) Practical application of results of the available knowledge on soil and moisture conservation practices, cultivation of drought tolerant and short duration verieties of crops, new techniques of application of fertilizers, including foliar spraying, adoption of plant protection measures, etc with the necessary infra-structure and training.

Dry Land Agricultural Research

6.2. An All-India Co-ordinated Research Project on Dryland Agriculture under Indian Council of Agricultural Research has been functioning since 1970 with Canadian participation. The object is to develop new dryland technology and improve agricultural production under dryland conditions. Under this project a technological package involving water harvesting through farm ponds, mulching, etc., appropriate tillage, fertilizer application, crop substitution, varietal planning plant protection and post-harvest technology are being developed for eacb area and tested and demonstrated in the adjoining pilot projected area. An operational dryland research pilot project in black soils at Indore had also been taken up in late 1973, as and Indo-British collaboration project.

Allocation and Expenditure on Dry Farming Research

6.3. Out of a total Fourth Plan allocation for ICAR's All-India Coordinated Research Projects of Rs. 15.34 crores, the allocation for Dry Farming Research was only Rs. 1.8 crores. The expenditure during the Fourth Plan period on Dry Farming Research was Rs. 1.61 crores against the total expenditure of Rs. 12.1 crores for all the coordinated Projects.

Progress made

6.4. Government were asked to indicate the progress made regarding the development of varieties of crops suitable for dry and drought prone areas and of improved seeds for such crops. They have stated that the programmes had two aspects: (1) Crop substitutions and (2) Breeding of crop varieties tolerant to drought. As far as the first item is concerned sufficient progress had been made in identifying crops and varieties suitable to drought situations. For example, Sunflower, Safflower, Castor, Horse gram, etc. are found to be better crop substitutes under low moisture conditions because they produce some crop when the traditional crops like groundnut and other grain crops give way. As regards breeding of drought tolerant crop varieties, substantial progress has been made in Sorbhum in which a hybrid CSH-1 is extremely drought tolerant. But it could not become popular because of its shootfly susceptibility and its non-acceptable grain quality. SCH-4 and CSH-5 are the improved versions intended to replace CSH-1. In Bajra, HB-3 and HB-5 were supposed to do well under dry land conditions. But due to their susceptibility to downy mildew, they had a set back in their wider development. To offset it, reconstructed HB-3 and a few more new Bajra Hybrids like PSH-10 and PSH-11 have been developed. In Ragi, varieties like Co-10 and ROH-2 have been developed to suit dryland agriculture with reasonably high productivity. A similar progress has been made in evolving new varieties of other lesser millets which have a better scope to adapt to extreme levels of moisture stress. Work has also been intensified to evolve suitable varieties of pulses, groundnut and other oil seeds crops. Triticales have been introduced into the scarce mositure wheat areas since they do reasonably well where a normal wheat crop cannot be expected to do so.

Research Programme for Fifth Plan

6.5. It is stated that the All-India Coordinated Research Project on Dryland Farming will be further strengthened during the Fifth Plan period. In addition, crop-life-saving research designed both to save a crop when it runs into aberrent weather and to develop alternative cropping strategies to effect mid-season corrections in

cropping pattern, will be intensified. While attempts will be made to develop techniques for saving every drop of available water for human, animal and crop use, cooperation will be extended to other agencies like Indian Metrological Department, CSIR and Department of Atomic Energy in exploring possibilities for harnessing non-conventional sources of water, like artificial and desalinised water. Research will also be stepped up for deriving full benefit from the capacity to retraining moisture possessed by black soils and for maximising the retention and use of dew by crop canopies. The Fifth Plan allocation for dryland research is Rs. 3 crores (ICAR's share).

6.6. The Committee note that 75 per cent of the cultivated area in the country is rainfed which contributes only 42 per cent of the nation's food. It is well known that people inhabiting these areas are generally poor. It is therefore imperative that special attention is paid to agriculture in these areas and research and development work in dry land agriculture is intensified. Increase in agricultural production in these areas will not only help to overcome food shortage in the country but would also reduce unemployment, under employment and poverty by generating resources in these areas. The Committee, therefore, stress the need for greater coordination and intensification of research effort for the development of dry land agriculture. The concerned agricultural research institutions should also utilise the world experience in dry farming so as to profit by successful measures taken elsewhere.

6.7. Noting that certain hybrid varieties of Sorghum and Bajra released for cultivation could not become popular because they turned out to be disease/pest prone and that attempts are now being made to replace them by new varieties, the Committee reiterate the recommendation made in an earlier paragraph that the newly developed crop varieties should be subjected to rigourous tests in the field and should be released for general cultivation only if found to be of proven worth.

Centrally Sponsored Scheme of Integrated Dry Land Agriculture Development

6.8. In order to increase agricultural production of dry land areas and thereby improve the economic and social conditions of the farmers of these areas, a Centrally Sponsored Scheme of Integrated Dryland Agricultural Development was taken up during the Fourth Five Year Plan with an allocation of Rs. 20 crores. Under this scheme, the following 24 projects have been taken up in 12 States,

in close proximity to ICAR's Dryland Research Centres/Sub-centres:

Name of State	Project
1. Andhra Pradesh	1. Ibrahim—Patnam 2. Anantapur
2. Bihar	3. Palamau
3. Gujarat	4. Rajkot 5. Amreli
4. Haryana	6. Hissar 7. Mohindergarh
5. J & K	8. Udampur/Jammu 9. Indore
6. Madhya Pradesh	10. Rewa
aharashtra	11. Sholapur Akola
8. Karnataka	
9. Rajasthan	13. Bellary 14. Bangalore
10. Tamil Nadu	15. Bijapur 16. Jodh pur 17. Udaipur 18. Chittorgarh 19. Kovil patti 20. Pudukottai.
11. Uttar Pradesh	21. Jhansi 22. Agra
12. Orissa	23. Mirjapur 24. Mayurbhanj

Programme Content

6.9. The various programme undertaken in these projects include cultivation of drought resistant and short duration high yielding varieties of crops, soil conservation work, land development including land shaping, land levelling, etc, water harvesting, construction of wells, bunds, bundhies, new techniques of fertilisation including foliar spray and adoption of latest plant protection techniques, etc. Besides these, there are programmes of animal husbandry including supply of improved milch cattle, poultry and piggery development for the participating farmers.

Incentive to Farmers

6.10. As the farmers of dryland areas are generally poor, the following incentives in the shape of loans and subsidies were provided in the project areas during the Fourth Plan period.

(i) Under inputs, seeds/fertilizers/pesticides were given to the participating farmers in the selected area at 50 per cent subsidy during the first year and 25 per cent subsidy during the second year. For introduction of new crops, 100 per cent grant was given for seeds.

(ii) Under permanent works, for soil conservation and land development, there was 75 per cent long term loan and 25 per cent subsidy. For programmes under the water harvesting 100 per cent grant was given.

(iii) Since this is mainly a demonstration-*cum*-training scheme, 100 per cent grant was given under demonstration and training progress.

(iv) Under foliar spraying of urea, the cost of urea was subsidised to the extent of 50 per cent.

(v) Farm machinery and equipment costing less than Rs. 300/- was allowed to be purchased by the participating farmers at 50 per cent subsidy, the maximum subsidy per farmer being Rs. 1000. Other machinery and plant protection equipment (except power sprayers) were supplied to the farmers for the use on hire basis.

(vi) Under minor irrigation, there was 75 per cent loan and 25 per cent subsidy for farmers of the project area. For sprinkler irrigation, if undertaken on community basis, it was only loan. Individual farmers were given 50 per cent loan and 50 per cent subsidy.

(vii) Under animal husbandry programme, grant and loans in the ratio of 1:2 are given to the deserving farmers having holdings of 10 acres or less.

Project Organisation

6.11. The activities in each of the dry farming projects are looked after and executed by a Project Officer with the help of specialists and other supporting staff. There is a Project Implementation Committee for each project headed by Chief Scientist of Indian Council of Agricultural Research, Dry Land Research Centre, the action programme of the project is prepared according to the available technology and local needs. In order to have coordination with other Departments in the District, there is a District Level Coordination Committee for each project. It is headed by the District Collector/ Deputy Commissioner. The State Level Coordination Committees in each of the States have also been constituted under the Chairmanship of Secretary (Agriculture) Agricultural Production Commis-

sioner, which guide and review the progress of the scheme. The Government of India is also represented at the State Level Committees.

Outlay and Expenditure

6.12. A total outlay of Rs. 20 crores was sanctioned for the Fourth Plan period. The year-wise break up of outlays allocated and funds released to States is given below:

(Rs. in lakhs)

Year	Outlay			Funds released		
	Loan	Grant	Total	Loan	Grant	Total
1970-71* .	55·00	45·00	100·00	23·88	21·00	44·88
1971-72	108·00	75·00	183·00	70·78	75·00	145·78
1972-73	60·00	200·00	260·00	59·99	199·66**	259·65**
1973-74	80·00	140·00	220·00	71·36	134·35	205·71
Total . .	303·00	460·00	763·00	226·01	430·01**	656'02**

6.13. It is noted that the Centrally Sponsored Scheme for Dry-land Agricultural Development was launched in 1970-71 with an allocation of Rs. 20 crores for the Fourth Plan period. The total expenditure on the scheme by the end of the Fourth Plan period was, however, only Rs. 5.98 crores. Asked to state the reasons for the shortfall in the financial targets, the Ministry of Agriculture have stated that out of 24 pilot projects only 9 projects were implemented during 1970-71. The remaining 15 pilot projects were to be implemented during 1971-72. The Udaipur Project started functioning from 1972-73. Due to late implementation of scheme in the Fourth Five Year Plan, funds of those years remained unutilised.

Impact of the Scheme:

6.14. As to the impact of the Centrally Sponsored Scheme it is stated that it is only of the nature of demonstration and training. It has proved helpful in demonstrating the modern techniques of dry farming which result in increasing the agricultural production. Precise estimates of actual gains in total production are not available. However they have been assessed on the basis of various pro-

*Scheme started during 1970-71.

**The amount released includes Rs. 57.66 lakh for undertaking foliar spray of urea on unirrigated wheat under Emergency Agricultural Production Programme.

grammes and the assumed yardstick for increasing the production. An assessment made in this regard has been indicated as under:

Item of Work	Area Covered upto 1973-74 (Hectares)	Increase in agricultural production upto 1973-74 (in tonnes))
1. Inputs	100843	40337
2. Soil Conservation	24981	5444
3. Land Development	6162	1342
4. Water Harvesting (Coverage per work-2 ha.) . . .	560	140
5. Minor Irrigation . . .	2568	2107
TOTAL :	135114	49370

In view of the fact that the figures of increase in agricultural production as a result of the operation of the scheme were only notional, Government were asked whether they proposed to undertake a review of the scheme by an independent body of experts to find out the usefulness of the scheme to the farmers in the field. In reply it is stated that there is no proposal to undertake a review of the scheme by an independent body of experts. The Ministry of agriculture review the working of the scheme periodically.

Programme for Fifth Five Year Plan

6.15. All the existing 24 projects are proposed to be continued during the Fifth Plan period. An amount of Rs. 10 crores has been tentatively agreed to for continuation of the scheme. The Government of India propose to provide grant/subsidy only. The loan will be arranged by the State Governments themselves through institutional sources. The Ministry of Agriculture consider that the financial provision of Rs. 10 crores is adequate for the implementation of the Scheme during the Fifth Plan period.

6.16. The Committee suggest that dry land areas to be developed should be earmarked and suitable development schemes should be tried out on pilot basis and if found successful these should be extended to other areas. These schemes should be composite schemes for the development of agriculture as also other subsidiary occupation of the farmers such as dairying, poultry keeping etc. so as to make a real impact on the economic condition of the farmers. There should also be a system of close follow-up review of the programmes so as to effect improvements.

6.17. The Committee are constrained to observe that as against the total Fourth Plan outlay of Rs. 20 crores for the Centrally Sponsored Scheme of Integrated Dry Land Agriculture Development, it was possible to spend on the scheme only Rs. 6 crores or 30 per cent of the amount available. The reason for the sizeable shortfall in achieving the financial target in respect of the scheme is stated to be late implementation of the scheme in some Districts, leading to non-utilization of funds. The Committee feel disappointed that a well-intentioned scheme such as this could not progress despite the availability of funds on account of delayed implementation which reflects adversely on the system of programme planning and implementation observed in the Ministry of Agriculture and Irrigation. The Committee would like to impress upon the Government the need for advance programme planning of schemes and projects so that as soon as funds are available these could be implemented in the field straightway.

6.18. They also note that the scheme is being continued in the Fifth Plan period but the outlay on the scheme has been reduced from Rs. 20 crores during the Fourth Plan to Rs. 10 crores during the Fifth Plan. Now that the scheme has been in operation for nearly four years, the Committee recommend that the results achieved should be got properly and expeditiously evaluated by a body of experts so as to assess its impact on the farmer and farming practices in the area of its operation and to suggest concrete measures to bring about rapid improvement.

CHAPTER VII

MISCELLANEOUS

A. Pricing Policy

Role of Prices in determining the pattern of Agricultural Production

7.1. Government were asked to indicate their view in regard to the role played by agricultural prices in regulating the pattern of agricultural production. They have stated that while in the case of several individual crops the response of acreage/production to price is positive and significant, the response of aggregate agricultural output to price is feeble. Given the existence of improved technology to increase agricultural production, price mechanism can help accelerate the absorption of improved technology through the maintenance of a favourable price climate. But since the price mechanism bears not only on production but also on income distribution, the goal of preventing the accentuation of income inequalities, calls for a continuing and a greater emphasis on improvements in technology rather than a reliance on high product prices to achieve increases in production to meet the food requirements of the people. The role of price mechanism in correcting the imbalances in the basket of food output is also limited as is shown by the exprience in regard to the production of pulses in the country. Area under pulses, specially gram was shifting to cereals. The continuing increase in the pulse-cereal price ratio has not been able to stem the shift of acreage from pulses to cereals.

Objectives of the Pricing Policy

7.2. In the course of evidence before the Committee, the representative of the Ministry of Agriculture and Irrigation spelt out the basic objectives of the agricultural pricing policy of the Government as under:

> "The basic objectives of the pricing policy are:
>
> 1. Adoption of a system which will allow the growers to obtain remunerative price which not only will provide them incentive to expand production but also will encourage them to part with their stocks.

2. To make available to all sections of the consumers foodgrains at reasonable prices all over the country and to acquire control over stocks so as to meet reasonable requirements of the vulnerable sections of society and also to meet emergency.

3. To reduce price distortion resulting from the enlarged scope of smuggling and unauthorised transactions in regard to foodgrains and discourage hoarding at all levels.

4. To adopt a policy to reduce inflation."

Support/Procurement Prices

7.3. Government have been fixing minimum support prices and procurement prices for various agricultural commodities including major foodgrains. Minimum support prices are in the nature of a long-term guarantee intended to enable the producers to pursue their production efforts with the assurance that in the event of a glut in the market, the market prices of their produce will not be allowed to fall below the minimum economic levels. These prices are generally announced before the start of the sowing season. However, since 1968 Government have been purchasing all quantities of foodgrains offered for sale at procurement prices which was much higher than the minimum/support prices. As such the minimum support prices have no operational significance.

7.4. Procurement prices, which are fixed for important cereals, are meant essentially for the purchase of quantities needed by the Government for maintaining the public distribution system and for building up of buffer stocks. As already stated, since 1968, the Government have been purchasing all the quantities offered for sale at procurement prices so as to provide greater incentive to the producers for increasing production.

Method of Fixing the Prices

7.5. The support/procurement prices are fixed by Government on the advice of the Agricultural Prices Commission which takes into account all the available data on the cost of production of different crops and other relevant factors in making their recommendations. It is stated that in view of the increase in cultivation costs and in order to provide incentive to the producers, these prices have been raised substantially in recent years. For example, in the case of paddy (standard variety) the procurement price which had been raised from an average of Rs. 54 per quintal in 1972-73 to Rs. 70

per quintal in 1973-74 was further raised to Rs. 74 per quintal (for course variety). In the case of wheat, the procurement prices which in 1973-74 were Rs. 71 to 82 per quintal were raised in 1974-75 to Rs. 105 per quintal for all varieties. This prices has been maintained in 1975-76 also.

Prices of wheat

7.6. The support/procurement prices recommended by the Agricultural Prices Commission and those fixed by Government for wheat during the last three years have been as follows:

	Support price		(Rs. per Quintal) Procurement price	
	Recommended by A.P.C.	Announced by Govt.	Recommended by APC	Announced by Govt.
Wheat Crop 1972-73			Rs. 70 to 76	Rs. 71 to 82
Wheat Crop 1973-74	Rs. 80 to 90	Rs. 80 to 85 (No announcement re-supperior wheat)	Rs. 90 to 100 for different varieties.	Rs. 105 for all varieties.
Wheat Crop 1974-75	Rs. 95.00		Rs. 105 for all varieties.	Rs. 105 for all varieties.

7.7. It has been represented before the Committee that the support and procurement prices of wheat announced by Government were very much on the low side and did not take into account the recent escalation in the cost of inputs and with these prices the farmer was hardly able to break even, much less make a profit. The Vice-Chancellor, Punjab Agricultural University who appeared before the Committee for evidence stressed this point. He said:

> "This policy (of incentive price for foodgrains) was adopted in 1966 when Rs. 78/- per quintal was given as incentive price to the farmers. Now this incentive price of Rs. 75 or Rs. 76 per quintal had worked out right upto 1970-71 and then after 1970-71 there was a sharp increase in the price of inputs from Rs. 100 it rose to Rs. 141 in 1971-72 and inspite of the clamour of the farmers, the price was not anything less. It continued to cling right upto 1972-73. This gave a setback to the food production because here a farmer has to invest. If he is not able to recover whatever he has spent on raising the crop and if he does not make a sort of modest profit then he has no incentive to produce. This is what happened here in our country. Now the present index price of input is Rs. 179. I remember if Rs. 120 had been given, as we had recommended from our University, then the State Marketing Depart-

ment would have got all the grains. This is the point which strongly emphasise."

7.8. The representative of the Ministry of Agriculture was, during evidence, asked to indicate his view point on this issue. He stated:

> ".....the total capacity of the public distribution system or even the objective of the public distribution system in India is to distribute upto 11 or 12 million tonnes of foodgrains in a year. But in a normal year they have been able to manage with the distribution of 8 or 9 million tonnes. This is not even 10 per cent of the total production and consumption of food grains in the country. It can meet the requirements only of vulnerable sections of the community—low paid salaried class, industrial workers, people living in towns where there is no other availability of foodgrains and people would be put to great hardship if the public distribution system does not work. The remaining 90 per cent of the production is left to find its own level and the Agricultural Price Commission or the Agriculture Ministry only recognises facts that the procurement agency and the public distribution system handle only about 10 per cent of the requirements of the country. The remainder is either consumed by the producer or is distributed in kind within the village amongst the people who make supply and service available in the process of production and the fact is that some grain will be sold at higher prices."

Supplementing him, another representative of the Ministry stated:

> "perhaps the open market price realised would compensate the farmers for the cost of production and also high costs of inputs."

7.9. The representative of the Ministry of Agriculture and Irrigation also stated that in determining the prices of foodgrains, Government had to reconcile two mutually antagonistic interests: that of the producer who had to be given an incentive price to increase production and that of the consumer whose paying capacity was limited. Besides, according to him, a higher price was also likely to create economic and social problems. Government therefore had to adopt a mean policy and in the process they were able to satisfy none.

7.10. For the purpose of collection of statistics regarding cost of production of principal agricultural crops, a comprehensive central

scheme is in operation. Under this scheme plot-wise inputs and cost data of the selected holdings are collected by the Agricultural Universities etc. to whom the field work has been entrusted. This data is scrutinised for ensuring internal consistencies etc. before it is further processed. Since the scheme is new and the implementing agencies are still gathering experience in the work, the complete data has, in many cases to be referred back to the field agencies for further verification. The estimates of cost of cultivation/production of crops together with the basic holding-wise data are also being referred to the State Government concerned for their information and comments. These comments are then discussed by the centre with the representatives of State Governments concerned in the presence of the representatives of the implementing agencies. It is stated that even though this procedure of consulting the State Governments takes some extra time, the comments received from the State Governments have been found to be useful in finalising the report on the cost of production.

