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GOVERNMENT OF TRAVANCORE-COCHIN

# TRAVANCORE-COCHIN STATE FIVE YEAR PLAN

## A BRIEF OUTLINE

TRIVANDRUM:  
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1953

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## FOREWORD

This book is intended to give a brief description of the projects included in the Travancore-Cochin State Five-Year Plan and the progress that has been achieved in the first two years of the Plan. It gives, generally, the position as it was in the beginning of the current financial year. Some minor changes have taken place in the Plan since then, and considerable progress has been achieved. Since it is proposed to bring out another publication on the Plan in the beginning of the next financial year, reviewing the progress of the Plan in the first three years, it has not been considered necessary to bring the book up-to-date, as on the date of publication. It is expected to give more detailed information about targets (physical and financial) as also achievement and resources in the next publication.

Government Secretariat,  
Planning Section,  
Trivandrum, 30-8-1953.

P. M. MATHEW, I. A. S.,  
*Deputy Secretary to Government.*

# TRAVANCORE-COCHIN STATE

## Five Year Plan

### OUTLINE.

The total out-lay on the State's Five-Year Plan is estimated to be Rs. 27.32 crores. The Plan as originally drawn up provided for an expenditure of Rs. 64 crores. This was reduced to Rs. 26.06 crores in the Draft Out-line, limiting the expenditure to the resources available, and cutting out certain schemes which were considered to be either too expensive or not very essential. The proposal to start an Agricultural College was accordingly dropped. On the other hand, it was decided that agricultural schools, where students would learn scientific agriculture by practical work, should be started. Similarly, it was laid down that schemes relating to construction of bunds and channels and minor irrigation works should be taken up only on a contributory basis. The cultivators should either be required to pay a part of the cost of the scheme, or a cess should be levied on the beneficiaries. A cess system might be preferred as responsibility for the maintenance and repair of these works would devolve on the State. As the State is well served by water transport, the provision for development of roads was reduced from Rs. 3.75 crores to Rs. 2 crores. The Five-Year Plan accepts the principle that the initiative and responsibility for securing the necessary expansion over the bulk of the field of industry rest with private enterprise. Not much provision has therefore been made in the State's plan for the establishment of new industries owned or sponsored by the State.

2. The outlay of Rs. 27.32 crores provided for in the Plan has been distributed among the following heads:—

	<i>Rupees in lakhs.</i>
1. Agriculture ..	545.10
2. Veterinary and Animal Husbandry ..	2.50
3. Forests ..	60.00
4. Co-operation ..	8.002
5. Fisheries ..	15.00
6. Major Irrigation ..	478.00
7. Power ..	1,035.00

	<i>Rupees in lakhs</i>
8. Cottage Industries ..	89.00
9. Other Industries ..	15.80
10. State Highways ..	100.00
11. Other roads ..	50.00
12. Nationalised Transport ..	42.00
13. Ports and Harbours ..	30.00
14. Education ..	20.00
15. Medical ..	120.00
16. Public Health ..	51.50
17. Housing ..	10.00
18. Amelioration of Backward Classes ..	60.00
Total ..	<hr/> 2,731.90 <hr/>

## 1. AGRICULTURE.

3. The State covers an area of 9,155 square miles and has a population of 92 lakhs. One third of the total area is covered with reserve forests. In relation to its physical features, Travancore-Cochin falls into three natural divisions extending from north to south. The coastal region consists mainly of low-lying paddy lands and cocoanut gardens. The inland region to the east of it consists of low hills and their valleys. The valleys are cultivated with paddy, and the hills with cocoanut, tapioca, pepper, ginger etc. To the east of this region, is the mountainous area. Here the Western Ghats forming the eastern boundary of the State rise to a height varying from 2,000 to 7,000 ft. above the sea level. The mountains are covered with dense forests and grass lands. The forests belong almost entirely to the State. Some of the lands have been deforested and assigned for cultivation. The rich rubber, tea and cardamom plantations of the State are situated in this area.

4. The total area under paddy in the State is about 8 lakhs acres. That is, paddy is grown only on about one-seventh of the total area of the State. Of the 8 lakhs acres under paddy, 1,20,000 acres are Punja crop lands in Kuttanad consisting chiefly of reclamations from the Vembanad lake and the water-logged lands round about the lake. These lands will be under water in the rainy season and yield only a single crop raised between the two monsoons. (between October-November and February-March). The paddy lands in the other areas yield generally two crops. In the Onattukara area, a crop of gingelly also is raised between the two paddy crops.

5. Though the State has a heavy rainfall, ranging on an average from 60 inches to 150 inches, the paddy crop is often the victim of the monsoons. Droughts are quite common. In the Punja area, the danger is mainly of the ingress of sea-water through the Vembanad lake. An unseasonal North-East Monsoon will also result in floods and destruction of the paddy crop.

6. The State is heavily deficit in respect of paddy production; it produces only 40% of the total requirements.

7. There is very little scope for extending the area under paddy or, for that matter, any other crop. Almost all the cultivable lands are already under occupation. The people

are by nature hard-working. With the rapid increase in population and the growing demand for food-grains, there has been a regular scramble for land, especially after the Second World War. Of late, the problem has not been that of inducing people to occupy lands, but of protecting public lands from encroachment. The only lands free from occupation are those in the reserve forests. These support a rich growth of valuable timber which is one of the most important sources of the State's revenue. Moreover, the State's rivers and streams, invaluable as means of communication and as sources of hydro-electric power, flow from the forest-covered mountains. Any indiscriminate clearing of the forests will lead to the silting up of these rivers and streams and will have disastrous consequences.

8. Agricultural holdings in the State are generally of very small size. In the Travancore area, for instance, the distribution of holdings according to their size is as follows:—

1 to 5 acres	..	6,48,529
5 to 10 "	..	54,178
10 to 15 "	..	14,075
15 to 20 "	..	7,117
20 to 25 "	..	4,744
25 to 30 "	..	2,862
30 to 35 "	..	1,767
35 to 40 "	..	1,333
40 to 45 "	..	1,013
45 to 50 "	..	847
50 to 100 "	..	1,521
100 and above	..	849

Of the holdings above 100 acres, a good many belong to joint stock companies.

9. The average yield of paddy per acre of land varies from 800 lbs. to 1,000 lbs. This is very poor compared with the yield in the more advanced countries where the yield goes up to 3½ or 4 tons per acre. Agriculture, though the main occupation of the large majority of the population, cannot give them, full employment. The cost of cultivation, especially of paddy, is rising year by year. Considering the poor yield and the increase in cost of cultivation, paddy has ceased to be a profitable crop. Some have suggested that for a country with such conditions the best solution will be to disregard agriculture and place importance on industrial development. The



importance of industrial development need not be denied, but the development of industries is not the only way to economic betterment. Agriculture is equally important. Food is the first requirement of any people and no country can for ever depend on other countries for its food supplies. Indeed it is, imprudent to do so in a country which has natural facilities for growing its own food. For the growth of industries themselves, agriculture is necessary. Agriculture is said to be the mother of all industries.

10. The problem of increasing agricultural production has therefore to be carefully tackled. The State's Five-Year Plan deals with agricultural development in several important phases.

#### A. EDUCATION AND TRAINING (RS. 5 LAKHS).

11. It is proposed to set up agricultural schools of the *Manjeri* type to train young farmers in practical agriculture on modern lines. The schools have not yet started. Arrangements have been made to depute an officer to study the system of working these schools, so that similar institutions may be established in the State.

#### B. RESEARCH (RS. 0.71 LAKHS).

12. The object of the scheme is:—

1. To investigate the nature, properties and distribution of the different types of soils in the State;
2. To determine the level of the major plant nutrients in the cultivated soils and to assess their manurial requirements;
3. To classify and map agricultural soils on a sound, rational basis.

The scheme has been in operation since 1945. Surveys have been carried out of the soils in the Kalkulam, Vilavancode, and Neyyattinkara taluks, the Kayamculam lake-bed and Kuttanad. The survey of the Nedumangad taluk is nearing completion. Of the areas that remain to be surveyed, Onattukarai (comprising the taluks of Karthigapally, Karunagapally and Mavelikara) is the most important. It covers an area of 275 sq. miles and has about 1,00,000 acres of paddy land, mostly double crop. The survey of this area will be taken up immediately.

C. LAND IMPROVEMENT AND RECLAMATION (RS. 11 LAKHS).

13. It is proposed to reclaim about 50,000 acres of Kari (acid) lands in the low-lying areas of the Ambalapuzha, Karthigapally, Vaikom, Shertallai, Kunnathunad and Cochin-Kanayannur taluks. The lands will be enclosed with ring-bunds to prevent the ingress of salt-water, and the soil treated with calcium carbonate. The construction of ring bunds will be done by the Public Works Department. The Agricultural Department will supply the calcium carbonate. Power for pumping will be provided by the Electrical Department. The calcium carbonate is supplied free of cost by the Fertilisers and Chemicals (Travancore) Ltd. The transport charge from the factory to the paddy lands in Ambalapuzha and Karthigapally amounts to about Rs. 12 per ton. Government supply the article to cultivators at a concessional rate of Rs. 5 per ton. 2,000 acres at Thottapally in the Karthigapally taluk were reclaimed in 1951-52 and 4,000 acres in the same locality in 1952-53. The following expenditure was incurred:—

	1951-52.	1952-53.
	Rs.	Rs.
Bunding (P. W. D.)	2 lakhs	5 lakhs
Electric line extension (Electricity Department)	2 lakhs	1.21 lakhs
Manures etc.	0.25 lakhs	.5 lakhs
Total	4.25 lakhs	6.81 lakhs

The increased production is estimated to have been 1,000 tons of paddy in 1951-52, and 2,000 tons of paddy in 1952-53. It is proposed to take up another block of 400 acres in 1953-54. The question of levying a cess on the lands benefited by the scheme is under consideration.

14. This is a scheme subsidised by the Central Government, the amount of the contribution being 12½% of the total cost involved.

D. MINOR IRRIGATION (RS. 379.6 LAKHS).

15. The following items of work fall under this head:—

- (a) Lift irrigation.
- (b) Pumping in Kuttanad.
- (c) Renovation of tanks.

(d) Renovation and cutting of channels.

(e) Well-sinking.

(a) Lift irrigation is mainly for the paddy lands lying on the banks of the Periyar river in the Parur and Kunnathunad taluks and the Pampa river in the Tiruvalla taluk. The Electrical Department supply the pump sets. The civil works consisting of pump station and irrigation channels are provided by the Public Works Department. About 7,300 acres of single crop land in the Kunnathunad taluk and about 2,000 acres of single crop land in the Tiruvalla taluk have already been converted into double crop lands by lift irrigation. A total cost of Rs. 2,35,330 was incurred on this account in 1951-52. Water-cess is being concerned from the cultivators at Rs. 25 per acre. A scheme for extending lift irrigation to other areas is under preparation.

16. (b) Power for pumping in Kuttanad is supplied by the Electrical Department. 25% of the total cost is met by Government as "pumping subsidy", of which 50% will be met by the Government of India.

17. (c) and (d) Under construction and improvement of minor channels, bunds, tanks, sluices etc., 442 items of work involving an expenditure of Rs. 20.11 lakhs were completed in 1951-52. These benefited an area of about 22,000 acres. 607 items of works were taken up in 1952-53. The total area benefited by these works is estimated to be about 1,45,000 acres, and the total expenditure about Rs. 11 lakhs.

18. (e) Under the scheme for sinking of wells for irrigation, the cultivators are given a subsidy of one-half of the cost or Rs. 600 whichever is less. The subsidy is granted only for works benefiting a minimum of 5 acres of land. 45 wells were completed in 1951-52 and 21 in 1952-53. At the end of 1952-53, 100 wells were under execution. An amount of Rs. 32,000 was paid as subsidy in 1951-52. A sum of Rs. 70,000 was due as subsidy in 1952-53.

19. This is also a scheme subsidised by the Government of India. They were granting 50% of the cost incurred by the other Government, as subsidy. The rate has been reduced to 25% from 1953.

#### E. MANURES AND FERTILISERS (RS. 121 LAKHS).

20. Ground-nut cake and bone-meal are two of the manures most popular with the ryots, but neither

of them is being produced in the State. They have to be brought from other parts of India at considerable cost. In order to make them easily available to the ryots, Government are granting a subsidy of 25% of the cost. A subsidy at the same rate is also granted for sale of superphosphates. A quantity of 15,982 tons of manures was supplied in 1951-52, and almost double that quantity in 1952-53. The subsidy in 1951-52 amounted to Rs. 8.6 lakhs and that in 1952-53 to Rs. 16.5 lakhs.

21. The Government of India were granting a subsidy of 12½% on sale of manures till 1953.

22. Compost production and cultivation of green manures are also being encouraged. There is a scheme for distribution of green manure seeds at subsidised rates. The expenditure estimated under this schemes for the period of the plan is Rs. 3 lakhs.

#### F. SEED SCHEMES (RS. 8.5 LAKHS).

23. It is proposed to develop improved strains of paddy and to cover at least one-half of the paddy area with improved seed by the end of the plan period. The Government are maintaining the following paddy breeding stations:—

- (1) Ollookara.
- (2) Alwayse.
- (3) Mankompu.
- (4) Adur.
- (5) Nagercoil (Thripathisaram).

