

2nd FIVE YEAR PLAN

INTRODUCTION

Bhutan has an area of about 18,000 sq. miles roughly between 26°30' to 28°30' north latitude and 18°13' to 92' east longitude.

As no census has been taken nor has any detailed statistical information been collected so far it is difficult to assess the resources and potential of the country and to formulate a coordinated development plan.

The population of Bhutan is about 8,00,000 of which the urban population would be about 20,000.

The average density of population is about 45 per sq. mile, though in actual fact the density of population is greater in Southern and Eastern Bhutan and considerably less in Western Bhutan and negligible in Northern Bhutan bordering Tibet.

Bhutan may be conveniently divided into three zones:

- (1) The foothills adjoining India and mostly populated by Nepalese settlers.
- (2) The central belt.
- (3) The high mountain ranges on the Tibetan frontier.

The first zone roughly includes the whole of the southern ranges for a depth of about 20 to 30 miles. The annual rainfall in this area is excessive (from 200" to 250") and the vegetation and forest are very dense.

The central zone consists mainly of valleys at elevations from 3500' to 10,00' and would include the valleys of Ha, Paro, Thimphu, Punakha and Bhumthang. The rainfall is about 30 to 60 inches.

The elevation in Eastern Bhutan is less and the rainfall is between 50 to 80 inches.

The northern zone comprises valleys at elevation of 12,000 to 18,000 feet running down from the snow ranges separating Bhutan and Tibet. These valleys are mainly used for grazing in the summer months.

The economy is mainly agrarian. The main crops are rice, wheat, barley, maize, millet, potatoes and oranges. Bhutan used to be self sufficient in cereal and also had a small surplus available for export to Tibet which was traded for items such as salt and wool. The closure of the Tibetan border has to some extent destroyed the incentive for the production of the surplus as the plains of India are:

- (a) Too far for economic export, and
- (b) Traditional market for export of Bhutan's surplus cereal do not exist.

In addition the diversion of a fair proportion of the available man-power to defence requirements as well as development and Civil works, have seriously affected the agricultural output of the country. The money that has come into the hands of the cultivators in the shape of wages for labour has been spent, in the purchase of consumer goods for which till now they had very little use or need and a very small proportion of it has really flowed into the economy of Bhutan.

The influx of relatively large numbers of workers connected with development activities has further affected the imbalance of the economy and cost of common products such as eggs, grain, vegetables and other farm produce has risen as much as 300 to 400 % in the last five years. Once again this money has been mainly frittered away in the purchase of consumer goods and has contributed very little to developing the economy of the country.

During the First Plan a major portion of the effort was expended establishing the necessary machinery for carrying out the development programme, such as the establishment of the Development Wing Headquarters with the Secretary General, in charge and with a Financial Adviser and Chief Accounts Officer, associated with him. In addition Directorates for Agriculture, Animal Husbandry, Education, Health and Publicity were created. The Engineering services and the Forest Department were considerably expanded to cope with the requirements of the Plan. After the C. W. P. C. had carried out initial surveys, a Hydel Directorate was also established for the construction of approved Hydel Projects. The Transport Department with an attached Workshop organisation was also established with a view to meet the transport needs of other departments of the Development Wing and to form the basis for a revenue earning nationalised transport service.

The Postal department was also taken over by the Development Wing towards the end of the Plan with a view to putting the postal services on a sound footing and establishing a firm base for the revenue earning Philatelic activities.

During the First Plan the Geological Survey of India carried out preliminary surveys to locate worthwhile mineral deposits.

The implementation of the First Plan was considerably hampered by:

(a) The shortage of trained technical personnel and the difficulty of obtaining staff on deputation or by recruitment from the open market in India.

(b) Shortage of local labour and insufficiency of rations for employment of imported labour. This difficulty is partly overcome by a quota of 200 tonnes of grain a month provided by the Government of India which enables us to employ a labour force of 7,000 persons at any time.

The Plan was considerably set back by the Chinese incursion in 1962.

The activities of the departments are discussed in detail in their respective chapters.

Second Plan

Statement No. I indicates the year wise proposed outlay for recurring and non-recurring expenditure and the foreign exchange components for each department.

Statement No. 4 for each department gives the scheme wise phasing including the foreign exchange components and the recurring and non recurring expenditure envisaged on scheme of that department.

Statement No. 5 for each scheme gives the detailed break up of the expenditure for the scheme.

Statement No. 2 give requirement of building construction both residential and non- residential department wise.

The individual scheme of each department are discussed in detail under their respective heads in following chapters.

The summary of the plan provision is as follows: Name of the Department Proposed Outlay Foreign Exchange

1. Development Wing Hqrs., Office of F. A. & C. A. O.	Rs. 73,00,000	
2. Agriculture.....	Rs. 3,85,00,000	
3. Animal Husbandry.....	Rs. 75,00,000	
4. Cottage Industry.....	Rs. 9,00,000	
5. Education	Rs. 2,76,00,000	Rs. 2,47,500
6. Forest	Rs. 89,00,000	Rs. 5,00,000
7. Health Services.....	Rs. 1,42,00,000	
8. Postal	Rs. 63,00,000	Rs. 50,000
9. Publicity	Rs. 19,00,000	Rs. 50,000
10. Transport	Rs. 1,69,00,000	
11. Mechanical Workshops.....	Rs. 65,00,000	--
12. Power (Hydel)	Rs. 80,00,000	Rs. 4,50,000
13. B. E. S. (Roads, Water Supply, Electrification etc.).....	Rs. 7,54,00,000	Rs. 20,00,000
14. Industries & Mining	Rs. 10,00,000	--
15. Preservation of Ancient Monuments.....	Rs. 5,00,000	--
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TOTAL.....	Rs.22,14,00,000	Rs. 32,97,500
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(Say Rs. 22 Crores)

Plan Aims

With the nucleus established in the First Plan as a base the main aim of the Second Plan are:

- Improvement of agricultural and horticultural output by introduction of improved methods and better seed with a view to obtaining adequate surplus for providing a boost to the economy of the country.
- Improvement of the level of education with greater emphasis on quality rather than quantity, in order to create cadres of qualified technical personnel at all levels for manning the various services.
- Improvement and upgrading of the cattle, pigs and poultry by cross breeding both to improve the available sources of protein diet for the local population as well as to provide a marketable surplus.
- To establish an adequate net work of communications to provide economic outlets for the surplus produce to the

plains of India by construction and improvement of existing roads and the establishment of proper transport services and facilities.

(e) To re-stock depleted forest reserves in Southern Bhutan by proper afforestation programmes and to explore the possibility of exploiting the forests in Northern Bhutan initially to meet the constructional needs of the Government by the establishment of logging activities and a Saw Mill near Thimphu.

(f) To explore the possibility of exploiting the Gypsum and Limestone deposits and the establishment of a Cement Factory to augment the revenues of the State.

(g) To explore the possibility of starting a Tea Plantation and forest based industries.

Out of the proposed outlay of roughly Rs. 22 crores, recurring expenditure during the Second Plan period is to the tune of Rs. 9,86,00,000. The recurring expenditure is comparatively high partly due to the high establishment costs, necessitated by the higher allowances and salaries, we have to pay in order to attract suitable technical personnel as well as subordinate staff.

Buildings

The limiting factor in all our activities is availability of personnel and labour. Bearing this in mind we have considerably curtailed both the road works and provision of buildings though efforts have been made not to hamper or slow down the actual development activities.

Against the overall requirement of about 30,60,000 Sq. feet for residential and service buildings such as Schools, Hospitals etc, provision has been made for only 8,51,000 Sq. feet. During the Second Plan period, as far as residential accommodation is concerned, it has been accepted in principle that staff will have to double up in available accommodation and the full entitlement will not be provided.

Financing of the Plan

The main sources of revenue in Bhutan are:

(a) Land Revenue	Rs. 30,00,000
(b) Anticipated annual gross revenue from Transport Services about.....	Rs. 30,00,000
(c) Anticipated annual revenue from forest exploitation	Rs. 6,00,000
(d) Minerals (Coal Dolomite).....	Rs. 3,00,000
(e) Miscellaneous Taxes	Rs. 15,00,000
(f) Other non tax revenue from Development departments such as Animal Husbandry, etc.	Rs. 2,00,000
(g) Subsidy from Government of India	Rs. 12,00,000

TOTAL RS. 98,00,000

The forest revenue has to some extent declined partly due to the depletion of reserves in Southern Bhutan and partly as a result of restrictions on sale of coupes to non Bhutanese nationals.

In the past few years the commitment of the Government of Bhutan have increased considerably for:

(a) Militia and Police.

(b) Higher cost of labour and enhanced salaries due to the rising cost of living and the revision of pay scale of the existing staff.

(c) Increased administrative expenses consequent on the opening up of the country as a result of development activities.

The real impact of the intensified Agricultural and Animal Husbandry programmes will not be felt during the Second' Plan period though it is estimated that the gross national product will be increased by Rs. 1.5 to 2 crores in 10 to 15 years from now. Allowing a tax revenue of 10 % of this increased production, this will contribute another 15 lakhs or so from the end of the 3rd Plan.

The Micro Hydel projects to be completed in this Plan will provide a net revenue of about a lakh when fully operational and able to sell at least 30% of their output.

From about the third year of the Plan the Forest department will probably be able to give an additional revenue of approximately Rs. 10,00,000 from the Saw Mill being established at Thimphu. Thus raising the forest revenue to about Rs. 16 to 18 lakhs, per annum.

In view of the meagre resources and the high drain on the cash and grain reserves of the Government of Bhutan due to increased activities in other fields it will not be possible for the Government of Bhutan to contribute towards the development plan and the aid from the Government of India will have to be in the form of out right grant.

It is anticipated that in due course departments such as Transport Postal, Telephone and Telegraph services and the Hydel power stations being established will become self supporting and revenue yielding and their running and maintenance can, at that stage, be taken over by the Government of Bhutan probably at the end of this Plan.

Programme of Release of Funds

One of the difficulties encountered in the day to day implementation of the Plan is the absence of any reserve funds. The Government of India has in principle accepted that funds for the development programme would be released quarterly on the basis of the achievements of the previous quarter. In practice however, this results in a vicious circle of programme being curtailed due to shortfall in funds in one quarter resulting in less funds being received in the next quarter.

Secondly as the funds are being released on the basis of actual expenditure no reserves are available for stock suspense or continuing the programmes pending release of further funds. This results in serious dislocation of work as all the activities have to be brought, practically to a stand still till the further funds are obtained and also results in increased project wise cost, as the cost establishment continues during the unproductive period. It is, therefore, necessary to devise a system of financing which, will ensure continuance of work and a regular flow of funds. One way out might be to provide about Rs. 20 lakhs as permanent advance for stock suspense of the B. E. S. and a reserve of 10% of the annual programme be available with the Development Wing at any stage.

Industries

In this Plan no provision has been made for the establishment of any industries or for large scale exploitation of the mineral resources. Survey reports of the Geological Survey of India indicate that substantial quantities of Gypsum are available in the Nangkur/Shumar region of Eastern Bhutan. Cement grade Limestone is also available in Samchi District of Southern Bhutan.

In the Second Plan, it is proposed to have more detailed Feasibility Surveys made for the exploitation of the Gypsum deposits and the possibility of establishing a Cement Factory at Samchi. The project reports will also be asked for if the initial report is favourable.

Similarly it is proposed to obtain Feasibility Reports on establishment of the Tea industry i Southern Bhutan as well as the possibility of forest based industries such as Ply wood, Match, etc.

Individual schemes have been discussed in detail in their respective chapters.

CHAPTER I: DEVELOPMENT WING & OFFICE OF THE FINANCIAL ADVISER & CHIEF ACCOUNTS OFFICER Department... Development Wing & F. A. & C. A. O.'s Office

Proposed Outlay ... Rs. 72.79 lakhs. (Say Rs. 73 lakhs).

In the First Plan, the Technical Committee recommended the establishment of a Planning & Development Department. This has now been expanded to the Development Wing (HQ), with the Secretary General in charge, assisted by the Director of Administration and a Secretary as well as a Financial Adviser who functions also as the Chief Accounts Officer. Directorates for controlling major departments have been set up separately for each department.

Coordination of plans and distribution of funds received and watch on the progress- ie expenditure on different departments as well as liaison, on development activities, with the Civil Departments is carried on from Development Wing Headquarters.

The present staffing pattern for Development Wing Headquarters is as follows :

Secretary General 1

Director of Administration 1 Secretary 1

Assistants	3
Upper Division Clerks.....	2
Stenographers	3
Lower Division Clerks.....	6
Class IV staff (Peon & Orderly) ...	22
Drivers	10
Translators	2
Bhutanese Clerks	6 (at a fixed pay of Rs. 100 per month).

It is proposed to increase the staff as follows:

Assistants	2
Upper Division Clerks	2
Lower division Clerks	2
Class IV Staff	2
Drivers	4

This augmentation of staff is essential to meet the greater load of correspondence with the Civil Departments, various Directorates of the Development Wing as well as with the Ministry of External Affairs, Government of India.

The Financial Adviser & Chief Accounts Officer functions in a dual capacity both as Financial Adviser to the Secretary General and as Accounts and Audit Officer for watching the expenditure of the various Development Wing Departments.

The present staff with 'him is as follows:

Financial Adviser & Chief Accounts Officer	1
Finance & Accounts Officer	2
S. A. S. Accountants	5
Divisional Accountant (for scrutiny of BES accounts)	1
Upper Division Clerks.....	17
Lower Division Clerks.....	7
Stenotypist	1
Cashier	1
Peons & Orderlies	5
Daftry	1

3 posts of S. A. S. Accountants/ and 3 posts of Upper Division clerks were also created for posting in different administrative centres to assist the Civil Officers in, preparation and submission of accounts of Development activities to Development Wing Headquarters.

In the Second Plan, it is proposed to augment Financial Adviser & chief Accounts Officer's establishment by the following staff:

S A. S. Accountant	1
Stenographer	1 (One stenographer will be reduced in the Development Wing Hqrs)
Upper Division Clerk	1
Peons'	2
Orderly	1

And to provide Upper Division Clerks to all Civil Officers instead of 3 S.A.S Accountants and 5 Upper Division Clerks.

Development Wing Headquarters and Financial adviser & chief Accounts officers Office will be shifting to the Capital (Thimphu) as soon as construction of a limited number of quarters is completed. For this purpose, it is proposed to provide only 50% of the accommodation, necessary for the subordinate staff. The construction has been mainly spread over the first two years as His Majesty desired the Headquarters to shift as soon as practicable.

Expenditure on buildings comes to roughly 17 lakhs.

Detailed break up of expenditure has been given at Vol. No. II

CHAPTER II: AGRICULTURE

The Department of Agriculture was established on 10 10 1961 with the appointment of a Director. The officer unfortunately left in early 1962 and subsequent frequent changes in the personnel of the Department have considerably hindered progress.

Two Research Farms at Lungthenphu and Bhur were started towards the end of 1963. A Demonstration farm was also established at Tala.