7.11. It is observed that the whole process of estimating the cost of production of foodgrains takes a long time before the final figures emerge and then the data is too much out-dated to be relied upon as a base for pricing policy. This is borne out by the fact that at the time when the Agricultural Prices Commission were preparing their Report regarding procurement price for kharif paddy to be marketed in the 1974-75 season, only the Report on Cost of Production of Paddy in Andhra Pradesh during 1971-72 and provisional estimates of cost of production of paddy in Orissa during 1971-72 and 1972-73 were ready and these were made available to the Commission. Earlier the Report on Cost of Production of bajra in Rajasthan during 1970-71 (prepared in May, 1973) had been made available to the Commission. These estimates were, therefore, taken by the Commission of "only a suggestive significance" and the Commission "attempted to construct a weighted index of inpute prices for the subsequent years", before making their recommendations. Similarly, the support price for wheat for the 1973-74 Season crop to be marketed in the 1974-75 season has been related to the cost of production of wheat in Haryana, Punjab and Western U.P. during 1971-72 crop season. Asked about the reasons for, no consideration being given to the cost of production of wheat in States which are compartively backward, *e.g.* eastern U.P., M.P., etc., it is stated:—

> "Data on cost of production of Madhya Pradesh were also collected, but because of certain difficulties regarding scrutiny and compilation of the data, the analysis could not be completed. However, the State Government made certain cost data available to the Commission."

7.12. The National Commission on Agriculture had, in Paragraphs 4,22 and 4.23 of their Interim Report on Agricultural Price Policy (February, 1975), mentioned the consideration observed by them in arriving at the prices recommended by them for different cereals as follows:

> "From its inception, the Agricultural Prices Commission has been handicapped for want of scientific data on cost of cultivation/production. In spite of various studies conducted so far, there is no unanimity about the cost data to be used. We have referred, in previous paragraphs, to the different methods of calculation of cost and their limitations and have drawn attention to the extreme variation in and serious limitations of cost estimates to underscore the point that cost data as available cannot become a firm basis for fixation of price. But .... the farmers should be assured a fair price, which should cover his cost and leave him a reasonable margin of profit. In the view of the Commission, one method of taking into account the year to year changes in the cost of production is to consider variations through a system of index numbers.
>
> Till the suggested system of index numbers can be developed, the best course for the Agricultural Prices Commission will be to make an informed judgement about fair minimum support price, keeping in view the limitations of the available cost data. The Agricultural Prices Commission should take into account the information on costs collected by it and the Directorate of Economics and Statistics in the Ministry of Agriculture and Irrigation through the cost of production studies as well as other cost data thrown up by various agencies. Further in taking a view on the price, the Agricultural Prices Commission should also consult its advisory Panels. ..... If this procedure is followed, we feel that it would serve the present needs of the situation and enable the fixation of a reasonable minimum suport price, which would cover the cost plus a reasonable margin of profit. When indexation is developed, it would be possible to put the price fixation on a more rational basis."

Procurement Price of Wheat for 1975-76

7.13. The Agricultural Prices Commission in their Report on Price Policy for wheat for the 1975-76 season (February, 1975) recommended the procurement price of Rs. 105 per quintal for wheat

for the 1975-76 marketing season to be fixed uniformly for the different States for all varieties.

7.14. According to the Report, in taking the decision regarding procurement price, the Commission had examined the data on the cost of production of wheat for the crop year 1973-74, prepared under the Comprehensive Scheme of Cost of Cultivation of Principle Crops, in respect of Punjab which, according to the Commission was "a relatively high cost State". These estimates are reproduced below:

Wheat: Cost of production of Punjab.

(Rs. per quintal)

Concept of Cost	1972-73	1973-74
A1 (Cash and kind expenses)	32·81	36·88
A2 (A1 + rent paid for leased land)	36·65	41·03
B (A2 + imputed rental value of owned land and interest on fixed capital)	61·24	67·33
C (B + imputed value of cultivators, family labour . .	67·10	74·34

7.15. The observations of the Agricultural Prices Commission continued in Paragraphs 11 to 15 of their Report are as follows:—

"11. It would be seen that procurement price of Rs. 95 per quintal which the Commission had recommended for the 1973-74 crop of wheat was comfortably above the highest of these estimates. Besides, in assessing the appropriateness of the margin between the procurement price and cost, it is important to remember that this estimate of total cost already includes a return on investment in land and capital. It is true that the prices of production inputs have increased since then. Amongst these, the increases in the prices of fertilisers and pesticides have been particularly sharp, their incidence on the unit cost of production, on the assumption of the unchanged level of their application, works out to around Rs. 10 per quintal for Punjab, but since fertiliser use during 1974-75 is reported to be significantly lower than in the preceding year, the incidence too would be smaller. In this connection, it needs to be stressed that the increase in the price of fertiliser should induce a more efficient use of that input rather than be necessarily neutralised through an upward adjustment in product prices. The fact, however, is that

even after taking this increase into account and allowing approximately for the rise in other input prices, the procurement price for wheat fixed last year at Rs. 105 per quintal—a level significantly higher than that recommended by the Commission—leaves an adequate margin over and above cost.

12. Furthermore, in the present situation, the overriding objective of consolidating the stabilising effect on the price level of the anti-inflationary measures which the Government has undertaken since last year has to be accorded the highest importance. When the size of the current crop is promising to produce a softening effect on market prices, it would be most unwise to make the administered price produce a counter effect.

13. A facile argument for a sizeable increase in the procurement price for wheat is often built on the ground that the world market price for the cereal is high. In so arguing, it is forgotten that what sustains the high price of wheat outside is the purchasing capacity of the consumer in the affluent economies. The appropriateness of an administered price for the grain in the Indian context cannot be detached from the paying capacity of the vast mass of the low income consumers in the country. Here it is pertinent to point out that among the important wheat consuming countries, the proportion of *per capita* income required to buy a quintal of wheat is about the highest in India.

14. In view of the considerations mentioned above, the Commission recommends that the procurement price for wheat for the 1975-76 marketing season be fixed uniformly for the different States at Rs. 105 per quintal for all varieties.

15. While advocating the need for restraint in fixing the procurement price for wheat, the Commission cannot over emphasise that the increases in input prices too should be brought under a check. It is true that the increases in the prices of fertilisers and some other inputs have been forced by the drastic escalations in the costs of their importsports. But this only underlines the need for intensifying the efforts to improve the domestic production of fertiliser so as to enlarge its weight in the total supply and thereby prevent an increase, if not bring about a reduction, in the pooled price. The Commission would sug-

gest that the problem be attended to with a renewed sense of urgency."

7.16. The Minister of State in the Ministry of Agriculture and Irrigation announced in Lok Sabha on the 24th March, 1975 the procurement price of wheat for the crop season 1974-75 (to be marketed in 1975-76) as Rs. 105 per quintal for all varieties. The statement made by him regarding the pricing policy for wheat for the Rabi 1975-76 marketing season is reproduced below:

"In the context of the overall economic situation and improved prospects of wheat crop, the report of the Agricultural Prices Commission on price policy for wheat for the 1975-76 marketing season was considered at a Conference of the Chief Ministers and in the meeting of the Consultative Committee of Parliament.

2. After careful consideration it has been decided to accept the recommendation of the Commission to maintain the procurement price for wheat at Rs. 105 per quintal for all varieties. Keeping in view the basic aim of the policy to maximise procurement for Central Pool a suitable bonus scheme will be introduced. The issue price of wheat for stocks released from the Central Pool for the public distribution system will remain unchanged at the present level. In the interest of maximising procurement, restrictions will be continued on the inter-state movement of wheat by treating each State as a separate Zone and no movement of wheat would be allowed outside a State except on Central Government account. The mode of procurement such as purchases in regulated markets and/or through a system of levy will be decided by the State Governments. The marketing of wheat within the State will be regulated by the State Governments through appropriate administrative/statutory measures as may be deemed necessary by them.

3. It is hoped that with determined implementation of the policy by the State Governments, it would be possible not only to attain the target of procurement recommended by the Commission but also to bring about an overall improvement in the food economy."

7.17. Government have admitted that there has been a considerable escalation in the cost of agricultural inputs, namely, in irrigation and power rates, in the cost of fertilisers and pesticides and

in the interest rates for agricultural credit. This has affected the overall cost of production of foodgrains. With regard to the point that the support prices announced by the Government are low, it is stated that these prices are inconsequential and the real prices are the procurement prices. The low procurement prices of foodgrains are on the other hand, sought to be justified on the ground that the farmer is obliged to sell at best only 10 per cent of his produce at the price fixed by the Government and the higher price at which he can dispose off the remaining 90 per cent of his produce would more than compensate him for the higher prices of inputs that he has to pay. The Committee consider these arguments as untenable. They feel that the very objective of announcing the support price, namely, to remove "disincentive effect of uncertainty" and "create a stable price climate for investment and production", would be lost if the price is not realistic and does not assure to the farmer a fair return over his labour and investment. They also feel that the holding capacity of the average farmer being very meagre, the procurement prices announced by the Government set a trend and the open market price of foodgrains available to the farmer tends to keep close to it. The Committee cannot over emphasise the importance of a price support policy which should enable the farmer to get remunerative price for his crops as it is crucial for maximising food production and attaining self-sufficiency in this critical field. The Committee, therefore, recommend that while finalising the support and procurement prices of foodgrains, Government should give due consideration to the increased cost of production of foodgrains and the need for affording incentive to the farmer for increasing production, particularly, of foodgrains. A realistic pricing policy would also lead to increased procurement for sustaining the public distribution system and building up a buffer stock of foodgrains.

7.18. With a view to maximise food procurement, the Committee also recommend that, apart from the bonus scheme for procurement, Government should also work out and introduce a system of package deal with the farmer whereby against the supply of inputs at fair prices, the farmer may be required to sell to the procurement agencies a stated quantity of foodgrains at a fixed price.

7.19. The Committee observe that the cost of Production Data made available to the Agricultural Prices Commission at the time of consideration of the pricing policy is generally outdated and incomplete. The Committee understand that the existing process of finalising the data is rather long, which causes delay in finalisation of the figures. The Committee recommend that Government should devise suitable procedure whereby the data made available to the Agricultural Prices Commission is relatively recent and fully re-

presentative so as to make for a realistic approach in arriving at the prices for foodgrains.

7.20. The Committee further recommend that Government should have a system of regular evaluation of the procurement prices announced by Government for each crop and season with reference to achievement of procurement programme and the gap between the procurement prices and the open market prices. This would help the Government in assessing the impact of their pricing policy and adopting a more realistic approach in framing the price policy for the next season.

B. Development of Pulses

7.21. Pulses from an important component of the vegetarian diet. The area under pulses and production has however gone down. From 239 lakh hectares in 1964-65, the area under pulses went down to 203 lakh hectares in 1972-73. The production of pulses also went down from 12.5 million tonnes in 1964-65 to 9.8 million tonnes in 1973-74. With the increase in population, per capita availability of pulses has further declined. It is stated that the main reason for the decline in production of pulses is primarily the fact that the pulses in general are grown under rainfed conditions and poor management practices. No break-through has been possible in the pulse production in the absence of High Yielding Varieties as has been successfully achieved with dwarf varieties of wheat, rice and hybrids of bajra. Farmers and State Governments have not put in adequate efforts to increase the production of pulses. In view of this, the Central Government had thought of increasing production of pulses by (1) adoption of package of practices in their cultivation and (2) increasing area under pulses by cultivation of short duration varieties under multiple cropping programme.

Centrally Sponsored Scheme for Development of Pulses

7.22. To help State Governments in their efforts to increase production of pulses through above measures, a centrally sponsored scheme on development of pulses at a cost of Rs. 3.61 crores was launched in Kharif 1972. Under the scheme, the financial assistance has been provided to the State Government for layout of demonstrations in order to popularise package of practices, seed multiplication of improved/short duration varieties, adoption of plant protection measures and supply of seed to farmers etc. The scheme is being implemented by the State Departments of Agriculture. No special field organisations were created to implement the programme under the scheme. However, additional staff of One Joint Director (Agriculture) and one Stenographer at the State level and One

Pulses Development Officer and the Technical Assistant/Agriculture Extension Officer was sanctioned in 1973-74 for Intensive Cultivation of Pulses in 30 selected districts.

Package Programme

7.23. Under the package approach, it is proposed that improved practices such as use of improved seeds, phosphatic fertilizers, rhizobium culture and plant protection chemicals will be followed in pulses cultivation. To motivate farmers to adopt improved practices, demonstrations will be laid out on their fields. A sum of Rs. 275/- per hectare is being given to State Governments for layout of these demonstrations. Besides, financial assistance by way of subsidies will be provided for breeder's seed multiplication @ Rs. 350 per hectare, foundation seed multiplication @ Rs. 150 per hectare, adoption of plant protection measures @ Rs. 5 hectare and supply of pulses seed of improved/short duration variety (subsidy Re. 1/- Kg.)

District Covered

7.24. Under the Centrally sponsored scheme on development of Pulses, the following 30 districts were selected for intensive cultivation of pulses:

District selected during 1973-74.

Andhra Pradesh	Krishna Warangal
Bihar	Muzaffarpur Bhagalpur
Gujarat	Banaskantha
Haryana	Hissar
Madhya Pradesh	Narsingpur Bhind Morena Raisen Chindwara Khargone
Maharashtra	Aurangabad Osmanabad
Karnataka	Gulbarga
Orissa	Ganjam Cuttack
Punjab	Bhatinda
Rajasthan	Ganganagar Bharatpur Jaipur
Tamil Nadu	Tanjavur Tirunelveli

Uttar Pradesh . . .	Jhansi Hamirpur Allahabad Varanasi Lucknow Faizabad
West Bengal	Murshidabad

7.25. Asked to indicate how the Districts were selected for coverage under the scheme, it is stated that Districts with an area of about 1 lakh hectares were selected for this programme and in case such Districts were not available in some of the States, the area under pulses in the surrounding Districts was proposed to be covered.

Proposed expenditure and amount released

7.26. The expenditure proposed to be incurred on the scheme and the amount actually released during 1972-73 and 1973-74 has been indicated as follows:

	Proposed Expenditure	Amount actually Released
	Rs.Lakhs	Rs. Lakhs
1972-73	143·50	35
1973-74 .	216·72	94
	360·22	129

7.27. Statewise details of the amount released and actual expenditure incurred are as follows:

State	(In Rupees) Amount released during 1972-73	Actual expenditure by State Governments during 1972-73	Amount released during 1973-74
1	2	3	4
1. Andhra Pradesh	..	..	6,50,000
2. Assam	10,000	—	1,56,000
3. Bihar		..	1,02,000
4. Gujarat	.	..	3,39,000
5. Haryana	17,800	1,28,840	8,25,000

1	2	3	4
6. Kerala	88,000	10,654	2,80,000
7. Madhya Pradesh	10,08,000	70,186	16,40,000
8. Maharashtra	..		6,38,000
9. Karnataka	27,000		6,00,00
10. Orissa	6,68,500	70,269	5,90,000
11. Punjab	47,300	29,138	1,60,000
12. Rajasthan	1,80,000	20,980	8,10,000
13. Tamil Nadu	8,05,600		10,22,000
14. Uttar Pradesh	5,11,800		14,40,000
15. West Bengal	1,36,000		1,48,000
TOTAL	35,00,000		94,00,000

7.28. It is noted that in January, 1975 when the figures were furnished to the Committee, actual expenditure incurred on the scheme during 1972-73 was available with the Ministry of Agriculture only in respect of 6 States out of 13 States to which amount was released under the Scheme. States had also not furnished to the Ministry of Agriculture the information on component-wise expenditure *e.g.* on administration, demonstration, seed multiplication etc. separately. Information about the actual expenditure incurred during 1973-74 is still being awaited by the Central Government from the State Governments.

Achievement by 1973-74

7.29. The Ministry of Agriculture and Irrigation were asked to indicate the actual achievements under the centrally sponsored scheme up to the period 1973-74. They have furnished the following figures:

	Target (1973-74)	Achievement (1973-74)
1. Area covered under package approach.	10 lakh hectare.	9·30 lakh hectare
2. Additional area brought under pulses in non-traditional areas.	1 lakh hectare	1·50 lakh hectare
3. Production during 1973-74	11·50 million tonnes	9·75 million tonnes

Reasons for short-fall in achievement

7.30. The Centrally Sponsored Scheme was launched from Kharif 1972. It is stated that being the first year, the sanctions were issued late. Besides, unprecedented drought and failure of September rains caused an overall decline both in area and production of pulses during 1972-73. Late sowing and incidence of wilt desease particularly in North India were also responsible for low production in gram. Due to these factors, the programme did not make much headway. The States of Andhra Pradesh, Bihar, Gujarat and Maharashtra did not take up the work during 1972-73. During the year 1973-74 also progress was affected adversely because of the occurrence of frost during January-February, 1974 which did serious damage to gram and arhar crops. Other reasons indicated for slow progress are shortage of improved seeds and lack of enthusiasm among farmers for adoption of plant protection measures.

Ensuring Implementation of Programme

7.31 Governments were asked to state whether there was any system of inspection to ensure that the money released under the Scheme was actually being spent by the States for the purpose and also find out whether the scheme was really making any impact. They have in reply stated that the execution of the programme is primarily the responsibility of the concerned State Governments participating in the programme. However, with a view to ensuring the proper implementation of the scheme and utilisation of the funds released, the State Governments are required to furnish progress reports on achievements, both financial and physical against the targets fixed. The technical officers in the Department of Agriculture as well as the Directorate of Pulses watch the progress of the scheme from time to time and extend assistance to the States by visits and by giving guidelines for successful implementation. Further, audited figures of expenditure incurred under the scheme are obtained from the State Accountants General.

Programme for the Fifth Plan Period

7.32. During the Fifth Plan it is proposed to increase production of pulses from the assumed based level production of 11.50 million tonnes in 1973-74 to 14.00 million tonnes by the year 1978-79. This increase in production is proposed to be achieved by bringing additional area of 15 lakh hectares under pulses and adoption of package of practices over an additional area of 70 lakhs hectares. The additional area of 15 lakh is expected to increase production of by 0.75 million tonnes (@ 500 Kg./Ha.) and adoption of package approach on

70 lakh hectares by 1.75 million tonnes (@ 250 Kg./Ha.). The centrally sponsored scheme is being continued during the Fifth Plan at an envisaged expenditure of Rs. 12.20 crores. The subsidies for layout of demonstrations to induce farmers for adoption of package approach, seed multiplication of improved and short duration pulse varieties, adoption of plant protection measures and supply of seed to farmers will be continued. It has been proposed that the extension staff under the scheme may be strengthened and Intensive Pulses Cultivation Programme may be taken up in 10 additional districts. A provision of Rs. 150 crores has been made in budget estimates for 1974-75 for expenditure under the scheme.

Research on Pulses Development

7.33. To improve the productivity of the pulses crops, researches are being conducted in various universities/research institutions under the All-India Coordinated Research Project on Pulses on the Indian Council of Agricultural Research. A number of short duration varieties of different pulses namely Bengal Gram, Urad, Arhar, Mung etc. have been developed. Research is also in progress regarding the most suitable dose of chemical fertilisers, inter-cropping with other cereals and control of pests and diseases. The allocation in the Fourth Plan for the All India Coordinated Research Project on Pulses was Rs. 86.13 lakhs. The expenditure during the Fourth Plan period was Rs. 55.47 lakhs only. The Fifth Plan allocation for this project is Rs. 2.80 crores.

7.34. Wheat, Rice and Pulses constitute the staple diet of our people, but adequate attention does not appear to have been paid to the development of pulses as is evident from the fact that both the area under pulses as well as production of pulses have, instead of increasing appreciably declined. As against the production target of 15 million tonnes during 1973-74 representing the demand therefor the actual production during that year was only around 9.8 million tonnes. Short availability against rising demand has resulted in an unprecedented increase in their prices so much so that pulses which are the main element of the poor man's diet are now fast becoming out of his reach. In this context, the Committee cannot over-emphasise the urgent need for improvement in the yield and quality of pulses so as to secure for the poor man a cheap nutritious diet. The Committee therefore recommend that Government should pay special attention to the development of pulses and intensify research thereon for evolving high yielding and improved seed varieties. At the same time, the extension machinery should be geared up to lay greater emphasise on increasing the area under pulses and the production of pulses by utilising the results of researches in the field. The areas having potential for increased out-

put of pulses should be earmarked and responsibility for research and extension work in the field of pulses should be allocated to agricultural universities/institutions on area basis and pulse basis.