The following strains are already being vastly used:—

- (a) Cochin—1.
- (b) Mankonpu—1 and 2.
- T—9 (PTB—10).
- (c) ADR—19.
- (d) ASD—1.
- (e) Coimbatore—2.
- (f) Habigunj—3.

The "Seed Multiplication Scheme" now common in many parts of India is being operated by the Department of Agriculture. 5,300 maunds (26,500 paras) of improved seed were distributed by the Department in 1951-52 and 4,000 maunds (20,000 paras) in 1952-53.

G. PROVISION OF IMPLEMENTS (RS. 6.25 LAKHS).

24. Under this scheme, the Agricultural Department will sell implements like spades, Koonthalies, Plough-shares etc. at one-half of the cost price. A scheme for the manufacture of these implements by the Department will be taken up soon.

25. Pump sets with diesel engines (5 to 10 H. P.) are being issued by the Department of Agriculture on the hire-purchase system. 75 pump sets were distributed in 1951-52 and 19 in 1952-53.

H. OTHER SCHEMES (RS. 13 LAKHS).

26. These include a scheme for free supply of insecticides like D. D. T. and a scheme for the collection and analysis of agricultural statistics on a scientific basis. The insecticide scheme is already under operation. The agricultural statistics scheme is under the consideration of Government.

## 2. VETERINARY AND ANIMAL HUSBANDRY.

27. The allotment for 5 years is only Rs. 2.5 lakhs. Cattle in this part of India are of very poor quality, and several schemes for grading them up are under operation, largely as part of the I. C. A. R. programme. These schemes do not fall within the Five-Year Plan. The allotment is also too poor for the introduction of any other large projects. A scheme for the opening of 8 Veterinary Hospitals by the end of 1955-56 is under examination.

### 3. FORESTS.

28. It has been decided to delete the schemes already proposed under this head, since, after discussion, the Planning Commission advised that the schemes need not be pursued.

#### 4. CO-OPERATION.

##### A. ADMINISTRATION (RS. 1 LAKH).

29. The audit of the accounts of Co-operative Societies is the most important statutory duty of the Registrar of Co-operative Societies. It has been found essential, as emphasised by the Agricultural Credit Department of the Reserve Bank of India, that audit should be separate from administration. In this State, the necessity for this separation has been keenly felt as a result of a series of reports about embezzlements. At present, audit is being attended to by the Departmental Inspectors who have a multitude of functions on the administrative side. The annual audit of all the societies is conducted within a period of three or four months for the collection of figures for the Departmental Administration Report and for the submission of figures to the Reserve Bank of India. The audit cannot be said to be efficient as matters stand at present. For the audit to be efficient, the staff employed for it should be adequate, well trained and properly controlled. The scheme under Administration under the Five-Year Plan consists mainly in the appointment of separate Auditors. In 1951-52 the scheme did not come into effect. In 1952-53, 12 Auditors on Rs. 80-120 were appointed; and the expenditure incurred in the year amounted to Rs. 5,000. For 1953-54, these 12 Auditors will be continued and a provision of Rs. 16,000 for this purpose is made in the Budget.

30. For 1954-55 it is proposed that besides the continuance of the 12 Auditors there should be a senior batch of 6 Auditors on Rs. 125-150. The expenditure for the year will come to Rs. 45,000.

	<i>Rs.</i>
Pay and allowance of 12 Auditors on Rs. 80-120	.. 24,000
Pay and allowances of 6 Auditors on Rs. 125-150	.. 14,000
	<hr/>
	38,000
	<hr/>

31. In the final year of the scheme *i. e.* 1955-56, the 18 Auditors will be continued. There will not be further increase in the Audit Staff. But the work of the Audit Staff will be consolidated and made thorough and efficient.



32. The expenditure for the year (1955-56) will be Rs. 38,000. The target under the scheme under 'Administration' is Rs. 1 lakh.

	Rs.
For 1951-52	.. ..
1952-53	.. 5,000
1953-54	.. 16,400
1954-55	.. 38,000
1955-56	.. 38,000
	<hr/>
Total	.. 97,400
	<hr/>

#### B. EDUCATION AND TRAINING (RS. 50,000).

33. Co-operative education has so far been comparatively neglected in the State. If the movement is to develop on a sound basis it is essential that those who guide it should be thoroughly conversant with the principles and practice of Co-operation. With this end in view the Reserve Bank of India has sponsored a scheme of imparting training to officers at Poona. The State Government propose to co-operate in this scheme and to send officers in batches for the training course.

34. In 1951-52 this scheme did not come into effect. In 1952-53, 4 Inspectors of the Department were deputed for training at Poona. The expenditure provided for this purpose in 1952-53 was Rs. 10,000.

35. For the year 1953-54 an amount of Rs. 10,000 has been provided in the Budget. It is proposed that a batch of 5 Inspectors for the long term course and 1 Deputy Registrar for the short-term course be deputed for training.

36. Under the arrangements of the Reserve Bank of India, the training is only for 3 years ending with 1954-55. The Five-Year target under the training scheme has to be completed by the end of the year 1954-55. It is therefore proposed that a sum of Rs. 30,000 should be provided for the year 1954-55 with a view to enabling as many members of the staff as possible to have the benefit of this training scheme. This amount will suffice to train 17 Inspectors for the long term course and three officers of the Gazetted cadre for the short term course.

37. There will not be any expenditure under this scheme for the year 1955-56. At the end of the Five-Year Plan 30

officers of the Department would have undergone higher training in Co-operation and the target would have been reached.

	<i>Rs.</i>
For 1951-52	.. ..
1952-53	.. 10,000
1953-54	.. 10,000
1954-55	.. 30,000
1955-56	.. nil
	<hr/>
Total	.. 50,000
	<hr/>

### C. CREDIT (Rs. 50,000).

38. The Agricultural Credit Department of the Reserve Bank of India has repeatedly emphasised that the agricultural credit structure of the movement in the State stands in need of reorientation and stabilisation.

39. For the reorganisation of the existing Co-operative Credit Societies, the following scheme is proposed.

In all the centres of the State where there is a plethora of small Societies with overlapping jurisdiction and identical objectives, steps will be taken to consolidate and amalgamate them into strong economic units. A paid Secretary on a pay of Rs. 70 p. m. will be appointed to each such economic unit besides giving a grant of Rs. 500 towards contingent and other overhead charges.

In 1951-52 and 1952-53 the scheme did not come into effect. For 1953-54 a sum of Rs. 20,000 only has been recommended.

During 1953-54, 15 units are proposed to be organised. The expenditure will be as detailed below.

	<i>Rs.</i>
Pay of paid Secretary at Rs. 70 p. m.	.. 840
Grant	.. 500
	<hr/>
	.. 1,340
For 15 Units	.. 20,100
	<hr/>

40. In 1954-55 these 15 Units will be continued and strengthened. The expenditure for these 15 Units for 1954-55 will be Rs. 20,000.

41. In 1955-56, no payment will be made to paid Secretaries; but an amount of Rs. 10,000 only will be provided in the budget for payment of grants to the 15 Units.

	Rs.
For 1951-52 ..	nil
1952-53 ..	nil
1953-54 ..	20,000
1954-55 ..	20,000
1955-56 ..	10,000
	<hr/>
Total ..	50,000
	<hr/>

#### D. MARKETING (RS. 2 LAKHS).

42. The agricultural products of the State like cocoanut, pepper, ginger, turmeric and cardamom are at present being marketed in a way unprofitable to the producers. These products are often sold out on the spot at the centres of production much to the disadvantage of the producers, through middlemen. In such circumstances co-operative marketing has a special role to play.

43. A Marketing Co-operative Society will be organised in each important marketing centre of the State and the various marketable products of the centre will be purchased or secured on consignment basis and stored there. The products thus stored will be sold locally to the best advantage of the producers or sent to the central marketing society from where they can be exported. Each primary marketing centre will be placed in charge of a paid Secretary on a pay of Rs. 70 p. m. An annual grant of Rs. 500 also will be paid to each marketing society towards initial expenses, rent etc.

44. In 1951-52 and in 1952-53 the scheme did not come into effect. For 1953-54 a sum of Rs. 25,000 has been sanctioned in the budget. The proposal is to organise 18 marketing societies in 18 important centres.

The expenditure for the year 1953-54 will come to Rs. 25,000.

	Rs.
Pay of paid Secretaries (18 in No.) ..	15,120
Grant to 18 centres at Rs. 500 ..	9,000
	<hr/>
..	24,120

45. In 1954-55, besides continuing the above 18 centres 18 more centres will be organised. The expenditure for this year will be Rs. 50,000. For 1955-56, the entire 36 centres will be continued. The working of these societies would have considerably improved and the turn-over gone up. The paid Secretaries, in view of the increased work will have to be given Rs. 100 p. m. The societies will also be given a grant of Rs. 2,000 each.

46. The expenditure during the five year period will be as follows:

	Rs.
For 1951-52 ..	nil
1952-53 ..	nil
1953-54 ..	25,000
1954-55 ..	50,000
1955-56 ..	1,15,200
Total ..	1,90,200

#### E. CO-OPERATIVE FARMING (RS. 2.5 LAKHS).

47. Co-operative Farming Societies will be organised in selected centres, preference being given to these societies in the matter of supplies, finance, technical assistance and marketing. Each society will be given the services of a paid Secretary on a pay of Rs. 100 p. m. and an annual grant of Rs. 2,000. In 1951-52 and 1952-53 the scheme did not come into force. For the year 1953-54, Government have provided a sum of Rs. 25,000 in the budget. It is proposed to organise 8 Farming Societies in 1953-54. Each society will have a paid Secretary at Rs. 100 p. m. Each society will also be given a money grant of Rs. 2,000 per annum to meet overhead charges and initial expenses.

48. In 1954-55, besides continuing the 8 Societies, 12 more Societies will be organised. These 20 Societies will have one paid Secretary each at Rs. 100 p. m. besides the annual grant of Rs. 2,000 per society. An amount of Rs. 10,000 will be set apart during the year for purchase of tractors and improved agricultural implements.

	Rs.
49. The expenditure for the year will be:	
For 20 paid Secretaries at Rs. 100 each ..	24,000
Grant at Rs. 2,000 each ..	40,000
Purchase of machinery and implements ..	1,00,000
..	1,64,000

50. During the year 1955-56, there will not be further increase in the number but the 20 Societies will be stabilised and made more efficient. The paid Secretary and the grant will be continued in the year. The expenditure for the year will be as follows:—

	<i>Rs.</i>
Paid Secretary ..	24,000
Grant ..	40,000
	<hr/>
	64,000

51. The total expenditure under the scheme for the Five Year Plan will be:

	<i>Rs.</i>
For 1951-52 ..	nil
1952-53 ..	nil
1953-54 ..	25,000
1954-55 ..	1,64,000
1955-56 ..	64,000
	<hr/>
	2,53,000

(Rs. Rounded Rs. 2,50,000).

F. OTHER SCHEMES—ORGANISATION OF MULTI-PURPOSE  
CO-OPERATIVE SOCIETIES.

52. A scheme forwarded by the Registrar of Co-operative Societies is under scrutiny.

## 5. FISHERIES.

53. The target is Rs. 15 lakhs distributed among the following items:—

	Rs.
Research ..	4.82 lakhs
Marine Fisheries ..	4.36 lakhs
Inland Fisheries ..	3.32 lakhs
Other Schemes ..	2.50 lakhs

## A. RESEARCH.

54. No scheme has yet been taken up under Research, Schemes are being got ready.

## B. MARINE FISHERIES.

55. The provision under this head for 1953-54 is Rs. 59,600 which is intended for the following works:

	Rs.
Construction of curing sheds and gutting platforms for the fish curing yards at Poovar and Vizhinjam ..	54,000
Opening of fish curing yard at Kattur ...	3,000
Completion of the model fish curing yard at Cape ..	2,600
	<hr/>
	59,600

## C. INLAND FISHERIES.

56. There is a provision of Rs. 50,200 for 1953-54 which is distributed as follows:

	Rs.
Improvement works to the fish farm at Narakkal ..	27,700
Stocking of fish in reservoirs tanks etc. ..	15,000
Improvement works to the fish farm at Ayiramthengu ..	7,500
	<hr/>
Total ..	50,200

## D. OTHER SCHEMES.

57. The provision of Rs. 35,000 for 1953-54 is intended for subsidised supply of timber to the fishermen, (Rs. 25,000) and subsidised supply of yarn to fishermen, (Rs. 10,000).

58. Schemes for the remaining period of the Plan will be drawn up immediately.

## 6. MAJOR IRRIGATION.

59. Of late the monsoons have been rather erratic not only in the intensity of precipitation, but also in the seasonal phasing, so that it has become impossible to rely on them for cultivation. Storage reservoirs or diversion from perennial rivers has thus become a necessity to safeguard cultivation. With this end in view the under-noted Major Irrigation Schemes have been taken up for construction.

1. Peechi Irrigation Scheme.
2. Chalakudy Irrigation Scheme.
3. Wadakancherry Irrigation Scheme.
4. Kuttanad Development Scheme.
5. Neyyar Irrigation Project.
6. Perunchani Irrigation.