Three Regional Agriculture Officers were appointed but two of them left after a very short stay and at the end of the Plan, there was only one R. A. O. in Southern Bhutan.

Training classes were started at Lungthenphu, Paro and Bhur during the First Plan for training Junior Technicians for the department.

In the Horticultural field a centre was started at Yusipang and two orchards at Gasa and Bhumthang. Two Horticulture Extension officers were also appointed in 1965 66.

The schemes for distribution for fruit plants and vegetable seeds were started and about 61,027 plants and vegetable seeds worth about Rs. 10,000 have been distributed.

Training classes were started at Yusipang and short courses for farmers and vegetable cultivators were also organised.

A plant Protection unit with a plant Protection Officer started functioning from the end of 1964 and has made a good impact in demonstrating methods of pest and disease control.

In order to make implements available to the farmers agricultural implements worth- about Rs 50,000 were distributed among cultivators free of cost.

Subsidies for minor irrigation were made to the extent of Rs. 2,50,000 in 1965 66 and Rs. 5,000 in the previous years to assist farmers in remodelling and repairing existing canals and opening new channels.

During the Second Plan, efforts will be made to make Bhutan once again self sufficient in agricultural produce. Production appears to have fallen considerably in the last few years. Previously Bhutan was self sufficient and even had a small surplus for export to Tibet. About 5,000 tonnes of grain have now to be imported annually including requirement of Border Roads Organisation. The increasing population and import of labour for development work is also proving a considerable drain on local resources.

In the Second plan, it is, therefore, proposed to:

- (a) Strengthen the Directorate by suitable expansion to cater to the supervisory needs of the programme envisaged.
- (b) Increase food production substantially by improved seed and better equipment.
- (c) Lay a proper foundation for future agricultural development.
- (d) Bring about regional specialisation in cultivation of crops to better exploit existing agro climatic and soil conditions for maximum output.
- (e) Popularise cultivation of fruits and vegetables to improve the general economic condition.
- (f) To strengthen the plant protection scheme.

Some schemes for popularising improved implements, fertilisers and seeds and soil conservation have been included in the plan.

It is also proposed to increase irrigation facilities and for this purpose an irrigation division has been proposed under the Agriculture Directorate.

The training schemes have been expanded to meet the growing requirements of Junior Technical staff.

With a view to ensuring proper return to the farmers for their produce it is also proposed to establish Co-operative Marketing Societies.

Department Agriculture
Scheme No. I
Name of the Scheme ... Direction
Proposed Outlay Rs. 18,37,991.

To meet the supervisory and directing needs for the proposed expanded programme of the Agriculture Department considerable augmentation of the directing staff is necessary.

In addition, it is proposed to create an agriculture Information Unit under an information Officer with an artist and 2 Translators for producing suitable literature and propaganda material.

For the procurement and supply of material, seeds, plants, fertilisers, implements and chemicals etc, two Base stores at Gaylegphug and Samdrup Jongkhar are proposed.

It is proposed to purchase one truck for transport of materials to different projects.

The ministerial staff will also have to be strengthened.

The present staff of the directorate is:

Incharge 1
Director of Agriculture 1
Assistant Director 1
Assistant 1
Accountant 1
Store Keeper 1
L. D. Cs. 4
Driver 1
Class IV Staff 3

The additional staff proposed is:

Deputy Director 1
Agriculture Information Officer 1
U. D. C.s 2
Artist 1
Translators 2
Store Keepers 2
Class IV staff 5
Drivers 4
Stenographer 1

Detailed break up of the expenditure is given at Vol. No. II Vol. No. II

Department Agriculture
Scheme No. II
Name of the Scheme Training
Proposed Outlay Rs. 8,87,840.

The training programme was started in the First Plan. With the growing needs of Junior Technical Staff, it is proposed to expand this programme considerably.

Agriculture training classes will be run at Bhur, Tashigang, Lungthenphu and Yusipang and at one place in Southern Bhutan. It is proposed to train:

At Bhur 20 trainees in the first year and 12 in subsequent years.
At Lungthenphu 15 trainees in the first year and 10 in subsequent years.
At Tashigang 10 trainees a year from 1967 68.
At Yusipang 15 trainees in the first year and 12 in subsequent years.
In Southern Bhutan ... 10 trainees a year from 1968 69.

The boys will in addition to receiving training in techniques of raising agricultural and horticultural crops also be trained in handling and maintenance of farm machinery such as hand tractors, power sprayers etc. and be given elementary instruction in carpentry. Instructors for these two branches are being provided. Training in other aspects will be imparted by the farm staff as in the First Plan.

Detailed break up of the expenditure is shown at Vol. No. II

Department Agriculture
Scheme No. III
Name of the Scheme Agriculture Research
Proposed Outlay Rs. 27,17,900.

Two Regional Research stations at Lungthenphu and Bhur were established in the First Plan. The necessity for the third in Eastern Bhutan is felt and it is proposed to establish one at Tashigang during the Second Plan period. It is proposed to conduct only an Applied Research Programme which will mainly aim at isolation and evolution of improved varieties for different regions and standardisation of cultural, mineral and soil management practices for different improved varieties.

Trials for testing the efficacy of insecticides and pesticides under different climatic conditions will also be carried, out, as well as trials on improved machinery.

The farm will produce nucleus seed for supply to Agriculture centres and sufficient quantities of commercial seeds for supply in their local areas, where Demonstration in Seed Multiplication farms are not being established. In Bhur one farm Manager has been pro-vided, in addition to the Assistant Agronomist and Assistant Botanist in each of the 3 stations, because of the extensive area.

Detailed break up of the expenditure is given at Vol. No. II.

Department Agriculture
Scheme No. IV
Name of the Scheme Agriculture Extension
Proposed Outlay Rs. 1,10,14,422.

Agriculture Extension work was started in the First Plan and one Regional Agriculture Officer and 7 Sub Inspectors were appointed in Southern Bhutan. In the Second Plan extension activities are being expanded to cover the entire count. In order to ensure supply of adequate seeds, fertilisers and chemicals and popularise improved varieties as well as better fertilisers mineral practices and plant protection and for demonstration purposes the pro- gramme has been divided into 3 regions for North, and South and Eastern Bhutan each under a Regional Agriculture Officer.

In North and East Bhutan, it is proposed to establish 7 farms o which those at Paro and Wangiphodrang have been started in the First Plan and will be expanded, and in addition farms will be established at Bhumthang, Shemgang, Mengar, Tashigang and Tala.

Generally 2 categories of farms are proposed. The 'A' category with one area of about 15 acres for the bigger valleys and 'B' category of 5 to 8 acres in the smaller valleys.

Extension staff will carry out demonstrations in the farmer's fields on new varieties, fertilisers and insecticides and cultural methods.

Agricultural extension will also be of 2 types. 'A' type extension will be carried out where farms are established whereas 'B' type extension will be in other regions where the Agricultural Research Station will act as a base. For the 'A' type extension, provision has been made for one Agriculture Extension Offer. One S. I. and 2 Fieldsmen, whereas for 'B' type extension there will be one S. one S.I. and 2 Fieldsmen.

The Paro farm which was established in the First Pan is being run by a Colombo Plan expert from Japan. A much higher financial outlay has been provided for this farm com- pared to other 'A' type farms. Similarly Wangdiphodrang farm has been provided with higher funds as the acreage is about 40 acres and is likely to be extended further.

The programme of extension work has been phased out as follows:
1966-67 Thimphu, Tashigang-I, Paro, Wangdiphodrang, Bhumthang
1967-68 Shemgang, Monger, Punakha, Chapcha, Tashigang--II.
1968-69 Ha, Kurteo and Gasa.
1969-70 Tashigang--III, Dagana.

In Southern Bhutan, it is proposed to set up two 25 acres farms at Samchi and Chirang in the first and second year respectively and 7 'B' type farms according to the following programme:

1966-67 Ghumaaney and Kalikhola.
1967-68 Sibus, Sarbhang, Gaylegphug and Phuntsoling.

1968-69 Dorakha

The staff proposed for each of the Samchi and Chirang units are:

Sub Inspector 1
Skilled Fieldsmen 2
Fieldsmen 5
Chowkidar 1

Staff proposed for the 'B' type farms in Southern Bhutan is:

Skilled Fieldsmen 1
Fieldsmen 2

Extension activities will be started in Southern Bhutan according to the following programme:

1966-67 ... Sibusu-I, Ghumauney, Chirang, Samchi, Kalikhola, Sarbhang and Gaylegphug.
1967-68 ... Sibusu-II, Phuntsholing, Dorakha.
1968-69 ... Lamidara
1969-70 ... Dagapela
1970-71 ... Samdrup Jonkhar

The staff for Agriculture Extension work will be one Sub Inspector and 3 skilled Fieldsmen per extension centre.

For the 3 Regional extension Headquarters, staff proposed is:

Northern Bhutan

R.A.O. 1
U. D. C. 1
L. D. C. 1
Driver 1
Class IV Staff ... 2

Eastern Bhutan

R.A.O. 1
U. D. C. 1
L.D.C. 1
Driver 1
Class IV Staff ... 2

Southern Bhutan

R.A.O. 1
Agriculture Extension Officers ... 3
U.D C. 1
L. D. C. cum Store Keeper 2
Drivers 3
Class IV Staff 7

No Agriculture Extension Officer is being provided at the extension centres in the Southern Bhutan, whereas Agriculture Extension Officers are being provided to type 'A' extension centres in Northern and Eastern Bhutan.

The farms being established under the Second Plan will have an approximate area of about 280 acres and it is hoped that by the end of the Plan there will be sufficient quantity of improved seeds to meet the needs of their own immediate surrounding cultivators.

The extension staff will also be able to considerably improve the yield, as it is proposed that they will carry out mineral varietal and plant protection demonstrations over a large area. In addition the programme will considerably increase the knowledge of improved and scientific methods of cultivation of average farmers here. By the end of the fifth year at least a 5 % increase in yield is anticipated.

Detailed break up of the expenditure is given at Vol. No.II.

Department Agriculture
Scheme No. V
Name of the Scheme Horticulture Research
Proposed Outlay Rs. 31,19,134.

In the First Plan the Horticulture Research station at Yusipang and orchards at Bhumthang and Ghasa were established along with another Nursery at Ahley in Southern Bhutan.

It is considered that climatic conditions in Northern Bhutan are favourable for the cultivation of temperate fruits and vegetable seeds. Eastern and Southern Bhutan would also be suitable for the cultivation of sub tropical fruits, potatoes and vegetables. It is anticipated that horticulture crops will give a high return per unit in cash value to the cultivators of Bhutan.

In the Second Plan It is proposed to set up Horticulture Research stations at Bhumthang, Chimakothi and Lungtenphu and expand the existing Research stations at Yusipang. It is also proposed to establish an Orchidarium at Honks or Chimakothi.

In Yusipang, in the plan period, it is proposed to augment the staff by the appointment of the Assistant Horticulturist, Specialised in Potato growing, one Sub Inspector and a few class IV staff. In addition adequate storage laboratory and office facilities are being provided. Applied Research work on fruits and potato, vegetables and flower seed production will be started. This centre will also propagate plans to supply to the growers at nominal prices.

The existing staff at Yusipang is:

Horticulturist 1
Asstt. Horticulturist 1
Asstt. Sub Inspector 1
L. D.C. 1
Skilled Gardeners 3
Driver 1
Gardeners 6
Class IV Staff 2

At Lungtenphu work was started towards the end of the First Plan and it is proposed to further extend it in order to determine suitable varieties of vegetables for the temperate areas of Bhutan and to produce vegetable and flower seeds or distribution and export.

The farms will also impart training in vegetable cultivation. The staff proposed for this purpose at Lungtenphu at present is:

Vegetable specialist 1
Sub Inspector 1
Skilled gardeners 2
Malis 8
Driver 1
Orderly 1

At Bhumthang an orchard was started in the First Plan. It is now proposed to upgrade it to a Horticulture Research station for research on cultivation of fruits and vegetables in high altitude regions and production of disease free seed potato and vegetable and flower seeds. Experiments in cultivation of Saffron are also to be carried out.

The staff proposed is:

Assistant Horticulturist 1
Head Gardener 1
Skilled Fieldsmen 3
Gardeners 8
Class IV Staff 1

The Chimakoti project is a new one. The place is situated on the Phuntsholing- Thimphu Road. For this area the major part of the experimental work will be on production of disease free potato seeds. Experiments will also be carried out to determine suitable varieties of fruits.

The staff proposed for this centre is:

Horticulture Assistant 1
Skilled Gardeners 2
Gardeners 5
Class IV staff 1

Bhutan has rich varieties of orchids in the Eastern part is proposed to make a systematic study and collection and explore the possibilities of establishing a Nursery.

The staff proposed is:

Horticulture Assistant 1

Asstt. Sub-Inspector 1
Skilled Gardener 4
Malis
Class IV Staff 1

Detailed break up of the expenditure is given at Vol. No. II.

Department Agriculture
Scheme No. VI
Name of the Scheme Horticulture Extension Centres
Proposed Outlay Rs. 32,46,263.

In addition to the Research stations to be established during the Second Plan, it is proposed to establish 6 new Horticulture centres in addition to the existing farm at Gasa to serve as model orchards and to produce seedlings locally to meet the demand for fruit trees and vegetable seeds in the coming years. The centres have been planned in areas with high potential for horticultural development.

The programme in 1966 67 is to open centres at Deothang, Wangdi Phodrang, Yangphula and Tashigang-I.

In 1967 68, it is proposed to establish two farms in suitable areas in southern Bhutan.

The staff proposed for these centres is:

Assistant Sub Inspector 1
Trained Gardener 1
Gardeners 3

In Gasa one additional gardener has been provided as it is an established orchard.

I Extension units in addition to the Horticulture centres are to be established in accordance with the following programme.

1966-67 Paro, Wangdiphodrang, Tashigang, Thimphu and Bhumthang.

1967-68 Two centres in Southern Bhutan, Tashigang-II.

Ha, Shemgang, Mongar, Chapcha, Tongsa, Bumthang and Kuteo.

Horticulture Extension will also be of two types. A' type being carried out in areas where centres are being established and which are considered areas of high potential and the type 'B' programme being carried out in other areas.

The staff proposed for type, 'A' is:

Sub Inspector 1
Trained Gardeners 2
Asstt. Sub Inspector 1
Gardener 1

It is expected that, by establishment of the Research station and the centres and increased activities, considerable progress will be made in the production of grafts and seed and a great deal of saving will be made against import of fruit plants and seeds which would have otherwise been necessary.

Net production worth about Rs. 6,00,000 is anticipated during Plan period. The benefits accruing from the distribution are difficult to assess.

To supervise the extension work, six Junior Extension Officers for horticulture are proposed to be appointed for the undermentioned 6 ones:

Zone I Paro, Ha, Chapcha.

Zone II Thimphu, Gasa, Wangdiphodrang, Punakha.

Zone III Tonsa, Shemgang, Bhumthang.

Zone IV Tashigang, Mongar, Kurteo.

Zone V Southern Bhutan, Samchi.

Zone VI Southern Bhutan Sarbhang.