7.35. The Committee note that as against the proposed expenditure of Rs. 3.61 crores for the Centrally Sponsored Scheme for the Development of Pulses during 1972-73 and 1973-74, the actual amount released to the States under the scheme during those years totalled only Rs. 1.29 crores. The Committee would like Government to go into the reasons for which the scheme could not be implemented during the last two years of the Fourth Plan according to programme and streamline the procedures observed by the Ministry of Agriculture and Irrigation in the Planning and execution of the Centrally Sponsored Schemes so as to ensure achievements of planned financial and physical targets.

7.36. The Committee also note that after the amount is released to the State Governments under the scheme, no watch is kept by the Ministry over the expenditure actually incurred by the State Government under the scheme. The Committee recommend that each Centrally Sponsored Scheme should have a built-in mechanism to monitor the progress and to ensure that the amount released to the States is being actually utilised by them for purposes under the scheme.

7.37. Since the development scheme for pulses has been in operation for over three years, the Committee recommend that operation of the scheme may be got evaluated within a period of six months by a body of experts so as to effect improvements.

7.38. Government have advanced various reasons for the shortfall in production of pulses during 1972-73 and 1973-74 e.g., unprecedented drought, late sowing and high incidence of wilt disease in North India during 1972-73, frost during January-February, 1974, shortage of improved seeds and lack of enthusiasm among farmers for adoption of plant protection measures. The Committee would like to point out that the main purpose of the Centrally Sponsored Scheme is specifically to get over the vagaries of nature as far as possible and augment production by introducing a package of practices. Government should have taken steps to ensure adequate and timely availability of improved seeds of pulses and plant protection measures to save the crop from widespread disease. The Committee hope that the Ministry of Agriculture and Irrigation will study the causes for the low production of pulses during 1972-73 and 1973-74 despite the implementation of the Centrally Sponsored Scheme for

development of pulses so as to improve the performance of the scheme and achieve the targets during the Fifth Plan period.

7.39. The Committee note that a sum of Rs. 55.47 lakhs was spent on All India Coordinated Research Project on Pulses during the Fourth Plan period and that the Fifth Plan allocation therefor is Rs. 2.80 crores. The Committee consider that with allocation of this size it should be possible for the universities and research institutions concerned with the pulses development programme to intensify their work and develop high-yielding varieties of different pulses. The Committee desire that I.C.A.R. should pay urgent attention to the problem of development of pulses and monitor the research and development work being done in the field to achieve positive results.

C. Consolidation of Holdings and Ceiling on Landholdings

Consolidation of Holdings

7.40. The programme for consolidation of holdings was started prior to the beginning of the First Plan period and was continued in all the plan periods. The expenditure incurred on the work and the physical achievements are indicated as follows:

	Expenditure incurred (In crores of Rupees)	Area consolidated (In lakh acres)
Prior to First Plan	0·18	30
First Plan	4·71	80
Second Plan	14·11	185
Third Plan	18·93	301
1966-67	3·94	34
1967-68	4·24	47
1968-69	6·00	40
Fourth Plan (Estd.)	30·90	256
	83·01	973

For the Fifth Plan a provision of Rs. 24.25 crores has been proposed for carrying out consolidation of holdings of 346 lakh acres in the country. For 1974-75 an outlay of Rs. 7.94 crores has been provided.

7.41. It is noted that by the end of the Fourth Plan a total of Rs. 83 crores have been spent on the work of consolidation of holdings and the total area consolidated upto the end of the Fourth Plan is estimated to be about 973 lakh acres. The scheme is to be continued during the Fifth Plan period. Government were asked whether any study had been made to assess the size of the problem and whether it was increasing with the efflux of time. They have, in reply, stated as follows:

> "No specific study has been made. There is, however, enough evidence to show that with the passage of time the number of holdings, particularly of small ones, has been increasing steadily. The Agricultural Census of 1971 indicates that compared to 1961, there has been a 40 per cent increase in the number of operational holdings. The number of operational holdings below 2.5 acres has gone up by 75 per cent from about 20 million to 35 million during this period.

7.42. Dealing with the point whether the socio-economic factors and the laws of inheritance which give rise to the problem of fragmentation of land have been examined by Government to attack the problem at the root, it is stated:

> "Mounting pressure of population, slow growth of non-farm employment opportunities, operation of the laws of inheritance etc. are some of the reasons for sub-division and fragmentation of holdings. The Planning Commission made a study in 1957. The view taken was that co-operative farming and diversion of people from farming to other occupations could help. It was, however, recognised that neither of them was easy to achieve. It was felt that further fragmentation could be reduced by regulating transfers, partition and leases. The States that have enacted legislation to prevent fragmentation have found it difficult to enforce them. It has been found that when partitions are legally prohibited, people enter into informal, oral arrangements. In a society in which private property rights are held almost sacred, land is practically the only form of wealth and is the main base of employment and subsistence, it is very difficult to prevent subdivision of holdings."

7.43. The Committee observe that despite a cumulative expenditure of nearly Rs. 83 crores on consolidation of holdings, the problem of fragmentation of land not only persists but is deteriorating, if the data on the increase in the number of operational holdings thrown up by the Agricultural Census of 1971 is any guide. The

Committee recommend that Government should initiate a detailed study to analyse the causes of continued fragmentation of land into smaller and smaller holdings, its effect on agricultural production, and the extent to which consolidation work has been able to control the problem. In the light of the conclusions of the study, Government should initiate suitable measures to attack the problem at its root so as to prevent or atleast minimise the scale of fragmentation of land in the interest of increasing agricultural production.

Ceiling on Land

7.44. The land ceiling legislations in States provide for different land ceilings in different States. But recently an attempt has been made to bring about some form of uniformity and the present ceilings are 10—18 acres of irrigated double cropped land, 27 acres of irrigated single cropped land and 54 acres of other land.

7.45. It has been represented in several memoranda to the Committee that the low ceiling on agricultural land holding is one of the factors which had dampened the enthusiasm of the farmer inhibiting production. It has been represented that benefits of scale are not available to the farmer if the holding is small. Besides, according to that view, application of modern and scientific methods of cultivation, harvesting, processing, storage, transport and marketing is seriously limited if the holdings are small. It is also pointed out that the number of holdings are already getting smaller and smaller as a result of the operations of laws of inheritance and the problem is likely to be accentuated by the enactment of land ceiling laws.

7.46. According to another memorandum to the Committee, however, the value of agricultural output is the maximum when the size of the holding is small. The Memorandum has drawn up the following table of returns as a result of their studies:

Size of holding (In Acres)	Value of output (Rs. per acre).
0—5	200
5—10	186
10—20	173
20—50	154
50 and above	143

7.47. During evidence before the Committee the Vice-Chancellor, Punjab Agricultural University expressed the following view in regard to land ceilings:

> "So far as rice areas are concerned, whatever ceiling you have now imposed—17 or 18 acres of land—is all right.... So far as the wheat areas are concerned, I would say that these are dry areas and these areas can be developed with mechanical cultivation. So, here the size ought to have been 25 to 30 acres. I think great harm will be done by lowering the ceiling. But now due to certain compulsions—political and other things—you have made this ceiling like that and we have accepted it."

7.48. The Vice-Chancellor, Haryana Agriculture University who also appeared before the Committee for evidence had, however, the following views in this regard:

> "I should say that 18 acres for irrigated land would be an economic holdings; and for unirrigated or dry land I think 54 acres would be all right".

7.49. The representative of the Ministry of Agriculture and Irrigation also, during evidence before the Committee, gave the following views regarding land ceilings:

> ".....the ceiling laws provided for various ceilings on land in different States. Recently we have tried to bring about some uniformity. But generally 10 to 18 acres of irrigated double crop land or 27 acres of irrigated single crop land and 54 acres of other land are the respective ceilings prescribed in different State legislations. These are not very low..... About the total quantum of land there is also an opinion among agronomists that small holdings intensively cultivated and taken care of have in fact a higher productivity per unit area than bigger holdings. The problem arises in reaching credit and inputs to a large number of farmers. A few big farmers who are also educated and have better resources can probably take advantage of facilities provided by the Credit Institutions and also by the Agricultural Extension people more easily than a large number of small farmers for whom very special measures have to be taken. This is not only a production problem but also a social and political problem."

7.50. In a subsequent note furnished by the Ministry of Agriculture and Irrigation, they have rebutted the argument of the low

ceilings being responsible for low production in the country. According to the note the fear that the ceilings fixed in the different State laws will inhibit agricultural production does not appear to be well founded for the following reasons:

(a) The present ceilings are at reasonably high levels—10—18 acres of irrigated double cropped land, 27 acres of irrigated single cropped land and 54 acres of other land. About 5 acres of irrigated double-cropped land should provide full employment to the family labour and a pair of bullocks.

(b) Instead of inhibiting production, the ceiling laws should actually operate as an incentive to increasing productivity. For the farmer is likely to put the smaller area of land with which he is left to more intensive use to maintain his level of income.

(c) The experience of Japan was that agricultural productivity went up after the enactment of the ceiling law and other land reform measures in that country.

7.51. In reply to the point whether any study has been made by an independent expert body as to the minimum size of land holdings which can assimilate modern farm technologies and also be economic to the farmers, the Ministry of Agriculture have stated:

"No such study has come to notice. 'Modern farm technology' is a term that comprises many things like use of high yielding varieties of seeds, application of optimum dozes of chemical fertilisers, use of pesticides, irrigation in right time, use of farm machinery etc. All these except probably some kinds of machinery can be employed economically irrespective of the size of the farm. Considering that ours is a capital scarce and labour surplus economy, in the matter of farm mechanisation a selective approach has to be adopted as indicated in the Five Year Plans. Modern farm technology is scale neutral in the sense that it can be applied equally effectively on small as well as large holdings. Hence there is little basis for the apprehension that the ceiling laws will inhibit the adoption of modern technology."

7.52. The Committee recommend that Government may initiate a systematic study of production capacity of holdings of different sizes in different areas such as irrigated multicrop, irrigated single crop, dry multicrop, dry single crop and arid land under conditions

of optimum, medium and scarce availability of inputs. The results of the study would be useful in assessing the economic viability of various land ceilings from the point of view of the individual farmer as also the need for increasing agricultural production, particularly of foodgrains.

D. Storage of foodgrains

7.53. Foodgrain, or for that matter any agricultural produce, is easily liable to damage and losses in storage. Most farmers are still using, it at all, the traditional method of storing their agricultural produce under conditions which make them most susceptible to damage by pests or adverse elements of nature. To prevent or at least limit the wastage on account of defective storage and thereby increase the overall availability of food in the country it is necessary that the farmers should be made conscious of the need for better storage of foodgrains in their own as well as in the national interest.

Education of Farmers, Cooperators and small traders in better storage.

7.54. The Ministry of Agriculture and Irrigation were asked as to what efforts were being made to educate and assist the farmer and the small trader in using modern methods of storage of foodgrains so as to minimise wastage. I reply they have stated that a "Save Grain Programme" has been launched by the Department of Food to create an awareness regarding the high losses in storage of foodgrains mainly at farmers' and traders' level and to educate them on the factors causing losses as well as the techniques which could be adopted to protect foodgrains in storage. This programme was initiated in the year 1970-71 when two regional teams were established, one at Patna and the other at Bombay. The programme has been further extended and there are now six regional teams functioning at Ghaziabad, Bhopal, Hyderabad, Bombay, Madras and Patna. For the Fifth Five Year Plan an allocation of Rs. 10 crores has been approved by the Planning Commission and it is proposed to extend this programme further so as to cover the entire country as far as possible.

7.55. In pursuance of the objectives of the Save Grain Programme, following steps have been initiated:

Publicity: Wide publicity is given through all effective media, such as, radio, display of hordings kiosks and

posters, exhibitions, films and slide shows and distribution of semi-technical literature.

Demonstration: The Regional teams demonstrated in the rural areas and market centres improved storage practices which could be easily adopted by the farmers. Scientific techniques have been simplified so that even the potent pesticides could be used by farmers with comparatively slight precautions. The techniques for control of insect pests in foodgrain storage and rodents in the premises of farmers, houses as well as in the fields are ectually demonstrated in selected areas where there is high production of foodgrains. The intention is to create several nuclei in surplus production areas from which the programme could be spread to adjoining areas gradually.

Training: Two types of training are being undertaken; a short duration training for volunteers where volunteers are drawn from the villages of the areas where the programme has been initiated and they are trained for three days in practical methods of disinfectation; and a three week training for educated representative farmers, traders and cooperators. A stipend of Rs. 50/-is awarded to each of the trainees in the latter category. This stipend is proposed to be enhanced to Rs. 100|- per head. No tuition fee is charged. However, boarding and lodging arrangements have to be made by the trainees themselves.

Realising the important role of farm women in the storage of foodgrains at farmers' level it is proposed to extend education in storage techniques to the womenfolk in rural areas through Lady Extension Workers of Extension Training Centres and Home Science Colleges during the Fifth Five Year Plan. A programme for popularisation of bins for scientific storage of foodgrains has also been undertaken.

Applied Research: An Indian Grain Storage Institute has been established at Hapur with two sub-stations—one in the North at Ludhiana and the other in the South at bapatla. The object of these institutes is to carry out applied research to develop simple and effective methods of pest control and to design suitable storage structures

for safe storage of foodgrains in different climatic conditions of the country.

All the above programmes are being implemented in close coordination with the concerned State Departments as well as educational and research institutions and private agencies. Efforts are being made to ensure continuous supply and distribution of needed pesticides and other facilities considered necessary for this programme.

Use of Better Storage Structures

7.56. To avoid wastage, suggestions have been made to the Committee for the use of Metallic Bins, Plastic Bags or specially treated Gunny Bags for storage of foodgrains. Government were asked to indicate their own proposals in this regard and the concrete action taken by them to make available such bins/bags to farmers at subsidised or at least reasonable rates. In reply it is stated that an Indian Grain Storage Institute has been established at Hapur with assistance from United Nations Development Programme with the object of designing and developing suitable types of storage structures for storage of different foodgrains under varying climatic conditions. Several types of storage structures of varying capacities have been developed by this institute. However, two small sized *i.e.* one tonne and half tonne capacity metal storage structures have been adopted for large scale popularisation under the Save Grain Campaign Scheme through the State Governments. For this purpose 13 State Governments—Punjab, Haryana, Uttar Pradesh, Madhya Pradesh, Bihar; West Bengal; Karnataka; Rajasthan, Maharashtra, Orissa, Andhra Pradesh and Gujarat—have been advanced as loan Rs. 8 lakh each and Rs. 2 lakhs have been advanced to Jammu and Kashmir Government. Most of these State Governments get the bins of approved designs fabricated through Agro-Industries Corporations and supply to the farmers on deferred payment basis. The loan thus advanced to the farmers is recovered in a period of three years and the funds are again utilised for the same purpose. In some States the bins are being sold to farmers at subsidised rates where the subsidy part is met by the State Governments. Printed instructions for manufacturing these bins are available and facilities exist for training the manufacturing personnel in the fabrication of the same. The improved designs are also supplied to private manufacturers who want to fabricate and supply the bins to the farmers. On the initiative of the Department of Food, the Research Bank of India have also issued instructions to the nationalised banks to grant

loans to those farmers|traders who want to purchase these bins of approved designs.

7.57. Apart from this, it is stated, equal emphasis is being laid on the improvement of existing storage structures of the farmers. Non-metal bins using RCC rings and gas proof sheets have also been designed. Similarly, storage structures of larger capacity suitable for outdoor storage have also been designed.

Storage by Public Agencies

7.58. Apart from the problem of storage of foodgrains by the farmer and the small trader, no less important is the need for adequate storage capacity for the operational requirements of the public distribution system and also for maintenance of buffer stocks of foodgrains. To meet this need, a programme is in progress for the creation of warehousing facilities by public agencies. At the end of the Fourth Plan period (1973-74), the storage capacity with the various agencies was as under:

(In lakh tonnes)

	Owned	Hired	Total
Food Corporation of India. . .	51·47	16·05	67·52
Central Warehousing Corporation. .	11·65	4·54	16·19
State Warehousing Corporations. . .	6·00	10·95	16·95
Cooperatives . .	42·08	40·28*	82·36
TOTAL	111·20	71·82	183·02

In addition, the State Governments are reported to have a storage capacity of 18.00 lakh tonnes (owned). It is stated that out of the owned storage capacity, a capacity of about 30 lakh (or 8 million) tonnes would be available for storage of foodgrains.

Programme for the Fifth Plan period

7.59. During the Fifth Five Year Plan period it is proposed that the

*Available upto June, 1972.

capacities to be built by the various constructing agencies would be as under:

	(In million tonnes)
Food Corporation of India.	2.7
Central Warehousing Corporation.	1.7
State Warehousing Corporations.	1.5
Corporatives.	3.0

7.60. The position about the financial implications has been indicated as under:

Agency	Physical target in million tonnes	Total funds required (Rs. in crores).	Budgetary resources approved by Planning Commission (Rs. in crores.)	Balance to be raised by other resources (Rs. in crores)
FCI	2·7	102·78	40	62·78
CWC	1·7	39	35	4
SWCS	1·5	35*	10	7

*Out of this 50 per cent will have to be raised by the State Governments and therefore the Central Warehousing Corporation's contribution will be about Rs. 17 crores.

In addition, the target for construction in the Cooperative Sector is for 3 million tonnes. In order to achieve this capacity, a capacity of 3.6 million tonnes has been aimed at.

7.61. Government were asked to indicate the basis on which the capacity targets for the Fifth Plan period were fixed. They have stated that in working out the requirements of the additional storage capacity during the Fifth Plan period, the assumptions made by the Working Group for formulation of Fifth Five Year Plan were that the stocks on the eve of the Fifth Plan would be about 2.5 million. tonnes, buffer stocks would be of the order of 10 million tonnes, operational stocks would be of the order of 4 million tonnes. The other assumptions made were that the procurement would be of the order of 14.5 million tonnes to 21.5 million tonnes and public

distribution would be of the order of 12 million tonnes to 20 million tonnes. In the alternative assumptions made, the procurement was assumed to be of the order of 13.5 million tonnes to 15.5 million tonnes and public distribution of the order of 11.5 million tonnes to 12.5 million tonnes. In either set of assumptions the projected stocks with Government at the end of 1978-79 were assumed to be 14.5 million tonnes. The storage requirement for the above level of 14.5 million tonnes including operational space requirement of 8 per cent would be 15.7 million tonnes. On the eve of the Fifth Five Year Plan the capacity available for storage of foodgrains with the various storage agencies was estimated to be about 8 million tonnes excluding the capacity if any available with the co-operatives. The storage capacity with the cooperatives is available only to meet the interim stocks|short term requirements of foodgrains storage. The storage gap of 7.7 million tonnes had therefore, to be planned during the Fifth Plan. Against this the construction programme envisaged through Food Corporation of India, Central Warehousing Corporation and State Warehousing Corporations will provide about 5 million tonnes for storage of foodgrains leaving the remaining gap to be provided out of the storage capacity available with the cooperatives|hired etc.

Coordination between various agencies

7.62. Storage of foodgrains is handled by various agencies such as Food Corporation of India, Central Warehousing Corporation, State Warehousing Corporations, Cooperatives and the State Governments themselves. Government were asked as to how was coordination maintained among the various agencies so as to avoid duplication of effort and wastage of resources. They have in reply stated that a Central Storage Committee was formed in 1966 consisting of representatives of the Food Department, the Food Corporation of India, the Central Warehousing Corporation, the National Cooperative Development Corporation, etc. and this Committee meets from time to time. The main function of this Committee is to ensure that construction of godowns/warehouses by the different agencies is taken up in a coordinated and planned manner so as to avoid duplication amongst them. At the State level also coordination is effected through State level Committees formed by most of the State Governments. These Committees include representatives of the State Government, the State Warehousing Corporation, Central Warehousing Corporation, Cooperative Societies etc. The Central Warehousing Corporation ensures coordination and liaison between the Central Storage Committee and the State level Commit-

tees. The State Governments have been advised recently to co-opt the nominee of the Food Corporation of India on the State level Committees. Some of the State Governments have coopted the nominees of the Food Corporation of India on the State level Committees. State Governments and public undertakings have been advised that where storage facilities provided by the Central Warehousing Corporation are available, these should be utilised to the fullest possible extent.