### A. THE PEECHI IRRIGATION SCHEME.

60. Peechi is situated 15 miles East of Trichur on the banks of the Manali river. This river is a small one rising in the Vaniyampara Hills and flowing for a length of 30 miles before it joins the Kurumali river. The Peechi dam is located at the 10th mile of the river and is about 5 miles South East of Pattikad at the 9th mile on the Trichur-Palghat Road. The investigation of the scheme was begun in November 1944 and completed in October 1945.

61. Above the Peechi site where a storage is proposed, five important valleys join together to make up an appreciable storage with a comparatively large catchment. These valleys are known as:

1. Chorayar Valley.
2. Plachivallam or Pottimmada Valley.
3. Olakara Valley.
4. Thalikuluzhi Valley.
5. Pulakkal Valley.

The hills bordering these valleys converge to very attractive dimensions at the Peechi site which renders the site eminently suitable for the construction of a dam.

62. The Right Bank Channel is intended to serve the following twenty-four villages:

- |                 |               |
|-----------------|---------------|
| 1. Panancheri   | 4. Nettisseri |
| 2. Madakkathara | 5. Ollukkara  |
| 3. Vellanikara  | 6. Kozhikulli |

- |                  |                |
|------------------|----------------|
| 7. Marathakara   | 16. Vilvattam  |
| 8. Nadathara     | 17. Viyyur     |
| 9. Ollur         | 18. Kolazhi    |
| 10. Edakunni     | 19. Killannur  |
| 11. Kanimangalam | 20. Chulisseri |
| 12. Nenmanikara  | 21. Velappaya  |
| 13. Chiyaram     | 22. Pottor     |
| 14. Kurkancheri  | 23. Kuttur.    |
| 15. Kurichikara  | 24. Mulayam.   |

63. The areas which will be served in the above villages comprise 7,607 acres of dry lands convertible into double crop areas, 3,225 acres of *Viruppu* lands convertible into double crop lands, 1,590 acres of *Mundakan* lands getting supplemental supply and 6,599 acres of existing double crop lands receiving supplemental supply. In addition to the above, the canal would serve 20,000 acres of *kole* lands through one sluice located at mile 16|2 below the Head of Ollukkara Branch and a second sluice located at mile 23|0 above the Thanikudam aqueduct.

64. The Left Bank Channel is intended for the Mukundapuram Taluk and will serve the following fourteen villages:—

- |                 |                    |
|-----------------|--------------------|
| 1. Mulayam      | 8. Kallor          |
| 2. Kainur       | 9. Muthithady      |
| 3. Trikkur      | 10. Vattanthara    |
| 4. Kottalai     | 11. Amballur       |
| 5. Kanamangalam | 12. Varamdarapilli |
| 6. Kallai       | 13. Chengalur      |
| 7. Puthur       | 14. Thorava        |

65. The area that will be benefited by this channel is 4,800 acres of dry lands convertible into double crop lands and 4,040 acres of existing wet lands obtaining supplemental supply. The two channels will benefit on the whole an area of 47,800 acres.

66. The dam is a masonry one of the gravity type with a spill-way section in the middle for a length of 132 feet with shutters of 10 feet height over the spillway. These shutters will be fixed at a later stage when the ayacut is developed. The present capacity of the reservoir is limited to 2,840 millions c. ft. The surplus section is capable of disposing of 13,000 cusecs which is equivalent to 12" run off in the catchment. The length of the dam at top is 750 feet with a



maximum height of 134 feet at the Bulk Head and 120 feet at the spillway section. The lowest bed of the stream is plus 130.0 and the full reservoir level is fixed at plus 260.00. A drainage gallery of 5.0" width and with a 7 feet headway is allowed in the centre of the dam to admit of grouting at a later stage if and when leaks are observed in the dam. The two outlets that supply water to the Right Bank Channel and Left Bank Channel are controlled by the dispenser valves that will be supplied by Messrs. Glenfield and Kannedy to prevent any scours in the channel bed at the Head. Emergency gates are also to be provided in front. They will be operated by hand through suitable gears and also by electric motor. Contraction joints are provided at 60 feet intervals. Curtain grouting is provided for in front to a depth of 0.43 times the height of dam at the front line over the bed rock. A roadway will also be carried over the dam with a width of 10 feet between parapets.

67. The right bank canal goes through a cutting of 68 feet at mile 2|7 and crosses a big valley at mile 6|2 at a height of 34.5 feet above bed of the fields by means of a masonry aqueduct. Through one of the spans of this aqueduct the main Vaniampara road passes. The site of the aqueduct and the road passing underneath present a very picturesque view. Another valley is crossed at mile 7|5 of the canal. Here the aqueduct is 500 feet long and is 26.5 feet above the fields. Each of the aqueducts is estimated to cost Rs. 2.5 lakhs. A third aqueduct is located at mile 23|0 over the Thanikudan stream and this costs nearly 1.5 lakhs. There are several other small aqueducts and under tunnels along the canal to dispose of the cross drainage and these works cost nearly 25,000 and less for each. The Right Bank Channel has 19 branches to serve its full area and the main has a total length of 23 miles.

68. The Left Bank channel cuts across very rugged country for the first 15 miles. Beyond that the main branch is continued for a length of about 10 miles. Ten more branches are proposed with a total length of 37½ miles to serve the ayacut area. The canal passes through six cuttings at several saddles the maximum cutting being 50 feet. There is only one aqueduct of importance at the second mile for crossing a stream and this can be constructed in a single span.

69. The estimated cost has been revised from Rs. 173 lakhs to Rs. 235 lakhs. This is mainly due to the heavy Land acquisition charges and charges to be incurred for deviation of the National High Way.

70. Out of the estimated quantity of 24,000 units of masonry for the dam proper, more than 15,000 units have been completed. There are three major aqueducts on the Right Bank channel and one on the Left Bank channel of which three have been completed and one is nearing completion. Earthwork excavation of Right Bank channel for 23 miles and Left Bank channel for 15 miles has been completed.

#### B. THE CHALAKUDY IRRIGATION PROJECT.

71. The Chalakudy river rises in the Anamalai and Nelliampathi Hills of the Western Ghats at an elevation of nearly 4,000 feet above sea level and flows generally in a westerly direction. The river at its head is known as the Sholayar river until it joins its two main tributaries namely the Karappa river and the Parambikulam river. The Parambikulam river joins the Sholayar river at a point called Orukombankutti at the 38th mile of its course and the Karappa river joins the Sholayar, a mile lower down the above junction. From the lower junction the main river is called the Chalakudy river. The river after a meandering course of nearly 90 miles, joins the northern arm of the Alwaye river and empties itself into the backwaters to the South East of the Cranganur Bar.

72. Between the 38th mile and 90th mile where the Chalakudy river takes its name and joins the Alwaye river, there are several important tributaries (1) Charpa Thodu (2) Kannam Kuzhi (3) Pillapara Thodu and (4) Arurmuzhi.

73. All the tributaries and the main river receive a copious supply of water during the South West Monsoon which ranges from the middle of May to the middle of September, while during the North East Monsoon, the supply is rather meagre and is attended with frequent failures.

74. The right bank channel system is intended to benefit the 17 villages noted below:—

1. Pariyaram.
2. Kodasseri.
3. Mattathur.

4. Potta.
5. Kodakara.
6. Kizhakkai Chalakudy
7. Perambra.
8. Elingipra.
9. Alur.
10. Thazhaikad.
11. Kallettumkara.
12. Amballur.
13. Vadakkumbhagom.
14. Kuruvilasseri.
15. Kallur Vadakummuri.
16. Kallur Thekkumuri.
17. Alathur.

The ayacut in the above 17 villages will be commanded in two stages. The first stage is intended to benefit the first 8 villages and the entire ayacut is lying to the east of the railway line. It comprises 2,205 acres of Viruppu lands, 1,443 acres of Mundakan lands, 3,178 acres of double crop lands, 8,506 acres of Paramba lands and 697 acres of Poramboke waste lands making a total of 16,029 acres. The final stage will consist of 10,975 acres of waste lands which will be converted to double crop lands, 4,060 acres of Virippu lands which will be converted to double crop lands, 5,341 acres of existing double crop lands which will be benefited by the scheme, and 2,755 acres of Mundakan lands thus totalling 23,131 acres.

75. From the diversion weir mentioned above, a left bank channel is proposed for the conversion of 12,000 acres of single crop lands to double crop lands, giving supplemental supply to 9,700 acres of existing double crop lands and 2,450 acres of pancha lands and for commanding 2,000 acres of new area convertible to double crop lands. The following 15 villages will be benefited by the Left Bank channel:—

*Kunnathunad Taluk.*

- (i) Manjapra.
- (ii) Manickamangalam.
- (iii) Kothakulangara.

*Parur.*

- (iv) Chengamanad.

*Mukundapuram.*

- (v) Melur.
- (vi) Muringur-Vadakkumuri.
- (vii) Muringur Thekkumuri.
- (viii) Kizhakkummuri.
- (ix) Kallur Vadakkumuri.
- (x) Kallur Thekkumuri.

*Cochin Kanayannur.*

- (xi) Malayattur.
- (xii) Kizhakkumbhagom.
- (xiii) Vadakumbhagom.
- (xiv) Chowwara.
- (xv) Thekkumbhagom.

76. The cost of the left bank channel is estimated to be Rs. 53 lakhs raising the total cost for the whole scheme to Rs. 120 lakhs. Due to the hilly nature of the country, the distribution system is always costly and the schemes on the west coast cannot be expected to give a good return.

77. The revised estimate for the project is Rs. 210.75 lakhs (against the original estimate of Rs. 120 lakhs). Two stages of development are also proposed. The first stage will comprise the construction of the weir, the right bank channel about 6 furlongs beyond the railway line, and the left bank canal system upto the railway line. The second stage will consist of extensions beyond the railway line. The total area to be benefited under the first and second stages is 50,000 acres i. e. under the first stage 30,000 acres and under the second stage 20,000. Thus the full benefit of the scheme can be realised only if the two stages are taken up simultaneously. The main reasons for the increase in cost are the necessity for land acquisition charges and for increased protective works to the channels.

78. The Right Bank channel construction for the full length of 23 miles has been completed and the cross drainage works are in progress. Left Bank channel construction for 6 miles has been taken up. Works on 3-6 miles are in progress. Of the 100 miles of branch channels, work in almost one-half of the length is nearing completion.

### C. WADAKKANCHERRY (VAZHANI) RIVER VALLEY SCHEME.

79. The Wadakkancherry river has its source on the western slopes of the Machad hills and it flows due north west. There exist now about 24 irrigation bunds laid across the river to divert the water to the near-by lands. The functioning of these bunds is not satisfactory and the lands commanded by these are very limited. In the absence of an adequate storage, the irrigation system cannot work efficiently especially in periods of drought. Further by having a permanent storage much of the high lands could be converted into paddy fields yielding two crops in a year.

80. The scheme proposed is to throw an earthen dam across the Wadakkancherry river to impound about 550 million cubic feet of water and to excavate a distribution system on either side of the river valley for conveying the stored water to the fields.

81. A dam site near the Forest Bungalow at Vazhani has been chosen. The capacity between levels plus 150 and plus 200.00 is computed to be 550 m. c. ft. The bed level of the stream at the proposed site is plus 130.0. Borings were conducted at the site to locate rock levels. There is a convenient dip in the left bank so that the surplus arrangements can be located here. The proposed reservoir has a catchment of about 8 sq. miles and a rainfall ranging from 90 to 170 inches in the catchment area. A certain with its top level at plus 215.00 *i. e.* 15 feet above the full reservoir level has been designed and estimate prepared. The capacity of the reservoir can be raised to 650 m. c. ft. by holding up 5 feet extra water in the reservoir after fixing shutters over the surplus at a later stage if there is a demand for that. Water will be let into the two channels by means of two sluices, one for each channel, there being a separate in-take well for each sluice with shutter arrangements for letting in water. The channels take off at reduced level plus 150.00. There will also be a surplus excavated from the left bank and the water will be let off by a surplus channel to the river at a downstream point.

82. About 155 acres of double crop lands and 50 acres of single crop lands will be submerged by the reservoir. The compensation that has to be awarded for this is estimated at Rs. 6 lakhs.

83. Two main canals each to carry 45 cusecs have been proposed one along the right bank and the other along the left bank to start at plus 150.00 and to run as a contour canal. Each of the main canals will be 20 miles long so that the aggregate is 40 miles. Provision for a length of 40 miles of branch channels are also made in the estimate.

84. The existing *chiras* and bunds across the river serve to protect about 3,500 acres of land. The new canals can supply the additional water required for 2,500 acres of double crop lands of the above area and convert 1,000 acres of single crop lands of the same area into double crop lands. Besides, 6,500 acres of new lands will be converted into double crop lands.

85. According to the revised estimate, the scheme will cost Rs. 57.5 lakhs. The original estimate was Rs. 48.8 lakhs to the revised estimate, the scheme will cost Rs. 57.5 lakhs.

86. Construction of the approach roads to the dam site, staff quarters and extension of the electric line connections have been completed. About 1,800 units of earth work excavation are in progress. Preliminary arrangements for the construction of the earthen dam have also been completed.