Detailed break up of the expenditure on horticulture centres and extension work IS at Vol. No. II.

Department Agriculture

Scheme No. VII
Name of the Scheme Plant Protection
Proposed Outlay Rs. 12,34,062.

In the first Plan a small plant protection unit was established in the middle of 1964 with one Plant Protection Officer and 4 Fieldsmen. Their main function was disease and pest control by holding demonstrations and providing technical guidance as well as distribution of chemicals.

Incidence of pest and diseases is high in Southern and Eastern Bhutan and plant protection work had a very good impact during the short period of its existence. It is proposed to strengthen the staff by providing:

Asstt. Plant Protection Officer
(Pathology) 1
Sub Inspectors 4
Skilled Fieldsmen 10
Fieldsmen 4
Driver 1
Class IV Staff 2

In order to cover both branches of plant protection work, the Plant Protection Officer will be a specialist in either Entomology or Pathology and the Assistant Plant Protection Officer will be a specialist in the other branch. The 4 Sub Inspectors will head Mobile teams based at Samchi, Bbur, Tashigang and Wangdiphodrang, Lungtenphu. Each team will comprise one Sub Inspector, 2 Skilled Fieldsmen and 2 Fieldsmen. One skilled fieldsmen and one ordinary fieldsmen each will be attached with the Plant Protection Officer and Assistant plant Protection Officer.

An additional vehicle and driver has been provided for the Asstt. Plant Protection Officer.

In addition to carrying out demonstration and spraying operations the plant protection staff will guide and assist the extension staff as well as the farms in plant protection work.

Detailed break up of the expenditure is given at Vol. No. II.

Department Agriculture
Scheme No. VIII
Name of the Scheme Minor Irrigation
Proposed Outlay Rs. 91,80,317.

From 1964 subsidies for Irrigation works were started, to assist the villagers to repair old channels and dig a few new ones. In the Second Plan, it is proposed to extend the scope of the scheme considerably as it is considered that areas under cultivation could be increased to a large extent by providing irrigation and the yield would also rise in other areas if perennial water supply could be provided. With year round water supply in certain areas double cropping would be possible.

Under this scheme it is proposed:

- (1) To construct new canals.
- (2) Remodel and repair existing canals.
- (3) Provide technical guidance, tools and small quantities of cement steel and alkathene pipes etc. to the villagers for repairing the old canals or constructing short lengths of new channels.

In this scheme provision has been made to set up an Irrigation Division. The work outlay envisaged will be roughly Rs. 75,00,000.

The staff proposed is:
Executive Engineer 1
Assistant Engineers 3
Overseer 13
Clerical Staff 8
Chain men 2
Drivers 4
Class IV Staff 6

It is estimated that over 15,000 acres of additional area will be brought under cultivation with the work outlay of Rs. 75,00,000 at an average of Rs.500 per acre.

The likely rise in production in completion of this scheme would be over 4000 tonnes from both new areas and improved yield from existing cultivation by providing perennial water supply.

Detailed break up of the expenditure is given at Vol. No. II

Department Agriculture
Scheme No. IX
Name of the Scheme Agriculture Economics Section and Marketing Societies.
Proposed Outlay Rs.8,79,712.

It is proposed to open an Agriculture Economics Section under the department. The Section will be under the charge of an Agriculture Economist with an Economic Investigator and one Marketing Inspector.

They will conduct surveys to collect information for proper assessment of the impact of the different scheme proposed and study the working cost of projects with a view to suggesting measures of economy. They will also prepare project reports and organise markets and establish Marketing Societies.

The marketing societies will buy produce from members and make part payment at the time of purchase, and dispose of the produce on a date desired by the producer at the pre-vailing market rates. Societies may also take up other functions such as grading of produce and enforcing quality control.

During the present plan period establishment of 5 Co operative Societies is envisaged.

Detailed break up of the expenditure is given at Vol.No. II.

Department Agriculture
Scheme No X
Name of the Scheme Soil Conservation
Proposed Outlay Rs. 1.50 lakhs.

A very high rainfall (over 200") is in Southern and Eastern Bhutan. Defective soil management practices and uncontrolled grazing and felling of trees has created a serious problem of soil erosion. This problem needs immediate and special attention particularly in Southern Bhutan. However, our limited technical resources permit undertaking only a very modest programme.

In the Second Plan, it is proposed to set up demonstration plots to help the public appreciate the problem and to acquaint them with the methods of controlling soil erosion such as bunding, gully plugging, onward sloped terracing and proper drainage.

Subsidies may be given for soil conservation work.

Detailed break up of the expenditure is given at Vol. No. II.

DepartmentAgriculture
Scheme No. XI
Name of the Scheme Supply of Fertilisers. Development of Mineral Resources
Proposed Outlay Rs. 14.66 lakhs.

Under this scheme a three fold programme has been envisaged.

(a)Distribution of Fertilisers

It is proposed to distribute about 16,00,000 worth of fertilisers at cost price The commitment envisaged under the plan is for subsidising the transport cost and provision has also been made for limited free and subsidised distribution to the extent of Rs.20,000 per year.

(b)Compost Pits.

It has been observed that farm yard manure is neither stored nor matured properly either in Southern or Northern Bhutan In Southern Bhutan, where animal dung is kept in the open, the heavy rainfall results in the dung getting washed away and loached down into the soil. In Northern Bhutan dung mixed with dry leaves is kept in the cattle yard and usually applied to crops in an unmaturred state.

It is considered important to propagate proper techniques of making ordinary and enriched compost. It is proposed to make 250 pits for demonstration in different parts of the country at Government cost and to give the farmers free

fertilisers to add for enriching the compost. In Northern Bhutan alkathene covering will have to be given to raise the temperature of the pits during the winter. The cost of the fertiliser will be met from the fertiliser scheme. Apart from the demonstration pits proposed to be dug at Government cost a subsidy of Rs. 15 per pit is proposed for pits in the cultivators' fields, to cover the cost of labour and materials supplied by us.

(c) Green Manure

In order to popularise green manure, it is proposed to distribute the seeds of green manure crops during the Plan period at nominal rates. About 2 lakhs worth of seeds (including the cost of transport) will be distributed.

Detailed break up of the expenditure is given at Vol. No. II.

Department Agriculture
Scheme No. XII
Name of the Scheme Distribution of Improved Seeds.
Proposed Outlay Rs. 5.00 lakhs.

Under this scheme provision has been made for distribution of high yielding varieties of seeds. Selection will be made after conducting varietal trials at the base farm in each area. This scheme also distributes seed from our own farms.

It is not essential that all the local varieties will be replaced as some of them may prove to be best available. However, efforts will be made to improve the varietal status of local varieties by selection.

The system of distribution will vary depending on prevailing conditions. In some cases seed may have to be distributed free in order to encourage the farmers to take to a second crop where they are sowing only one now. Alternatively, seed may have to be given in exchange for local varieties or at nominal rates. The methods and system of distribution adopted will mainly be aimed at encouraging the cultivators to take up the growing of improved varieties rapidly. In order to saturate the area with superior seed.

It is also envisaged that it will be possible to produce enough seeds at our own farms by the end of the Plan. Provision for procurement of seeds has, therefore, tapered off towards 1970-71.

It is hoped that about 10,200 acres will be brought under improved varieties by these means and by the end of the Plan an annual increase in yield of about 15 lakhs is anticipated.

Detailed break up of the expenditure is given at Vol. No. II.

Department Agriculture
Scheme No. XIII
Name of the Scheme Farm Machinery and Workshop
Proposed Outlay Rs. 6,11,290.

Under the scheme it is proposed to:

- (a) Supply ordinary implements to the farmers.
- (b) Supply improved implements at subsidised rates.
- (c) Provide servicing facilities for farm machinery.

Due to dearth of artisans and the high cost of transport of raw materials and finished products, the cost of conventional agricultural implements is very high. Under this scheme provision has been made for the purchase of implements for sale to the farmers at procurement price. Government will bear the transport cost of approximately Rs. 10,000 per year.

It is also proposed to introduce more sophisticated labour saving machinery to offset the labour shortage. To popularise the use of improved implements, sprayers and dusters it is initially proposed to supply these items to the cultivators at subsidised rates. The subsidy would mainly depend on the response from the cultivators. or the purpose of the proposal 50% subsidy in all items has been envisaged, in addition to the cost of transport.

There is some demand for mechanised equipment such as tractors, pumps etc, from well to do farmers. This will considerably increase their capacity for cultivating larger areas. No subsidy is proposed for such machinery but repairs and maintenance facilities are proposed to be established at Thimphu, Phuntsholing and Tashigang. These workshops will also handle our own farm machinery.

The unit will be under an Assistant Agriculture Engineer and each workshop will have one mechanic and one helper. Stocks of spares will also be maintained and repair and servicing will be carried out free. Cost of spares will be

recovered from the farmers to replenish the stock.

The Agriculture engineer will also improvise and adopt implements in the workshop at Phuntsholing to evolve suitable prototypes for prevailing conditions in Bhutan.

Detailed break up of the expenditure is given at Vol. No. II.

Department Agriculture
Scheme No. XIV
Name of the Scheme Distribution of Fruit Plants and Vegetable Seeds.
Proposed Outlay Rs. 4.75 lakhs.

This is a continuing scheme whose scope is to be expanded to accelerate the pace of establishing orchards and popularise the cultivation of fruits and vegetables. Part of the distribution will be from seeds and saplings produced in our own orchards and research stations but a certain amount of procurement from outside will be necessary though it will decrease as our own production increases.

Yearly income from plants distributed to the growers will increase as they come to bearing and reach the age of maximum production. It is estimated that with the proposed distribution of 4,70,000 fruit plants by 1975-76 the gross national product of fruits would be increased by the value of about Rs. 70,00,000 and that even by the end of the Second Plan the gross national income will have risen by over 2 1/2 lakhs from the products of the plants already distributed and being distributed.

During the current Plan about 6425 kgs., of vegetable seeds are also proposed to be distributed. Out of these 5,000 kg, will be produced in our own farms and about 1425 will be imported. The total cost of procurement will be about Rs. 31,000. It is anticipated that by the end of the Plan the annual production will be worth over 6 lakhs.

Work has been started on experiments in producing a disease resistant strain of potato seeds and distributing seed potato to the cultivators. Provision for the cost of transport for potato seed and the cost of importing seed has been made in the Second Plan.

Detailed break up of the expenditure is given at Vol. No. II.

Department Agriculture
Scheme No. XV
Name of the Scheme Sericulture
Proposed Outlay Rs. 9,99,370. (Say Rs. 10 lakhs)

There is a well established tradition of local weaving throughout the country. The quality of the produce is very high and very good patterns are woven. Raw material is however, imported particularly endi and silk threads.

During the First Plan period the sericulture farm was started at Punakha and 6 trainees were sent for sericulture training to Kalimpong. 4 of them took the preliminary course and have qualified as silk work rearers. One took a year's course and has been appointed as Sub Inspector and one trainee has been given an advanced course and is being appointed as Assistant Superintendent.

During 1965-66 silk cocoons were produced for the first time in Bhutan. As Punakha was not suitable, it is proposed to shift the location to Eastern Bhutan and establish two stations for endi and Sericulture at Tashigang and Kanglung.

Detailed break up of the expenditure is given at Vol. No. II.

CHAPTER III: ANIMAL HUSBANDRY

No reasonably accurate assessment of all the available livestock in Bhutan has so far been made. However, Poultry and Dairy animals occupy an important place in the rural economy of the area. Of the cattle the worthwhile breeds are the Yaks in the extreme north at altitudes above 12,000 ft. and Mithun and Siri cattle in the lower areas. In Bhutan unlike N. E. F. A. the Mithun is used as a milch animal and though the yield is less the fat content is proportionately high.

Standard of the indigenous sheep is rather poor as both quality and yield of wool are below par. Pigs and poultry though

in large numbers in most of the villages are undersized. The activities of the Animal Husbandry Department are aimed at achieving high grades of animals and better--qualitative and quantitative yield of dairy and poultry production improve the protein content in the diet of the people and in due course provide a marketable surplus which would increase the gross national income.

In addition the treatment and prevention of disease is also an important aspect of the activities of the department. The veterinary services are still very inadequate due to lack of staff but efforts have been made to expand the coverage and to initiate some form of quarantine at the entry points in Southern Bhutan, under the supervision of the Veterinary Assistant Surgeons and Compounders located at the various dispensaries.

The department was established in October 1961, under the Joint Director, himself a Bhutanese trained Veterinary Officer with great deal of field experience. At the end of the First Plan a nucleus department was in existence with a Veterinary Superintendent and some clerical staff. Unfortunately the Superintendent, who was a deputationist from West Bengal has retired and posting of his relief is awaited.

During the First Plan period, three cattle farms were established at Samchi, Bidung and Lingmethong.

Poultry farms were established at Samchi and Paro and piggeries at Samchi, Paro and Bidung.

A small pisciculture unit has also been established for the breeding of Trout in the rivers of these areas. About 12,000 eggs/fingerlings have been released in the rivers during the Plan period.

Most of the farms are also developing their own fodder and feed cultivation to cut down the higher cost of feed obtained from the market and it is hoped that in due course this cultivation will meet a major portion of the needs of the farms.

Experiments are also being carried out in Mule breeding as the traditional source of mules from Tibet is now closed. The main difficulty has been the procurement of a suitable breed of stud Stallion donkeys which were expected from Italy have not yet been received.

Experiments in sheep breeding to improve the sheep stock are being carried out at a farm in Mera with winter grazing grounds in Khaling. About 100 Rampur Bushire sheep have been acquired for this purpose from Himachal Pradesh in 1965.

Six local boys were trained in India in Veterinary and Animal Husbandry works and six others were given training locally at the Samchi Farm and posted at various Centres as Veterinary Field Assistants and livestock Assistants.

Five dispensaries have been established at Samchi, Paro, Thimphu, Sarbangand Bidung. A Compounder has been posted at Lingmethang.

The programme of mass vaccination to control rinderpest and contagious diseases was carried out in the plan period. About 15,000 cattle have been vaccinated against rinderpest and a large number treated for foot and mouth and other diseases. The vaccination of poultry against fowl pox and Ranikhet diseases has also been carried out. Treatment of pigs against swine fever in Paro, Thimphu and Bidung area has also been carried out.

Our greatest difficulties have been suitable and adequate number of trained veterinary staff and the difficulty of providing buildings for housing the livestock and staff due to our limited constructional resources.

During the Second Plan period, it is proposed to expand the breeding activities of the existing farms, to improve our own Dairy resources by intensifying cultivation, to improve veterinary cover by spreading it out more effectively over the entire areas and providing one Mobile Dispensary which will also take over the mass vaccination project. A central store for distribution of the drugs has also been catered for in the Second Plan.

Department Animal Husbandry
Scheme No.I
Name Of the Scheme Direction
Proposed Outlay Rs. 9,96,000.

During the Second Plan it is proposed to have a Deputy Director in charge of Animal Husbandry and administration and a Superintendent in charge of Veterinary Services under the over all control on the Director, to ensure proper supervision of the two branches of the activities of this department.