7.63. The Committee unlerline the need for greater attention being paid to educating the farmer and small trader in the scientific store of foodgrains so as to minimise the losses due to inadequate or defective storage which are at present sizeable. The Committee consider that the most effective way of publicising the need for better storage would be through special programmes on the radio net work and projected visuals like short films and news reels. Non-projected visuals such as slides and exhibitions would also be effective. Publicity should also be given through demonstrations and written literaure produced in local languages. There should also be a system of periodical inspection of godowns of farmers and village traders by extension functionaries and also of the godowns of traders at grain mandies and those at the premises of mills and factories processing foodgrains.

7.64. The Committee also suggest that Government should take steps to intensify research on development of cheap and easy methods of post-harvest processing of foodgrains particularly paddy, and to publicise the results thereof in the manner aforesaid so as to maximise the availability of foodgrains.

7.65. The Committee note that the public agencies like Food Corporation of India, Central Warehousing Corporation and State Warehousing Corporations have an ambitious programme during the Fifth Plan period of building up storage capacity of nearly 6 million tonnes costing more than Rs. 175 crores. In addition, the cooperative sector is expected to built up capacity of another 3.6 million tonnes costing roughly Rs. 100 crores. The Committee would like Government to examine closely the need for storage construction activity on such a large scale in the light of financial constraint and shortages of essential building construction material. In this context, the Committee would like to point out that Government have handled an operational and buffer stock of more than 8 million tonnes in 1972 with the help of hired storage accommodation.

E.—Minikit Programmes

Minikit Programme of Rice

7.66. With a view to popularising the latest released and pre-released varieties and to get farmers' reaction to the newly identified outstanding varieties, a Central Sector Scheme of Minikit Programme of Rice was taken up during the Fourth Plan from Rabi-Summer 1971-72. Under this scheme, minikits of two varieties of similar maturity containing 2 kgs. of seeds of each were supplied free of cost for trials at the district farms and for distribution to the participating farmers. The scheme was implemented in 60 districts in all States and Union Territories and in each district 300—500 minikits were distributed through the District Agriculture Extension staff. The scheme has been widely welcomed by the farmers and the State Governments and has resulted in the quick acceptance of some of the new varieties like IR-20, Vijay, Pankaj, CR-44-35, Ratna, Pusa 2-21 etc. Against the Fourth Plan outlay of Rs. 5 lakhs for the minikit programme of rice, the expenditure during the Fourth Plan period is estimated at Rs. 4.92 lakhs.

Evaluation of the Programme

7.67. Rice Minikit Programme has been in operation during the last 3 years of the Fourth Plan. Government were asked whether they had evaluated the programme before taking a decision regarding its continuance during the Fifth Plan period. They have stated that although there has been no formal evaluation of the programme as yet, the results obtained in the minikit demonstrations in each crop season are analysed by the Directorate of Rice Development and the Project Coordinator (Rice). On the basis of this analysis, the varieties which fail to give good results at the farmers' fields are eliminated from the programme and the varieties that give good performance are recommended for propagation over larger areas. On this basis, some of the new varieties like IR-20, Vijaya, Pankaj, Ratna, CR 44-35, Pusa 2-21 etc. have been extended to larger areas in different parts of the country.

Programmes during the Fifth Plan

7.68. During the Fifth Five Year Plan, the production of rice is visualised to increase from 44 million tonnes in 1973-74 to 54 million tonnes in 1978-79 envisaging an annual compound growth rate of 4.2 per cent. While the area is expected to contribute a compound growth rate of 0.8 per cent, productivity is required to increase at the rate of 3.4 per cent per annum. It is stated that for increasing

the productivity major reliance will be placed on the cultivation of high yielding varieties of rice which will have to be widely popularised among the farmers to ensure that their cultivation is taken up in the areas for which they are ideally suited. Accordingly, the Rice Minikit Scheme is proposed to be further enlarged during the Fifth Plan period to cover 150 selected districts in the country with highest acreage under rice. Under this scheme, in addition to supplying minikits containing seeds of two varieties of similar maturity free of cost to district farms and participating farmers for trial purposes, necessary plant protection chemicals are also proposed to be provided. Extension literature, training of extension workers/farmers and data collection form an integral part of this scheme.

7.69. One of the most important aspect which the Rice Minikit Programme envisages is the establishment of community nurseries for the supply of seedlings of suitable varieties of rice at the proper time to the farmers for timely transplantation. To start with, it is proposed to take up this programme in the three canal command areas of Bihar viz., Sone, Kosi and Gandak where special command area development programmes have been taken up and infrastructure facilities have been augmented. The Government of India will meet the full cost of the seed and other inputs which will be nearly Rs. 400 per community nursery of 1 acre. The nurseries will be raised wherever possible on Government farms and at selected farmers' fields which will contribute labour, farm-yard manure, field preparations, weeding, irrigation etc. The seedlings will be supplied to the farmers at a reasonable price after taking into consideration the expenditure incurred on field preparation, labour and irrigation. On the basis of the success of this programme in the 3 canal command areas of Bihar during the first year, it will be extended to other areas in Bihar and also in Uttar Pradesh and Madhya Pradesh from the second year of the Fifth Plan. In the subsequent years, the programme will be required if required and extended to other suitable areas where adoption of new technology *i.e.* early transplating of high yeilding varieties may still be at a slow pace.

Minikit Programme of Wheat and Millets

On the basis of the success achieved in rice, it is proposed to initiate similar minikit testing programmes for other food crops *viz.* millets and wheat during the Fifth Plan period. The main objective is to make available small quantities of seed of newest and latest varieties of wheat and millets along with full informa-

tion on the package of practices to the district farms and to a large number of farmers to enable them to decide for themselves the suitability of new various *vis-a-vis* currently grown varieties in particular areas. It will act both as a demonstration and an information transfer system through the active participation of the local extension workers and the farmers, particularly small farmers themselves and thus help increase the production of wheat and millets in the country. The programme also envisages the propagation of new technology for production of wheat and millets and the replacement of rust prone varieties of wheat in the endemic areas particularly the Northern Hills.

7.71. The Minikit Testing Programmes of rice, wheat and millets is a propagation of new technology, since with the continuous researches on these crops under the Indian Council of Agricultural Research coordinated programmes new varieties will be released from time to time which will have to be included for testing at the farmers' fields and at District Farms. Similarly, some other new technology may have to be propagated which may become available from time to time pertaining to better adoption of varieties or control of diseases and pests by restricting or changing varietal pattern or crop pattern. Theremore, some uncommitted provision has been earmarked under the head "new technology".

Agencies for Implementation of Minikit Programmes

7.72. The Minikit testing programme is being implemented through the close collaboration of the State Departments of Agriculture, Agricultural Universities and Research Institutes, as well as the Central Agencies like the Directorate of Rice Development, Directorate of Millets Development and the Crops Division in the Ministry of Agriculture and Irrigation. The selection of varieties for different areas is done by a Committee in which all these three organisations are represented. The Central agencies arrange for the seeds through the seeds producing organisations like the National Seeds Corporation, Tarai Development Corporation, as also the Research Institutes. The Ministry also make arrangements for the training of the extension personnel in the latest production technology at the various research Institutes. The actual demonstration on the farmers' fields are laid by the State Departments of Agriculture. The Central Government bears the cost of minikits of seeds (and now pesticides also) and provides technical guidance and supervision for the effective implementation of the programme.

Financial Implications

7.73. The total expenditure involved on the implementation of the above schemes works out to Rs. 3 crores for the entire Fifth Plan period as per details below:

(i)	Minikit Programe of Rice including raising of Community Nurseries and adoption of new technology during the last three years of the Fifth Plan.	Rs. 2.00 crores
(ii)	Minikit Programme of Wheat including replacement of rust susceptible varieties and propagation of new technology	Rs. 0.60 crores
(iii)	Minikit Programe of Millets including propagation of new technology.	Rs. 0.40 crores
	Total Rs.	3.00 crores

7.74. The Committee note that a Minikit Programme of Rice has been implemented during the Fourth Plan period in 60 selected districts at a cost of nearly Rs. 5 lakhs and that during the Fifth Plan period the programme for rice will be extended to cover 150 districts and similar programmes will be launched for wheat and millets with a total outlay of Rs. 3 crores. The Committee feel that there is need for a proper evaluation of the Minikit programme of rice which has been in operation for over three years so as to assess its usefulness in increasing the production of rice. They recommend that a time-bound study should be undertaken in this regard and on the basis of its conclusions necessary steps should be taken to make it more effective.

CHAPTER VIII

CONCLUSION

8.1. Food is the basic human need and a duty is cast on every Government to see that its people are adequately fed. Our country is endowed with considerable geo-physical diversity, large tapped and un-tapped water resources, abundant sunlight, a large animal and human population and duty plenty of human talent. Yet, our agricultural productivity is low as compared to not only western countries but also some of the far and near eastern countries like Japan and Egypt. A continuous pressure on land due to phenominal growth in population, aberrant whether and improper use and management of resources are to a large extent responsible for it. Our urgent need is therefore to increase productivity and thereby enable us to produce more and more food from less and less land under conditions of resource constraints. The Committee had taken up the subject of production of foodgrains to examine the problem in all its aspects and to give their own suggestions for augmenting the production of foodgrains. Their findings and suggestions are broadly as follows:

Demand and Production

8.2. The existing procedure and machinery for the collection of agricultural statistics have not been able to throw up accurate data on a timely basis so as to be useful for effective planning of production of foodgrains. The operation of these schemes should be kept under constant review so as to ensure that the data collected is timely and reliable to form a sound basis for policy formulation and production planning.

8.3. The foodgrain demand and production target of 129 million tonnes for 1973-74, the last year of the Fourth Five Year Plan, was scaled down to 115 million tonnes. Even against the revised target, the production had been only 104 million tonnes. Government should assess the demand for foodgrains in the country on the basis of minimum consumption requirement and the projected growth of population, and fix the production targets on a realistic basis to meet this demand in full.

8.4. Planning Commission have assumed a base level production of 118 million tonnes durng 1973-74 and laid down the production

target of 140 million tonnes for 1978-79. Since the production during 1973-74 was only 104 million tonnes, there is need for a close watch on the performance during the Fifth Plan period.

Buffer Stock

8.5. A buffer stock of foodgrains is essential not only to meet emergencies arising out of natural calamities, but also to impart stability in the internal prices of foodgrains with which the general price level is intimately connected. Effective steps should be taken to replenish the buffer-stock at least to the peak level of nearly 9 million tonnes reached during the Fourth Plan period.

Seed

8.6. While the foodgrain production targets were laid down on the basis of extension of area under certified/quality seed, until recently, there was no system of even assessing the demand of various varieties of quality seeds of different food crops on all India basis, much less of keeping a coordinated watch on their availability to ensure that these were available to the farmer in time. As certified/quality seed is an essential input for stepping up production of foodgrains and it is necessary that the requirement of seed is assessed properly and its production is planned and ensured.

8.7. The high yielding varieties developed in respect of several food crops have, after initial success, become disease prone. Greater caution should be exercised in releasing the new varieties for mass cultivation and, as soon as any disease is noticed, suitable control and remedial measures should be initiated. Seed varieties should be replaced when their normal life comes to an end and it should be given full publicity.

8.8 Adulteration of seed not only affects the very livelihood of the farmers but also the overall availability of food in the country. Some special control measures are, therefore, necessary to control the menance of seed adulteration. Provisions have been made in the Fifth Five Year Plan for the creation of facilities for seed processing and storage and for building up a reserve stock of seeds for use during lean periods. There is need for advance action and proper coordination of these programmes so that the slow progress of one does not affect adversely the progress of others.

Irrigation

8.9. Out of 81 major and 213 medium irrigation schemes under construction in the Fourth Plan period, only 6 major and 58 medium

schemes were completed and the rest spilled over to the Fifth Plan period despite the existence of "Review Committees" to watch their progress. It is very important that irrigation facilities for increasing the production of foodgrains are developed quickly. The organisation at the Central level to monitor the progress of the major/medium irrigation schemes should be set up without any further delay and the procedures to be evolved for monitoring the progress in the implementation of the schemes should include the use of PERT system. In the interest of achieving self-sufficiency in foodgrains at the earliest, such projects as have great potentialities for increasing production of foodgrains should be completed on priority basis and a serious attempt should be made to resolve inter-State water disputes. It is also necessary to improve the utilisation of the potential already created. However, the Command Area Development Authorities proposed to be set up in respect of the projects should not cause an undue burden on the farmer.

8.10. Minor irrigation has the advantages that the schemes are completed quickly, the utilisation of the potential created is quick and the participation of the farmer is secured to a large extent. There is need for closer attention being paid to the minor irrigation programme so as to achieve the maximum benefit in the shortest possible time. Government should lay down firm physical time targets and prepare a time bound programme for implementation of World Bank assisted Agricultural Credit Projects. The benefits available under these schemes should be adequately publicised through Block Committees etc., so that useful schemes which could effectively contribute towards agricultural production are generated at the grass root level.

Power

8.11. The share of the rural sector in the total power consumption in the country is at present very low, being only 13 per cent during 1973-74. During the Fifth Plan, nearly Rs. 1100 crores are expected to be invested on rural electrification programme. It should now be possible to undertake the rural electrification programme on a crash basis. There is need for reducing inter-State imbalances in the consumption of power. Uninterrupted supply of power during a fixed period is necessary for sustained and safe use of machines.

Fertilisers

8.12. The overall demand for fertilisers in the country should be assessed on the basis of the approved programme for agricultural production by the various States and an attempt should be made to meet it through the domestic production to the maximum extent possible

and the balance by import, only where necessary. At the stage of allotment and actual supplies of fertilisers to the States, certain weightages are being given to States and supplies are redirected on various considerations. A fairer system would be to set apart, out of the available quantity of fertilisers, a certain portion for meeting unforeseen requirements of any State and the rest being distributed, as far as possible, proportionately between different States on the basis of their assessed requirements linked to agricultural production programmes.

8.13. The indigenous production of fertilisers is lagging far behind the demand and there is a consistent failure to achieve the production targets. With the world scarcity of fertilisers and their high prices following the international oil crisis, there is now an imperative need for fuller utilisation of existing installed production capacity and for launching a time bound crash programme for the creation of additional production capacity in the country to meet the demand. A massive programme through mass media in local languages to educate the farmers in the correct doses and time of application of fertilisers so as to derive maximum benefits out of the available quantities of fertilisers should also be launched on an urgent basis. Various programmes for increasing production of organic fertilisers during the Fifth Plan should be energetically implemented and adequate publicity would be given to the use of organic fertilisers by undertaking demonstration and communication programmes through mass media suitably designed to catch the imagination of the farmers.

8.14. Fertiliser prices in the country are very high and act as a distinctive to their use, affecting adversely the agricultural production. The feasibility of introducing a scheme for making available fertilisers at subsidised rates at least to small and marginal farmers for production of foodgrains should be examined.

Plant Protection

8.15. Plant protection chemicals play as important a role in agricultural production as other inputs like high yielding seeds, fertilisers, etc. In order to reap full benefit from huge investments made for the development of agriculture in terms of inputs, plant protection services, both preventive and curative, should be further intensified and their coverage should be increased, so that the benefit of these services accrues to the largest number of farmers. The schemes should, however, be kept under constant watch and periodical evaluation. Plant protection schemes should pay greater attention to the requirements of small farmers. Maximum efforts should be made to increase the indigenous production of technical grade material and

pesticides which are at present being imported. A buffer stock of well proven pesticides of a modest size to meet the emergent requirements of the Central schemes and of the State Governments should be created.

8.16. A new informal arrangement has been made with the indigenous manufacturers whereby 50 per cent of certain popularly used indigenously manufactured or imported pesticides/chemicals are to be routed through the State Governments to the small scale units other than the associated units of the established companies. In case, this informal arrangement with the pesticides manufacturers is found unworkable, Government should not hestitate to take recourse to statutory measures to regulate production and distribution of popular pesticides/insecticides.

8.17. While the use of pesticides as a plant protection measure helps to increase the yield per acre by saving the crops from pests and diseases yet there are many pesticides which may have harmful effects on soil organism and may pose a grave dangers to the health of consumers of foodgrains. This aspect should be kept strictly in view while granting licences for manufacture/formulation of pesticides/insecticides.

Agricultural Machinery

8.18. The assessed demand of tractors for 1974-75 is about 46 thousand but the latest estimates place indigenous production during the year at no more than 32 thousand. The reasons for not achieving the envisaged production even when the capacity licensed was for the manufacture of 1.47 lakh tractors per annum should be investigated and suitable remedial steps taken to fully meet the requirement of tractors. A continuous watch should be kept on the prices of tractors and they should not be allowed to rise unless it is absolutely justified after undertaking a proper cost analysis. State Governments may be approached at the highest level to bring about a reduction and uniformity in the rate of sales tax on tractors so as to reduce their selling prices to the farmers. Most of the landholdings in our country are small and the farmers are unable to afford the ownership of heavy agricultural machinery. The Machinery Hiring Centres should, therefore, be encouraged and training facilities in repairs of agricultural machinery should be augmented.

8.19. In the context of land ceilings and smaller holdings in the country small machines like power tillers would prove popular and would go a long way in maximising food production. It should, however, be ensured that apart from the price aspect, the power tillers

manufactured within the country are such as could be put to versatile use and do not pose maintenance and other problems for the farmers.

Agricultural Credit

8.20. Credit is an essential agricultural input on which the assimilation by the farmer of the new techniques of production largely depends. It is, therefore, also in the national interest that the farmer should be assisted by institutional finance in procuring agricultural inputs. At present the farmer has to go to several organisations for procuring different agricultural inputs. This is very cumbersome and time consuming for him. A scheme of multi-purpose cooperatives for providing all the requirements of the farmers such as credit, seeds, fertilisers, pesticides, pump sets, etc., as existing in some other countries of the world, should be worked out and introduced.

Agricultural Research

8.21. In view of the urgency of increasing production of foodgrains, there is need for greater emphasis being placed on research for increasing productivity in food crops.

8.22. To avoid overlapping and wasteful duplication of effort, agricultural research and education in a State should be concentrated in the Agricultural University in the State and it should be made entirely responsible for achievements and failures in this field.

8.23. Indian Council of Agricultural Research should lay down clearly national priorities for agricultural research on the basis of country's needs and problems and there should be a system whereby the research projects and the educational curricula of the Agricultural Universities/Institutions are closely scrutinised at the Central level so as to ensure that these subserve the national priorities and that there is no overlapping and duplication of effort.

8.24. There should be a system of objective evaluation of the research and development work done in each Agricultural University/Institute by an outside body of experts in related disciplines after every five years, preferably before the commencement of each Plan period.

8.25 The country has the problem of increasing production in small and medium farms by intensive farming techniques under conditions of resource constrains. Each Agricultural University should select a few farms of the size of land ceiling applicable in the State and demonstrate how yield can be increased by the use of

High Yielding Variety Seeds, new technology and improved agricultural practices under local conditions obtaining in the area. While evaluating the work of an Agricultural University after every five years, their performance should also be judged on the basis of the increase in agricultural production and awareness of improved agricultural practices among the farmers, brought about by them in their region/area.

8.26. A scheme of attaching adequate farm land to each agricultural university/institute should be worked out so that the income from it could supplement the finances of the institute/university and to that extent reduce the burden on the exchequer.

8.27. Efforts are being made to coordinate agricultural research on various crops and disciplines undertaken in different agricultural universities and institutes through All India Coordinated Research Projects. The role and achievements of the All India Coordinated Research Projects should be evaluated by a body of experts with a view to locate bottlenecks and suggest improvements in their working.

8.28 During the Fifth Plan period, it is proposed to set up 23 'Operational Research Projects' on area of water shed basis involving an integrated approach to the rural problems through the cooperation of local agencies, voluntary organisations, Development Departments, Socio-economic Institutes etc. These projects should be effectively implemented with the cooperation of public and voluntary organisations.

Agricultural Extension

8.29. The importance of strengthening the extension machinery at the field levels cannot be over-emphasised as the transmission of the results of agricultural research and development effort to the farmer in the field depends largely on the effective functioning of the machinery.

8.30. Refresher training to extension workers at the grass root level is being given only once in 7-8 years. With an outdated knowledge it is hardly possible for the village level worker to play any useful role in the national effort to increase agricultural production. There should be a system of regularly feeding the village level worker with the knowledge of latest advances in the techniques of agricultural production.