#### D. THE KUTTANAD DEVELOPMENT SCHEME.

87. The Kuttanad area covers about 337.4 sq. miles lying to the north of the Thottapally-Mavelikara Road and the M. C. Road from Thiruvella to Kottayam. It comprises 41 pakuthies in the seven taluks of Vaikom, Kottayam, Changanacherry, Thiruvella, Mavelikara, Karthigapally and Ambalappuzha. It is one of the most important paddy producing areas of the State. Of the area of 337.4 sq. miles, 189 sq. miles are Punja lands and 31 sq. miles lake area. The remaining 117.4 sq. miles of land are in several small plots with levels about 3' to 4' above mean sea level. The whole of the area is subject to tidal action. The soil is fine alluvial deposit mixed with clay and organic matter.

88. The population of Kuttanad is nearly 8.5 lakhs representing a density of nearly 7,000 per sq. mile of habitable land.

89. Owing to the peculiar location of Kuttanad, road transport is practically absent in this area. But the large number of water courses provide facilities for water borne traffic. Statistics have shown that a daily average of 9,630

people move about in country boats of more than 1 ton capacity and public motor launches, while the goods moved amount to 9,280 tons daily to and from Alleppey which is the Chief Commercial Centre of Kuttanad. On a modest estimate, about 2 lakhs of people more must be using smaller craft for movement on water between places in Kuttanad every day.

90. Kuttanad has many problems to solve. Crops are being destroyed almost every year by floods and by ingress of salt water from the sea through the Cochin Harbour. Very often high tides also affect the crops. They raise the water level outside the ring bunds of the paddy lands and the bunds collapse. In olden days alternative lands used to be taken up for cultivation every year, with the result that some lands would be lying fallow at any time. But with the stoppage of import of paddy from Burma, the demand for local paddy became intense, and people are now taking to annual cultivation of all the paddy lands. During the cultivation season, the area for water-spread will thus be considerably reduced and the pressure of water on the bunds will become more heavy. This has increased the risk of breach of bunds and destruction of crops.

91. Investigations were made from time to time to find out remedies for these evils. The following works have been undertaken as the result of these investigations:—

92. (a) *Thottapally Spillway*. Hydrological studies indicate that the maximum average monthly discharge of flood flows from the Manimala, Pamba and Achencoil rivers amounts to 68,702 cusecs and 22,182 cusecs from the Meenachil river in the months of July and August. The design of the spillway channel section is to discharge a rate of flow of 64,000 cusecs after deducting the quantity of water that escapes through the T. S. canal at Thottapally to the Kayamkulam Lake at level plus 103.25 which has been fixed in reference to the general level of the garden lands in Kuttanad. It has been estimated that about 5,000 cusecs of flood discharge escapes into the Kayamkulam Kayal during normal flood through the several culverts and bridges along the Quilon-Alleppey road and through the existing lockgate at Thottapally. The proposed spillway channel section is 1,200 feet at bed level plus 94.00 with  $1\frac{1}{2}$ :1 side slopes cut practically with no slope for the whole length of 4,300 feet. The soil and subsoil at the locality as determined from borings done for Thottapally deep bore well is sand mixed with a small percentage of clay.

The channel cuts Quilon-Alleppey road west of the present Thottapally bridge and the Thottapally-Pallana road about 2 furlongs south of the junction from Alleppey-Quilon road. Works connected with the spillway are the following:—

- (a) A flood regulator with 40 spans 25' clear each, operated by steel shutters 9' high.
- (b) A road bridge across the spillway built in conjunction with the regulator shutter.
- (c) Protective works to the canal sides and the bed up-stream and down-stream of the above structure.
- (d) Construction of rubble dumped groynes at the seaward exits of the two sides of the spillway channel.
- (e) Construction of a road bridge across the T. S. Canal about 200 feet south of the present wooden bridge.
- (f) Construction of approach roads connecting these bridges to the Alleppey-Quilon road and making a deviation road to connect Thottapally-Pallana road on the Southern Bank of the spillway channel.

(b) *Alleppey-Changanacherry road cum canal.* The work consists of:—

- (a) An embankment for a length of about 14 miles between Alleppey and Changanacherry with an embankment width of 90 feet at plus 104.5.
- (b) A canal of 110 feet bed width at plus 92.50 and side slopes  $1\frac{1}{2}$ : 1, south and alongside of the road embankment.
- (c) An embankment 30 feet wide at plus 104.5 south and alongside of the above canal for colonisation.
- (d) Construction of a metalled road for 40' width on the southern edge of the 90' embankment leaving the balance 50 width alongside the road for colonisation; and
- (e) Construction of bridges and culverts.

(c) *Salt Water Barrier at Thanneermukkam.* This consists of two rows of rubble dumped side walls with the interior space filled in with dredged material and finished top width of 40 ft. at plus 105.50 and a total length of 4,300 feet



between Vechoor and Thanneermukkam. The works connected with the salt water barrier are as follows:—

1. Construction of a twin lock at Thanneermukkam with locking capacities 150' x 35' and 100' x 20' for each. Also another single lock at the Vechoor side of capacity 100' x 20'.
2. Provision of 430 Nos. of 7 x 4 ft. sluice openings in the barrier with sill at plus 98.00 and sluice shutters to regulate flood discharge mainly of the Meenachil river.
3. Construction of overhead bridges across the locks.
4. Road over the barrier and approach roads to these bridges connecting Thanneermukkam-Muhamma and Thanneermukkam-Shertalai roads on the west and Vaikom-Vechoor road on the East End.

The site of this barrier was fixed at Thanneermukkam on the basis of soundings. There is a narrower gap in the Vembanad lake at Chembil further north, where such a barrier could have been located. But soundings there showed more than 40 feet depth at this section, which would be too difficult for safe and economic construction of a barrier. Moreover any site north of Thanneermukkam will necessitate closing of additional gaps such as those Chenganda as also the handling of the flood water from Moovattupuzha river during floods. Apart from all these, the fact that the main reclamation activity in the Vembanad lake is south of Thanneermukkam supported the fixation of the site at this place.

*(d) Improvement of the interconnecting waterways in Kuttanad and lead of the flood waters of the three rivers to the Thottapally spillway.*

With the construction of the salt water barrier at Thanneermukkam, the Changanacherry-Alleppey road, and the spillway at Thottapally, need will arise for leading off the flood flows in the rivers to Thottapally instead of allowing the water to spread out and submerge the Kuttanad area. The question of cutting open a channel for this purpose will be taken up after the spillway and the road are completed.

#### *Benefits of the Project.*

93. *Flood Relief.* The duration as well as the level of the floods will be reduced. This will prevent the loss of about 5,000 tons of paddy annually. It may also be possible to raise

a second crop on 36,300 acres of land producing an extra quantity of about 12,000 tons of paddy.

*Relief from tides.* At present during the months of November and December over 1,10,000 acres of land will be under cultivation in the lake area against which there will be only about 15,000 acres of water spread. The inflow of tides will raise the water level and bunds will be broken. The salt water barrier will prevent this disaster in future.

*Salinity control.* The average annual loss of paddy due to the invasion of saline water is reported to be over 10,000 tons. The salt water barrier will prevent this loss.

*Extension of reclamation.* It may be possible to reclaim another 10,700 acres of Vembanad lake after the completion of the project. The extra yield anticipated is about 7,500 tons.

*Improvements to navigation.* The water level in the lake south of Thanneermukkam will be maintained at a constant level providing at least four feet of water in almost all water courses. Navigation will thus be made possible all through the year.

94. *Cost.* The estimated cost of the whole scheme is Rs. 136.71 lakhs with the cost of each independent unit as noted below.

	<i>Rs. in lakhs.</i>
1. Alleppey-Changanacherry Road and Canal	35.9
2. Spillway at Thottapally	57.23
3. Salt water barrier	43.58
Total	136.71

95. On the road *cum* canal scheme, 8 miles of road embankment have been completed. Construction of culverts and bridges is in progress. 1½ miles of road have been metalled. The construction of the regulator is also progressing well. Work on the Thanneermukkam bund will be taken up only after the completion of the spillway and regulator.

#### E. NEYYAR DAM.

96. The Neyyar river has its source in the Agasthia Hills in the Western Ghats and flows south through mountain valleys and deep gorges to Manike Kani and then

flows in a generally westerly direction to Kallikad and then in a south westerly direction till it discharges itself into the Arabian sea at Poovar. As the river generally runs in a deep valley below the average level of the fields, the water is not available for irrigation and the crops perish owing to drought. The idea of impounding the waters of the river was engaging the attention of the Government for the last 20 to 30 years. Various irrigation schemes were investigated at different periods, and the work has now been taken up.

97. The site selected is about 2 miles from Kallikad called Chempilamoodu Hill. Here the site is favourable for the construction of a dam as the valley narrows itself between hills. The drill-cores obtained from boring operations have indicated that the site is good for a masonry dam. The catchment area of the dam at the site is 54 sq. miles. The run off is computed as 8,500 m. c. ft. per annum with a maximum flood discharge of 33,000 cusecs. The maximum length of the dam will be 915 c. ft. and the height of the dam at the deepest point 170'. The dam and appurtenances are estimated to cost 84.84 lakhs. The area that will be submerged by the reservoir is about 3 sq. miles and the dam will impound 3,000 m. c. ft. of water. The two channels with capacities of 250 cusecs each will take off from the right and left flanks of the dam. They have been designed as contour channels and their lengths are 21½ miles and 26 miles respectively. The channels traverse very undulating country necessitating the construction of high embankments and involving very deep cuttings. The cost per mile of channel is found to be high compared to that of channel usually cut in flatter regions. These two channels will serve to irrigate in full measure 18,000 acres of new conversions and 12,250 acres of existing paddy lands. The total cost of the project is estimated at Rs. 221 lakhs.

98. The original estimate was Rs. 120 lakhs. The area intended to be benefited at that time was only 15,000 acres. This has subsequently been raised to 18,000 acres. For the first stage the dam proper and the Right bank channel alone are to be constructed at a cost of Rs. 143 lakhs. But the full benefits of the project will be obtained only if the second stage of cutting open the Left bank channel is also included. The revised estimate for the complete scheme is Rs. 221 lakhs.

99. About 20,000 tons of paddy is additionally expected to be grown after the completion of the scheme.

The construction of the staff quarters has been completed. Excavation for the foundation of the dam has been started. Arrangements have been made to start rubble masonry construction on the exposed rock for the body of the dam. The construction of the Right bank channel also has been started and work on four miles is in progress.

#### F. PERINCHANI DAM.

100. The Paralayar and the Kodayar serve to irrigate a major portion of Nanjinad. Irrigation in Nanjinad by means of the water of the Paralayar dates back to very ancient times. The Pandyan Dam, a few hundred feet down-stream of Perinchani, the Pandyan Kal and other irrigation works built about 1,000 years ago are standing monuments of the engineering skill of the people of those days.

101. The Kodayar Dam at Pechipara was constructed during the period 1894 to 1905 at a cost of Rs. 27 lakhs to hold 3,509 million c. ft. of water at full supply level. The water from the dam was taken by a channel on the left bank and let into the Paralayar above the Puthen Dam, from where it was taken to the fields through main and distributary channels branching from the Pandyan Kal and the P. P. Channel. The total cost of the dam and channel system came to Rs. 53 lakhs. What is now known as the Kodayar system really comprises both the old and the subsequent constructions referred to above.

102. The Perinchani Dam across the Paralayar is intended to store up the water of the river to supplement the existing storage in the Pechipara Reservoir which has been found inadequate to meet the requirements of the present ayacut of over 56,000 acres, in years of scanty rainfall. The reservoir is also intended to bring under cultivation an additional acreage of about 6,000 acres. Thus with the reservoir, the two-crop cultivation in the present ayacut of 56,000 acres is insured against frequent failures due to drought. The catchment area of Pechipara Reservoir is 80 sq. miles and the average yearly inflow 16,190 million c. ft. while that of the Paralayar river above the Perinchani Dam is 61.57 sq. miles with an average yearly inflow of 9,558 million c. ft. Of these inflows the Kodayar head-works is yielding only an average of 8,176 million c. ft. per annum for irrigation, while the small diversion work at Puthen Dam contributes an average of 6,120 million c. ft. Thus at present only about 50% of the inflow

of the Kodayar and about  $2\frac{1}{3}$  of the inflow of the Paralayar are being utilised for irrigation purposes. In an average year the inflow in the Kodayar alone will be sufficient for the requirements and with the inflow in the Paralayar there is ample supply. But in very dry years like 1935, when the inflow in the Kodayar was only 4,800 million c. ft., and that in the Paralayar 5,681 million c. ft. and when all but 1,549 million c. ft. were used for irrigation, the water will be insufficient and cannot be provided for fully under any irrigation system. It is significant however, that there was a surplus of 1,400 m. c. ft. over the Puthen Dam in the said year, which if stored would have saved the crops over thousands of acres.

103. It has also been observed that in an average dry year the yield from Kodayar is only 8,245 m. c. ft. and that from the Paralayar 5,332 m. c. ft. of which about 965 m. c. ft. is surplussed over the Puthen Dam. On an average, a quantity of about 3,000 m. c. ft. is surplussed yearly over Puthen Dam. This shows that even in dry years the yield in the Paralayar catchment is more dependable than that from the Kodayar catchment. It was this aspect in favour of the Paralayar that led to the decision to construct a dam across this river at Perinchani. The construction of the dam was completed in December 1952.

104. The estimated cost of the dam alone is Rs. 44.5 lakhs.

105. The construction of the Thripparappu weir has been completed. Nearly 7 miles of the Left Bank channel and 4 miles of the Right Bank channel have also been cut open and put under service. The total estimated cost of the scheme is Rs. 68 lakhs.