Provision has been made in the Plan for an additional help for the Deputy Director and the new staff proposed is:

Deputy Director 1
Agricultural Officer 1
Assistant 1
Accountant 1
Lower Division Clerks 2
Class IV staff 4

The present staff is:

Director 1
Superintendent 1
Upper Division Clerk 1
Lower Division Clerks 2
Drivers 2
Class IV Staff 2

This additional staff is essential for the proper supervision and control of the expanded activities envisaged by the department in the Second Plan.

Detailed break up of the expenditure is given in Vol. No. II

Department Animal Husbandry
Scheme No. II
Name of the Scheme Livestock Farm, Samchi
Proposed Outlay Rs. 9,44,000.

The Farm was started in 1962 and will serve the areas of Samchi, Chengmari, Sibsoo, Dorakha, Phuntsholing and Southern Ha in upgrading of local cattle and pigs. It is proposed to distribute about 10 pure jersey bulls a year for stud purposes.

20 pure Wessex saddle back and Yorkshire boars will also be distributed. The farm will also distribute 25 pairs of piglets to bona fide local cultivators on an exchange basis (return of 50 % of the piglets in the first farrowing). This farm will in addition supply 300 piglets each year to different farms in Bhutan. Alongwith the upgrading activities the farm will meet the need of dairy produce in Samchi Township.

With the supply of electric power from the Jaldhaka net work, it is proposed to instal a mammoth incubator for breeding of R. I. R. and White Leg Horn birds for distribution to the villagers at 50 % subsidy.

For breeding stock purposes the farm will maintain an average strength of:

Stud Bulls 2
Dairy Cows 30
Calves 30
Pigs 50
Piglets 50
Poultry Birds 500
Bullock for cultivation 8

Provision has been made for the purchase of feed though with the produce expected from our own cultivation. It is anticipated that further saving in this will be possible as our fodder cultivation at the farm improves.

In the Second Plan period about 15 cross Jersey cows will be purchased from Shillong and Darjeeling and the existing buffalo and Hariyana cows which are unsuitable for this terrain will be disposed off.

The only additional staff proposed in the Second Plan is:

Cultivation Officer 1
Sardar Incharge of the Attendant ... 1
Attendants 4
Ploughmen 4
Peon 1

It is anticipated that when the farm has been fully established there will be an approximate revenue of Rs. 30,000 a year from the sale of its Dairy produce though basically this farm is more for the purpose of upgrading and extension work than as a commercial Dairy farm.

The present staff is:

Farm Manager 1
Lower Division Clerk 1
Compounder 1
Livestock Assistant 1
Attendants 13
Milkman 1
Class IV Staff 3

Detailed break up of the expenditure is given in Vol. No. II.

Department Animal Husbandry
Scheme No. III
Name of the Scheme Livestock Farm, Paro
Proposed Outlay Rs. 3,99,000 (say Rs. 4 lakhs).

The farm was established in 1962. The stud stock at the inception of the farm was:

Piggery:

Wessex Saddle Back Boars 4

Local Sows 6

Poultry:

R. I. R. Cock 2

R. I. R. Hens 8

Pullets 18

From this stock 37 pigs and piglets and 100 R. I. R. birds have been built up. The farm will serve the upgrading needs of Chapcha, Paro, Ha and Dorbi areas.

By the end of the First Plan, 77 cross breed piglets and 60 R. L R. birds were distributed in the area. In the Second Plan period, it is proposed to maintain the strength of adult pigs at the farm and distribute an average of 50 piglets a year on the condition of return of 50% of the first farrow which will again be redistributed. It is anticipated that about 1000 to 1500 piglets of improved grade will be distributed by this means.

About 200 poultry birds and 500 eggs a year will also be distributed for upgrading the poultry population:

The present staff is :

Farm Manager 1

Compounder 1

Veterinary Field Asstt. 1

Cultivation Supervisor 1

It is proposed to create & post of one livestock Assistant an one Plan during the Second Plan period.

The Compounder and the Veterinary field assistant will be transferred to the veterinary Dispensaries being established separately under the Second Plan.

Livestock for increasing the strength in the farm will be obtained from Samchi farm. Provision has been made for the cultivation of feed which will in time reduce our dependence on the purchase of these item, at a very high cost.

Detailed break up of the expenditure is given in Vol. No. II.

Department Animal Husbandry
Scheme No. IV
Name of the Scheme Livestock Farm, Bidung.
Proposed Outlay Rs. 11,51,700.

The farm will have 4 sub units for Dairy Poultry, Piggery and Mule breeding. Et is anti-cipated that after livestock strength at the farm has been brought upto its full requirement about 10 to 15 stud bulls will be distributed to the villagers. In addition, it may be possible to sell some Dairy produce to the hospital and schools in Tashigang.

About 500 chicks and 750 to 1000 eggs a year will be distributed for meeting the poultry produce.

About 50 piglets will be distributed from the farm and another 50 also from the 50% return from the farmers.

As far as Mule breeding is concerned, it is proposed to cross local mares at the farm and it is anticipated that once the farm has been built up about 25 to 30 Stallions will be sold to the local farmers at the end of the plan.

The animal strength anticipated is:

Cattle 50
Pigs 50
Mares & Donkeys 50
Poultry 20

The staff proposed for the farm is:

Farm Manager 1
Cultivation Supervisor 1
Sardars 2
Truck Driver 1
Lower Division Clerk 1
Attendants 21
Class IV Staff 3

There are at present a post of Veterinary Assistant Surgeon and a Compounder both these posts will be transferred to the Veterinary Dispensary being established separately.

The supply of Livestock will be obtained as follows:

1. Pigs from Samchi Farm.
2. Siri Cattles by local purchase.
3. Jersey and Fresian bulls from Government or Private farms in India.
4. Poultry birds from the Government farm at Gauhati.
5. Donkey Stallions are being negotiated for from Italy though it is not known when the supply will be made.

Provision has been made for the purchase of feed but it is hoped with the improvement of our own cultivation we will be able to make some savings in this respect.

Detailed break up of the expenditure is given in Vol. No. II.

Department Animal Husbandry
Scheme No. V
Name of the Scheme Livestock Farm, Wangchu Taba (Thimphu)
Proposed Outlay Rs. 13,86,000.

The farm at Wangka Taba will have the dual purposes of upgrading the local cattle as well as providing dairy produce for the town population of the Capital.

It is anticipated that once the farm is fully established about 500 lbs per day of milk can be supplied to the township from this farm. It is also anticipated that daily supply of 200 lbs. of pork and 200 eggs could be made to the town population from this source.

As far as upgrading activities are concerned the farm will serve Thimphu Sha, Wangdiphodrang, Punakha and Tongsa Districts. At the end of this Plan period it should be possible to distribute 20 pure bred Jersey bulls, 100 piglets and about 100 chickens a year (Chicks will be received from Samchi farm, where the main hatchery will be established).

The farm stocks will be obtained as follows:

Cross Jersey from Shillong or Darjeeling 35
Siri cows from Sibsoo 20
Jersey bulls from Bangalore 5
Poultry birds from Gauhati 200

Provision has been made for the purchase of feed but cultivation is also being organised at the farm itself and it is hoped that in due course this will considerably reduce the cost of feed, though not at the initial stages when it is being established during the current plan.

After the farm has been established the livestock maintained will be:

Cattle 100
Pigs 100
Poultry 500

An annual income of approximately Rs. 1,00,000 is anticipated from this farm from about the 6th or 7th year.

The staff proposed for this farm is:

Farm Manager 1
Cultivation Supervisor 1
Sardar 1
Attendants 16
Ploughman 4
Lower Division Clerk 1
Class IV Staff 2

Detailed break up of the expenditure is given in Vol. No. II.

Department Animal Husbandry
Scheme No. VI
Name of the Scheme Livestock Farm, Lingmethang
Proposed Outlay Rs. 8,88,000.

The farm will serve the areas of Shonar, Kurteo and Bumthang. It will have Dairy, Piggery and Poultry units. At the end of the First Plan about 200 acres of land had been acquired and clearance and cultivation works had started. It is anticipated that after the farm is established it will be possible to distribute about 15 bulls, 50 piglets, 250 chicks and 500 hatching eggs per year. In addition, it is proposed to sell the surplus dairy produce and low grade pigs for table purposes.

Provision has been made for the purchase of livestock.

The staff proposed is:

Farm Manager 1
Attendants 15
Ploughman 4
Cultivation Supervisor 1
Clerk 1
Sardar 1
Class IV Staff 2

Detailed break up of the expenditure is given in Vol. No. II.

Department Animal Husbandry
Scheme No. VII
Name of the Scheme Sheep Breeding Farm, Mera
Proposed Outlay Rs. 2,50,000.

The area of Mera and Sakten has good pasture land in the summer and sheep breeding is the main source of income of the inhabitants of this area. However, the quality and number of sheep is low.

It is proposed to distribute about 100 sheep in the first year and gradually increase the yearly distribution to 500 by the end of the plan to improve the present stock. In winter the sheep breeding farm will move to the grazing grounds near Khaling as Mera is under snow.

The present stock of sheep held by the farm is 150. During the third year of the plan, it is proposed to purchase about 100 local sheep for cross breeding purposes.

The staff proposed for the farm is :

Veterinary Field Asstt. 1
Master Shepherd 1
Attendants 4
Class IV Staff 1

Detailed break up of the expenditure is given in Vol. No. II.

Department Animal Husbandry
Scheme No. VIII
Name of the Scheme Veterinary Services

Proposed Outlay Rs. 10,62,000.

There are at present two dispensaries at Samchi and Thimphu and a mass vaccination centre with headquarters at Sarbhang. Limited Veterinary cover is also being given by Veterinary Assistant Surgeons posted at existing farms as Farm Managers. It is proposed to separate the Veterinary services from the upgrading and extension activities.

In the Second Plan, it is proposed to open 3 new Veterinary Dispensaries, at Paro, Sarbhang and Deothang and to establish a Mobile Veterinary unit with headquarters at Sarbhang which will also take over the responsibility for mass vaccination.

To cater to the needs for medical supplies to these dispensaries and the various farms a Central Store will also be established at Samchi. The dispensaries at Sarbhang and Deothang will also cater for quarantine facilities when epidemics are reported in the plains of India. Veterinary Surgeons will be posted at Samchi and Sarbhang. The Veterinary Assistant Surgeon at Thimphu will look after the Paro dispensary which will be in charge of a compounder.

The Mobile dispensary will operate in these areas which are not readily covered by these dispensaries as well as reinforcing the local staff when epidemics are reported. Each dispensary will have one compounder and one Veterinary Field Assistant who will carry out mass vaccination work in addition to treatment.

Provision has been made for the purchase of a jeep and trailer for the Mobile dispensary and for the construction of the buildings including about 50 % of the requirements of residential accommodation.

Detailed break up of the expenditure is given in Vol. No. II.

Department Animal Husbandry
Scheme No. IX
Name of the Scheme Training
Proposed Outlay Rs. 17,520.

At present most of our needs for Farm Managers and Veterinary staff are met by recruiting outsiders directly or on deputation from central and state Governments of India. It is proposed to train 2 boys a year in India to take over the farms after qualifying in Animal Husbandry in suitable colleges in India.

Detailed break up of the expenditure is given in Vol. No. II.

Department Animal Husbandry
Scheme No. X
Name of the Scheme Pisciculture.
Proposed Outlay Rs. 40,000.

Central and Eastern Bhutan have proved particularly suitable for Trout breeding. A small unit for maintenance of hatcheries and putting in fingerlings is being maintained.

We have an experienced old hand in charge of this unit. He will train 2 local boys under his guidance for this work in the plan period.

Detailed break up of the expenditure is given in Vol. No. II.

Department Animal Husbandry
Scheme No. XI
Name of the Scheme Mithun Farm, Thromong.
Proposed Outlay Rs. 3,84,000.

The main object of this farm is to experiment on the production of draught animals by crossing local cows with mithun bulls. The mithuns will be obtained from Tawang/ Bomdilla region in NEFA.

The farm will also distribute mithun bulls to the public and other farms for crossing purposes.

It is anticipated that about 15 to 20 bulls will be distributed per year. The cross bred cows will also give a greater milk yield with a high fat percentage than pure mithuns.

Provision has been made for the purchase of 60 animals during the plan period both for foundation stock at the farm and

for distribution at the end of the plan period. It is expected our foundation stock will be about 34 animals.

Detailed break up of the expenditure is given in Vol. No. II.

CHAPTER-IV: COTTAGE INDUSTRIES

Whilst provision had been made in the 1st Plan for Small Scale industries, very little progress could be made for the lack of suitable staff. In the Second Plan, it is proposed to establish a Weaving Centre for which some equipment and raw materials have already been purchased in the First Plan at overall expenditure of about Rs. 33,000. In addition a small paper making unit is proposed at Paro.

To encourage the continuance of local weaving it is also proposed to stock good quality yarn for sale to the public at actual cost.

Department Cottage Industries
Scheme No. I
Name of the Scheme Direction
Proposed Outlay Rs. 69,688.

The Directing staff has been kept very small and will be controlled at Headquarters by the Director of Publicity.

The staff proposed for this purpose is:

Assistant 1
Clerk 1
Peon 1

The schemes included in the Second Plan :

- (a) Weaving Centre at Tashigang.
- (b) Sale of Yarn to local weavers through the weaving Centre at Tashigang.
- (c) Reward to Craftsmen.
- (d) Paper making at Paro.

The schemes will all be started in the Second year of the Plan. A few weavers who are already in our employment have been provided for in the first year.

Detailed break up of the Scheme is given in Vol. No. II.

Department Cottage Industries
Scheme No. II
Name of the Scheme Weaving Centre at Tashigang and sale of Yarn to Local Weavers.
Proposed Outlay Rs. 5.69 lakhs.

Apart from the budget of the establishment and cost of construction of buildings, provision has been made for procurement of further loans and weaving equipments and for running capital of Rs. 50,000 for purchase of yarn for the weaving centre and Rs. 50,000 to provide yarn to the public at cost.

Detailed break up of the expenditure is given in Vol. No. II.

Department Cottage Industries
Scheme No. III
Name of the Scheme Rewards for Skilled Craftsmen
Proposed Outlay Rs. 16,000.

With a view to encouraging the continuance of local handicrafts such as carving, gold and silver work, weaving basket making etc. It is proposed to hold competitions on suitable festive sections and to award prizes of about Rs. 200 for each individual craft.

Provision of Rs. 16,000 has been kept in the Plan for this purpose.

Detailed break up of the expenditure is given in Vol. No. II.

Department Cottage I
Scheme No. IV
Name of the Scheme Paper Making
Proposed Outlay Rs. 2.12 lakhs.

Under this scheme provision has been made for the pay of allowances of one instructor and 10 workers. In addition lump provision for construction of the workshop and some accommodation for the staff as well as purchase of equipment and running capital Rs. 20,000 has been made.

Though provision for the pay and allowances of the staff has been made for the entire five year plan, it is hoped that by the fourth year or in the fifth year this scheme should become a profit running project and be self supporting.