Dryland Agriculture

8.31. 75 per cent of the cultivated area in the country is rainfed which contributes only 42 per cent of the nation's food. It is well-known that people inhabiting these areas are generally poor. It is, therefore, imperative that special attention is paid to agriculture in these areas and research and development work in dry land agriculture is intensified.

Pricing

8.32. Government have admitted that there has been a considerable escalation in the cost of agricultural inputs, namely, in irrigation and power rates, in the cost of fertilisers and pesticides and in the interest rates for agricultural credit. This has affected the overall cost of production of foodgrains. The very objective of announcing the support price, namely, to remove discentive effect of uncertainty and create a stable price climate for investment and production, would be lost if the price is not realistic and does not assure to the farmer a fair return over his labour and investment. Further, the holding capacity of the average farmer being very meagre, the procurement prices announced by the Government set a trend and the open market price of foodgrains available to the farmer tends to keep close to it. The pricing policy in respect of foodgrains should, therefore, be realistic. Apart from the bonus scheme for procurement, Government should also work out and introduce a system of package deal with the farmer whereby against the supply of inputs at fair prices, the farmer may be required to sell to the procurement agencies a stated quantity of foodgrains at a fixed price.

Pulses

8.33. Wheat, Rice and Pulses constitute the staple diet of our people, but adequate attention does not appear to have been paid to the development of pulses as is evident from the fact that both the area under pulses as well as production of pulses have, instead of increasing, appreciably declined. Short availability against rising demand has resulted in an unprecedented increase in their prices so much so that pulses which are the main element of the poor man's diet are now fast becoming out his reach. There is an urgent need for improvement in the yield and quality of pulses so as to secure for the poor man a cheap nutritious diet.

Consolidation of Holdings and Land Ceiling

8.34. Despite a cumulative expenditure of nearly Rs. 83 crores on consolidation of holdings the problem of fragmentation of land

not only persists but is deteriorating. It is, therefore, necessary to initiate suitable measures to attack the problem at its root so as to prevent, or at least minimise, the scale of fragmentation of land in the interest of increasing agricultural production.

8.35. A systematic study of production capacity of holding of different sizes in different areas such as irrigated multicrop, irrigated single crop, dry multicrop, dry single crop and arid land under conditions of optimum, medium and scarce availability of inputs, would be useful in assessing the economic viability of various land ceilings from the point of view of the individual farmer as also the need for inreasing agricultural production, particularly of foodgrains.

Storage

8.36. Greater attention should be paid to educating the farmer and small trader in the scientific storage of foodgrains so as to minimise the losses due to inadequate or defective storage which are at present sizeable. The research on development of cheap and easy methods of post-harvest processing of foodgrains, particularly paddy should be intensified and the result thereof should be publicised.

NEW DELHI;
April 28, 1975.
Vaisakha 8, 1897 (*S*).

R. K. SINHA,
Chairman,
Estimates Committee.

APPENDIX I

Statement showing Summary of Recommendations/Conclusions contained in the Report

S. No.	Reference to Para No. in the Report	Summary of Recommendations/Conclusions
1	2	3
1.	1.13	Food is the basic human need. It is therefore, imperative that its overall availability and production should be most carefully watched. The indigenous production of foodgrains is to be planned on a long term basis as well as from season to season. For any developmental planning on a realistic basis it is absolutely necessary that the planning agency should be properly armed with basic data which is fairly accurate and is available on a timely basis. This is possible only if the data collection procedure and machinery are streamlined. The Committee regret that the existing procedure and machinery for the collection of agricultural statistics have not been able to throw up accurate data on a timely basis so as to be useful for effective planning of production of foodgrains. The Estimates Committee had on an earlier occasion also commented upon the paucity of data in this regard. In paragraph 2.7 of their 61st Report (Fifth Lok Sabha) on the Civil Supplies Organisation, the Committee had observed that "unless Government arranged to assess reasonably correctly the crop prospects they would not be able to take timely measures to procure the foodgrains within the country and/or import them from outside or initiate concerted measures for implementing contingency emergency agricultural production programme". The Committee reiterate the need for a streamlined

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		system of data collection in respect of crops, particularly of foodgrains. Noting that Government propose to implement certain new schemes for collection of agricultural data during the Fifth Plan period, they would like that the working of these schemes should be kept under constant review so as to ensure that the data collected is timely and reliable to form a sound basis for policy formulation and production planning in respect of foodgrains.
2.	1.14	The Committee find that Government are taking considerable time in extending the scheme of "Timely Reporting of Estimates of Areas and Production" to all parts of the country. The advance data on production cannot be complete unless it is simultaneously collected from all parts of the country by an effective machinery. The Committee therefore desire that Government should expeditiously extend this, or any other suitable scheme, to the States where advance data collection machinery either does not exist or is not effective.
3.	1.25	The Committee note that in 1971-72 an area of nearly 160 lakh hectares was in the category of "culturable waste" which could be used for agriculture purposes. In view of the continuing shortfall in the production of foodgrains to meet the demand in the country, the Committee recommend that Government should launch a time-bound programme to reclaim "culturable waste" for agricultural purposes and to increase the area under foodgrain production so as to maximise production and achieve self-sufficiency in this vital field.
4.	1.26	The Committee note that the Central Salinity Research Institute, Karnal has been carrying on study, research and developmental work in the field of soil salinity since October, 1969 when

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		it was set up and that a sum of Rs. 6.5 crores has been spent by it during the Fourth Plan period. The Committee recommend that the research and development work done by the institute and its achievements in extension work may be critically assessed by an appropriate technical authority with a view to improve and intensify its activities.
5.	1.27	The Committee welcome the scheme for reclamation of Alkaline and Acidic soils proposed for implementation during the Fifth Plan period. The scheme should have a proper in-built control mechanism to ensure that it is actually implemented in the field to the benefit of the small farmer and enables him to reclaim the land and achieve the desired agricultural production level. The Committee stress that Government should ensure that the scheme of 50 per cent subsidy on use of gypsum or lime which would entail an expenditure of Rs. 12.43 crores in Fifth Plan should receives close attention with a view to achieve the desired objective.
6.	1.28	The Committee note that the data regarding estimates of area under production of foodgrains is available with the Government only upto 1971-72. The Committee desire Government to streamline the procedure of collection of data so that it is available not later than six months after the conclusion of the year for which the data relates.
7.	1.41	The Committee are greatly concerned to note that the foodgrain demand and production target of 129 million tonnes for 1973-74, the last year of the Fourth Five Year Plan was scaled down to 115 million tonnes. According to Government the production targets had to be scaled down on account of shortage of fertilisers, problems encountered in the extension of area

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		under high yielding varieties of rice, jowar and bajra and lack of progress in the evolution and introduction of short duration high yielding varieties of pulses. In this context, the representative of the Ministry, during evidence, mentioned as a mitigating factor the fact of non-materialisation of the projected growth in the per capita income on which the demand and production targets for foodgrain were supposed to be based. The Committee do not consider the reasons for scaling down the production targets satisfactory as the problems faced in stepping up production of foodgrains are well known and should have been taken care of in advance. They further feel that the assessment of demand for foodgrains on the basis of the projected growth of per capita income and then to determine the production target on the basis of the demand thus arrived at, is not at all realistic. Food is the basic need of man and foodgrains not only provide his staple diet but also are the cheapest source of nourishment. A growth in the per capita income may enable him to improve his diet but it would hardly affect his need for a minimum meal of bread or rice. The Committee have, in paragraph 2.6 of their Sixty-First Report (Fifth Lok Sabha) on "Civil Supplies Organisation" and again in para 3 of Chapter I of their Seventy-First Report (Fifth Lok Sabha) on Action Taken thereon already stressed that the assessment of demand for foodgrains in the country on the basis of minimum consumption requirement is necessary for need-based planning of production and imports. The Committee reiterate their earlier recommendations and suggest that Government should assess the demand on the basis of minimum consumption requirement and the projected growth of population, and fix the production targets on a realistic basis to meet this demand in full.

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8.	1.42	The Committee note that production of foodgrains which reached a record level of 108 million tonnes in 1970-71 registering an increase of 9 million tonnes over the previous year, declined to 105 million tonnes in 1971-72 and to 97 million tonnes in 1972-73. It registered an increase of 7 million tonnes in 1973-74 reaching a production of 104 million tonnes in the last year of the Fourth Plan period. The reasons advanced for the low production achieved during 1973-74 are the failure of the Rabi crop in the absence of winter rains, cold spell in the first week of February and shortage of critical inputs like fertilisers and power. The Committee are distressed at this decline in foodgrains production. They are disappointed that, despite major resource commitments for development of agriculture particularly production of foodgrains, 'research' and 'extension' has lagged behind and agriculture still remains, as it were, "a gamble in weather conditions". The Committee feel that if Government had kept a close watch on the situation in regard to the production of foodgrains in the earlier years of the Fourth Five Year Plan period, and taken timely action to overcome the problems hampering agricultural growth, the production reached would not have been as low as it came to be in the last year of the Plan period. They expected that having reached the figure of 108 million tonnes in 1970-71 it should have been possible to consistently maintain the rate of growth in production in view of advanced technology, development of high-yielding seeds etc. The Committee hope that this unimpressive performance would not be repeated during the Fifth Plan period and effective measures would be taken to ensure that there is no slowing down or stagnation in agricultural production. In this connection they note that the Finance Minister in his Budget

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		(1975-76) speech mentioned the "continued sluggishness of Indian Agriculture since 1971-72" and said that he regarded "the claims of agricultural growth as the first charge on our developmental resources." He also indicated priority action on many fronts to achieve a sustained increase in production. The Committee feel that if such a policy had been adopted and implemented in a sustained manner, the current bleak situation in the agricultural sector would not have come about. The Committee stress that Government should lay down realistic targets of production of foodgrains during the Fifth Plan period and take concerted measures to see that these are achieved. A close watch on the performance is all the more necessary particularly because the base level production of 114 million tonnes during 1973-74 has been assumed for fixing the targets of 118 million tonnes for 1974-75 and 140 million tonnes for 1978-79, the first and the last years of the Fifth Plan, while the actual production during 1973-74 was less than 104 million tonnes.
9.	1.47	A buffer of foodgrains is essential not only to meet emergencies arising out of natural calamities, but also to impart stability in the internal prices of foodgrains with which the general price level is intimately connected. The existence of a buffer stock of foodgrains tends to impart immunity against international pressures. It would also help negotiations for purchase of foodgrains from abroad as imports could be planned at a time when it is economically most beneficial for the country. Above all, the importance of a buffer stock of foodgrains for national security and internal stability cannot be over emphasised. The Committee are constrained to note that the buffer stock of Rs. 8.8 million tonnes built up by June, 1972 got exhausted in circumstances largely beyond

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		our control. The current stocks of foodgrains with the Central as well as with the State Governments are insufficient even for the orderly operation of the public distribution system at the existing level. The Committee recommend that apart from stepping up procurement of foodgrains, Government should take effective steps to replenish the buffer-stock at least to the peak level reached during the Fourth Plan period.
10.	1.59	The Committee are perturbed at the recent spurt in the prices of foodgrains in the exporting countries of the World due to which the cost of import of foodgrains has considerably gone up even though the imports are now at a much reduced level. The Committee hope that the Government would continue to project the case of the developing countries for availability of foodgrains at a reasonable price in the interest of World peace and prosperity.
11.	1.60	The Committee have elsewhere in the Report stressed the need for building up buffer stock so as to ensure that the public distribution system is not exposed to any uncertainty. Adequate buffer stocks have a great stabilising effect on prices of foodgrains. In fact as has been remarked by an eminent authority that political stability cannot be based on empty stomachs. The Committee would like Government to take full advantage of the present forecast of a bumper Rabi crop to build up buffer stocks. Government should also pursue with the Food and Agriculture Organisation and the United Nations the question of having suitable buffer stock which could be drawn upon in times of need by developing country like India. This is all the more necessary as the prices of foodgrains are showing a marked tendency towards steep increases

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		and it would be increasingly difficult for the economy of a developing country like ours to afford such costly imports.
12.	2.15	The Committee note that in the Fourth Plan Document, the target of coverage under improved seeds was indicated as 72 million hectares including 25 million hectares under High Yielding Varieties. Government have, however, not been able to indicate to the Committee the actual achievements against the target, except in the case of H.Y.V. where the target of coverage of 25 million hectares has been claimed to have been achieved during the Fourth Plan period. They also note that for the Fifth Plan period "the effective seed requirement" and targets of "area coverage" have been indicated only in respect of High Yielding Varieties as 2.46 lakh tonnes and 40 million hectares respectively. As for collection of demand data and supply programme, the Committee observe that an attempt is being made to co-ordinate the demand and supply of seeds on a zonal basis at the Zonal Seed Conferences which, according to Government's own admission, is inadequate. They also note that the High Level Committee appointed as late as October, 1974 under the Chairmanship of the Director General, Indian Council of Agricultural Research to finalise the production programme of breeder seeds and allocation of breeder and foundation seeds among identified seed producing agencies has desired the State Governments to individually assess their requirements and to plan and organise the seed production programme primarily within the State and taking, if necessary, the help of the national seed producing agencies. The Committee are surprised that while the foodgrain production targets were laid down on the basis of extension of area under certified

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		quality seed, until recently, there was no system of even assessing the demand of various varieties of quality seeds of different food crops on all India basis, much less of keeping a coordinated watch on their availability to ensure that these were available to the farmer in time. The Committee would like to emphasise that certified/quality seed is an essential input for stepping up production of foodgrains and as such its timely availability has to be ensured to the farmer. For this purpose, it is necessary that the requirement of seed is assessed properly and its production is planned and ensured, as is being done in the case of other agricultural inputs. The Committee, therefore, recommend that Zonal Seed Conferences should be preceded by State level seed conferences at which a detailed analysis of seed requirements and supply sources within the State should be undertaken. The projected requirements of the States which have to be met from outside sources should be discussed at the Zonal Seed Conferences. Central Government should play a pivotal part not only in coordinated planning but also in production of seed, particularly Breeder/Foundation Seed, on the basis of state-wise requirements for proven varieties of seeds for different crops and make them available to the States on a timely basis so that the efforts to maximise foodgrain production do not suffer for want of good quality seed. Special attention should be paid by the Central Government and the National Seeds Corporation to meet the seed requirement of those States who do not have requisite quantity and quality of seeds available in their area.
13.	2.19.	The Committee are constrained to observe that the high yielding varieties developed in respect of several food crops have, after initial success, become disease prone. The Committee underline the need for the exercise of greater

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		caution in releasing the new varieties for mass cultivation. The new varieties should be subjected to repeated and exacting trials and these should be released only after their proved success under ordinary conditions so as to specially save the small and marginal farmer from disastrous consequences. At the same time, the research institutions concerned should keep a constant watch on the field results of the new varieties and, as soon as any disease is noticed under ordinary conditions of mass cultivation, suitable control and remedial measures should be initiated promptly. The Committee have dealt with the problem of timely availability of pesticides in a subsequent section. They, however, take another opportunity to emphasise the need for taking concerted and coordinated measures against spread of plant diseases through use of pesticides etc. Further as the average life of a high yielding variety is stated to be about five years, it should be ensured that the concerned variety is replaced in time by a more suitable variety and full publicity should be given thereto through the mass media and other means.
14.	2.23.	In order to make the food production programme a success, it is necessary that good quality seeds are available in time to the farmers in all parts of the country, particularly in the remote and backward regions. In view of the fact that at present there is no statutory control over the distribution of seed, it is all the more necessary to systematise the distribution of seeds of various kinds. The Committee recommend that the Central Government may make a detailed study of seed distribution arrangements in each State and the arrangement found most successful should be recommended to the State Governments and other seed distribution agencies for adoption. Alternatively,

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		Government could try out composite pilot schemes for distribution of seeds and other inputs in any of the Union Territories and after successfully operating them these could be commended to the State Governments and other seed distribution agencies concerned for adoption.
15.	2.30	Sale of sub-standard goods is reprehensible and calls for strict preventive measures, but it is more so in the case of seed as the consequences not only affect the very livelihood of the farmers but also the overall availability of food in the country. Some special control measures are, therefore, necessary to control the menace of seed adulteration. Under a scheme approved for introduction during the Fifth Plan period, the creation of a distinct composite seed quality control inspectorate and of laboratory facilities for quality testing of seeds is proposed with the financial assistance from the Central Government. While stressing the need of expeditious implementation of the scheme, the Committee suggest that the working of the scheme in the field should be watched and reviewed in time to plug loopholes and to improve it further. The Committee would also suggest that the efforts to increase production of quality seed should be accompanied by widespread publicity for the use of such seeds in the interest of the farmer himself as also of the nation.
16.	2.35	The Committee note the provisions made in the Fifth Five Year Plan for the creation of facilities for seed processing and storage and for building up a reserve stock of seeds for use during lean periods. The Committee would like Government to work out in advance the details of the various schemes meant for implementation during the Fifth Plan period and to keep a

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		close watch so that the agencies responsible for the implementation of these programmes actually fulfil the envisaged targets in time. The Committee would also like to point out the need for proper coordination of the programme for production, processing and storage of seeds so that the slow progress of one does not affect adversely the progress of others in the interest of ensuring better and timely supply of quality seeds to farmers.
17.	2.51	The Committee are extremely disappointed at the slow pace of implementation of major and medium irrigation schemes. They note that out of 81 major schemes and 213 medium schemes under construction in the Fourth Plan period, only 6 major and 58 medium schemes were completed and the rest spilled over to the Fifth Plan period. The reasons for slow progress are stated to be severe financial constraint, changes in scope of schemes and difficulty in acquisition of land likely to be submerged. The Committee further note that in the Fourth Plan period, an irrigation potential of 3 million hectares was created by the major and medium schemes at a cost of Rs. 1186 crores. The Draft Fifth Plan envisages the creation of a potential of 5.5 million hectares by major and medium schemes. Although the financial outlay provided therefore in the Draft Plan is Rs. 2401 crores (including Rs. 74 crores for Research and Miscellaneous), according to latest assessment the outlay would need to be increased to Rs. 3750 crores so as to achieve the physical target laid down. The programme drawn up for the Fifth Plan period accords priority to on-going schemes which can yield benefits in short-time. It is also proposed to set up monitoring organisation for the major on going projects with a view to keep closer contact with the project authorities, ascertaining the bottlenecks and taking expeditious measures

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for their removal to achieve speedy completion of such projects.

The Committee have been able to glean out two major reasons for the slow implementation or the irrigation projects. (1) severe financial constraints and (2) absence of close watch on implementation of projects. As for the first, the Committee need not emphasise the importance of development of irrigation facilities for increasing the production of foodgrains and hope that under the policy of regarding the claims of agricultural growth "as a first charge on our developmental resources", the financial constraints would now be less severe.