106. It will be seen from the above that the total cost of the six major irrigation schemes according to the revised estimate comes to Rs. 9.29 crores. The question of limiting the expenditure on the schemes within the resources of the Plan is under the consideration of Government. The expenditure on the schemes for 1951-52, 1952-53, and 1953-54 is indicated below:

<i>Year</i>	<i>Expenditure actual or estimated. Rs. in lakhs.</i>
1951-52	.. 86.03
1952-53	.. 92.44
1953-54	(proposed) .. 90.29
Total	.. 268.76

## 7. POWER.

### I. INTRODUCTION.

107. The opportunity afforded by the Five-Year Plan formulated by the National Planning Commission has been availed of fully to accelerate the progress of Electrical Power Development in the Travancore-Cochin State. The blueprint for development drawn up by the department provides not only for the completion of the major construction works already taken on hand before the commencement of the Plan but also for the execution of a number of important new works during the five year period 1951-56 aimed at extending the existing transmission and distribution net-work to bring the benefits of electricity to the maximum number of villages. Rural electrification has thus been given special emphasis under the Five Year Plan.

108. The Departmental Plan comprises of *four* main Project Works:—(1) Pallivasal Hydro-Electric Project (2nd stage works), (2) Sengulam Hydro-Electric Project, (3) Poringalkuthu Hydro-Electric Project, and (4) Transmission and Distribution Project. The first three are power projects undertaken for increasing the production of cheap hydro-electric power within the State. The Transmission and Distribution Project on the other hand provides for the construction of new transmission lines, transforming stations and distribution lines necessary for conveying the additional power that will be generated to the ultimate consumers, for giving service connections to new consumers both domestic as well as industrial and for installing public lights. With the completion of the Five Year Plan the *installed generating capacity will be raised to 109,500 K. W. i. e., the installed capacity will be nearly four times that at the commencement of the plan. 800 more villages will be electrified during the plan period and about 50,000 additional consumers, domestic as well as industrial will be supplied with electricity.*

109. A capital outlay of Rs. 1,035.75 lakhs is envisaged during the five year period and the statement given overleaf indicates the planned expenditure under the main heads of the plan and the benefits to be achieved:—

Name of Project:	Total cost. Rs. Lakhs.	Expenditure up to March 1961. Rs. Lakhs.	Expenditure pro- posed during 5 year plan 1961-66. Rs. Lakhs.	Additional benefits during 1961-66.	On completion.
1. Pallivasal H. E. Project (2nd stage)	230	70	160	9,000 K.W.	37,500 K.W.
2. Sengulam H. E. Project	325.75	140	185.75	48,000 K.W.	48,000 K.W.
3. Poringalkuthu H. E. Project	260.0	125	135.0	24,000 K.W.	24,000 K.W.
4. Transmission and Distri- bution Project	* 555.0	400	555.0	Electrification of 800 new villages and connecting up of 50,000 new consumers.	
Total	1370.75	735	1035.75	81,000 K.W.	109,500 K.W.

\*Cost of works to be carried out during 1961-66.

## II. DETAILED DESCRIPTION OF SCHEMES.

110. *Pallivasal Hydro-Electric Project (2nd stage works)*: The second state works of the Pallivasal Hydro-Electric Project included in the plan relate to the construction of a dam at Madupatty across the Muthirapuzha river, effecting certain modifications to the existing first three generating sets at the Pallivasal Power Station to raise their output by 500 K. W. each and the commissioning of the 6th 7,500 K. W. generating set. With the completion of the works the total installed capacity of the station will be raised from 28,500 K. W. to 37,500 K. W. The Madupatty Dam now under construction will create a storage reservoir of 1,900 million c.ft. and this reservoir will provide the additional continuous discharge required for running the Pallivasal Power Station at full load. The entire works are scheduled to be completed by the end of 1953. The planned expenditure for the works under the plan is as follows:—

1951-52	..	Rs. 39.5 lakhs
1952-53	..	52.3 "
1953-54	..	68.2 "
		<hr/>
Total	..	Rs. 160.0 lakhs

111. *Sengulam Hydro-Electric Project*: The Sengulam Hydro-Electric Project is a tail water development of the existing Pallivasal Hydro-Electric Station. The water discharged from the Pallivasal Station will be used again over a drop of approximately 1,200 feet, to develop 25,000 K. W. of firm power. The installed capacity of the Sengulam Power Station will be 48,000 K. W. with 4 units each of 12,000 K. W. capacity. Good progress is being maintained on the various works connected with this project. The project is scheduled to be completed by the end of 1953-54. The planned expenditure for the Project is as follows:—

1951-52	..	Rs. 63.0 lakhs
1952-53	..	63.2 "
1953-54	..	59.55 "
		<hr/>
Total	..	Rs. 185.75 lakhs



112. *Poringalkuthu Hydro-Electric Project*: The Poringalkuthu Hydro-Electric Project (1st stage) will develop power from the Chalakudi river with the aid of a reservoir constructed at the foot hills of the Western Ghats near Poringalkuthu. A drop of 600 feet in the river will be utilised for developing 8,000 K. W. of firm power. The power station will house three generating sets each of 8,000 K. W. capacity. The civil works at site are in progress. The power station plant and equipment have begun to arrive at site. The scheme is expected to be completed by the middle of 1954-55. The planned expenditure for the project is as follows:—

1951-52	..	Rs. 54.0 lakhs
1952-53	..	42.3 "
1953-54	..	31.0 "
1954-55	..	7.7 "
		Total
	..	Rs. 135.0 lakhs

113. *Transmission and Distribution Project*: With the completion of the Pallivasal (second stage) Hydro-Electric Works, Sengulam Hydro-Electric Project and the Poringalkuthu Hydro-Electric Project (first stage) nearly 48,000 K. W. of additional firm power will be developed for distribution. The transmission and distribution net works have therefore to be extended for transmitting and distributing this additional power. The important works included under this project are:—

- (a) Completion of the 66 K. V. Sub-station at Trivandrum.
- (b) Do. do. do. at Chalakudi.
- (c) Completion of the 66 K. V. transmission line from Trivandrum to Thuckalai.
- (d) Construction of 66 K. V. transmission lines from Alwaye to Ernakulam and Pallom to Peermade.
- (e) Construction of 66 K. V. transforming stations at Thuckalai, Ernakulam, Trichur, Punalur, Shencottah, Peermade and Pallom.
- (f) Construction of 110 K. V. transmission line from Sengulam to Pallom and Pallom to Kundara.
- (g) Construction of 110 K. V. transforming stations at Sengulam, Pallom and Kundara.
- (h) Conversion of existing 33 K. V. supply to Alleppey to 66 K. V.

- (i) Electrification of about 800 villages and connecting up 50,000 new consumers to the system.

The planned expenditure for the Transmission and Distribution Project under the plan is as follows:—

1951-52	..	Rs. 80.5 lakhs
1952-53	..	119.8 „
1953-54	..	160.0 „
1954-55	..	132.0 „
1955-56	..	62.7 „
Total	..	<u>Rs. 555.0 lakhs</u>

### III. PROGRESS ACHIEVED UNDER THE PLAN.

114. (a) *Pallivasal second stage works*: The sixth 7,500 K.W. generating set has already been commissioned and the modifications to the existing three Brown Boveri sets have also been completed. The installed capacity of the station has thus been raised from 28,500 K.W. to 37,500 K.W., the target fixed under the plan. The construction of the Madupatty Dam is making steady progress according to schedule with the aid of the aerial cableway specially installed for accelerating the concreting operations. As originally programmed partial storage was effected in October 1952. The peak load on the Pallivasal station reached a record peak of 33,000 K. W. The actual expenditure incurred during the plan period for the project is as follows:—

	<i>Rs. in lakhs.</i>
1951-52	50.09
1952-53	39.0
1953-54 (1st three months)	3.9 against 31.4 lakhs provided in the budget.

(b) *Sengulam Hydro-Electric Project*. Nearly 95% of the plant and equipment ordered from abroad has reached site. The erection of the power plant in the power station and pump house equipment is making good progress. A good part of the pipe line has already been installed and the shipment of the distribution pipes are awaited. Messrs. Garlick & Co., Bombay, with whom the order for the rising main for the pumping plant is placed is experiencing considerable difficulty in obtaining supplies of steel plates for the fabrication of the

pipes. The matter has been taken up with the Central Water and Power Commission and the Iron and Steel Controller, Government of India. It is however anticipated that the first set in the power station will be commissioned before the end of 1953.

The actual expenditure incurred during the plan period for the project is as follows:—

	<i>Rs. in lakhs.</i>
1951-52	71.6
1952-53	70.5
1953-54 (3 months)	5.07 against 48.95 lakhs provided in the budget.

(c) *Poringalkuthu Hydro-Electric Project.* The construction of the dam has made good progress. About 80% has been completed. The driving and lining of the tunnel have been completed. The construction of the power house itself is about 20% through. The first consignment of plant and machinery has arrived at site. The project is expected to be completed by the end of 1954.

The actual expenditure incurred during the plan period for the project is as follows:—

	<i>Rs. in lakhs.</i>
1951-52	49.4
1952-53	50.3
1953-54 (3 months)	5.55

(d) *Transmission and Distribution Project.* The 66 K.V. sub-station at Trivandrum and the first stage of the 66 K.V. sub-station at Chalakudi have been completed and taken into use. A 66 K.V. sub-station has been put up at Shencottah for supplying power to Balaramavarma Textiles, Ltd., and Shencottah town. The construction of the 66 K.V. transmission line from Trivandrum to Thuckalai has been completed and the line is now being used for supplying power to Thuckalai and Nagercoil. The preliminary designs for the 110 K.V. transmission line from Sengulam to Pallom and Pallom to Kundara were finalised and tenders invited for the supply of materials for and erection of the line. After scrutiny of the tenders the contract for the work has been fixed.

Orders have also been placed for the manufacture and supply of the 110 K.V. transformers required for the Sengulam, Pallom and Kundara 110 K.V. transforming stations.

115. The detailed specifications for the switchgear required for the 110 K.V. and 66 K.V. transforming stations to be newly constructed have been drawn and the Secretary, Stores Purchase Committee, has been requested to invite tenders for the supply and erection of the equipments.

116. Nearly 204 distribution centres have been opened since the commencement of the plan, 80 in 1951-52 and 124 in 1952-53. Works connected with the electrification of 271 centres are now in progress. 24,000 new consumers have already been connected up to the system since the commencement of the plan. Among these special mention has to be made of the important industrial consumers, Caustic Soda Factory, Rare Earths Factory, Balarama Varma Textiles, Ltd., and Sewing Thread Factory.

117. The actual expenditure incurred during the plan period for the project is as follows:—

	<i>Rs. in lakhs.</i>
1951-52	65.9
1952-53	58.1
1953-54 (3 months)	20.9 against 156 lakhs provided in the budge

## 8. COTTAGE INDUSTRIES (Rs. 89 LAKHS)

118. The original allotment for Cottage Industries was Rs. 25 lakhs. This has since been raised to Rs. 89 lakhs, including Rs. 64 lakhs for the Coir Co-operation Scheme. No cottage Industry schemes were worked under the plan in 1951-52 and 1952-53. Nine schemes have recently been taken up.

### A. CENTRAL INDUSTRIAL AND TESTING LABORATORY.

119. The need for a Central Industrial and Testing Laboratory was keenly felt, ever since the Industrial Research Laboratory attached to the Industries Département was transferred to the control of the Central Research Institute under the Travancore University. All analytical work and industrial testing required for the various large and small scale industries of the State are being carried out in institutions outside the State at present.

The new Laboratory will be concerned with:

- (1) analysis and certification of various raw materials and manufactured products connected with the Travancore-Cochin State.
- (2) research on cottage industries processes and procedure and on technological problems connected with large scale industries;
- (3) standardisation of raw materials and manufactured products for cottage and small scale industries;
- (4) technical advice to small scale industries; and
- (5) physical, chemical and mechanical testing of raw materials and manufactured products.

Besides, it may serve as a technical advisory organisation also. The laboratory will also serve in the Certification Marks Scheme of the Indian Standards Institution.

120. The main divisions of the laboratory will be:

- (a) analytical and testing laboratory,
- (b) research unit to deal with technical problems of cottage and small scale industries;
- (c) control and standardisation laboratory,
- (d) workshop,
- (e) industrial library, and
- (f) advisory bureau.

The laboratory will be located between Alwaye and Ernakulam, preferably at Kalamassery where extensive lands are

available. This place has the further advantage that the polytechnic institute and several major industries of the State are situated nearby.

Expenditure on the scheme will be

<i>(a) Non-recurring</i>		
Construction of buildings	..	Rs. 3 lakhs
Equipment	..	Rs. 2 lakhs
		<hr/>
Total		Rs. 5 lakhs
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<i>(b) Recurring</i>		
(Including provision for staff, purchase of chemicals etc., and other contingencies)	..	Rs. 1 lakh
		<hr/>
Total		Rs. 6 lakhs
		<hr/>

For the current year, a sum of Rs. 65,000 has been provided in the Budget.