Detailed break up of the expenditure is given in Vol. No. II.

CHAPTER V: EDUCATION

There were about 59 Primary Schools in Bhutan prior to the inception of the First Year Plan in 1961, of these 29 Schools were conducted by the Government of Bhutan and rest were run by private bodies.

In addition to the above schools there were about 100 students--receiving education in India with scholarships and 40 at their own expense.

During the First Plan period (1961 to 1966) considerable progress has been made in the field of education. The emphasis has not been so much on providing universal education at this juncture. Quality of the education to develop the requisite cadre of administrative and technical personnel for direction as well as technicians and skilled workers to meet growing needs of the development programme, have been the main consideration.

At the end of First Plan there were:

Primary Schools 83
Junior High Schools and Middle Schools ... 20
Public school..... 1
Technical School 1
Monastery School 1

The total number of students in the schools were 14,540 (11,600 boys and 2,932 girls). The expenditure on the establishment and running of the schools during the First Plan period was Rs. 1,05,99,849.

In the Second Plan period, bearing in mind the difficulties of running higher classes in the interior Primary Schools as attendance is low, it is proposed to open only 5 new Primary Schools. The emphasis in the Second Plan is once again on quality, based on our requirements of personnel at various levels for the different plan schemes. It is, therefore, proposed to provide better and adequate staff at the two Public Schools and two High Schools as well as 4 Junior High Schools contemplated in this plan. Hostel facilities will also be provided at these Junior High Schools for students from the interior where higher classes are not being conducted in schools in their own areas. Such students numbering 1,600 will also be given stipends of Rs. 20 per student, as limited assistance to meet their food and other expenses in the Hostel.

It would be premature at this juncture to provide college facilities in Bhutan during the Second Plan. It is, however, contemplated that a phased programme of Degree Scholarship will be given to cater for the need of senior officials with requisite qualifications. The emphasis in the scholarships is again more on technical education rather than general education in Humanities.

Medium Of Instruction

The medium of instruction in schools in Bhutan is English, as it is the most convenient medium for higher studies like Medicine, Engineering etc., in India and other countries.

The students of the Public Schools and the two High Schools will be coached for the Indian School Certificate Examination. Along with compulsory subjects secondary classes are also taught Bhutanese or Nepali and Hindi

depending on their mother tongue.

Details of the expenditure and comments on the schemes are given separately.

Department Education
Scheme No. I
Name of the Scheme Direction
Proposed Outlay Rs. 12.82 lakhs.

The Directorate for the Education Department was set up under the Development Plan. At present the Secretary General, Development Wing, Government of Bhutan is also the Director of Education in addition to his duties as Secretary General. The early part of the First Plan period was mainly spent in establishing the Directorate and the various schools in the interior as well as laying down the pattern for the future development of education in the country.

The Present directing staff consists of:

1. Director of Education 1
2. Deputy Director of Education 1
3. Assistant Director of Education (Kalimpong) ... 1
4. Sub-Inspectors of School 4
5. Liaison Officers for School supplies ... 3
6. Clerical staff and Hostel Superintendent (Kalimpong Hostel) ... 14
7. Drivers 4
8. Class IV Staff 8

One of the Liaison Officers is responsible for the distribution of UNICEF milk to the schools.

The Assistant Director of Education with a small staff is posted at Kalimong mainly to look after the students in schools, technical institutions and colleges in India and runs a hostel for 80 students studying in Kalimpong as day scholars in various schools there.

In the Second Plan period there is very slight strengthening of clerical establishment and the provision of vehicles for 2 Sub Inspectors of schools (this is offset by cutting down provision for 2 vehicles to the public Schools from the Directorate expenditure). No major addition in the directing staff is contemplated.

The staff for the Directorate in the Second Plan will be:

1. Director of Education 1
2. Deputy Director of Education 1
3. Asstt. Director of Education (Kalimpong) ... 1
4. Sub Inspectors of Schools 4
5. Liaison officer for supplies 2
6. Office Assistant 1
7. Accountant 1
8. Upper Division Clerks 4
9. Stenographer 1
10. Lower Division Clerks 11
11. Store keepers 2
12. Steno typist 1
13. Translator 1
14. Drivers 4
15. Peon, Orderly (Class IV) 11

Detailed year wise break p of expenditure is shown in Vol.. No. II.

Department Education
Scheme No. II
Name of the Scheme Primary Schools
Proposed Outlay Rs. 72.54 lakhs.

At the end of the first plan period there were 33 Primary Schools with 341 Teachers. Three Carpenters are also attached for construction of school furniture. In turns, in the vari-ous schools in the interior.

In the last year of the plan it was felt, that due to lack of large compact concentrations of population and adequate communications, the attendance in Primary Schools in the interior felt short considerably of the roll strength. It was also

felt that in many schools where there were only one or two students in classes IV and above and there was shortage of suitable teachers, adequate attention to the instruction of students in these classes could not be given. The difficulty of obtaining good teachers for service in the interior has also hampered expansion of the schools and maintenance of proper standards. The difficulty of communication has also prevented adequate supervision by inspecting and directing staff. The emphasis of the Government of Bhutan is more on quality and training of suitable personnel for manning its services than on mass education, at present juncture.

No large scale expansion of Primary education is, therefore, contemplated Only 5 new schools have been provided in the Second Plan.

During the Second Plan period it is intended to give more attention to consolidating and establishing proper standards in these Primary schools. It is also intended that in schools where adequate number of students (8 per class) are not available for the Higher classes, such classes will not be run and the students available will be sent to Junior High Schools where hostel facilities are being provided and where they will receive stipends of Rs. 20 per month.

As for Primary Schools are concerned, the emphasis will be on improving the attendance and bringing in at least another 2000 more students.

The Provision in the Plan including pay of staff, additional buildings in existing schools and construction of buildings for the 5 new Primary Schools.

Detailed break up of expenditure is given in Vol. No. II.

Depending on the number of classes run, and the size of the schools, each Primary School will be staffed by 3 to 4 teachers. The total establishment of teacher for Primary School will be:

Grade I teachers	70
Grade II teachers	145
Grade III teachers	88
Total	303

Department Education
Scheme No. III
Name of the Scheme Jr High School
Proposed Outlay Rs. 30.041 lakhs.

At the end of the First Plan there were 16 Junior High Schools with a total attendance of about 2000 students. Of these 16 schools, 2 schools viz. at Thimphu and Tashigang will be expanded to Higher Secondary schools and a separate scheme submitted for that purpose. The 14 Junior High Schools will be continued with certain extension of hostel facilities to absorb students of the higher classes from the interior Primary schools. For the Second Plan period the staff required will be:

Grade I teachers	60
Grade II teachers	28
Grade III teachers	14
Chowkidars	14

This includes provision for Grade I, II & III teachers for the schools at Thimphu and Tashigang.

About 7.64 lakhs has been provided for additional buildings as in most of the places the classrooms, hostel accommodation as well as residential accommodation for staff is very scanty.

Once again as in the case of the Primary schools, the intention is not to expand but to improve the existing school both as regards facilities offered and the standard of instruction given. Some of the existing Primary Schools will, when attendance improves and as the need for educated personnel increases, be expanded to Jr high school in subsequent plans.

The detailed break up of expenditure is given in Vol. No. II

Department Education
Scheme of IV
Name of the Scheme Higher Secondary Schools
Proposed Outlay Rs. 5.16 lakhs.

In the second plan, it is proposed to upgrade the two existing junior High Schools to Higher Secondary Schools. They are: (1) Thimphu Junior High School (2) Tashigang Junior High School in Western and Eastern Bhutan respectively.

The proposal contemplates the construction of additional school buildings including laboratories, hostels etc. and purchase of scientific equipment. The staff will also have to be augmented and better qualified staff provided as it is intended that the students will be sent up for the Indian School Certificate Examination.

The scale of additional staff as proposed will be:

Headmaster 1

Senior Teachers6 per school.

Provision for the additional Grade I, Grade II and Grade III teachers has been kept in the overall requirements of teachers of these categories under Scheme III (Junior High School) and requisite staff will be drawn for the Higher Secondary Schools from that group.

In addition one L.D.C. and 2 Chowkidars have been provided per school.

Detailed break up of expenditure is shown in Vol. No. II.

Department Education

Scheme No. V (A)

Name of the Scheme Public School Thimphu

Proposed Outlay Rs. 31.988 lakhs.

The Public school at Thimphu was started on 1 3 65 on the command of His Majesty, the school will finally have 300 students.

The staff proposed for the schools is :

Principal (U. K.) 1

Headmaster 1

Asstt. Teachers (From U. K.) 3

Assistant Teachers 5

Junior Teachers 4

Hostel Superintendent 1

Matron 1

Asstt. Matron 1

Driver 1

Class-IV Staff (Cooks, Peons Orderly etc.) 10

The Principal will be in the scale of Rs. 2000--100--3000 plus allowance of Rs. 300 per month. He will be paid ?' 1,000 per year in U. K. and the balance in Indian Rupees. The 3 assistant teachers will each be paid ?' 500 per year in U. K. and allowance of Rs. 300 per month in Indian Rupees. The other staff are on the normal scales for equivalent grades in Bhutan.

The intention is to select suitable children and to impart education of better quality and also to provide them with a better back ground and help them to build character, in two properly run Public Schools in Thimphu and Kanglung (Tashigang). (Schemes are submitted separately).

These will be residential schools and the children will be provided food, clothing, uni-forms and bedding, etc.

Details of the expenditure are shown in Vol. No. II.

There will be 120 students in the first year, 160 in the second year, 180 in the 3rd year, 200 in the 4th year and 275 in the 5th year. The cost of messing will be about s. 80 per student per month and uniform and other equipments will be about Rs. 300 per student per year.

Department Education

Scheme No. V(B)

Name of the Scheme Kanglung Public School (Tashigang)

Proposed Outlay Rs. 43.319 lakhs

The Public School at Kanglung will be for the students from Eastern Bhutan It is to be run by Roman Catholic Padres

who will be paid a flat salary without any allowance of Rs. 700 1250 for the Principal, and Rs. 275 to Rs. 650 for the 4 Assistant Teachers. They are already working in Tashigang Junior High School and will take over the Public School as soon as sufficient buildings are completed.

The other staff will be:

Junior Teachers 4
Hostel Superintendent 1
Matron 1
Assistant Matron 1
Driver 1
Class IV Staff (Cook, Peons, Orderly etc.) 9

The food and clothing expenses will be on the same scale as per Thimphu Public School. The school is expected to start in the second year of the current Plan and will have 60 students that year, 100 in the 3rd year, 150 in the 4th year and 200 in the 5th year.

The designs and estimates of buildings and furniture were prepared by Border Road Organisation and have been sanctioned for the sum of Rs. 44,18,000. Provision in the coming Plan has been made for Rs. 33,50,000 as we may cut down some of the buildings originally proposed.

Detailed break up is shown in Vol. No. II.

Department Education
Scheme No. IV
Name of the Scheme Training Institute
Proposed Outlay Rs. 5.829 lakhs

This is a continuing scheme from the first Plan. In the sense that, construction of the institution was started in the first plan and expenditure of Rs. 2,14,203 was incurred on construction and balance of Rs. 2,15,000 has been provided for in this Plan. Considerable progress has already been made in the work and it is hoped to complete enough of the project to start running the Training Institute from October 1966.

The staff proposed is:

Principal 1
Lecturers 2
Asstt Teacher 1
Bhutanese Language teachers 2
Librarian 1
L.D.C. 1
Class-IV Staff 4

There will be 40 trainees a year who will receive stipends of Rs. 60 per month. The course will be intensive with only two short breaks of 10 to 15 days. The stipends have, therefore, been calculated for the entire year.

The detailed break up of expenditure is shown in Vol. No. II.

Department Education
Scheme No. VII
Name of the Scheme Ta Dzong (Museum)
Proposed Outlay Rs. 4.360 lakhs.

With the impact of Education and modern living condition much of the cultural heritage of Bhutan is being lost. It is, therefore, felt necessary to preserve example of the ancient culture such as paintings. Photographs, Old books, Armour and Arms carvings, Handicrafts, Old Archives, Icons (bronze and wooden), Collection of minerals, Tusks and stuffed head of Animals, etc. in a properly organised museum.

In the first plan conversion of old Ta Dzong near Paro Dzong into a 6 storied museum was started. About Rs. 81,000 has already been spent in the First Plan for this purpose. Another Rs. 1,50,000 has been provided in the current plan for completing this alteration and Rs. 74,000 for accommodation of staff.

The staff will be:

Curator 1
L.D.C. 1

Guards (Class IV) 4

The conversion of the Dzong is being done through the Civil authorities and the construction of quarters will be undertaken by them.

Detailed break up of expenditure is shown in Vol. No. II.

Department Education
Scheme No. VIII
Name of the Scheme Audio Visual Education
Proposed Outlay Rs. 450 lakhs.

The department has purchased three 16 mm Projectors with Generators. It is proposed to provide one each to the 2 Public Schools at Thimphu and Kanglung and keep one as a mobile unit for Audio visual education in other schools. One operator for the mobile unit and a Handy man to assist him have been provided. In addition it is proposed to purchase and distribute 25 Transistor Radios and 10 Magic Lantern for the schools in the interior.

Detailed break up of the expenditure is given in Vol. No. II.

Department Education
Scheme No. IX
Name of the Scheme Library
Proposed Outlay Rs. 62 lakhs.

Under this scheme it is proposed to provide Library books for the 88 Primary Schools Rs. 500 per school, 14 Junior Schools Rs. 1,000 per school and 2 Higher Secondary Schools Rs. 2,000 per school.

Detailed break up of the expenditure is given in Vol. No. II.

Department Education
Scheme No. X
Name of the Scheme Rigney Monastery School at Simtokha
Proposed Outlay Rs. 7.950 lakhs.

With a view to continuing traditional Monastic Education and also providing Bhutanese language teachers for our schools throughout Bhutan, the Monastery school has been started in the First Plan at Simtokha Dzong with the Head Lama as Principal and other selected Lamas as Teachers and Assistant Teachers on a fixed pay of Rs. 700, Rs. 300, Rs. 150 and Rs. 110.

For expenditure necessary for the repairs to the Dzong to provide accommodation both for class rooms and for hostels for the students in the Monastery school Rs. 1,34,000 has been provided.

The Monastery will train 150 students per year for whom Rs. 60 per student per month has been provided.

Staffing pattern will be:

Principal 1
Headmaster 1
Asstt. Teacher at pay of Rs. 150. ... 1
Asstt. Teacher at pay of Rs. 110. ... 4
Peon 1

Detailed break up of the expenditure is shown in Vol. No. II.

Department Education
Scheme No. XI
Name of the Scheme Junior Technical School (Kharbandi)
Proposed Outlay Rs. 17.162 lakhs.

The Institution was established in April, 1965 by Don Bosco Fathers on behalf of the Government of Bhutan. The purpose of the Institution is to train technicians such as Electric Wiremen, Carpenters, Metal Workers, Tailors etc, and will ultimately have 250 students. The present strength is 68. The expenditure incurred in the First Plan on temporary building provided at Kharbandi is Rs. 2,00,500.