As regards the second reason, the Committee observe that although 81 major schemes and 213 medium schemes were under construction during the Fourth Plan period, 'Review Committees' were set up to watch the progress of the schemes in respect of c , 25 schemes. They also observe that although one year of the Fifth Plan period has passed by, the proposed monitoring organisations to watch the progress of the projects and to achieve their speedy completion have yet to be set up. The Committee have a feeling that if there had been a detailed and integrated planning of schemes and a proper monitoring organisation at the Central level to watch the progress of the schemes and to remove the bottlenecks in their speedy execution, much of the delay in the implementation of the projects would have been cut out leading to greater benefits being available to the farming community and to the nation in the shape of increased yield, particularly of foodgrains. They recom-

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		mend that the proposed monitoring organisation should be set up without any further delay. They would also suggest that the procedures to be evolved for monitoring the progress in the implementation of the schemes should include the use of PERT system.
18	2.52	The Committee gathered an impression during their tour that a number of important irrigation schemes which can materially contribute towards increased agricultural production have not made much headway. For example, Rajasthan Canal which was started long time back has not yet been completed although it is admitted by all authorities that it can make a great impact in the matter of providing water in an area which is prone to droughts. Similar is the case with the Sarada Sahayak Canal where major earth work has been completed but not much progress has been made thereafter for lack of funds. The Committee stress that in the interest of achieving self-sufficiency in foodgrains at the earliest such projects as have great potentialities for increasing production of foodgrains should be completed on priority basis.
19	2.54	The Committee note that as a result of completion of major and medium irrigation schemes at a cost of about Rs. 3,000 crores by the end of the Fourth Plan period, an irrigation potential of about 21 million hectares had been created. The actual utilisation of this irrigation potential was however 19 million hectares only. The Committee further note that a further irrigation potential of about 6 million hectares will be created from the continuing and new schemes during the Fifth Plan period. The Committee regret to observe that the irrigation potential which has already been created at such a heavy cost to the country, is not being fully utilised. They need hardly

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		emphasise that immediate steps should be taken by Government to reduce the gap between irrigation potential already created and that actually utilised. Farmers in the command areas of irrigation Projects nearing completion should be educated well in time as to the value of the project for them so that as soon the project is completed they are ready to utilise the benefits to the full after making due payments. Government should also initiate critical study of cases where there has been a heavy shortfall in utilisation in order to lay guidelines to prevent the occurrance of such cases. The Committee also stress the need for reduction of losses in transmission of water by attending promptly to leakages in the supply lines. It is also necessary to educate the farmer in water utilisation so that optimum use is made of the water available.
20	2.55	The Committee note that Government are envisaging the setting up of Command Area Development Authorities for about 50 major projects, covering an area of 15 million hectares during the Fifth Plan period and that these development authorities will take necessary measures for speedy construction of field channels, levelling of land, providing adequate drainage facilities etc., to bridge the gap between potential created and its utilisation as also to ensure more economic use of water and its efficient distribution. The Committee recommend that before setting up such Authorities, the financial implications of the scheme should be properly worked out and a constant watch should be kept that the overhead expenditures are the minimum and that the Authorities actually subserve the objective of securing cent-per-cent utilisation of the potential created. The Committee would suggest that the scheme of Command Area Development Authorities should be first tried out on a pilot basis in respect of one irrigation project and such Autho-

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		rities should be set up in respect of the other projects only if the pilot scheme is found successful.
21	2.66	The Committee consider it rather unfortunate that on account of long standing inter-State river water disputes, a number of irrigation scheme continue to remain outside the consideration zone for being taken up for implementation and the areas comprising the schemes are suffering for want of water for irrigation purposes. The Committee note that although the Inter-State Water Dispute Act 1956 provides for reference of such a dispute to a Tribunal, such references have been very few and the disputes continue to remain outstanding. The Committee desire that Government should energetically pursue with the State Governments their proposal to set up a high-powered body at the national level to resolve these disputes expeditiously so as to derive full benefit from the available water resources in augmenting agricultural production. They also recommend that the proposed highpowered body should attempt to formulate a National Water Policy so as to make for integrated planning and implementation of the irrigation schemes all over the country and prepare a perspective plan for proper exploitation of water resources for agricultural purposes.
22	2.78	It is recognised that the minor irrigation programme has the advantages that the schemes are completed quickly, the utilisation of the poteniatl created is quick and the participation of the farmer is secured to a large extent. Yet, the total investment in the programme during the Fourth Plan period, both public sector and institutional, was at about the same level as that on the major and medium irrigation schemes, being Rs. 1147 crores for minor irrigation and Rs. 1186 crores for major and medium irrigation projects. The public sector investment in minor irrigation schemes is severely limited and the programme depends upon

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		institutional finance which has to be largely on individual basis. The institutional investment for minor irrigation in the Fourth Plan period is anticipated to be Rs. 625 crores. The draft Fifth Plan envisages a total investment of Rs. 2735 crores (Public Sector—Rs. 773 crores; Institutional—Rs. 1462 crores; Private—Rs. 500 crores). Even with this scale of investment, the utilisation of the potential by the end of the Fifth Plan would be only 39 million hactares as against the ultimate potential of 50 million hectares. The Committee feel that there is need for closer attention being paid to the minor irrigation programme so as to achieve the maximum benefit in the shortest possible time. The progress of implementation of programme, physical as well as financial should be closely watched and timely action should be taken to remove the bottlenecks in the implementation of the programme, if and when, they arise.
23	2.79	The Committee would at the same time suggest that Government should initiate a cost-benefit study in respect of minor irrigation schemes to assess the relative benefits from the investment made to facilitate policy formulation.
24.	2.80	The Committee would like to point out that the renovation and major repairs to existing wells/tanks is as important as the creation of new irrigation potential. Mere statistics of newly dug wells/tanks would have no meaning unless all such wells/tanks are useable. The Committee therefore recommend that the minor irrigation programme should also provide for renovation and major repairs to existing wells/tanks. In this context the Committee would suggest the creation of facilities for short-term

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		training in tubewell repairs and servicing and the encouragement of service cooperatives of technical personnel who could undertake repairs of tubewells on custom basis.
25.	2.81	The Committee note that the number of Public Tubewells was anticipated to rise to 20 by the end of the Fourth Plan period. The Committee would like Government to review and evaluate the scheme of Public Tubewells and if it is found to be successfully working on No Profit No Loss basis, the scheme should be expanded to cover larger areas as it would serve the larger interests of the small and marginal farmer.
26.	2.82	The Committee recommend that, to keep a watch on the progress of the minor irrigation programme, the Land Utilisation Statistics should indicate the gross area irrigated separately in respect of major and medium irrigation schemes and minor irrigation schemes.
27.	2.83	Minor irrigation largely depends on institutional finance. The figures of institutional investment on minor irrigation during 1972-73 and 1973-74 are still not available with the Government. The Committee emphasise that there should be a regular system of compiling such data so that Government have a complete picture of the achievements and are able to assess the size the problem that has still to be tackled.
28.	2.84	The Committee are unable to appreciate as to why figures of targetted number of Diesel Pump sets to be made available in the concluding year of the Fifth Plan i.e., 1978-79 are 'not available' with the Government when similar targets have been indicated to the Committee in repect of other items concerning minor irrigation such as Dug Wells, Private Tubewells, Public Tubewells and Electric pumpsets.

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29.	2.89	The Committee note that the progress of implementation of the World Bank assisted Agricultural Credit Projects is very slow particularly in the State of Bihar, Madhya Pradesh and Uttar Pradesh while it is quite impressive in the States of Tamil Nadu and Maharashtra. In the case of Bihar and Madhya Pradesh, against the Project cost of Rs. 45 crores each, the total disbursements were only Rs. 2 crores and Rs. 4 crores respectively. In the case of Uttar Pradesh, against the Project cost of Rs. 54 crores, the disbursements by 30-6-1974 were only Rs. 5 crores. In the case of Tamil Nadu and Maharashtra however, against the Project Costs of Rs. 47 crores and Rs. 38 crores, the disbursements upto 30-6-1974 were as much as Rs. 20 crores and Rs. 17 crores respectively. The Committee are unable to appreciate as to why there has been so much imbalance as between the different States in the implementation of the Projects. The Committee are surprised that on the one hand there is the plea of financial constraints for not making sufficient progress in schemes for agricultural production, on the other hand there is lack of utilisation of large credits and finances which are available under the World Bank Schemes, particularly in States like Uttar Pradesh, Bihar, etc. This is indicative of lack of determined effort, coordinated and advanced planning and building up of field organisations so as to put to effective use the finances which are already available. The Committee would like the Planning Commission, the Department of Agriculture and the Department of Banking to review at the highest level the lack of progress in implementation of the World Bank Schemes with the State Governments concerned, particularly Uttar Pradesh, Bihar etc., so as to speed up the implementation of these projects. Government should lay down firm physical time targets and prepare a time bound programme for implemen-

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		tation of these projects. The State Governments as well as the financial institutions concerned should be directed to create, on an urgent basis, adequate organisation to utilise the funds and achieve the physical targets laid down for them. There should also be a system of monitoring on a centralised basis the progress of the Projects to ensure their timely implementation. The Committee also stress that the benefits available under the World Bank Schemes should be adequately publicised through Block Committees etc., so that useful schemes which could effectively contribute towards agricultural production are generated at the grass root level.
30.	2.90	The Committee stress that the Department of Banking should keep a special watch on the role and performance of lead banks in the matter of evolving a meaningful agricultural programme and channelising credit which now available under the World Bank Scheme.
31.	2.95	The Committee note that the implementation of the centrally sponsored scheme for strengthening of State Organisations for Minor Irrigation, which was approved for implementation during the Fifth Plan, has been postponed till 1976-77. The Committee fell that for implementing the irrigation programme the technical organisation in the States needs to be strengthened. They therefore recommend that in view of the importance of the Scheme, Government may reconsider its implementation at least from 1975-76. If for the reason of financial constraints it may yet not be possible to implement the scheme, the scheme may be tried out on a pilot basis in one or two states.
32.	2.110	The role of mechanisation in the development of agriculture is well known. Mechanisation, however, largely depends on the ready availability of power and diesel at economic rates. The

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		share of the rural sector in the total power consumption in the country is at present very low, being only 13 per cent during 1973-74. For bringing the benefits of mechanisation within the easy reach of the farmer and also for achieving the targetted production of foodgrains, it is imperative that there is a sizeable increase in the availability of power in the rural sector. The Committee note that nearly Rs. 1100 crores are expected to be invested during the Fifth Plan on rural electrification programme as against the total expenditure of nearly Rs. 1250 crores during the last 23 years up to the end of the Fourth Plan period. The Committee hope that Government will now be able to undertake the rural electrification programme on a crash basis and utilise the outlay earmarked therefor for the Fifth Plan period.
33	2.111	The Committee note that during 1973-74 there were considerable imbalances in the availablility of electrical power as between different States. Out of 21 States, in 6 States *viz.*, Maharashtra, Tamil Nadu, West Bengal, Uttar Pradesh, Gujarat and Karnataka, the availability exceeded 3500 kwh., the highest being 8812 kwh. in Maharashtra. The availability in the case of Bihar, Orissa and Rajasthan was, however, less than 2700 kwh. The Committee recommend that more intensive efforts should be made by Government to make power available for agricultural purposes in the States which have a potential for agricultural development so that the production of foodgrains may be maximised in these States.
34	2.112	The Committee also note that in 5 States *viz.*, Haryana, Tamil Nadu, Punjab, Andhra Pradesh and Rajasthan the consumption of electricity for agricultural purposes during 1973-74 was more than 20 per cent, the highest percentage being 37.7 in the case of Haryana. In 12 States, it was less than 6 per cent. In Bihar, it was 2.8 per cent

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		while in the States of Assam and Meghalaya, Himachal Pradesh, Orissa and West Bengal it was less than 1 per cent. The Committee recommend that Government should take concerted measures with the assistance of Rural Electrification Corporation, State Electricity Boards, etc., so that larger percentage of power becomes available in rural areas for being put to use in the interest of stepping up agricultural production.
35	2.113	The Committee need hardly stress that power should be made available on assured basis so that the farmer can rely on it for use in their pumpsets, agricultural machines, etc.
36	2.114	To encourage the use of power Government may retain a reasonable rate. It has, however, been represented to the Committee that in some States there is a system of charging a flat rate for power consumption for pumpsets, etc., irrespective of the fact whether the power is made available on a regular or intermittent basis. The Committee would like Government to fully go into the matter and take suitable remedial measures so as to remove the cause of this feeling.
37	3.11	The Committee note that, despite the appointment of several committees, it has not been possible for the Government to arrive at an agreed formula for assessing the requirements of fertilisers of the States. These requirements continue to be computed from season to season by adopting different criteria. The Committee are given to understand that the main reason for this situation is the divergent view-points as expressed by the comparatively developed States and the developing States in this regard. The Committee consider that it should be possible for the Central Government to assess the requirements of fertilisers of the State Governments

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		on the basis of their production programmes for the various crops during the year, the facilities like irrigated area, high yielding varieties of seed etc. available and their capacity to utilise the fertilisers. The Committee therefore recommend that Government should assess the overall demand for fertilisers in the country on the basis of the approved programme for agricultural production by the various States and meet the same through domestic production to the maximum extent possible and the balance by import, only where necessary.
38	3.12	The Committee note that even at the stage of allotment and actual supplies of fertilisers to the States, certain weightages are being given and supplies are redirected on various considerations which, according to Governments own admission, result in imbalances as between different States. While the Committee appreciate that the actual supplies of fertilisers have to depend upon their availability by domestic production and imports, they feel that after the requirements of States have been assessed, any system of weightages or reduction of supplies at the stage of actual distribution of available supplies runs counter to the principle of equitable distribution. A fair system would, in the opinion of the Committee, be to set apart, out of the available quantity of fertilisers, a certain portion for meeting unforeseen requirements of any State and the rest being distributed, as far as possible, proportionately between different States on the basis of their assessed requirements linked to agricultural production programmes. The Committee stress that a close watch should be kept at the Centre on the progress made in the field in the matter of implementation of agricultural production programme so as to see that

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the physical availability of fertilisers matches the requirements. In any case before re-allocating the fertilisers from one stage to another the Government should specially see that it would not in any way adversely affect the on going programmes of agriculture production.

The Committee are concerned to note that soon after the draft Fifth Five Year Plan was farmulated, the fertiliser production targets have had to be revised down-ward substantially. The production envisaged in the Draft Fifth Plan for 1974-75, 1975-76 and 1978-79 was 19-28 and 52 lakh tonnes respectively. The actual production during the first half of 1974-75 was however only 6.7 lakh tonnes and the revised estimates of production for the whole year are indicated as 15.5 lakh tonnes only. The targets of production for 1975-76 have also been reduced from 28 lakh tonnes to 20.9 lakh tonnes and for 1978-79, the terminal year of the Fifth Plan, from 52 lakh tonnes to 42 lakh tonnes. Even under the original plant projections, the import requirements for meeting the demand for fertilisers, were sizeable. With the down-ward revision of production targets, the pressure on Imports would increase substantially if the demand was to be met in full. The Committee, in paragraphs 2.75 and 2.76 of their 40th Report on Fertilisers (1972-73) had observed the considerable delays taking place in the commissioning of fertilizer projects in the Public Sector. At that time, the Committee informed that Co-ordination Committees had been appointed for Cochin and Durgapur projects to review critically the progress of implementation of these projects at regular intervals. The Committee were also informed at that time that the procedure for economic appraisal of the projects and the release of foreign exchange therefore was being stream-

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		lined and the engineering and equipments for the fertiliser projects were being standardised so as to facilitate setting up of identical plants speedily. The Committee had suggested that Co-ordination Committees on the pattern of those of Cochin and Durgapur projects should be set up for each of the other projects then under implementation. The Committee regret that despite these earlier observations and recommendations of the Committee, little progress has been made in setting up the licensed capacities in the Public Sector and that many units have not gone-on stream for years. The Committee would like to point out that delays in commissioning of the fertilizer plants are leading to progressive escalation of cost of setting up the projects and continuing drain on the public exchequer on account of imports which have now become very costly in view of their scarcity value internal market. They therefore, emphasise the imperative need for reducing the period for the commissioning of the plants to the minimum and to maximise indigenous production of fertilizers so as to achieve self-sufficiency in the matter of fertilizers at an early date. They also recommend that all factors coming in the way of fuller utilisation of the existing installed capacity should be attended to on an urgent basis. At the same time, bound crash programme should be formulated for the creation of additional production capacity in the country to meet the demand.
40	3.24	The Committee are greatly concerned to note that the total availability of fertilisers by domestic production as well as import during 1974-75 will fall short of the demand by yearly 1.3 million tonnes and that during 1975-76 the gap between the demand and the estimated production is likely to be of the order of 2.5 million

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		tonnes which will have to be filled by imports if the agricultural production programmes laid out for that year are to be implemented. The Committee are informed that Government are making efforts to reduce this gap to the minimum by contracting maximum possible quantities of fertilisers from imports. Meanwhile, a campaign has also been undertaken for prudent use of available fertilisers and for production and utilization of rural as well as urban compost. The Committee stress that timely action should be taken to see that the fertilizers in requisite quantities are made available to the growers. They would, at the same time, recommend that in view of the general scarcity and high cost of fertilizers, Government should launch a massive programme through mass media in local languages to educate the farmers in the correct doses and time of application of fertilizers for the main food crops so as to derive maximum benefits out of the available quantities of fertilizers.
41	3.26	The Committee are concerned to note that as a result of a consistent run on the reserve stock of fertilisers during the Fourth Plan, the stock built up to the level of 1.1 million tonnes in 1970-71, was reduced to 3.5 lakh tonnes only by 1973-74. They, however, appreciate the policy decision of the Government to maintain a reserve stock of fertilisers to the extent of about 20 per cent of the requirement. The Committee recommend that to build up buffer stock of fertilisers, Government should plan their purchases from the international market at the most propitious time taking, if necessary, the help of Food and Agricultural Organisation and other international organisations.
42	3.29	The Committee note that almost 75 per cent of the fertilisers available in the country from domestic production and Imports are being dis-

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		tributed through institutionalised and public channels under the control and supervision of the State Governments. Under such a system, normally there should be no complaint of maldistribution or black marketing. However, as there have been complaints about the distribution system introduced by the States the Committee desire that the need for a periodical review of the distribution system should be emphasised upon the State Governments with a view to make sure that no malpractices creep in and so ensure ready availability to the farmers. In this context, the Committee would suggest that Central Government may work out a model distribution system and commend it to the States for adoption according to local conditions.
43.	3.32	The Committee consider that the present level of fertiliser prices in the country are very high and act as a disincentive to their use, affecting adversely the agricultural production. For most of the farmers, particularly small and marginal farmers, fertilisers has now become out of reach. This would obviously affect their contribution in the overall effort for higher production of foodgrains in the country. The Committee recommend that Government may consider the feasibility of introducing a scheme for making available fertilisers at subsidised rates at least to small marginal farmers for production of foodgrains.
44	3.35	For the success of the programme for development of production of foodgrains, it is necessary that the agricultural inputs made available to the farmers conform to standard quality. The Committee are disturbed to note that in the wake of scarcity and high prices of fertilisers, adulteration has become a widespread menance. This has obviously to be effectively checked and eradicated completely. The Committee are sur-

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		prised that although one full year of the Fifth Plan has passed, the Centrally Sponsored Scheme for Quality Control of inputs which was programmed for implementation during the Fifth Plan period has not yet been finally cleared by the Expenditure Finance Committee. The Committee would stress the need for early decision being taken on the scheme to ensure quality control of agricultural inputs. Pending establishment of the machinery for quality control, the Committee desire that it should be made binding on all the indigenous manufacturers of fertilisers to ensure that their sale agencies supply fertilisers of standard quality and free from adulteration to the farmers. Government should also tighten their existing agricultural machinery in the field to see that the evil of aduteration of fertilisers and other agricultural inputs is effectively checked.
45.	3.40	In view of the wide gap between the requirement and availability of Chemical fertilisers and their high prices in the international as well as domestic market, the Committee appreciate the ambitious programme envisaged for implementation during the Fifth Plan period for the production and popularisation of the use of rural and urban compost and the utilization of the city sewage and sullage to get over the problem of shortage of chemical fertilisers. They note that the above programmes will result in making available plant nutrients (NPK) totalling about 6 million tonnes by the end of the Fifth Plan. The Committee trust that the various programmes for increasing production of organic fertilisers during the Fifth Plan would be energetically implemented and adequate publicity would be given to the use of organic fertilisers by undertaking demonstration and communication programmes through mass media suitably designed to catch the imagination of the farmers

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		The Committee also recommend that these production and publicity programmes should be kept under constant review so as to take timely action to get over the problems that may be encountered in the implementation of the programmes.
46.	3.41	The Committee would also like Government to pay greater attention to the development of green manures and the popularisation of its use in areas where multiple cropping system does not exist.
47.	3.63	Plant protection chemicals play as important a role in agricultural production as other inputs like high yielding seeds, fertilizers, etc. To reap the benefits of the new varieties of seeds and other inputs, it is necessary to save the crops from plant pests. Moreover, in the context of rising demand for food and the food production in the country having not kept pace with it, the importance of minimising losses on account of plant pests and diseases, which are currently estimated to be of the order of 20 per cent of the total production, cannot be over-emphasised. The Committee consider that plant protection schemes are even more important than others, as plant diseases destroy the crops after heavy investments on seeds, fertilisers and irrigation have already been made thereon. They recommend that, in order to reap full benefit from huge investments made for the development of agriculture in terms of inputs, plant protection services, both preventive and curative, should be further intensified and their coverage should be increased, so that the benefit of these services accrues to the largest number of farmers. At the same time, it is very necessary that the various plant protection schemes undertaken at the expense of the Central Exchequer, are kept under constant watch and periodical evaluation so as to assess their impact in the field