**B. EXPANSION OF THE REPAIR SECTION OF THE DEPARTMENT OF INDUSTRIES INTO A CENTRAL INSTRUMENT WORKSHOP.**

121. The Repair Section of the Department of Industries was started as a small service organisation under the Stores Purchase Committee of the Government. The main activities of the section at present are:

- (1) re-conditioning of all scientific and precision instruments for the various Departments of Government;
- (2) manufacture and supply of various scientific, mathematical and surveying appliances to the Departments requiring them;
- (3) re-conditioning of the unserviceable and surplus stock of costly equipment;
- (4) manufacture and supply of optical goods like lenses and prisms; and
- (5) photographic work.

122. If this institution is properly equipped, it can manufacture precision and non-precision instruments for use in schools, hospitals and workshops. It will also indirectly help in the training of technical personnel for specialised industries like optical technology, instrument manufacture and certain engineering industries.

Expenditure on the scheme will be:—

*Non-recurring*

Construction of buildings	Rs. 1 lakh
Purchase of equipment machinery etc.	Rs. 1 lakh

*Recurring*

(including provision for staff, contingencies etc.)	Rs. 50,000 per year
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Total	Rs. 2.5 lakhs
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Of this, a sum of Rs. 76,000 has been provided in the current year's Budget.

C. ESTABLISHMENT OF OCCUPATIONAL INSTITUTE.

123. The scheme is to establish three institutions for giving technical training in village arts and crafts. The School of Arts at Trivandrum, the School of Arts and Crafts, Trichur and the S. M. R. V. Technical Institute, Nagercoil will be re-organised and properly equipped for this purpose.

Expenditure on the scheme will be:

Non-recurring.

1. *School of Arts*

Construction of buildings	Rs. 1 lakh
Purchase of equipment etc.	Rs. 50,000

Total	Rs. 1.5 lakhs
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2. *Occupational Institute, Trichur.*

Construction of building	Rs. 25,000
Purchase of equipment etc.	Rs. 50,000

Total	Rs. 75,000
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3. *Occupational Institute, Nagercoil.*

Construction of building	Rs. 40,000
Purchase of equipment etc.	Rs. 35,000

Total	Rs. 75,000
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Recurring Expenditure.

1. School of Arts	1,00,000
2. Occupational Institute, Trichur	40,000
3. Occupational Institute, Nagercoil	25,000

There is a provision of Rs. 55,000 in the current year's Budget.

#### D. SCHEME FOR OPENING AN EXPERIMENTAL AND DEMONSTRATION CENTRE.

124. The objects of this Centre are: (1) to conduct experiments on the profitable utilization of raw materials, and to devise advanced processes of production; (2) to adopt simple mechanical and other processes in cottage industry; (3) to demonstrate improved processes and to give training in them; and (4) to produce by using such processes, commercially profitable articles, both for demonstration and for sale.

The Centre is to be located at Trivandrum. Later on, demonstration may have to be carried on at other suitable centres also. It is proposed to start the centre with 18 important industries like fibre, textiles, rice pounding etc.

In the beginning it may be possible only to start some of the sections. The approximate expenditure on equipment under the various sections amounts to Rs. 6 lakhs. Some of the machinery can be purchased locally and others have to be purchased from Japan and other places.

It has been suggested that the building and premises now occupied by the School of Arts may be transferred to the control of the Cottage Industries Board for housing the Centre as well as the Occupational Institute and the Industrial Museum. The current year's Budget has provided Rs. 1,35,000.

*Target. Provision for 1953-1954.*

Experimental and Demonstration Centre	Rs. 6 lakhs.	Rs. 1,35,000.
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#### E. INDUSTRIAL MUSEUM AND SALES EMPORIA.

125. It is proposed to set up an Industrial Museum at Trivandrum, to display not only the finished cottage industries products, but also the raw materials wherefrom these products are made and also the different stages of manufacturing such products.

It is also proposed to start two Sales Emporia, one at Trivandrum and the other at Ernakulam. The present Sales Depot attached to the Industries Department may be expanded into a Sales Emporium, and shifted to a more central place in the city so as to attract public attention.



126. There is at present in the Sales Emporium a staff consisting of a Manager, an Accountant and a peon. Since this is only part of a scheme to open Sales Emporia in different parts of the State and outside, the whole scheme may be placed under a Marketing Development Officer who will organise the Industrial Museum and Sales Emporia. He will be assisted by two salesmen. In addition, the Depot will be in charge of a Manager who will be assisted by a Sales Attendant.

A similar Emporium will be opened at Ernakulam also.

*Expenditure:* The scheme is estimated to cost Rs. 2 lakhs, of which there is a Budget provision of Rs. 20,000 for the current year.

*Target. Provision for 1953-1954.*

Industrial Museum and Sales Emporia	Rs. 2 lakhs.	Rs. 20,000.
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#### F. SCHEME FOR THE DEVELOPMENT OF KORA GRASS MAT INDUSTRY.

127. Kora Grass, which is generally a wild growth, can be grown in marshy lands without much labour and put to good use in the making of mats. Though at some places in the State, Kora Grass mat weaving is done on a cottage industry basis, it is not in an organised form and hence the small producers meet with various difficulties. It is therefore proposed to organise and develop the industry.

It is estimated that over 5,000 acres of land may be brought under cultivation. The cost of cultivation may come to Rs. 350 per acre. A block of 50 acres will be taken up for cultivation at present. There will be a production Centre equipped with 100 hand-looms, 500 ordinary looms, and also sewing machines.

Expenditure on the Scheme:

Non-recurring (equipment etc.)	Rs. 28,500
Recurring (including establishment, wages, raw materials etc.)	Rs. 71,500

Total	<u>Rs. 1,00,000</u>
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*Target. Provision for 1953-1954.*

Kora Grass Mat Industry	Rs. 1 lakh	Rs. 20,000.
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### G. SCHEME FOR THE DEVELOPMENT OF SCREWPINE MAT INDUSTRY

128. This is an old industry chiefly confined to the taluk of Karunagapally where the raw material is available in plenty. It is proposed to reorganise this industry on a co-operative basis. Primary Societies have to be organised and affiliated to a Central Society. As a preliminary it is necessary that a survey should be conducted for collecting data regarding the various raw materials, labour employed, production capacity, present market position etc. The producer has also to be helped with suggestions about new designs etc. to suit the taste of the public.

An organiser has been appointed under the Cottage Industries Board for conducting the survey, for organising new co-operative societies and for reviving the existing ones. The two existing Central Cottage Industries Marketing Societies of the State may be entrusted with the task of marketing the articles. Provision has also been made for the payment of grants to these societies.

### H. SCHEME FOR CARRYING OUT A COMPREHENSIVE SURVEY OF THE COTTAGE AND SMALL SCALE INDUSTRIES IN THE STATE.

129. The survey will be supervised by a duly qualified statistician assisted by 8 investigators. The expenditure on the scheme for a three-year period will come to Rs. 80,000.

Provision has been made in the current year's Budget for Rs. 30,000.

	<i>Target.</i>	<i>Provision for 1953-1954.</i>
Survey of Cottage and Small Scale Industries	Rs. 80,000.	Rs. 30,000.

### I. MARKETING CO-OPERATIVE SOCIETIES.

130. For helping increased production of cottage industries products and providing necessary marketing facilities, it is proposed to organise four Marketing Co-operative Societies in the four Revenue Districts of the State. The societies will be under the direct control of the Cottage Industries Board. The management of each society will rest in a Board of seven members and there will be a full time paid Secretary. Each society will have a share capital of Rs. 1 lakh divided into 100 shares. The societies will be given loans from the Cottage Industries Board on the basis of the issued share capital.

*Expenditure.* It is expected that the scheme will cost Rs. 1.20 lakhs of which provision has been made in the current year's Budget for Rs. 14,000.

	<i>Target. Provision for 1953-1954.</i>	
Marketing Co-operative Societies	Rs. 1.20 lakhs.	Rs. 14,000.

#### J. COIR INDUSTRY.

131. Among the cottage industries of the State, coir spinning is probably the most important. It gives employment to about five hundred thousand people inhabiting the coastal areas. In the flat lands along the coast line, the cocoanut is the most important cultivation. Coir is made out of the husk of the cocoanut. The poorer classes of the population have to buy the husk as they will have no lands or cocoanuts of their own. The husk is retted in water for about six to eight months. After retting, it is beaten and the fibre is taken out. The fibre is spun and coir yarn is made. Middle men collect the coir yarn from the producers and sell it to the factories which manufacture coir mats and mattings. The State has a large export trade in these articles. The value of the annual export trade amounts to about Rs. 10 crores. United Kingdom, Holland, and U.S.A. are the principal consumers. To the people inhabiting the coastal areas, coir spinning is very often the only occupation. They do it in their homes, all the members of the family attending to the work.

132. The Coir Industry has been going through a slump very recently. There was another period of slump about 10 years ago. Wherever there is a fall in the foreign market, it has its immediate repercussions on the industry in India. The industry has also been suffering from indiscriminate production of yarn and of the manufactured goods. Another feature is that the producers of coir yarn are too poor to hold their own against the middle-men and the manufactures. They have no bargaining power.

In order to place the coir spinning industry on a stable footing the State has adopted a co-operative Scheme. The Thondu Vyavasaya Societies will collect, transport and supply the raw husk to the primary Coir Societies.

133. The primary Societies and Central Societies will be given financial assistance by Government in the form of grants and loans. 120 Primary Societies will be organised in the

course of five years and they will be given a loan of Rs. 25,000 each. They will also be given a grant of Rs. 2,000 each in the first year, and Rs. 1,000 each in the second year. There will be two Central Societies which will be given a total loan of Rs. 25,00,000 and a total grant of Rs. 2,50,000 during five years. 46 Primary Societies have already been organised and registered and 28 have started work. One Central Society has also been organised at Alleppey and registered. An existing society at Mattancherry has been absorbed into the scheme. The Societies which have been registered have enlisted 6768 members, allotted 27280 shares and collected Rs. 89,315 as paid-up share capital. This is a scheme subsidised by the Central Government.

#### K. OTHER INDUSTRIES (RS. 15.8 LAKHS).

134. Under "Other Industries" are included the erection of the electric tunnel Kiln in the Ceramic Factory, Kundara (belonging to the State) and the Essential Oils pilot plant to be operated by the Department of Industries. A provision of Rs. 15 lakhs has been made in the Plan for the electric tunnel kiln. The estimated cost of the erection of the kiln at the time of the preparation of the Plan was Rs. 26 lakhs. The expenditure, according to the revised estimate, is Rs. 30 lakhs. The building for the Kiln is being erected and will be completed soon. The machinery has already arrived.

#### L: ESSENTIAL OILS PILOT PLANT.

135. A provision of Rs. 0.8 lakh is made for this work. The object of the scheme is to exploit the aromatic resources of the State and to assess their industrial potentialities. As the machinery ordered has not been received, the Chemist is doing experiments in the laboratory attached to the Maharaja's College, Ernakulam. Experiments on the preparation of ionone and other products from lemon grass oil are proceeding satisfactorily. This Scheme has immense possibilities. The State exports lemon grass oil to the value of about Rs. 2 crores annually. Large scale cultivation of lemon grass was started

in Travancore about 60 years ago. At present large areas are under lemon grass cultivation in the taluks of Meenachil, Todupuzha, Muvattupuzha and Kunnathunad. Till a few years ago, Travancore-Cochin was producing nearly 80% of the world's out-put of lemon grass oil. In recent years, there has been competition from the French owned Sezchelles Islands and certain other African colonies and to a certain extent from the United States of America. On a rough estimate, the production of lemon-grass oil in Travancore-Cochin cannot even now be less than 75% of the total production of the world. The successful operation of the proposed pilot plant for distillation of essential oils will surely pave the way to the establishment of an important essential oil industry in the State.

10 & 11. STATE HIGH WAYS AND OTHER ROADS  
(Rs. 150 LAKHS).

136. In 1950, the Travancore-Cochin State had, within a cultivable area of 5919 sq. miles 7469 miles of roads of all categories. This gives a ratio of 1.26 miles per sq. mile. Even in relation to the total area of 9155 sq. miles, there is a ratio of 0.82 mile per sq. mile against the ratio of 0.13 for India. The roads in the State fall into three classes: those constructed by the Public Works Department, those constructed by the ryots under the Ryots Road Rules, and those constructed by the Panchayat Department or the Village Unions and Village Uplift Centres.

137. The roads in Travancore-Cochin, perhaps as elsewhere in India, were not opened or developed according to any plan in the past. For the future, the State has decided to follow in general the recommendations of the Nagapur Plan. All roads have accordingly been classified under two heads. One consisting of National Highways, Provincial Highways and Major District Roads and the Other consisting of Minor District Roads and Village Roads. According to the new classification, the State has at present 277 miles of National Highways 832 miles of provincial Highways, 2402 miles of District Roads and 227 miles of Municipal Roads or a total of 3738 miles under class I, against a target of 5147 miles. There are 2226 miles of Village Roads and 1505 miles of Panchayat Roads or a total of 3731 miles under class II against a target of 4520 miles. This means a deficiency of 1405 miles under class I, and 789 miles under class II. Most of the deficiency under class I can be made up from village and Panchayat Roads by raising the standard of such of these roads as would form major links in the general road system and would connect important rural centres. Almost the entire deficiency, of 2198 miles may therefore be considered to be under Village Roads.