The expenditure on equipments already purchased for the institution is Rs. 18,545.

The staffing pattern will be:

Principal 1
Supd. and Teacher 1
Senior Teacher including infirmarian ... 3
Instructors 3
Store keeper cum-Head Cook 1
Class IV Staff (Cook etc.) 4

For machinery and equipment for the training of the boys Rs. 2,70,000 has been provided as per detailed at Page No. 08.

For buildings Rs. 6,07,000 has been provided as per the approved plans of the administration for permanent construction of the institution.

Stipends of Rs. 60 per student have been provided and provision of Rs. 100 per year per student has been made for clothing etc.

The number of students anticipated is:

1st year 80
2nd year 100
3rd year 120
4th year 140
5th year 160

Detailed break up of the expenditure proposed is in Vol. No. II.

Department Education
Scheme No. XII
Name of the Scheme Translation and Publication of Text Books
Proposed Outlay Rs. 1.275 lakhs.

One of the greatest handicaps faced by the Education Department is the lack of suitable text books for school in Bhutan and of suitable translating into the Bhutanese Language.

In the First Plan the expenditure of R. 17.190 was incurred in this connection. A Bhutan Primer part I has been published as well as a Primer in Nepali. A Bhutan Reader for Class III is in the press. Some other text books on History and Geography as well as an English Primer and Readers will be published during the Second Five Year Plan.

The Expenditure is mainly on translation and printing of books in Bhutanese and revision and publication of text books in Bhutanese, Nepalese and English. The outlay comes to Rs. 1,27,500.

Detailed break up of the expenditure is given in Vol. No. II.

Department Education
Scheme No. XIII
Name of the Scheme Stipend for school studies and training in Bhutan.
Proposed Outlay Rs. 13.162 lakhs

The absence of compact concentrations of population where school going children could attend local Primary School as day Scholars is a major factor in retarding the spread up of Education in Bhutan. In practice it has also been found that running small classes of one or two students in Class IV and above is not satisfactory and proves infructuous. It is, therefore, proposed that in the Primary Schools in the interior higher classes will not be opened unless there are at least 8 students for that class.

In order to provide facilities for students from remote places, it is proposed to run hostels in the 14 Junior High Schools and two Higher Secondary Schools for 1,600 students.

At present there are 630 students in hostels in 5 Junior High Schools. The expanded schemes will come into effect from the next year (2nd. year of the Plan). Provision for the first year is made for the existing stipendiaries and hostel allowances have been provided for the first year only in the 5 existing hostels.

From the second year hostel allowances will have to be given to the teachers function-ing as Hostel Superintendent in all 16 schools mentioned. In addition a stipend of Rs. 20 will be given to each student for 9 (nine) months. On an average there will be 100 such students in each school (i.e. 1,600).

In the First Plan the Education Department has also arranged training of Bhutanese nationals under different schemes such as Wireless training, Postal training, Mechanical training etc. From this plan this training will be taken over by the departments concerned and provision under the Education Plan has only been made for existing trainees in the First Year Plan for 20 mechanics and 7 Postal trainees.

The detailed break up of the expenditure is in Vol. No. II.

Department Education
Scheme No. XIV
Name of the Scheme Degree Scholarship
Proposed Outlay Rs. 2.088 lakhs.

We have at present 20 students in receipt of scholarships for various degree courses s follows:

Arts and Science Colleges 8
Engineering 6
Agriculture 3
Medical 3

We have proposed scholarships from the 2nd year onwards as follows:

	2nd year	3rd year	4th year	5th year
Arts & Science College	12	12	12	12
Engineering	7	10	12	14
Agriculture	4	5	7	10
Medical.....	5	8	10	14

The requirements of scholarship for subsequent year is based on (a) Our need of personnel and (b) on the anticipated availability of candidates for the different branches and is made bearing in mind the passing out of existing scholarship holders.

In additlon to an annual expenditure of Rs. 700 per student on tuition and hostel fees and pocket money, Rs. 500 per student per year has been calculated for medical expenses, books, travelling expenses, etc.

Detailed break up of expenditure is given in Vol. No. II.

Department Education
Scheme No. XV
Name of the Scheme Scholarship for studies in India and maintenance of Bhutan House Hostel.
Proposed outlay Rs. 27.049 lakhs.

(a) Bhutan House Hostel

We are maintaining a Hostel at Kalimpong for students who are unable to find seats in boarding schools in India.

The staff consists of:

Hostel Superintendent 1
Store keeper 1
Class IV Staff (Cook etc.) 3

In addition we are paying an average of Rs. 8 per month per boarder as tuition fees for 8) boarders in this hostel and spending an average of about Rs. 1,000 per student for those 80 students on food, clothing, medical expenses and travelling expenses, books etc.

(b) Scholarship for School Studies

In addition there are 313 students in various boarding schools in India, who are receiving on an average Rs. 1,000 per student per year for tuition fees, boarding fees etc. and Rs. 400 per year on clothing, medical expenses and travelling expenses.

(c) Nurses and Compounders under training in India

We have on an average 12 nurses and compounders per year on training in India. The expenses on their training are roughly Rs. 1,200 per student per year. This training will continue under the Health Services in future.

In the Second Plan bearing in mind our own increasing capacity for providing facilities for school studies within Bhutan, it is not proposed to increase the number of students either in the hostel or receiving scholarships as boarders in schools outside Bhutan.

Detailed break up of expenditure is given in Vol. No. II.

CHAPTER-VI: FOREST DEPARTMENT

During the First Plan a major effort of the department was on establishing the requisites directing and supervising staff and placing the exploitation and afforestation activities on scientific basis.

In the First Plan period an expenditure of about 29 lakhs was incurred against the plan target of Rs. 5 lakhs.

Many of the schemes for exploitation and soil conservation could not be implemented for want of trained personnel, survey and demarcation was also brought to a standstill due to the same reason.

The extensive lumbering activities in Southern Bhutan have considerably depleted the stock of exploitable timber. In Northern and Central Bhutan though, exploitation for commercial purposes has not been extensive due to the high cost of transport and lack of trained personnel etc., the present methods of utilisation for constructional purposes by the Bhutanese is a serious drain on the forest resources as hardly two to four planks are taken from each tree by splitting. Considerable damage has also been done in the Northern and Central areas by forest fires.

In the Second Plan the main aims are:

- (1) Proper exploitation of the Northern forest particularly to meet the building needs of the Government by the installation of a Saw Mill at Thimphu.
- (2) Supervision and control of further clearing in forest areas by the villagers in Tashigang area.
- (3) Afforestation activity in the depleted areas and the laying down of proper coupes for exploitation in Southern Bhutan.
- (4) Limited experiments for establishment of forest industries are also being carried out.

The major project for the establishment of a paper mill in the Chukha area linked with the construction of Chukha Hydel Project is also under examination but has not been taken up in this plan as that will be a major industrial undertaking outside the development activities and is dependent on the availability of the requisite finances for the purposes either by loan from the Government of India or by partnership agreement with an industrial concern.

Schemewise details are submitted separately:

Department Forest
Scheme No. I
Name of the Scheme Direction
Proposed Outlay Rs.34.90 lakhs.

Provision has been made for the existing staff in the office of the Conservator, Samchi and Sarbang division. In addition, it is proposed to open one more division at Thimphu as upto now the Forest Department has had no activities in Northern Bhutan. The Jurisdiction of the new Division will extend to Ha, Paro, Thimphu, Wangdiphodrang covering the civil jurisdiction of Dzongs of Ha, Paro, Thimphu, Wangdiphodrang, Punakha and Ghasa. A Divisional Forest Officer will be in overall charge and assisted by one Forest Ranger and four Foresters.

At the present stage of development of communications with the plains, exploitation of timber from Northern Bhutan proves uneconomical due to the high cost of transport. It is proposed to set up a Saw Mill under the Jurisdiction of Divisional Forest Officer, Thimphu for which a separate proposal has been given) to meet the needs for Government construction particularly in the new capital at Thimphu.

In addition a range under the direct control of the Conservator is being established in Eastern Bhutan with a Ranger in charge with headquarters at Tashigang. The primary task of this range will be:

- (i) to check unauthorised felling of trees,
- (ii) to check unauthorised clearing of forest for cultivation,
- (iii) to supervise authorised felling by villagers or other organisations,
- (iv) to watch natural regeneration and assist establishment of such regeneration by silvicultural methods.
- (v) to protect forest from accidental fires and educate the villagers in normal fire protection in the forests,
- (vi) start experimental nurseries of local and exotic alpine species for experimental plantations in depleted forest areas.

Provision has also been made in the first year of the plan under this scheme for the refund of Rs.10,000 of outstanding deposits.

The staff in the Conservator's Headquarters are:

Conservator of Forests. 1
Forest Officer 1
Assistant Conservator of Forests 1
Head Clerk 1
Accountant 1
Upper Division Clerks 2
Lower Division Clerks 2
Drivers 2
Forest Guards 2

In the Second Plan provision has been made for three months in the First year and three months in the Second year for a Timber Exploitation Expert who is likely to be deputed by the Indian Council of Applied Economic Research. The Forest Adviser, a retired Divisional Forest Officer has been assisting Government of Bhutan and carrying out the training programme of local boys as Foresters. His services will be required only till the end of the first year. No provision has been made for this purpose in subsequent years.

The sanctioned staff of Sarbhang Division is:

Divisional Forest Officer 1
Head Clerk 1
Lower Division Clerks 4
Driver 1
Class IV Staff 6
Rangers 4
Foresters 8
Foresters (B) 10
Forest Guards 48

In addition, this Division has an establishment of two elephants apart from these maintained in the Wild Life Sanctuary at Manas.

The sanctioned strength of Samchi Division is:

Divisional Forest Officer ... 1
Rangers 4
Foresters 8
Foresters (B) 10
Forest Guards 48
Class IV Staff 3
Head Clerk 1
Accountant 1
Lower Division Clerks 3
river 1

In both these Divisions no increase in sanctioned strength is contemplated. however every efforts has to be made to fill the vacancies particularly Rangers and Foresters in the first instance by obtaining suitable man on deputation and meanwhile sending our own boys for training to Dehra Dun, West Bangal a Assam.

Unless the deficiency in technical staff is overcome, it will hamper to implement the programme as far as forest department is concerned.

In the plan provision for the first year, direct division has been made on the post of existing staff. t is hoped to fill other remaining vacancies in the beginning of the Second year.

For Thimphu Division the staff proposed is :

Divisional Forest Officer 1
Ranger 1
Foresters 4
Head Clerk cum -Accountant 1
Lower Division Clerks 2 (including Bhutanese Translator)
Forest Guards 4

For Tashigang Range there will be one Ranger and 23 Forest Guards (2 in each Dzong and one at Tashigang).

Detailed break up of the expenditure is given in Vol. No., II.

Department Forest
Scheme No. II
Name of the Scheme Training
Proposed Outlay Rs. 57,300.

Under this scheme provision has been made for limited expenditure in the first year on one of our officers who is under training at the A. I. F. C. and to send one more trainee in the same course in the fourth year.

It is also proposed to train five Rangers at the Forest College at Dehara Dun and five Foresters at either Dow Hill or Jhalubari.

Provision has been made from the second year as it is hoped that Bhutanese candidates with the requisite qualification will be forthcoming from that year.

Detailed break up of the expenditure is given at Page No. 109, Vol. No. II.

Department Forest
Scheme No. III
Name of the Scheme Survey and Demarcation
Proposed Outlay Rs. 4.52 lakhs.

In order to provide a basis of scientific management of forests of Bhutan a survey of the forest area and delineating on a large scale map is essential.

Some work was done in the Northern Region and a part of the Southern Region in the First Plan. Due to difficulties in getting sufficient technical staff the demarcation work was discontinued.

In addition to delineating boundaries both on the ground and on the map, boundary lines have to be kept cleared of all vegetation to make it easily discernible on the ground and boundary pillars established and renewed.

During demarcation innumerable administrative difficulties arise as cultivators are apt to treat forest areas as no man's land and surreptitiously encroach on the forest boundaries and clear more and more of the forest area.

As the task of delineating forest boundaries would be a colossal one, in this plan, it is only proposed to do internal demarcation of the village boundaries of village inside the forest area. Rest of the area being treated as declared forests and the cultivators then knowing the limit of their boundaries so that they can seek the requisite permission from the proper authorities for clearing. The whole work will be done in consultation with the civil authorities, and provision for the possible expansion of villages will be kept in demarcating these boundaries. The villagers in turn will have to be made responsible for maintenance of the boundaries in return for the forest privileges enjoyed.

In this plan demarcation will mainly be done in Southern Bhutan. The staff proposed is:

Ranger 1
Draftsmen 2
Surveyors 4
Chain-men 8
Line-men 8

They will function under the administrative control of the Divisional Forest Officer in whose jurisdiction they work for the time being.

No residential accommodation has been provided for the staff; but provision has been made for tented accommodation. During the monsoon (non working season) the staff will concentrate at the Divisional Headquarters to finalise the map drawing works.

Detailed break up of the expenditure is given in Vol. No. II.

Department Forest
Scheme No. IV

Name of the Scheme Exploitation of Forests
Proposed Outlay Rs. 19.01 Lakhs.

In the two old Division of Sarbhang and Samchi works carried out for exploitation such as laying out of coups, marking trees, extraction paths etc., have been provided as normal recurring expenditure of the Division. The anticipated annual revenue is 6 lakhs per year. The drop in revenue is partially due to the grant of the trees at a concessional rate and limiting of sale of the forest produce to Bhutanese Nationals only.

In addition under Thimphu Division it is proposed to establish a Vyson skyline for extraction of timber to feed the Saw Mill which is also being established there. The skyline will have to be imported. Provision for foreign exchange has been made. Foreign experts from Sweden will also be required for a short period to train our staff in handling the skyline. The staff will be accommodated in temporary wooden structures as once a particular area has been exploited they have to be moved from that area.

The timber extracted will mainly be utilised for the construction of government buildings in the new Township at Thimphu.

Linked with the extraction proposal mentioned above is the installation of the Saw Mill. A provision has been made for the purchase of equipment and power plants for this Saw Mill. Two small units are proposed with their own light Diesel Power Generators because of the difficulty of transporting heavy machinery over the hill roads. The Saw Mill and the extraction scheme will be under the overall charge of the Divisional Forest Officer, Thimphu, the staff proposed for the Saw Mill and the exploitation scheme is:

Foreman 1
Saw Doctor 1
Assistant Saw Doctor 1
Fitter 1
Engine Drivers 2
Ranger 1
Accountant 1
Foresters 3
Class IV Staff 3
Motor Drivers 2

In addition labour will be employed at daily wages both for the extraction and for the Saw Mill.

The Mill staff will also be accommodated in wooden huts as once exploitable timber in the vicinity has been exhausted the Saw Mill will move fresh location.

Arrangement for transport of food for the staff and labour is also provided for.