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		and ensure that the resources spent on them are commensurate with the benefits.
48.	3.64	The Committee would further like to stress that plant protection schemes should pay greater attention to the requirements of small farmers who constitute the majority and who are generally not aware of such schemes and thus do not derive full benefit from them. It is imperative that special attention is paid to the needs of small and marginal farmers and their crops protected from pests and diseases. The Committee would like to be informed of concrete action taken in the field in pursuance of this objective.
49.	3.65	The entire plant protection scheme of the Central and the State Governments depends upon the timely availability of pesticides at reasonable prices. Yet, until the end of the Fourth Plan period, Government had no system of assessing the requirements of pesticides/ insecticides and the availability of this commodity was being arranged in an *ad hoc* manner. The Committee feel that the problem of shortage of pesticides and consequent rise in their prices noticed after 1972-73, would not have been so acute, had Government realistically projected the requirements of pesticides keeping in view the diverse pressures on the market and import limitations and taken timely measures to overcome it by increasing indigenous production and/or imports.
50.	3.66	The Committee note that imports of pesticides increased from Rs. 2 crores in 1969-70 to Rs. 9 crores in 1973-74 and that the total imports during the Fourth Plan period amounted to over Rs. 30 crores. They further note that by the end of the Fifth Plan period, the annual import bill for technical grade material and pesticides would amount to Rs. 19 crores for the year 1978-79 and that the total estimated imports of pesti-

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		cides during the Fifth Plan period as a whole, would be of the order of over Rs. 115 crores. The Committee, therefore, underline of the need for making maximum efforts to increase the indigenous production of technical grade material and pesticides which are at present being imported. Government should undertake a detailed exercise as regards the capacity required to establish production according to the needs of the country and give adequate publicity to it so as to attract prospective entrepreneurs who could take up production of technical grade material and pesticides within the country on emergent basis. Expeditious decisions should be taken on applications for the issue of industrial licenses for establishing the required capacities and a constant watch should be kept so that the capacities licensed, actually fructify within the time limits laid down therefor.
51	3.67	The intensity of plant protection service has to vary according to the incidence of the pest infestation and disease. Government should, therefore, have adequate stock of certain commonly used pesticides/insecticides for use during emergencies. The Committee recommend that Government should create a buffer stock of well proven pesticides of a modest size to meet the emergent requirements of the Central schemes and of the State Governments.
52.	3.68	The Committee welcome the new informal arrangement with the indigenous manufacturers whereby 50 per cent of certain popularly used indigenously manufactured or imported pesticides/chemicals are to be routed through the State Governments to the small scale units other than the associated units of the established companies. The Committee hope that the new system would secure to the State Governments control over the manufacture and distribution of 50 per cent of the pesticides available in the

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		country and will lead to their timely availability at reasonable prices. In case, however, this informal arrangement with the pesticides manufacturers is found un-workable, Government should not hesitate to take recourse to statutory measures to regulate production and distribution of popular pesticides/insecticides.
53.	3.69	The Committee would like to point out that while the use of pesticides as a plant protection measure helps to increase the yield per acre by saving the crops from pests and diseases yet there are many pesticides which may have harmful effects on soil organism and may pose a grave danger to the health of consumers of foodgrains. The Committee would, therefore, like Government to undertake studies regarding the adverse effect of application of insecticides on crops as also the possible danger of pollution of environments resulting from the use of the various pesticides so as to keep abreast of the latest technical developments in this field and recommend for use by the farmers only those pesticides which are safe as plant protectants. The knowledge already available in this respect and the results of our own studies should be kept strictly in view while granting licenses for manufacture/formulation of pesticides/insecticides and there should be a system of a contemporaneous review to take no chances with chemicals which may affect adversely the health of the nation.
54	4.20	The Committee note that the import of tractors on commercial account is banned since 1972-73 for the reason that indigenous capacity has picked up sufficiently to meet the demand. They, however, observe that while the annual availability of tractors during the first three years of the Fourth Plan varied between 31 and 38 thousand, the availability was less than 26 thousand during the last two years of the Plan period

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		when the import ban was in operation. Further, the assessed demand of tractors for 1974-75 is about 46 thousand but the latest estimates place indigenous production during the year at no more than 32 thousand. The net effect of the current ban on import of tractors has, therefore, been to reduce the overall availability of tractors in the face of rising demand. The rise in prices of tractors could have been also due to their short availability in the country. The Committee recommend that Government should make a critical analysis of the reasons for not achieving the envisaged production even when the capacity licensed was for the manufacture of 1.47 lakh tractors per annum and take suitable remedial steps to fully meet the requirement of tractors.
55	4.21	The Committee recommend that Government may have a study made by an appropriate technical body as regards the type and size of tractors which would be best suited for the geophysical conditions obtaining in the country and with reference to the operating cases and the need for trouble-free sustained service. On the basis of the result of this study an attempt should be made to standardise indigenous production so as to make for rational utilisation of available production capacity.
56	4.22	In the earlier paragraph, the Committee have already emphasised the need for increasing the indigenous production of tractors to meet the demand in full which is bound to have a sobering effect on prices. The Committee recommend that a continuous watch should be kept on the prices of tractors and they should not be allowed to rise unless, it is absolutely justified after undertaking a proper cost analysis. The Central Government may also take up with the State Government at the highest level the question of bringing about a reduction and

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		uniformity in the rate of sales tax on tractors so as to reduce their selling prices to the farmers.
57	4.23	The Committee note that although the distribution of tractors is being controlled by the Government, there is a wide variation in the tractor population as between different States. They also note that Government themselves have maintained wide divergence in allotment as between different States. The Committee consider that since tractor is a vital input related to agricultural production programme, Government should evolve and observe definite criteria for allotment of tractors so as to make for an equitable distribution as between different States and avoid any criticism of partiality in allocation of tractors, both indigenous as well as imported.
58	4.24	Most of the land-holdings in our country are small and the farmers are unable to afford the ownership of heavy agricultural machinery. The Machinery Hiring Centres set up by the Agro Industries Corporation are at present the only way through which the benefits of mechanisation can be availed of by the smal farmer. The Committee are informed that the Machinery Hiring Centres and Work-shops in the remote areas of the country where population of machines is not large to make the Centres/Work-shops self-supporting, are runnig at a loss. The Committee recommend that Government may investigate the reasons for losses sustained by such Machienry Hiring Centres and Work-shops lest they may be on account of bad management or other short-comings which could be avoided. The Government may also consider other alternatives for making available the benefits of mecanisation to the marginal and small farmer in the remote areas of the country.

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59	4.25	The Committee are constrained to note that as against the target of setting up 7,000 Agro-Service Centres by the end of the Fourth Plan period, the number of such centres actually set up by the end of the Plan period, was only 1,700. The Committee recommend that the Agro-Service Centres should really be service-oriented and the Scheme should have a built-in incentive so as to attract young men with technical background to take up the scheme in larger numbers Government should lay down guidelines for the working of such centres and assist them in establishing themselves. Government should also have a time-bound programme for setting up of these Centres according to the targets laid down for the Fifth Plan period. There should be a system of keeping a close watch on the performance of these centres so as to effect improvements and remove impediments in the way of the success of the Scheme.
60	4.26	The Committee note that at present training facilities in the operation and maintenance of agricultural machines are available only for less than a thousand persons per year in the two existing centres as Budni and Hissar and since the inception of these centres up to the end of 1973, the number of persons trained has been only 6,000. The Committee consider that the training facilities are not commensurate with the growing needs of farm mechanisation in the country. The Committee recommend that adequate attention should be paid to the need for organising short-term training courses in operation and maintenance of tractors and other agricultural machinery at centres which may be dispersed all over the country.
61	4.30	Power tillers are utilised by relatively small farmers. The Committee are concerned to note that due to steep rise in the price of power tillers,

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		the demand therefor has gone down appreciably. They, however, note that the Government have recently constituted a Committee to go into the question of bringing down the prices of power tillers. This Committee may also be asked to go into the performance of the power tillers to determine whether the lack of demand could also be due to their performance. The Committee urge that the report of that Committee should be expedited and early decision taken on its recommendations so that the prices of power tillers are within the reach of the average small farmer.
62.	4.31	The Committee would further like to point out that in the context of land ceilings and smaller holdings in the country small machines like power tillers would prove popular and would go a long way in maximising food production. It should, however, be ensured that apart from the price aspect, the power tillers manufactured within the country are such as could be put to versatile use and do not pose maintenance and other problems for the farmers. The Committee have in an earlier paragraph already recommended a study to be made in regard to tractors with a view to standardise production. The Committee would like similar action to be taken in regard to Power Tillers.
63.	4.36	The Committee underline the need for continuous research in evolving agricultural implements—power, animal or hand operated—most suited to Indian conditions, and their standardisation and publicity. There should also be a well co-ordinated programme for their production and distribution, particularly in the backward and remote areas of the country where the need for improvement in the mode of agricultural operations is the greatest.
64.	4.41	The Committee would like to point out that credit is an essential agricultural input on which

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		the assimilation by the farmer of the new techniques of production largely depends. It is therefore also in the national interest that the farmer should be assisted by institutional finance in procuring agricultural inputs. In this context, the Committee would like Government to make a distinction between credit to satisfy the personal need of the farmer and the credit for procuring agricultural inputs and the latter should, in the opinion of the Committee, be on comparatively more liberal terms.
65.	4.42	At present the farmer has to go to several organisations for procuring different agricultural inputs. This is very cumbersome and time consuming for him. The Committee recommend that Government should work out and launch a scheme of multi-purpose cooperatives for providing all the requirements of the farmers such as credit, seeds, fertilisers, pesticides, pump sets etc., as existing in some other countries of the world.
66.	5.34 & 5.35	Our country is endowed with considerable geo-physical diversity, large tapped and untapped water resources, abundant sunlight, a large animal and human population and plenty of human talent. Yet, our agricultural productivity is low as compared to not only western countries but also some of the far and near eastern countries like Japan and Egypt. A continuous pressure on land due to phenominal growth in population, aberrant weather and improper use and management of resources are to a large extent responsible for it. Our urgent need is therefore to develop and implement an agricultural production technology which will lead to increased productivity and thereby enable us to produce more and more food from less and less land under conditions of resources constraints. In this task, agricultural research has a primary role to play.

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		In view of the urgency to augment the production of foodgrains to feed the ever-growing population and become self reliant in this vital matter, it is necessary that agricultural research institutions and universities should lay more stress on result oriented and applied research which can be of use to the farmer in increasing production. With that end in view the Committee would like to make the following recommendations.
		The Committee note that out of a total plan expenditure of about Rs. 74 crores on agricultural research in the Central Sector during the Fourth Plan period, only about Rs. 12 crores were spent for research institutes and coordinated Research Projects. having a direct or indirect bearing on crop research leading to enhanced foodgrain production. In the Fifth Plan also, out of the Central Sector allocation of Rs. 156 crores for agricultural research, the allocation for research on foodgrain crops is only Rs. 40 crores. The Committee feel that in view of the urgency of increasing production of foodgrains, there is need for greater emphasis being placed on research for increasing productivity in food crops.
67.	5.36	The Committee consider that dual arrangements which exist in some States whereby responsibility for education and research in agriculture is divided between the State Government and the Agricultural University, are hardly likely to produce the best results out of limited resources available therefor. Besides, the Committee feel that the effort in research and education is likely to be more meaningful if it is brought under the guidance, supervision and coordination of the university specialists and experts. The Committee therefore recommend that Government should continue to pursue with the State Governments, the question of transferring complete responsibility

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		for agricultural research and education to the agricultural university so that there is no overlapping and wasteful duplication of effort, and agricultural research and education is placed in expert hands and that the responsibility for achievements or failures in the field could be clearly identified. At the same time, the Universities should inspire confidence by their work and achievements in the field of agricultural research and development so as to facilitate the ready acceptance by the State Governments of their pivotal role in this field:
68.	5.37	The Committee also recommend that there should be a system of objective evaluation of the research and development work done in each Agricultural University/Institute by an outside body of experts in related disciplines after every five years, preferably before the commencement of each Plan period. Such an evaluation would enable the State Governments to fully appreciate the work being done in the University and also enable the University itself to learn from the independent assessment of their work and effect improvements.
69.	5.38.	The Committee have observed that in the case of the Agricultural University at Pantnagar, the University has achieved self-reliance by the sale of seeds and agricultural produce out of a large agricultural farm attached to it. The Committee suggest that the Central Government should work out a scheme of attaching adequate farm land to each agricultural university/institute the income from which could supplement the finances of the institute/university and to that extent reduce the burden on the exchequer.
70.	5.39	The Committee feel that in the present context of shortage of food and agricultural raw

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		materials in the country, it is necessary that the agricultural research should be more purposive and direction oriented. The Committee recommend that Indian Council of Agricultural Research should lay down clearly national priorities for agricultural research on the basis of country's needs and problems in the field of development of agriculture particularly foodgrains and the Agricultural Universities/Institutes should be directed to conform to the national priorities so laid down. There should be a system whereby the research projects and the educational curricula of the Agricultural Universities/Institutes are closely scrutinized at the Central level so as to ensure that these subserve the national priorities and that there is no overlapping and duplication of effort.
71	5.40	There may be more than one geo-climatic regions in a State and the problems of one region may be entirely different from the other. On the other hand, a geo-climatic region may extend to more than one State with common problems. In order that each distinctive region is fully covered and at the same time the utilisation of scarce resources is rational and optimum and there is no duplication of effort, the Committee recommend that the fields of research and related operations of each Agricultural University should be clearly demarcated on the basis of regions and/or crops on which it should be asked to concentrate and produce results.
72	5.41	The Committee feel that while organising agricultural research on geo-physical basis and keeping in view the specific needs of the various regions in comparatively bigger States, it may be necessary to set up more than one Agricultural Research Institute/University in a State, as has been done in the case of Maharashtra where there are at present four Universities and in U.P.

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		where, besides the University at Pantnagar, it is proposed to set up two other Agricultural Universities.
73	5.42	Agriculture in India is carried on mostly in small and medium holdings. In view of the fact that agricultural inputs like chemical fertilisers, irrigation water and power have become not only costly but scarce, the country has the problem of increasing production in small and medium farms by intensive farming techniques under conditions of resource constraints. The Committee desire that this aspect should be given utmost attention in the scheme of agricultural research, particularly in respect of food crops.
74	5.43	The Committee suggest that each Agricultural University should select a few farms of the size of land ceiling applicable in the State and demonstrate how yield can be increased by the use of High Yielding Variety Seeds, new technology and improved agricultural practices under local conditions obtaining in the area. Such demonstrations would ,in the opinion of the Committee, be more practical and yield better results in convincing the farmers about the utility of new agricultural technology and are bound to change their outlook about the adoption of new techniques extensively.
75	5.44	The Committee have in a subsequent chapter dealt with the problems of agriculture in dry areas which account for 42 per cent of the food production in the country. They also take this opportunity to emphasise the importance of greater attention being paid to research in the development of seed varieties and production technology suitable to dry areas, drought prone areas and such areas, as for instance in Maharashtra, where the top soil is very thin creating peculiar problems.

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76	5.45	The Committee consider that in the context of their important role in increasing the production of foodgrains, the Agricultural Universities should place greater emphasis on extension services and their performance should be judged by their efforts and achievements in augmenting production in the area of region for which they may be responsible. The Committee suggest that while evaluating the work of an Agricultural University after every five years as recommended in an earlier paragraph, their performance should also be judged on the basis of the increase in agricultural production and awareness of improved agricultural practices among the farmers, brought about by them in their region/area.
77	5.56	The extension functions of the Agricultural Universities do not end with the periodical training of the higher echelons of officers of the State Departments of Agriculture. In order that the knowledge of improved techniques of production and agricultural practices reach the farmer in the field quickly, the agricultural universities have to establish a direct linkage between the university specialists and experts and the farmers. This can be done most effectively by establishing university research centres at several convenient centres in the State. The university specialists and experts should periodically visit these centres at pre-announced dates and hold discussions and demonstrations for the benefit of the lower level extension functionaries, farm leaders and farmers. Such a system would also have the advantage of a constant feed-back to the university of the farmers' reactions to the new technology and the problems confronted by them in their day-to-day agricultural operations. Krishi Melas organised by some universities notably at Pantnagar (U.P.) and By I.A.R.I. at Delhi etc. at regular intervals is another useful media which could be adopted by all the agricultural

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		universities/institutes for establishing direct two-way communication channel between the universities/institutes and the farmers in the field. Such Melas should preferably be held in each administrative district for the convenience of the farmers. The Committee feel that the cost of these dispersed extra academic activities of the agricultural university pertaining to extension education and training should appropriately be borne by the Government in the first phase. After some time, with the development of agriculture and sufficient income accruing to the farmers, a part of such expenditure may have to be borne by the farmers or the Local Self Government.
78	5.47	The Committee appreciate the efforts being made to coordinate agricultural research on various food and other crops and disciplines undertaken in different agricultural universities and institutes through All India Coordinated Research Projects. Now that existing system of research coordination has been in operation for some time, the Committee recommend that the role and achievements of the All India Coordinated Research Projects, on which Rs. 29 crores were spent during the Fourth Plan period and a sum of Rs. 47 crores is proposed to be spent during the Fifth Plan period, should be evaluated by a body of experts with a view to locate bottlenecks and suggest improvements in their working. The evaluation study should be made separately in respect of the performance of the Coordinated Projects as a whole and in respect of Projects which may be directly or indirectly concerned with increasing the production of foodgrains.
79	5.48.	The Committee also recommend that in view of the increased emphasis on the production of foodgrains, Government should accord priority in the matter of research and funding to such of

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		Coordinated Projects as are directly or indirectly concerned with increasing the production of foodgrains, as against Projects on more sophisticated areas of research.
80	5.49.	The Committee observe that there has been lately a proliferation of seed varieties of different food crops which have, after short initial success, been found to be highly disease/pest prone. Besides, there is no effort to raise rapidly sufficient quantity of nucleus and foundation seed of the released variety to make for its saturation over the geo-climatic area for which it is supposed to be suitable, before the release of another variety for the same area. The Committee recommend that I.C.A.R. should ensure through appropriate bodies that there is no unbriddled proliferation of seed varieties, that before release there is a rigorous testing of the varieties from all angles—yield, duration, quality, disease and pest reaction—and that sufficient quantity of nucleus and foundation seeds of released varieties are built up rapidly so that quality seeds of proven high-yielding variety are available to the farmers in adequate quantity and on time.
81	5.50.	The Committee feel surprised that although the 'Bunchy Top' disease in the Banana plantations which began in a virulent form in the Nilgiri Hill areas, has spread to the neighbouring areas of Kerala, Karnataka and Andhra Pradesh, no effective control measures have been taken as yet by any agency—State Agriculture Department, Tamil Nadu Agricultural University or the I.C.A.R. The Committee understand that at this stage the only remedy for eradicating the disease is to destroy every diseased clump of banana and cut the pseudo-stem and apply kerosene over the cut—and to prevent further

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		sprouting and that these operations over large areas may be costly. The Committee recommend that the Indian Council of Agricultural Research should pay urgent attention to the problem and take suitable remedial measures to arrest and eradicate the disease from the Southern region. They would also like the ICAR to devise an Early-Warning-System whereby the Council keeps itself regularly informed of the incidence of disease or attack of pests so as to enable it to take timely remedial measures when the problem is at the nebulous stage.
82	5.51.	The Committee note the claim of the Government that the 'National Demonstrations' programme implemented during the Fourth Plan period intensively in 100 districts and extensively all over India has 'led to the change of outlook of the farming community' and these proved to be excellent centres for farmers training and transfer of technology to the farming community. Based on the experience of the scheme, Government have launched, during the Fifth Plan period, programme of 23 'Operational Research Projects' on area or watershed basis involving an integrated approach to the rural problems through the cooperation of local agencies, voluntary organisations, Development Departments, Socio-economic Institutes etc. The Committee hope that the Projects would be effectively implemented and the cooperation of all the public and voluntary organisations concerned would be forthcoming in larger measure so that the farmer in the field could have the benefit of research and development work being done in the agricultural universities/institutes and at the same time, the nation could also benefit by increased production of foodgrains.
83	5.60	In view of the fact that the heads of Agriculture Directorates in the States are responsible