138. A list of the roads to be taken up for improvement in each taluk has been prepared with reference to the existing facilities, the voluntary contribution made by the local public to the opening of roads, the Standards prescribed by the Nagpur Conference and other considerations. An allotment of Rs. 15 lakhs has been set apart for road development in accordance with this programme for 5 years. It is expected that at the end of the five year period, the State will have under departmental maintenance an additional length of 689 miles of roads. The extra recurring expenditure on this account will be Rs. 3.6 lakhs per year.

An allotment of Rs. 81 lakhs has been provided under the Plan for the construction of 19 major bridges. A list of these bridges is given below.

<i>Name of Road and Section of Road</i>	<i>Total approximate Cost. Lakhs.</i>
1. Meenamkadavu Kadakkavur Anjengo Road M.D.R.	1.52
2. Thondara M.C. Road	7.50
3. Mallapalli	6.00
4. Palai Lalam Ponkunnam Road	5.00
5. Moolaplackal	2.00
6. Ittipuzha Vaikom Udayamperur Road 3rd Mile	4.60
7. Kakkadassery	2.25
8. Cherai Parur	4.10
9. Pulloot Cranganur	2.50
10. Kumbzha Pathanapuram Ranni Road	3.00
11. Erattupetta (Kanjirapally Erattupetta Road).	5.00
12. Poovar Trivandrum Cape (Coastal Road)	3.00
13. Ittinayarkadavu Paliyar Munnar Road	3.00
14. Pulikozhi Mavelikara Thiruvella Road	6.00
15. Kaipattur Pandalam Kozhencherry	3.00
16. Mukundara Main Eastern Highway	5.00
17. Piravam Piravam-Muvattupuzha Road	10.00
18. Arattukadavu, Mavelikara Thiruvella Road	
19. Converting the submercible Bridge across the Manimala River into a high level bridge	7.50

139. Two of these bridges, namely, those at Palai and Kollakadavu have been completed. Works on the bridges at Mallapally, Thondara, Ithipuzha (near Vaikom) and Kakadasseri (in Muvattupuzha) are in progress.

There is also a programme for special surfacing of 200 miles of road. Work on 160 miles has already been completed. Work under this item is very much in advance of the schedule under the Five Year Plan.

## 12. NATIONALISED TRANSPORT (Rs. 42 LAKHS).

140. Road Transport on some of the main highways was taken over by the State, fourteen years ago. The system has been extended to cover other roads also, but transport on minor routes has not been nationalised. The State Transport Department is now operating on an average 245 buses per day for passenger traffic and 29 lorries per day for goods traffic. This involves 2,99,253 miles by ordinary service and 6,373.8 miles by express service. The number of passengers carried is estimated as 1,04,300 per day. Against an approximate expenditure of Rs. 130 lakhs, the Department earned a revenue of about Rs. 147 lakhs in the year 1951-52.

141. An allotment of Rs. 42 lakhs is provided under the Plan for the purchase of additional rolling stock. The estimated cost of a Vehicle is Rs. 20,000, on the basis of the prevailing market rates. 210 vehicles can thus be purchased during the five year period:



### 13. PORTS AND HARBOURS (Rs. 30 LAKHS).

142. Out of the allotment of Rs. 30 lakhs, Rs. 12 lakhs will be utilised for the Re-building of the Valiathura pier at Trivandrum and the balance of Rs. 18 lakhs for improvement of some of the main water-ways of the State. The new pier will have 21' 6" decking and will be 700 feet long. At the end there will be a sort of T head bouting two cranes. On the left side, there will be two more cranes. The entire structure will be in R. C. C. Materials required for the work have been collected. All the piles (127 Nos.) have been cast and 50 have been driven into the ground. Out of 190 Nos. of bracings required 173 have been cast and 60 S.ft. decking concreted.

Under improvement of water-ways, estimates are being prepared for the following works:—

1. Deepening of the T. S. Canal wherever necessary to provide a minimum draft of 3 ft.
2. Protecting the canal banks from erosion and landslips.
3. Provision of navigational aids, facilities for loading and unloading cargoes, and embarking and disembarking passengers.

The work will be taken in hand as soon as possible.

#### 14. EDUCATION (Rs. 20 LAKHS).

143. Fifty-four per cent of the population of the State are literate. This is the highest percentage of literacy in India. The percentage of literacy among workmen is 55%. There are in the State 4,133 Primary Schools, 552 High Schools and 43 Colleges. The State has also its own University. 20% of the total revenue of the State is being spent on education. Having regard to the progress already made, and the expenditure normally incurred on education every year, the allotment under this head in the Five-Year Plan is comparatively small. It is meant for two projects, one of social education and the other of vocational education.

##### A. SOCIAL EDUCATION.

Of the allotment of Rs. 20 lakhs, 1 lakh is for social education.

With the object of co-ordinating the adult education activities carried on in departments like Education, Village Uplift, and Advancement of Backward Communities and re-organising them on sound and progressive lines, the Government constituted a Board for Adult Education towards the close of 1950. An Executive Officer for Adult Education was appointed in January 1951. A comprehensive scheme of Social (Adult) Education for the State, was prepared by the Executive Officer and approved by the Board. Government sanctioned the immediate starting of a Training Centre as the first step in the development of the scheme.

##### *The Training Centre.*

144. The Adult Education Research and Training Centre, Pattom, Trivandrum, was started in February 1951. It provides a six month's course for the training of field workers and offers instruction in adult literacy work, agriculture, co-operative economics, public health, sanitation, first aid, psychology and civics. Practical training is also given in farming and kitchen gardening and cottage industries like spinning and weaving, tape making, mat weaving, poultry farming, bee-keeping, soap making and sewing. The Centre is well equipped with the implements necessary for farming and cottage industries and has besides, a good library with books and periodicals, a 16 m.m. cine projector and films, and a radio with loudspeaker extension to the classroom. The staff

consists of a full time superintendent, a demonstrator and six visiting lecturers who are specialists in the various subjects. The students live together in the centre itself and run their own mess on a co-operative basis. Government give a stipend of Rs. 15 p. m. to each student towards his food expenses. Instruction is free; no fee is charged for lodging either. Students also undertake regular field work in the areas adjoining the Training Centre. Study tours to other centres are periodically arranged. The course is hard and strenuous and keeps the worker engaged from morning till night. Three batches of 97 students including 17 women have been successfully trained, and the fourth batch now under training has 30 workers including 12 candidates deputed by voluntary organisations in the State.

#### B. VOCATIONAL EDUCATION.

145. The allotment of Rs. 19 lakhs for vocational education is for the Polytechnic at Kalamassery near Alwaye.

The Government Polytechnic at Kalamassery was started in July, 1951. The ultimate aim is to have this as a Central Polytechnic for the State. The Polytechnic will have about 12 different courses of studies of both Diploma and Non-Diploma standard (*i. e.* certificate courses). The institution will be a residential one and will provide hostel accommodation for students, and quarters for the staff.

The programme of development is briefly as follows—  
 1951-52. The Polytechnic started with four Diploma Courses in Automobile Engineering, Chemical Engineering, Food Technology and Fishery Technology. The old military sheds at Kalamassery were renovated, to suit the requirements of the Polytechnic and 4 new blocks for class rooms etc. were constructed, at a total cost of Rs. 2.45 lakhs. Laboratory equipment and workshop machinery worth nearly Rs. 1.25 lakhs were also purchased. Running expenditure for the year was Rs. 0.62 lakhs. Hostel accommodation was provided for about 70 students. 120 students in all were admitted for the 4 courses  
 1952-53. No new courses were started during this year, but the year was devoted to the development of the existing courses of studies by way of providing suitable laboratories, lecture halls, administrative block, hostels etc. and equipping the workshops and laboratories suitably. An expenditure of Rs. 2.43 was incurred in the year 1953-54. The courses started in 1951 will be completed and it is proposed to start

new courses. These courses will be completed in 1955-56 the last year under the 5 year plan. Some of the courses suggested are Printing Technology, Rubber Technology, Leather Technology and Radio Engineering. This will mean provision of additional accommodation for class room, laboratories, hostels etc. The total expenditure for the year is estimated at Rs. 5.11 lakhs.

1954-55. The year will be devoted to the development of the newly started courses in the previous year. Additional accommodation for the class rooms, hostels etc. will be needed this year.

1954-55. The course started in 1953 will reach the final stage. Some of the Certificate Courses such as automobile driving, composing, radio-servicing and fruit-preservation, will be started. These courses will be part of the main courses of the diploma standard and will be of one year's duration. Students of a lower standard than S.S.L.C. will be admitted to these courses. The training given will be mostly practical.

146. At the final stage there will be about 7 Diploma Courses and 5 Non Diploma Courses. The admissions will be at the rate of 30 students for the Diploma Courses and 20 each for the Non-Diploma Courses. The full strength of students is expected to be 730 and taking into consideration withdrawals etc. there will be nearly 700 students at the Polytechnic in the year 1955-56. At least 500 of these must find residential accommodation at the school.

The sum of Rs. 19 lakhs allotted for the Polytechnic will be divided as follows:—

1951-52	..	Rs. 4.32 lakhs
1952-53	..	Rs. 2.43 "
1953-54	..	Rs. 5.11 "
1954-55	..	Rs. 4.00 "
1955-56	..	Rs. 3.14 "
		<hr/>
		Rs. 19.00 lakhs

An additional amount of Rs. 6 lakhs may be required thus making the total Rs. 25 lakhs.

## 15. MEDICAL (RS. 120 LAKHS).

147. The allotment of Rs. 120 lakhs is distributed as follows:—

Education and training	..	Rs. 83 lakhs.
Hospitals and Dispensaries	..	Rs. 25 lakhs.
Other Schemes	..	Rs. 12 lakhs.

## A. EDUCATION AND TRAINING.

148. The Medical College, Trivandrum is the main item under the head "education and training".

This State has only one qualified medical practitioner for 12,000 of the population. Increasing difficulties have also been felt in getting admission for students in Medical Colleges in other parts of India and in getting suitable persons for filling up vacancies in the Medical and Public Health Departments. In the absence of a Medical College in the State, the cost of medical education would remain so prohibitively high that brilliant young men and women belonging to the lower middle classes could never choose medicine as their career. Unless there are a large number of qualified doctors belonging to these classes who would settle down in the villages and be content with a modest living, the question of rural medical relief and eradication of quackery could never be solved. In consideration of these facts it was ordered in 1948 that a Medical College should be established in the State, the courses to begin in July 1951.

The scheme includes:—

1. A Medical College to admit 100 students each year.
2. A General Hospital attached to the College for 400-450 patients. (A Hospital for Women and Children—140 children and 200 women (maternity and gynaecology cases only)—was already under construction in the College campus. This hospital, its equipment and staff quarters were estimated to cost about Rs. 42 lakhs, which was outside the college scheme).
3. A School for Nurses to admit 30-40 pupil nurses annually, together with a hostel for 140 nurses.
4. Hostels for students (300 men and 150 women).

5. Staff and menial quarters, and
6. Provision of stipends for the training of teachers.

The construction of the college and other buildings was begun early in 1950 and the college was started in August 1951 with 60 students. A second batch of 60 students was admitted in 1952. The number of admissions will be raised to 80 this year and in the course of two or three years it will be raised to 100 per year.

The Nurses School and Hostel, the Men's Hostel admitting 165 students, and the Women's Hostel for 150 women, have all been completed. Another hostel for men will be completed in 1955-56.

The General Hospital which will admit between 400 and 450 patients is nearing completion and is expected to start work by August this year.

Some of the staff quarters for the teaching staff have also been constructed.

12 young medical graduates have been sent abroad at Government expense for higher training for their eventual appointment to the teaching staff of the Medical College and the Collegiate Hospitals.

149. Apart from the cost of construction and equipment of the Sri Avittom Thirunal Hospital and its staff quarters, the total cost of the College scheme proper is estimated at about Rs. 100 lakhs, out of which Rs. 15.5 lakhs were spent before 1951. The expenditure under the Five-Year Plan from 1951-56 is estimated at Rs. 82 lakhs. Out of this Rs. 82 lakhs, Rs. 41.4 lakhs have been spent up to the end of March 1953, exclusive of Rs. 2.7 lakhs spent under recurring expenditure and an amount of Rs. 40.6 lakhs remains to be spent during 1953-56. Of this, provision has been made in the Budget for 1953-54 for Rs. 17.4 lakhs. It is estimated that the balance of Rs. 23.2 lakhs available for 1954-56 will have to be supplemented by another Rs. 11 lakhs, mainly for two essential items of work, the up-grading of the mental hospital and the completion of the staff quarters of the Sri Avittom Thirunal Hospital.

#### B. HOSPITALS AND DISPENSARIES.

150. According to the original proposal, 4 new dispensaries would be opened in the first year, and subsequently 10 new

dispensaries each year for 4 years. During 1951-52, 4 dispensaries were opened according to schedule, but in 1952-53, it was possible to open only 6 dispensaries. Under the rules for the opening of new dispensaries, the public of the locality have to give free of cost, site, building and furniture. The scheme can be worked out only in places where the public satisfy these conditions.

It was also proposed to open 10 new grant-in-aid dispensaries every year for 5 years. But on further consideration, it does not appear to be necessary to proceed with this proposal.

Another proposal is to provide better equipment in two hospitals every year. Orders have already been placed for the equipment.

#### C. OTHER SCHEMES.

Schemes under this head have not yet been finalised.