The anticipated annual income from this scheme is about Rs. 10 lakhs at an estimated rate of Rs. 10 per cft, of sawn timber. Limited amount of staff has been provided in the first year and provision has been made for part of the machinery in this year, so that indents can be placed and steps be taken to start installation in the second year.

During the plan it is also proposed to explore the possibility of floating sawn timber down the rivers from Northern and Central Bhutan to reduce the transport cost for timber from these regions.

Detailed break up of the expenditure is given in Vol. No. II.

Department Forest
Scheme No. V
Name of the Scheme Supply and Exploitation of Medicinal Plants
Proposed Outlay Rs. 9,000.

The Botanical Survey of India have already done a preliminary survey of the species in Bhutan. A sum of Rs. 1,000 per year has been provided for collection and sending of such plants for analysis and plan for expending the publicity of cultivation of such species to import which should thrive in the foothills of Bhutan.

No special staff or equipment is contemplated for this purpose.

Detailed break up of the expenditure is given in Vol. No. II.

Department Forest
Scheme No. VI
Name of the Scheme Afforestation
Proposed Outlay Rs. 9.38 lakhs

Substantial amount of work has been done in the First Plan but a great deal needs to be still done.

In Southern Bhutan exploitation without any planned scientific regeneration has considerably depleted stocks of commercial timber in the Forest. In Northern Bhutan also the local practice of using solid beams and split plants instead of sawing has most considerable wastage of the forest wealth.

In this plan apart from looking after the old plantations, it is proposed to afforest 2,250 acres with Teak, Sal, Seasum, Chap, Eucalyptus Maudrny and Lampati.

Our greatest shortage for implementing this scheme is the lack of trained Foresters. If five trained foresters can be obtained on deputation from neighbouring states, there will be no difficulty in implementing the schemes which has major long term benefits for Bhutan.

Detailed break up of the expenditure is given in Vol. No. II.

Department Forest
Scheme No. VII
Name of the Scheme Construction and Maintenance of Roads.
Proposed Outlay Rs. 2.40 lakhs.

The Southern Division have 24 miles of forest roads and 3 miles of mule track, apart from several approach roads to range and Divisional headquarters.

No large scale venture has been planned. No extra staff is envisaged as this will be a normal activity of the Divisional staff.

The only new roads proposed are five miles in Samchi Division for tapping the Sal forest area near Kalikhola, eight miles for linking the existing road upto Jamduara to facilitate the extraction in that area and six miles from Khaur to Diafm along the border in Sarbhang Division.

Detailed break up of the expenditure is given in Vol. No. II.

Department Forest
Scheme No. VIII
Name of the Scheme Silvicultural operations and protection of the forest from fire.
Proposed Outlay Rs. 1,61,500.

In the plan the main emphasis is on the protection of plantations created earlier and to be created in this plan.

The scheme as envisaged is expected to protect about 14,000 acres in re generation areas, scattered in different places in the two Southern Divisions. This necessitates the employment of a number of fire watchers for reporting as well as fighting fires when they occur.

The scheme has provided for clearing and burning of fire traces and improving growing conditions for the stock by the removal of parasitic creepers.

No extra staff or equipment is envisaged.

Detailed break up of the expenditure is given in Vol. No. II.

Department Forest
Scheme No IX
Name of the Scheme Forest Industries (Experiment)
Proposed Outlay Rs. 20,000

Under this scheme three main experiment are proposed:

1. Resin tapping and distillation of turpentine oil.

2. Distillation of Citronella oil from Lemon grass.
3. Investigation of possibilities of extending lac cultivation in Eastern Bhutan.

1. Resin Tapping

There are large areas in Eastern and Central Bhutan under Chir pine. Being inaccessible, exploitation of neither timber nor resin has been attempted so far. With the construction of the road to Chirang it is proposed to investigate the possibility of tapping resin from the Chir pine trees and distilling the resin on a cottage industry scale.

The department intends to take up tapping on an experimental scale to collect data about the quantity of resin exuded and quality as well as the best season for tapping. After this information is available, if the report of quality and yield is favourable, it is proposed to set up some small distilling units to investigate the economics of the venture. A sum of Rs. 15,000 has been provided in the third year of the plan for this scheme. If successful local cultivators will be encouraged to instal similar distilling units on a cottage industry scale. No extra staff will be involved as the work will be carried out by the Divisional Forest Officer.

2. Citronella Oil

Some experiments in the distillation of citronella oil from lemon grass which occurs naturally in large quantities in Eastern Bhutan have already been carried out. Samples have been sent for testing to F. R. I. and the Citronella Oil Research Institute. The oil will be only of commercial value if the citral content is more than 70 %. The high cost of labour involved in collecting fire wood and the low quantitative yield of oil leaves, a slender margin between the cost of production and the price. Handling this venture as a centralised industry is out of question. The present high cost of labour also makes citronella extraction unprofitable for the local people to undertake as a cottage industry.

During the plan it is proposed to carry out experiments in different seasons and localities to obtain data about the yield and quantity.

No extra staff is contemplated.

3. Shelac

A great deal of stick lac used to be exported through the Darranga market by the people of Eastern Bhutan. The transport cost in those days was much lower by the river route and there was a ready demand in the Calcutta market.

With the present high cost of transport by rail the merchants no longer find it economic to buy the raw material at Darranga and the villagers have lost the incentive for growing the raw lac.

Experiments carried out by the Forest Department in the First Plan have proved un-economic. With the present rates of daily labour and cost of transport the only possibility appears to be manufacture of some articles locally out of the raw material. A token sum of Rs. 500 has been provided for this experiment.

No staff is contemplated.

Detailed break up of the expenditure is given in Vol. No. II.

Department Forest
Scheme No. X
Name of the Scheme Creation of Herbarium
Proposed Outlay Rs. 5,000

The Botanical Survey of India have made a survey and have collected specimens in Bhutan. They had promised to give the Forest Department of Bhutan two copies of each mounted specimen for our records.

As a Museum is being established in Paro, it is proposed to display the herbarium specimen there. A small sum has been provided for the transport as well as preservation of these specimen and for display cabinets.

Detailed break up of the expenditure is given in Vol. No. II.

Department Forest
Scheme No. XI
Name of the Scheme Construction Of Buildings
Proposed Outlay Rs. 8,17,000

The Forest Department will carry out its own construction except for the Divisional Headquarters at Thimphu which will

be undertaken by Bhutan Engineering Services. The rest of the programme envisages construction of accommodation for running staffing the field particularly for forest guards located in remote interior areas and some office and residential accommodation for the Conservators' Headquarters at Samchi.

No extra staff has been envisaged for the work which will be carried out departmentally. Bearing in mind our difficulty in obtaining labour and materials i.e. C.G. sheets, cement etc, only about 50 % of the requisite accommodation has been provided for at central locations such as Divisional Headquarters.

Provision has also been made for main enhancement of buildings.

Detailed break up of the expenditure is given at Page o. 123, Vol. No. II.

Department Forest
Scheme No XII
Name of the Scheme Soil Conservation
Proposed Outlay Rs.20,000.

Under this Scheme experimental soil conservation work (mainly tree planting and not engineering work) is proposed to be carried out in the Sorchen Bends area. The soil has already been rendered loose and crumbling by the construction of roads and mineral soil is exposed which contains no nutritional value for growth of trees and being very gravelly retains no moisture during the dry weather.

Detailed break up of the expenditure is given in Vol. No. II.

Department Forest
Scheme No. XIII
Name of the Scheme Creation of A Game Sanctuary
Proposed Outlay Rs.7.84 lakhs.

The game sanctuary area is contiguous to the Manas Sanctuary of Assam and it is being created as a continuation of the area to provide safe habitat and breeding grounds for animals like, rhinoceros, wild buffaloes and bisons.

A notification declaring the area as a game sanctuary will be issued shortly. Construction of buildings for tourists and staff was taken in hand in the First Plan. The cottage for His Majesty has also been constructed on the river bank.

In this Plan the completion of the buildings, their furnishing and electrification has been proposed. On His Majesty's instructions a 4 acre orchard has also been developed.

It is proposed to construct three small wooden tree top houses at suitable locations for watching the game, as an added attraction for visitors.

A team of five elephants is also to be maintained for the use of visitors.

Detailed break up of the expenditure is given in Vol. No. II.

Department Forest
Scheme No. XIV
Name of the Scheme Investigation of the strength and other properties of Bhutan Timber
Proposed Outlay Rs.15,000.

No scientific investigation of the properties of the timber available in Bhutan has been made. Under this Scheme, it is proposed to send samples of different types of timber to the- F.R.I. for testing.

The Plan envisages sending 10 different species each year and preparation of an inventory of the different properties of various species available in Bhutan. No extra staff is contemplated.

Detailed break up of the expenditure is given in Vol. No. II.

CHAPTER VII: HEALTH SERVICES

Before the inception of the First Five Year Plan, there were 4 hospitals a few dispensaries and a Leper Colony with 120 patients. The Medical staff was very meagre, there were only 2 Doctors in two hospitals and the remaining 2 hospitals and all the dispensaries were under the charge of compounders.

Primarily the task at the start of the first plan was:

- (i) Establishment of a Directorate of Health Services for proper organisation and the administration of the department and proper guidance of the development activities.
- (ii) To improve the working of existing hospitals and dispensaries and to open 2 more dispensaries.
- (iii) Start one Mobile dispensary.
- (iv) Initiate measures to control and eradicate communicable diseases such as small- pox, malaria, tuberculosis, leprosy, V.D., goitre and helminthiasis.
- (v) To provide protected water supply at important places.

The major difficulties faced by the department were:

- I. Absence of proper communications and transport.
- II. Shortage of qualified technical personnel at all levels from Nurses and Compounders upwards to man the hospitals and dispensaries.
- III. Shortage of adequate accommodation for hospitals and dispensaries as well as for the staff and difficulties of quick construction due to shortage of labour and materials.

Despite these handicaps considerable progress has been made, the Directorate has been established under the direct control of a Director. The existing 4 hospitals at Thimphu, Paro, Wangdiphodrang and Tashigang have been improved and the staff strengthened.

The hospital buildings at Thimphu have been renovated and the hospital equipped with modern equipment including X Ray Plant.

The Technical Committee had recommended the improvement of all the existing 11 dispensaries and establishment of 2 new dispensaries at Ghasa and Shemgang. As a matter of fact in the First Plan 13 dispensaries have been established, including the 2 recommended by the Technical Committee.

A Mobile dispensary as recommended by the Technical Committee has been established for operating in Eastern Bhutan with Headquarters at Khaling on Tashigang Samdrup Jongkhar Road.

2 New hospitals have been established at Samchi and Sarbhang.

2 Stretcher carrying Jeeps were purchased and converted to Mobile dispensaries and a Lady Health Visitor has been appointed to work with the Mobile dispensary in Tashigang area.

A leper hospital has been constructed at Gidakom near Thimphu at a cost of Rs. 1,41,000, to accommodate 50 indoor patients and also to provide out patient treatment. Another colony for 50 patients has also been established in hutments at Kurteo. It is at present looked after by a Compounder specially trained in leprosy work. It is proposed to appoint a Doctor during the Second Plan period. At the leper hospital at Gidakom, surgical treatment is also being proposed in the Second Plan. The Gidakom hospital is supervised by a Doctor from the Leprosy Mission.

Measures have been initiated for the control and eradication of communicable diseases.

(a) Smallpox

20 Vaccinators have been trained during the Plan period and posted at the different hospitals/dispensaries for mass vaccinator work.

(b) Malaria

The National Malaria Eradication Programme authorities of the Government of India have lent Bhutan a team for working in Southern Bhutan where Malaria is most prevalent. The headquarters of this team were established at Sarbhang in 1964. They have started a Laboratory at Sarbhang with sub centres at 10 different location for spraying. In the Second Plan it is proposed to expand the number of centres for spraying to 16.

(c) Tuberculosis

Tuberculosis wards have been attached to each hospital for indoor treatment of patients. The construction of Tuberculosis hospital at Samchi was started in the First Plan and an expenditure of Rs. 1,83,900 as incurred during that period. The

hospital and staff quarters are nearing completion and it is expected that it will start functioning from the Second Year of the Second Plan. Necessary provision for staff etc., has been made.

A B.C.G. team from West Bengal has also started working periodically in Bhutan for B.C.G. vaccination. The team has so far tested 16,073 persons of which 6,495 were found to be positive 6,465 of these cases have been vaccinated with B.C.G.

(d) Goitre

The sale of iodised salt at the subsidised rates has been introduced all over the country and the entry of the common salt has been banned.

Water Supply

The Technical Committee had recommended protected water supply in 6 places namely, Samchi, Phuntsholing, Sarbhang, Deothan, Thimphu and Wangdiphodrang. The implementation of these recommendations has been partially achieved. In the Second Plan provision for water supply has been made under the Bhutan Engineering Department through selection of sources and technical guidance from the Public Health Services will be given then at the time of starting projects.

As against the total proposed outlay of Rs. 83.52 lakhs, the expenditure incurred during the First Plan was Rs. 57.17 lakhs.

Objectives of Second Plan

The main objective in Second Plan is to improve the general level health and to expand basic health service coverage to reach all the people. Broadly it is intended to improve and strengthen the staff in the existing dispensaries and to open 5 new dispensaries it is also proposed to considerably reinforce the staff and facilities available at the Central Hospital at Thimphu and a new hospital building with accommodation for 100 patients is planned. (In the Second Plan period half the accommodation for bed strength and most of the other facilities will be completed).

It is also proposed to establish one additional hospital at Phuntsholing with 20 bed and to improve the working of the existing hospitals at Samchi Sarbhang and Tashigang.

The medical coverage will also be extended by deployment of 4 mobile units for which vehicles have been provided by the Government of the United Kingdom under the Colombo Plan. One of these vehicles will be placed at the disposal of the Health Visitor and 3 others will operate from the hospitals at Thimphu, Paro and Sarbhang.

Considerable expansion of the preventive schemes is also contemplated under all the heads.

Due to the difficulties of obtaining labour, and materials and our limited capacity for construction, extension and improvement of the existing hospitals is considerably hampered by shortage of staff quarters. In this plan along with the expansion of the hospital and dispensary buildings, limited number of staff quarters to meet about 50 % of our requirements has been proposed.

Details for each individual schemes are given separately.

Department Health Services
Scheme No. I
Name of the Scheme Direction
Proposed Outlay Rs. 9.109 lakhs (say Rs. 9.11 lakhs).

The Present staffing pattern of the Directorate is:

Director of Health Services 1
Superintendent of Health Services ... 1 (on deputation)
Office Assistant 1
Accountant 1
Upper Division Clerks 2
Lower Division Clerks 2
Drivers 2
Class IV staff 3

It is Proposed to add the following additional staff during the Second Plan:

Medical Officer/Registrar 1
Stenographer 1
Lower Division Clerk 1

Class IV Staff 1

With the expensive activities of the department and the necessity for constant and effective supervision of Projects in the field during the implementation stage, it is felt that both the Director and Superintendent of the Health Services should be relieved of the necessity for continuous attention to office routines. It is, therefore, proposed to appoint a Medical Officer with experience of administration of Health Service or an experienced and qualified Registrar to look after the routine work at the Directorate Headquarters. The expansion of the rest of the establishment is marginal and just sufficient to meet the expanding work load.