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		for giving technical guidance to the staff at district and block level and for detailed planning, programming and supervision in the field of agricultural development and also act as advisers to State Governments on technical matters relating to agricultural development in the State, the Committee would like Government to pursue with the State Governments, the question of appointing technically qualified and knowledgeable officers to the posts of Directors of Agriculture. To enable such officers to discharge an effective role in coordinating the procurement of various inputs for agriculture for which different departments of Government may be responsible and also in coordinating the multifarious activities of his own organisation, it is also necessary that the Directors of Agriculture should be dynamic officers of proved administrative acumen. For this purpose, the various training facilities available in the country could be availed of.
84	5.61.	The Committee also recommend that the Central Government should impress upon the State Governments the desirability of combining the departments responsible for Agriculture and Irrigation and placing them under one Minister, as has been done at the Centre, to make for better coordination in closely related fields.
85	5.64.	The Committee regret that despite the review of extension services in the country by several Committees and bodies appointed since 1958 who had suggested ways and means for its improvement, the existing extension services in the country are found by Government themselves to be inadequate to cope with the needs of modern agriculture and special agricultural development programmes. The Committee would like to point out that the reports of these Committees

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		contain useful ideas and suggestions for bringing about improvement in the extension machinery and if the Government had taken steps to implement them the situation on the food front would have been quite different. The Committee emphasise the need for early implementation of the recommendations contained in the latest report of the National Committee on Agriculture to revamp the extension machinery so that it is able to cope with the needs of technological developments in agriculture and of the special programmes.
86	5.69.	The Committee note that a centrally sponsored scheme for strengthening the Machinery of Extension Administration in the States/Union Territories at District and Block Levels has been approved for implementation during the Fifth Plan period with an outlay of Rs. 25 crores, representing 50 per cent share of the Central Government, the other 50 per cent to be provided by the State Governments. The scheme aims at strengthening the extension machinery at the District and Block Level which is at present considered 'unequal to the task of effective implementation of the programmes connected with even the traditional agriculture much less other special programmes'. The Committee are distressed to find that although the first year of the Fifth Plan has gone by, the scheme is yet to be cleared by the Ministry of Finance. After its clearance by the Ministry of Finance, the State Governments have to be approached 'to find their reaction as they have to share 50 per cent of the expenditure' and after the States also agree to the scheme, formalities involved in the creation of posts, recruitment of staff etc., have to be gone through. There does not, therefore, appear any likelihood of the scheme being actually implemented even in the second year of the Fifth

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		Plan. The Committee cannot over emphasise the importance of strengthening the extension machinery at the field levels as the transmission of the results of agricultural research and development effort to the farmer in the field depends largely on the effective functioning of the machinery. If the farmer is to get the benefit of technological improvements and the agricultural production, particularly that of foodgrains, is to be increased, maximum attention has to be given to the strengthening and activising of the extension machinery. The Committee recommend that the implementation of the aforesaid scheme should not be delayed any more and advance steps where possible, should be taken to avoid delay in implementation of the scheme after it is finally cleared.
87	5.73.	The Committee are surprised that against the total expenditure of Rs. 39 lakhs on the Directorate of Extension in 1973-74 as much as Rs. 22 lakhs was spent on the Administrative Unit alone. The combined expenditure on the Training Unit, Farm Information Unit and Livestock Unit, which are the operational wings of the Directorate, was only 17 lakhs. The Committee recommend that Government should have the organisation, functions and performance of the Central Directorate of Extension evaluated by a Committee of Experts which may inter alia include a Vice-Chancellor of an Agricultural University and a representative of the Ministry of Finance. This Committee may also be required to make suggestions for improvement to make the organisation an effective instrument for coordination of agricultural extension work in the whole country. The suggestions and recommendations of the Committee should be implemented by the Government expeditiously. Meanwhile, the Committee would like the Directorate of Extension to reduce their administra-

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		tive expenditure to the minimum and increase the outlay on the operational wings which should have specialised personnel and facilities in required fields.
88	5.81	The Committee are constrained to note that even in the modern era of swift technological developments in the field of agriculture, it has been found possible to give refresher training to extension workers at the grass root level 'only once in 7-8 years'. With an out-dated knowledge, it is hardly possible for the VLW to play any useful role in the national effort to incerase agricultural production. The Committee recommend that there should be a system of regularly feeding the VLW with the knowledge of latest advances in the techniques of agricultural production, by way of refresher training courses organised at conveniently located centres, manned by technically competent staff, so that he can really exert an effective influenee on agricultural productivity in his area of operations.
89	5.82	The Committee also note that the number of VLW Training Centres in different States are largely unrelated to the size of the States. For example, while Maharashtra has as many as 9 centres, the States of the size of Bihar and Madhya Praedsh have only 4 and 6 centres respectively. The Committee recommend that Government should impress upon the State Governments, the need for assessing the training requirements of extension workers—initial as well as refresher—and setting up training centres accordnig to requirements at convenient locations. The Committee, however, feel that there should be at least one training centre in each division which should have adequate facilities for initial training as well as refresher training of VLWs.

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90	5.83	The Committee recommend that the Government should have the content and quality of the extension education and training imparted by the extension training centres/institutions evaluated by an expert outside body and take steps to give it a field orientation closely related to geo-physical conditions of the areas/zones catered for by these institutions.
91	5.90	The Committee note that the Centrally sponsored scheme for Farmers' Training and Functional Literacy implemented during the Fourth Plan gradually covering 100 districts at a cost of about Rs. 4 crores, has been found, after evaluation, to have been an effective contributing factor in the popularisation and adoption of improved agricultural practices. It is proposed to continue this scheme during the Fifth Plan period and cover 50 additional districts and a sum of Rs. 9 crores has been provided in the Fifth Plan for this scheme. The Committee would suggest that as far as possible the scheme should be implemented through the existing training centres in the States and constant watch should be kept on the implementation of the scheme so as to ensure that the benefits of the scheme actually reach the former in the field, specially the marginal and small farmer. There should also be a regular system of contemporaneous evaluation of the scheme so as to effect improvements.
92	5.94	The Committee note that the Farm Information Unit of the Directorate of Extension provides information support to all Central and Centrally Sponsored Schemes and gives out the technical know-how emanating from the Central Research Institutes and Central directives on agricultural compaigns. It also disseminates farm information of all India character. The information programmes include produtcion of literature, press service, non-projected visuals such as charts, slides and exhibitions and the

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		production of films and news-reels. The Committee feel that the activities of this unit are at best only supplementary as each of the Central Agricultural Institutes and universities and the Indian Council of Agricultural Research itself have full-fledged information units which publicise their activities through various mass media. The Committee apprehend that there being several agencies for disseminating of information of the type being supplied by the Farm Information Unit, there is a possibility of overlapping and duplications of effort. The Committee, therefore, recommend that the role, functions and achievement of the Farm Information Unit including the publicity value of the material produced by it so far should be evaluated by an outside expert body who may also suggest measure to make it an effective instrument for dissemination of extension information.
93	6 6	The Committee note that 75 percent of the cultivated area in the country is rainfed which contributes only 42 per cent of the nation's food. It is well known that people in-habiting these areas are generally poor. It is therefore imperative that special attention is paid to agriculture in these areas and research and development work in dry land agriculture is intensified. Increase in agricultural produtcion in these areas will not only help to overcome food shortage in the country but would also reduce unemployment, under employment and poverty by generating resources in these areas. The Committee, therefore, stress the need for greater coordination and intensification of research effort for the development of dry land agriculture. The concerned agricultural research institutions should also utilise the world experience in dry farming so as to profit by successful measures taken elsewhere.

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94	6.7	Nothing that certain hybrid varieties of Sorghum and Bajra released for cultivation could not become popular because they turned out to be disease/pest prone and that attempts are now being made to replace them by new varieties, the Committee reiterate the recommendation made in an earlier paragraph that the newly developed crop varieties should be subjected to rigorous tests in the field and should be released for general cultivation only if found to be of proven worth.
95	6.16	The Committee suggest that dry land areas to be developed should be earmarked and suitable development schemes should be tried out on pilot basis and if found successful these should be extended to other areas. These schemes should be composite schemes for the development of agriculture as also other subsidiary occupation of the farmers such as dairying, poultry keeping etc. so as to make a real impact on the economic conditions of the farmers. There should also be a system of close follow up and review of the programmes so as to effect improvements.
96	6.17	The Committee are constrained to observe that as against the total Fourth Plan outlay of Rs. 20 crores for the Centrally Sponsored Scheme of Integrated Dry Land Agriculture Development, it was possible to spend on the scheme only Rs. 6 crores or 30 per cent of the amount available. The reason for the sizeable shortfall in achieving the financial target in respect of the scheme is stated to be late implementation of the scheme in some Districts, leading to non-utilization of funds. The Committee feel disappointed that a well-intentioned scheme such as this could not progress despite the availability of funds on account of delayed implementation which reflects adversely on the system of pro-

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		gramme planning and implementation observed in the Ministry of Agriculture and Irrigation. The Committee would like to impress upon the Government the need for advance programme planning of schemes and projects so that as soon as funds are available these could be implemented in the field straightway.
97	6.18	They also note that the scheme is being continued in the Fifth Plan period but the outlay on the scheme has been reduced from Rs. 20 crores during the Fourth Plan to Rs. 10 crores during the Fifth Plan. Now that the scheme has been in operation for nearly four years, the Committee recommend that the results achieved should be got properly and expeditiously evaluated by a body of experts so as to assess its impact on the farmer and farming practices in the area of its operation and to suggest concrete measures to bring about rapid improvement.
98	7.17	Government have admitted that there has been a considerable escalation in the cost of agricultural inputs, namely, in irrigation and power rates, in the cost of fertilisers and pesticides and in the interest rates for agricultural credit. This has affected the overall cost of production of foodgrains. With regard to the point that the support prices announced by the Government are low, it is stated that these prices are inconsequential and the real prices are the procurement prices. The low procurement prices of foodgrains are on the other hand, sought to be justified on the ground that the farmer is obliged to sell at best only 10 per cent of his produce at the price fixed by the Government and the higher price at which he can dispose off the remaining 90 per cent of his produce would more than compensate him for the higher prices of inputs that he has to pay. The Committee consider these arguments as untenable. They feel

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		that the very objective of announcing the support price, namely, to remove "disincentive effect of uncertainty" and "create a stable price climate for investment and production", would be lost if the price is not realistic and does not assure to the farmer a fair return over his labour and investment. They also feel that the holding capacity of the average farmer being very meagre, the procurement prices announced by the Government set a trend and the open market price of foodgrains available to the farmer tends to keep close to it. The Committee cannot over emphasise the importance of a price support policy which should enable the farmer to get remunerative price for his crops as it is crucial for maximising food production and attaining self-sufficiency in this critical field. The Committee, therefore, recommend that while finalising the support and procurement prices of foodgrains, Government should give due consideration to the increased cost of production of foodgrains and the need for affording incentive to the farmer for increasing production, particularly, of foodgrains. A realistic pricing policy would also lead to increased procurement for sustaining the public distribution system and building up a buffer stock of foodgrains.
99.	7.18	With a view to maximise food procurement, the Committee also recommend that, apart from the bonus scheme for procurement, Government should also work out and introduce a system of package deal with the farmer whereby against the supply of inputs at fair prices, the farmer may be required to sell to the procurement agencies a stated quantity of foodgrains at a fixed price.
100.	7.19	The Committee observe that the cost of Production Data made available to the Agricultural

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		Prices Commission at the time of consideration of the pricing policy is generally outdated and incomplete. The Committee understand that the existing process of finalising the data is rather long, which causes delay in finalisation of the figures. The Committee recommend that Government should devise suitable procedure whereby the data made available to the Agricultural Prices Commission is relatively recent and fully representative so as to make for a realistic approach in arriving at the prices for foodgrains.
101.	7.20	The Committee further recommend that Government should have a system of regular evaluation of the procurement prices announced by Government for each crop and season with reference to achievement of procurement programme and the gap between the procurement prices and the open market prices. This would help the Government in assessing the impact of their pricing policy and adopting a more realistic approach in framing the price policy for the next season.
102.	7.34	Wheat, Rice and Pulses constitute the staple diet of our people, but adequate attention does not appears to have been paid to the development of pulses as is evident from the fact that both the area under pulses as well as production of pulses have, instead of increasing, appreciably declined. As against the production target of 15 million tonnes during 1973-74 representing the demand therefor, the actual production during that year was only around 9.8 million tonnes. Short availability against rising demand has resulted in an unprecedented increase in their prices so much so that pulses which are the main element of the poor man's diet are now fast becoming out of his reach. In this context, the Committee cannot over-emphasise the urgent need for improvement in the yield and quality of

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		pulses so as to secure for the poor man a cheap nutritious diet. The Committee therefore recommend that Government should pay special attention to the development of pulses and intensify research thereon for evolving high yielding and improved seed varieties. At the same time, the extension machinery should be geared up to lay greater emphasis on increasing the area under pulses and the production of pulses by utilising the results of researches in the field The areas having potential for increased output of pulses should be earmarked and responsibility for research and extension work in the field of pulses should be allocated to agricultural universities/institutions on area basis and pulse basis.
103	7.35	The Committee note that as against the proposed expenditure of Rs. 3.61 crores for the Centrally Sponsored Scheme for the Development of Pulses during 1972-73 and 1973-74, the actual amount released to the States under the scheme during those years totalled only Rs. 1.29 crores. The Committee would like Government to go into the reasons for which the scheme could not be implemented during the last two years of the Fourth Plan according to programme and streamline the procedure observed by the Ministry of Agriculture and Irrigation in the planning and execution of the Centrally Sponsored Schemes so as to ensure achievements of planned financial and physical targets.
104.	7.36	The Committee also note that after the amount is released to the State Governments under the scheme, no watch is kept by the Ministry over the expenditure actually incurred by the State Governments under the scheme. The Committee recommend that each Centrally Sponsored Scheme should have a built-in mechanism to

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		monitor the progress and to ensure that the amount released to the States is being actually utilized by them for purposes under the scheme.
105.	7.37	Since the development scheme for pulses has been in operation for over three years, the Committee recommend that operation of the scheme may be got evaluated within a period of six months by a body of experts so as to effect improvements.
106.	7.38	Government have advanced various reasons for the shortfall in production of pulses during 1972-73 and 1974-75 e.g., unprecedented drought, late sowing and high incidence of wilt disease in North India during 1972-73, frost during January-February, 1974, shortage of improved seeds and lack of enthusiasm among farmers for adoption of plant protection measures. The Committee would like to point out that the main purpose of the Centrally Sponsored Scheme is specifically to get over the vagaries of nature as far as possible and augment production by introducing a package of practices. Government should have taken steps to ensure adequate and timely availability of improved seeds of pulses and plant protection measures to save the crop from widespread disease. The Committee hope that the Ministry of Agriculture and Irrigation will study the causes for the low production of pulses during 1972-73 and 1973-74 despite the implementation of the Centrally Sponsored Scheme for development of pulses so as to improve the performance of the scheme and achieve the targets during the Fifth Plan period.
107.	7.39	The Committee note that a sum of Rs. 55.47 lakhs was spent on All India Co-ordinated Research Project on Pulses during the Fourth Plan period and that the Fifth Plan allocation there-

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		for is Rs. 2.80 crores. The Committee consider that with allocation of this size it should be possible for the universities and research institutions concerned with the pulses development programme to intensify their work and develop high-yielding varieties of different pulses. The Committee desire that I.C.A.R. should pay urgent attention to the problem of development of pulses and monitor the research and development work being done in the field to achieve positive results.
108.	7.43	The Committee observe that despite a cumulative expenditure of nearly Rs. 83 crores on consolidation of holdings, the problem of fragmentation of land not only persists but is deteriorating, if the data on the increase in the number of operational holdings thrown up by the Agricultural Census of 1971 is any guide. The Committee recommend that Government should initiate a detailed study to analyse the causes of continued fragmentation of land into small and smaller holdings, its effect on agricultural production, and the extent to which consolidation work has been able to control the problem. In the light of the conclusions of the study, Government should initiate suitable measures to attack the problem at its root so as to prevent or atleast minimise the scale of fragmentation of land in the interest of increasing agricultural production.
109.	7.52	The Committee recommend that Government may initiate a systematic study of production capacity of holdings of different sizes in different areas such as irrigated multicrop, irrigated single crop, dry multicorp, dry single crop and arid land under conditions of optimum, medium and scare availability of inputs. The results of the study would be useful in assessing the economic viability of various land ceilings from the point

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		of view of the individual farmer as also the need for increasing agricultural production, particularly of foodgrains.
110.	7.63	The Committee underline the need for greater attention being paid to educating the farmer and small trader in the scientific storage of foodgrains so as to minimise the losses due to inadequate or defective storage which are at present sizeable. The Committee consider that the most effective way of publicising the need for better storage would be through special programmes on the radio net work and projected visuals like short films and news reels. Non-projected visuals such as slides and exhibitions would also be effective. Publicity should also be given through demonstrations and written literature produced in local languages. There should also be a system of periodical inspection of godowns of farmers and village traders by extension functionaries and also of the godowns of traders at grain mandies and those at the premises of mills and factories processing foodgrains.
111.	7.64	The Committee also suggest that Government should take steps to intensify research on development of cheap and easy methods of post-harvest processing of foodgrains particularly paddy, and to publicise the results thereof in the manner aforesaid so as to maximise the availability of foodgrains.
112.	7.65	The Committee note that the public agencies like Food Corporation of India, Central Warehousing Corporation and State Warehosing Corporations have an ambitious programme during the Fifth Plan period of building up storage capacity of nearly 6 million tonnes costing more than Rs. 175 crores. In addition, the cooperative sector is expected to built up capacity of another

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		3.6 million tonnes costing roughly Rs. 100 crores. The Committee would like Government to examine closely the need for storage construction activity on such a large scale in the light of financial constraint and shortages of essential building construction material. In this context, the Committee would like to point out that Government have handled an operational and buffer stock of more than 8 million tonnes in 1972 with the help of hired storage accommodation.
113.	7.74	The Committee note that a Minikit Programme of Rice has been implemented during the Fourth Plan period in 60 selected districts at a cost of nearly Rs. 5 lakhs and that during the Fifth Plan period the programme for rice will be extended to cover 150 districts and similar programmes will be launched for wheat and millets with a total outlay of Rs. 3 crores. The Committee feel that there is need for a proper evaluation of the Minikit programme of rice which has been in operation for over three years so as to assess its usefulness in increasing the production of rice. They recommend that a time-bound study should be undertaken in this regard and on the basis of its conclusions necessary steps should be taken to make it more effective.

APPENDIX II

(Vide-Introduction)

Analysis of Recommendations/Conclusions contained in the Report.

I. CLASSIFICATION OF RECOMMENDATION.

A. Recommendations for improving the Organisation and Working:—

1, 4, 6, 16, 17, 22, 29-31, 42, 67, 68, 77, 78, 83, 84, 86, 91, 92, 96.

B. Recommendation for effecting Economy:—

10, 19, 20, 39, 41, 50, 87, 104, 112.

C. Miscellaneous Recommendations:—

S. Nos. 2, 3, 5, 7-9, 10, 12-15, 18, 21, 23-28, 32-38, 40, 43-49, 51-66, 69-76, 79-82, 85, 88-90, 93-95, 97-103, 105-111, 113.

II. ANALYSIS OF RECOMMENDATIONS DIRECTED TOWARDS ECONOMY!—

Sl. No.	S. No. as per Summary of Recommendation—(Appendix—I)	Particulars
1	2	3
1	10	Government should continue to project in World forums the case of developing countries for availability of foodgrains at reasonable prices.
2	19	The irrigation potential created in the country should be fully utilised.
3	20	The scheme of Command Area Development Authorities should be first tried out on a pilot basis in respect of one project and it should be extended to other projects only if found successful.
4	39	The indigenous production of fertilisers should be enhanced so as to reduce the burden on imports.
5	41	A massive programme of educating the farmers in proper utilisation of fertilisers should be undertaken to make most beneficial use of existing supplies.
6	50	Indigenous production of technical grade material and pesticides should be increased to reduce the burden on imports.

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7	87	The organisation, functions and performance of the Directorate of Extension should be evaluated by a Committee of Experts so as to reduce expenditure on administration
8	104	The Centrally Sponsored schemes should have a built-in-mechanism to monitor the progress and to ensure that the amount released to the States is being actually utilised by them for the purposes of the Scheme.
9	112	The massive construction programme of the Food Corporation of India, Central Warehousing Corporation & State Warehousing Corporations should be scrutinised in the light of financial constraints and shortages of essential construction materials.

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