## 16. PUBLIC HEALTH (RS. 51.5 LAKHS).

151. The allotment of Rs. 51.5 lakhs is made up of the following:—

	<i>Rs. in lakhs.</i>
(a) Administration	.. 2.5
(b) Education and Training	.. 1.0
(c) Water Supply and Drainage	.. 25
(d) Anti-malaria schemes	.. 11.5
(e) Other schemes (town planning)	.. 11.5

Items (a), (b) and (d) relate to the Public Health Department and items (c) and (e) to the Public Works Department.

### A. ADMINISTRATION.

152. Out of Rs. 2.50 lakhs provided under this head for the Five Year Plan, no expenditure was incurred during 1951-53. A sum of Rs. 50,000 has been provided in the departmental budget for 1953-54 for the 'Improvement of vital statistics registration', and another sum of Rs. 1,41,300 for establishing five Primary Health Units.

Correct registration of vital statistics is the foundation of sound and successful health administration. The standard of this work in the State at present is not up to the mark. As a first step in improving this, Government have sanctioned the transfer of this activity from the Revenue Staff to the Public Health Staff. There is a proposal to spend a sum of Rs. 50,000 for the scheme from the provision under 'Administration' in the budget relating to the Five Year Plan.

In laying down the pattern for the development of rural health services, the Bhore Committee has recommended the establishment of Primary Health Units at the rate of one for every 40,000 population, and, at a later stage, of Secondary and District Health Units. A sum of Rs. 1,41,300 has been provided for this in the departmental budget for the current year. This work is now being attended to by the department as one of its routine activities. Three Units have already been started and another two will be established during the current year.



### B. EDUCATION AND TRAINING.

153. A sum of Rs. 3,846 was spent during the year 1951-53, and a sum of Rs. 18,000 has been provided in the Development budget for 1953-54.

The expenditure in connection with the training of Midwives and Lady Doctors was usually borne on the departmental budget. Permission may kindly be granted for meeting this from the budget relating to the Five Year Plan.

Out of the Rs. 18,000 mentioned above, a sum of Rs. 3,000 is intended for the training of a Lady Doctor in Maternity and Child Welfare at Calcutta, and the remaining sum for giving stipend to Midwifery Trainees. One hundred Midwives are already undergoing training, and fifty of them are receiving stipend of Rs. 25 each per mensem. When this Training Scheme is completed, it is expected that sufficient number of trained Midwives will be available for appointment, one for every Pakuthy or Village.

### C. WATER SUPPLY AND DRAINAGE.

154. There was a proposal to take up a scheme for the supply of water to the Trichur Municipality but the provision for the five-year period is only Rs. 25 lakhs. This is too small for any major Water Supply Scheme. Moreover, the question of half contribution by the municipality has not been finally decided. The following schemes will therefore be taken up:—

- (a) Extension of the Alwaye Water Supply to the northern littoral tracts.
- (b) Tube wells for coastal areas, for drinking water.
- (c) Extension of existing water supply schemes in towns.

155. This subject is also included under Public Health in the Development Budget. But the execution of work is attended to by the Public Works Department.

Construction of public wells, surface drains, deep tube wells, public latrines etc., are attended to as a routine activity of the department by the Public Health Engineering Section. A trailer-mounted water purification set, a machine for digging deep tube wells, and boring apparatus for the construction of latrines have been purchased by this department in connection with this work. The Public Health Engineering Section would go a great way in helping the control measures launched by the department against diseases. It is expected

that the dearth of good drinking water that is being keenly felt in many parts of the State during hot months can be completely overcome in a few years by the proper functioning of the Public Health Engineering Section.

A sum of Rs. 1,08,000 has been provided in the Departmental budget under Public Health Engineering for carrying out the above works. There is a proposal to meet the expenditure in this connection from the provision under water supply and drainage in the Development budget for the year 1953-54.

#### D. ANTIMALARIA SCHEME. (MALARIA AND FILARIASIS CONTROL).

156. Rs. 11.5 lakhs are budgeted for this work for the entire five year period under the Five Year Plan. The Public Health Department has been carrying on this work as one of its major activities, meeting the expenditure from the provisions contained in the departmental budget. Over a sum of Rs. 5 lakhs or more than 50% of the above sum, has been spent by the Department in connection with anti-malaria scheme during 1951-53. Eventhough the expenditure was not borne on the budget relating to the Five Year Plan a sum of Rs. 4,51,000 is provided for this in the State budget for 1953-54. Out of this, about Rs. 2 lakhs is ear-marked for Filariasis control.

Malaria has long been the most formidable of the State's health problems and has constituted one of the greatest obstacles to the development of the natural resources of large sections of the State. Almost a third of the total area of the State, comprising some of the most fertile and developable regions, is malarial. The population at risk residing in these areas is about seven lakhs, and the estimated annual death from this disease is about 5,000. The control of this disease will go a long way towards the achievement of self sufficiency in agricultural productions and a consequent improvement in the standard of living.

The over-all operational problem in the Control of Malaria consists in affording protection to about seven lakhs of people who are exposed to risk, living in 1,40,000 houses, by providing them with regular DDT residual spraying services and facilities for treatment.

157. *Filariasis*. Though not a killing disease like Malaria, it is responsible for wide spread invalidism and disability, interfering with the full development of vast potentially rich areas.

The total area affected by this disease is over 600 square miles. The population exposed to risk is about a million. Attempts at controlling this disease in the past have been sporadic, and of the nature of small scale demonstration. A scheme for the Statewide control of this disease extending over a period of Five Years is now before Government. This scheme consists of an organisational phase which will take one year in completing and an operational phase extending over the remaining four years.

In terms of benefits, over sixty percent of the total population requiring protection, almost cent percent of the people residing in highly malarial areas, have already been protected. Malaria incidence and deaths have declined markedly all over the State, transmission of Malaria has been completely arrested in most areas and a high degree of protection afforded to agricultural labourers and colonists in the new food cultivation areas and also to the labour engaged in connection with all the major engineering projects in highly malarial areas. From this year the State is participating in the National Malaria Programme launched by the Government of India in collaboration with the T.C.A., W.H.O. and other International Agencies. With the aid that will become thus available, chiefly in the form of free supply of D.D.T, Anti-Malaria drugs, equipments and transport vehicles, it would be possible to speed up the programme, so that the operational targets laid down could be reached even before the close of the five year period.

As far as Filariasis Control is concerned, it is hoped that it would be possible to complete the organisational phase (which includes training of personnel, carrying out of a State-wide Survey and the initiation of pilot control scheme) in the course of this year.

#### E. OTHER SCHEMES— TOWN PLANNING.

158. A scheme is under the examination of Government.

### 17. HOUSING (RS. 10 LAKHS).

159. There was no provision for housing in the original plan, but an allotment of Rs. 10 lakhs has since been made under this head. The housing scheme which is already being worked out may be dove-tailed into the Plan.

160. The scheme is mainly intended for providing houses and house sites to the houseless and landless people of the State. For this purpose, the poor people of the State have been broadly classified under the following heads:—

- (a) Rural agricultural labourers,
- (b) Fishermen,
- (c) Municipal menials (sweepers and scavengers),
- (d) Industrial labourers, and
- (e) Other labourers.

161. The scheme is worked out (1) through Co-operative Societies for rural agricultural labourers, fishermen and "other labourers" (2) through Municipalities, for municipal menials and (3) through industrial concerns, for industrial labourers.

162. Funds required for the Housing Scheme, which include cost of acquisition of lands, constructions of houses and provision of common amenities, if any, will ordinarily be advanced by the Government, and such advances will be treated as interest-free loans, re-payable within 25 years on an instalment basis. In the case of industrial labour however common amenities such as latrines, wells, etc., will have to be provided by the industrial concerns themselves. In rural areas, latrines and wells attached to the houses constructed under the auspices of Co-operative Societies will be provided by the Public Health Department under the Rural Sanitation and Water Supply Schemes.

163. For the construction of houses for industrial labour, the Government will advance 50 per cent of the cost of construction or Rs. 750 per house, whichever is less, and the remaining portion will be contributed by the industrial concerns.

164. The houses will be constructed in accordance with type designs approved by the Government under the supervision and control of the Departmental Engineers.

165. The houses and the sites on which they are constructed will remain the property of the Government will be amounts advanced by the Government are realised in full from the

Co-operative Societies, Municipalities or industrial concerns as the case may be, and they will execute agreements in favour of the Government in respect of repayment of the loans advanced to them under the scheme.

166. The Co-operative Societies, Municipalities and industrial concerns will allot the houses to the parties on the following terms and conditions:—

(a) The Co-operative will enter into agreements with the parties to whom the houses are allotted, for the repayment of the cost of houses within a maximum period of 25 years. The amount may be paid in monthly, quarterly, half-yearly or annual instalments as agreed to between them and will be free of interest. When the cost of the houses will be transferred to the parties concerned. The parties will not have any alienable right in respect of the houses or the sites for 25 years, and even after 25 years the societies will have the first option to purchase them from the parties.

(b) The Municipalities will realise an annual rental not exceeding  $2\frac{1}{2}$  per cent of the actual cost of a house from the menial employees to whom the houses are allotted.

(c) The industrial concerns will realise an annual rental not exceeding  $2\frac{1}{2}$  per cent of the actual cost of a house from the labourers of the company to whom the houses are allotted.

(d) In regard to houses constructed by Municipalities and Industrial concerns the parties to whom they are allotted are not entitled to ownership of the houses or house sites.

167. Apart from the above general scheme for providing houses and house sites, house sites will be given to the poor through co-operative societies. The value of the lands acquired for the purpose will be treated as interest free loans repayable within 25 years on an instalment basis. Loans will be granted to competent co-operative societies at 4 per cent interest for purposes of house construction. The loans will be limited to rupees one lakh per society.

168. With a view to implementing the schemes as expeditiously as possible, the Government have constituted a Housing Board consisting of 13 members, including the Minister in charge of Housing (President) and the Minister for Finance. The Joint Registrar of Co-operative Societies for Colonisation Settlement and Housing is the Secretary and Executive Officer

of the Board and all proposals relating to Housing Scheme are submitted to Government with the approval of the Board.

169. Till the end of March 1953, 350 houses in several parts of the State were completed and the total expenditure, including land acquisition value, incurred under the scheme was Rs. 5,45,031. 84 houses are under various stages of construction and arrangements are being made to start the construction in respect of 174 houses immediately.

18. AMELIORATION OF BACKWARD CLASSES  
(RS. 60 LAKHS).

170. The main heads and classification under this are:--

1. Administration	..	1.5 lakhs.
2. Agriculture and Rural Development	..	2.0 "
3. Roads and Communications	..	1.0 "
4. Education	..	30.0 "
5. Medical	..	2.0 "
6. Public Health	..	1.5 "
7. Welfare activities	..	21.0 "
8. Other Schemes	..	1.0 "
		60.0 "

A. ADMINISTRATION.

171. There are no schemes at present under this head.

B. AGRICULTURE AND RURAL DEVELOPMENT.

- (i) Mixed Farming.
- (ii) Industries and Co-operation.
- (iii) Grants to Institutions and Organisations.

*Mixed Farming.*

172. Mixed farming operations are carried on in some of the colonies under the Department so as to demonstrate to the colonists, new and improved methods of cultivation, poultry farming, dairy farming etc. In the Sachivottampuram colony, this has been done with useful results.

173. *Industries and Co-operation.* Intensive work is being done in regard to the rectification of the existing societies the members of which are mainly from among the Backward Communities and the organisation of new societies aiming to work for the economic advancement of the poor classes. There are at present 183 societies.

174. The function of the societies is to encourage the Cottage Industries in which the Backward Communities are employed and to find out markets for the finished goods and to supply the members with raw materials at reasonable rates.

175. The function of the societies is to encourage the cottage industries in which the Backward Communities are employed

by finding out markets for the finished goods and by supplying the members with raw materials at reasonable rates.

176. *Grants to Institutions and Organisations.* Private institutions and organisations working for the advancement of Backward Communities are being helped with suitable grants for their working. Monthly grants ranging from Rs. 20 to Rs. 250 are being paid to institutions.

#### C. ROADS AND COMMUNICATIONS.

177. Many of the Settlements of Backward Communities are in out of the way places where there are not adequate roads and other means of communications. Pathways and cartable roads are provided in such places by the Department.

#### D. EDUCATION.

178. The most important and expensive item of work undertaken by the Department is the provision of educational facilities for the members of Backward Communities. Students undergoing education in the primary classes numbering 50,000 during the year 1952-53 were granted books and other school requisites free of cost. Those studying in the middle school classes were given an annual grant of Rs. 25 each and those studying in the High School classes were given annual grants at the rate of Rs. 40 per student for the purchase of books and clothes. Nearly 12,000 students were given grants at the above rates. College students were given amounts ranging from Rs. 50 to 70 each for the purchase of books and clothes and a monthly grant of Rs. 50 each for boarding and lodging expenses. All these concessions were besides the benefit of free education, *i. e.*, exemption from payment of tuition fees, examination fees etc. Facilities were afforded for technical and technological studies and for higher studies in law, medicine, engineering etc. The number of students undergoing collegiate education in arts and science was 980 and those in technical and technological studies 210. Those attending the Medical, Law and Engineering Colleges were 25.

#### E. MEDICAL.

179. A mobile Medical Unit to work among the hill tribes is being organised. Grants are also given to private