Detailed break up of expenditure is given in Vol. No. II.

Department Health Services
Scheme No. II
Name of the Scheme Medical Supply Depot (Phuntsholing)
Proposed Outlay Rs. 1.006 lakhs (say Rs. 1 lakh).

The Medical Supply Depot was established during the First Plan period at Phuntsholing to meet the needs of different dispensaries and hospitals from the Central Stores, as the difficulties of transport made the supply of medical stores directly to individual units from suppliers very irregular.

The store depot will maintain stocks for four months of most of the major requirements, of the various hospitals. Separate provision for procurement of stock has not been made under this Scheme as funds have been provided in individual units.

It is felt that in order to maintain adequate reserve stocks, it would be desirable to have a permanent advance of about Rs. 50,000 available with the Directorate for this purpose, which would not really be a liability on the Plan as it would be recouped as supplies are drawn by the individual unit.

Provision for a trained Store Keeper with experience of Medical Stores has been made in the current Plan and funds have been provided for the construction of staff quarters. The store building already exists.

Detailed break up of expenditure is in Vol. No. II.

Department Health Services
Scheme No III
Name of the Scheme Expansion of Thimphu General Hospital.
Proposed Outlay Rs. 25,921 lakhs.

It is proposed to expand the Thimphu Hospital to a General Hospital with 100 beds and specialised coverage as well as facilities for major surgery. In the First Plan provision was made for Rs. 19.70 lakhs for the extension of this hospital. This scheme could not be implemented as the government's decision on the layout of the new township at Thimphu had not been finalised.

In the Second Plan, bearing in mind our limited constructional capacity, part construction is contemplated. This will provide most of the operating and service facilities and accommodation for about half the bed strength (50 beds). When this building is completed the equipment and staff will be moved there from the existing building near the Dzong.

Specialised services particularly surgical will also be provided in the hospital and necessary provision for the requisite qualified staff has been made in the plan.

The existing staff is:

Medical Officer 1
Dental Surgeon 1
Compounders 5
Matron 1
Senior Nurse 1
Auxiliary Nurses 3
Assistant Nurses 2
Clerk 1
Driver 1
Class IV Staff 9

The additional staff proposed in the Second Plan which will probably be recruited in the Second year of the Plan is:

Surgical Specialist	1
Medical Specialist	1
Pathologist	1
Medical Officers (General duties)	2
Senior Nurses	2
Junior Nurses	2
Assistant Nurses	3
Class IV Staff(Dhobi, Mali, Cook etc.) ...	16

Detailed break up of the expenditure is given in Vol. No. II.

Department Health Services
Scheme No. IV
Name of the Scheme Improvement of existing Hospitals.
Proposed Outlay..... (a) Tashigang Hospital Rs. 5.674 lakhs.
(b) Samchi Hospital Rs. 5.896 lakhs.
(c) Sarbhang Hospital Rs. 5.899 lakhs.
Total Rs. 17.470 lakhs.

In the Second Plan, it is proposed to improve the three existing hospitals at Tashigang, Samchi and Sarbhang by:

- (a) providing modern instruments and equipments,
- (b) installation of X Ray plants,
- (c) augmentation of the staff by providing at least 2 Doctors (one with surgical experience) and bringing the nursing staff and technicians upto requisite strength. Renovation and improving of the existing hospital buildings and provision of a certain amount of residential accommodation for the staff (50 % of the requirement) is also planned.

The present strength is:

(a) Tashigang	
Medical Officer	1
Compounder	2
Junior Nurses	2
Asstt. Nurse	1
Vaccinators	2
Class IV Staff (Cook etc.)	3
(b) Samchi	
Medical Officers	2
Compounder cum X-Ray technician ...	1
Senior Nurse	1
Junior Nurse	1
Lower Division Clerk	1
Vaccinator	1
Assistant Nurses	2
Driver	1
Class IV Staff (Cook etc.)	8
(c) Sarbhang	
Medical Officer	1
Junior Nurse	1
Compounder	1
Lower Division Clerk	1
Assistant Nurses	2
Vaccinator	1
Driver	1
Class I V Staff (Cook etc.)	5

The addition staff proposed are:

(a) Tashigang	
Medical Officer	1
Senior Nurse	1
Laboratory Technician	1
X Ray Technician	1
Class IV Staff	1
b) Samchi	
Senior Nurse	1

Laboratory Technician 1
Class IV Staff 1
(c) Sarbhang
Medical Officer 1
Senior Nurse 1
Compounder 1
X Ray technician 1
Class IV Staff 2

Detailed break up of the expenditure is given in Vol. No. II.

Department Health Services
Scheme No. V
Name of the Scheme Establishment of new hospitals
Proposed Outlay Rs. 8.59 lakhs.

Under the Second Plan a new 20 bed hospital is proposed to be established at Phuntsholing.

At present there are only two hospitals catering for Southern Bhutan, one at Samchi and the other at Sarbhang. Phuntsholing is the main entry point for Thimphu and Paro. There is a large floating population and constant traffic of visitors from the plains of Assam and Bengal. It is necessary to locate a hospital at this place both to cater to the needs of our staff stationed there, which is sizeable, as well as, to cater to transients and to prevent import of any communicable diseases from the plains.

The staff proposed is:

Medical Officer 1
Compounder 1
Junior Nurses 2
Assistant Nurses 2
Lower Division Clerk 1
Vaccinator 1
Class IV Staff (Cook etc.) ... 5

Provision has been made for construction of the hospital buildings and part of the residential accommodation required for the staff. Provision has also been made for equipment and furniture for the hospital.

Detailed break up of the expenditure is given in Vol. No. II.

Department Health Services
Scheme No. VI
Name of the Scheme Civil Annexe to Border Road Hospital Deothang).
Proposed Outlay Rs. 99 lakhs.

The Border Roads Organisation has a well equipped hospital at Deotkang, which is the Headquarters of the Task Force Commander, Dantak. They have been treating civilian patients in this hospital but they have no women staff for looking after women patients.

The Commander has agreed to the hospital providing out patients treatment and also treatment of indoor patients, if we can construct a ward and provide one Junior Nurse They will levy capitation charges on the normal rates prevailing in Defence Services hospitals for non defence personnel.

In the scheme, provision has been made for the construction of a ward and quarters for the nurse. Provision has also been made for furniture and equipment for the ward. No provision has been made for major hospital equipment or for diet or medicine charges.

Lump sum provision to meet capitation charges has been included.

Detailed break up of the expenditure is given in Vol. No. II.

Department Health Services
Scheme No. VII
Name of the Scheme Improvement of Existing Dispensaries

Proposed Outlay Rs. 24.25 lakhs

In the Second Plan period it is proposed to improve medical cover provided by the 25 existing dispensaries by providing Doctors at the more important centrally located dis-pensaries and slightly augmenting the staff.

There are at present three doctors in dispensaries at Gaylegphug, Paro and Byagar. We propose to appoint two doctors in the Second year of the Plan and six doctors in third year of the Plan at Chirang, Mongar, Sibsoo, Chengmari, Surey, Dungsam, Yangtshi and Gomdar.

In addition two Junior Nurses will be appointed one each at Byagar and Mongar in the Second and Third year respectively.

The present staff is as follows:

Medical Officers 3
Compounders 37
Assistant Nurse/Vaccinators 25
Class IV Staff 27
Dresser 1

Additional staff for the Second Plan as proposed is:

Medical Officers 8
Junior Nurses 2
Class IV Staff 8

Provision has been made for expanding the existing facilities in the more important dispensaries by providing four emergency beds and also additional equipment in the various dispensaries.

Detailed break up of the expenditure is given in Vol. No. II.

Department Health Services
Scheme No. VIII
Name of the Scheme Establishment of New Dispensaries
Proposed Outlay Rs. 2.996 lakhs (say Rs. 3 lakhs).

With the growing consciousness of the people regarding benefits of proper medical care a need for more dispensaries in the interior particularly in Northern and Eastern Bhutan is felt.

In the Second Plan period it is proposed to establish five new dispensaries to meet this growing needs. The location will be decided in due course.

The staff proposed for each dispensary is:

Compounder 1
Vaccinator 1
Class IV Staff 1

Provision has been made for the construction of the dispensary buildings. A limited amount of staff accommodation, furniture and equipments for the dispensaries has also been provided.

Detailed break up of the expenditure is given in Vol. No. II.

Department Health Services
Scheme No. IX
Name of the Scheme Leper Colonies
Proposed Outlay (a) Gidakom Rs. 5,233 lakhs
(b) Kurteo Rs. 2.969 lakhs (say Rs. 2.9 lakh)
(c) Grant in aid to Parkijuli Leper Mission Rs. 1 lakh.
Total Rs. 9.20 lakhs.

There are two leaper colonies (i) at Gadakom near Thimphu and (ii) Kurteo. In addition the Parkijuli Leper Mission has agreed to establish a colony in Tashigang area and take full responsibility for it.

We propose to give them a grant in aid of Rs. 25,000.per year.

(a) Gidakem Leper Colony

The colony was established during the First Plan and a certain amount of construction was done under the First Plan and is under progress. About 2.1 lakhs will be required for the purpose during the Second Plan period.

The management of the hospital is in the hands of Leprosy Mission Purulia, who have posted one Doctor (Dr. Reidel) as the Superintendent of the Hospital. All the staff for the hospital (except one compounder and one driver and three Class IV staff which are already in existence) will be the responsibility of the Mission. The Government of Bhutan will be responsible for bearing the expenditure on transport (one Jeep for the Superintendent) and transportation of rations and medical stores.

(b) Kurteo

Hutted accommodation for 30 patients has been provided at the colony in Kurteo, which is at present under the charge of a Compounder.

The incidence of Leprosy in this area (Eastern Bhutan) is rather high. In the Second Plan, it is proposed to establish a 50 bed hospital at Kurteo under a qualified Doctor with special training in Leprosy work.

(c) Parkijuli Lepr Mission

Parkijuli Leper Mission has agreed to establish a leper clinic cum hospital at Riserboo in Tashigang District. They will meet most of the expenditure on construction and running of the Mission. We propose to give a grant in aid towards procurement of medicines and feeding of patients to the tune of Rs. 25,000 per year.

Detailed break up of expenditure is in Vol. No. II.

Department Health Services
Scheme No. X
Name of the Scheme Mobile Units
Proposed Outlay Rs. 2.43 lakhs.

One Mobile Unit is already operating in Eastern Bhutan under the control of a Lady Health Visitor with Headquarters at Khaling. Three more will operate with the hospitals at Thimphu, Sarbhang and Paro as bases. No additional staff has been provided for these three units, as hospital staff will be utilised for this purpose. Provision for the maintenance of the vehicles and supply of drugs for three units is also included in the provision for the hospitals.

The unit at Khaling was upto now operating with stretcher carrying Jeeps, purchased by us. It has now been equipped with one Land Rover specially equipped as a Mobile Dispensary/Ambulance. Three other Mobile Units will also be provided with similar vehicles. The vehicles were obtained from the Government of the United Kingdom under the Colombo Plan.

Present staffing pattern for the unit at Khaling is :

Lady Health Visitor 1
Driver 1
Class IV Staff 2

It is proposed to provide one additional Junior Nurse to assist the Health Visitor. Provision for Drivers for the Mobile Units based at Thimphu, Paro and Sarbhang have been included in this scheme.

The construction of accommodation for the unit at Khaling which is in progress has also been provided for in this scheme.

Detailed break up for the expenditure is given in Vol. No. II.

Department Health Services
Scheme No. XI
Name of the Scheme Control and Eradication of communicable diseases
Proposed Outlay (a) Malaria Eradication Rs. 27.39 lakhs
(b) T.B. (Curative) Rs. 3.296 (say Rs. 3.30 lakhs).
(c) T. B. (B. C. G.) Rs. 5.69 lakhs.
(d) Goitre control Rs. 2.846 lakhs.
(e) Trachoma Rs. 1.49 lakhs.

Under this scheme action for the eradication/control of communicable diseases has been planned. The projects contemplated are:

- (a) Malaria Eradication.
- (b) T. B. (Curative measures).

- (c) T. B. (preventive measures). (B. C. G.)
- (d) Goitre control
- (e) Trachoma control.

(a) Malaria Eradication

The National Malaria Eradication Programme team sent by the Government of India have been working in Southern Bhutan with their Headquarters at Sarbhang since 1964. They have during the period established 10 spraying centres which will in the Second Plan reach the consolidation stage.

Six more centres are proposed to be established in the Second Plan in keeping with the recommendation of the Malaria Survey team which carried out a survey in 1962. To implement this programme, there will be considerable increase in staff particularly in the field staff.

The insecticides and drugs are provided by the Government of India. However, provision has been made for equipment and transport cost. Present staff employed on the Malaria Eradication Programme is:

Medical Officer	1
Accountant	1
Typist	1
Store Keeper	1
Laboratory Technicians	4
Junior Inspectors	9
Mechanic	1
Drivers	3
Senior Field Workers	4
Class IV Staff	5
Field Workers	11

In addition 16 seasonal Senior Field Workers and 120 seasonal Field Workers are employed for 8 months during the spraying season. About 20 porters are also employed seasonally.

With the establishment of 6 more spraying centres in the Second Plan the following additional staff is being provided for:

Assistant Unit Officer	1
Senior Malaria Inspectors	4
Junior Malaria Inspectors	2
Class IV Staff	2
Senior Field Workers	6
Field Workers	6

In addition six Senior Field Workers and 84 field workers and porters will be employed during the spraying season.

Provision has been made for the construction of requisite stores and office buildings and limited staff quarters.

(b) Tuberculosis (curative)

A Tuberculosis hospital has been established at Samchi and construction of a major portion of the buildings was completed in the First Plan at an approximate expenditure of Rs. 1,83,900. As soon as the staff has been obtained, the centre will start functioning. In view of the anticipated difficulty of obtaining qualified and experienced personnel, provision has only been made in the second year of the Plan.

The incidence of T. B. is rather high particularly in the Gurkhali inhabited areas of Southern Bhutan. It is for this reason the hospital is located at Samchi in Southern Bhutan.

The staff proposed is:

Medical Officer (trained in T. B. work) ...	1
Compounder	1
Junior Nurses	2
Assistant Nurses	3
Class IV Staff	3

The staff of the T. B. hospital will also have the assistance of the main hospital at Samchi. Provision for equipment has been made. No provision for the buildings has been made as they have been more or less completed in the First Plan.

(c) Tuberculosis (preventive B. C. G. Team)

A B. C. G. team on loan from West Bengal is at present carrying out B. C. G. vaccination in Bhutan. In the Second Plan, it is proposed to raise two teams to continue this work. One Medical Officer, specialised in B. C. G. work to supervise both the teams has been provided in the plan.

It is proposed that the teams will visit each village test and vaccinate and compile records.

Staff proposed for each team is as follows:

Team Leader (to act as l/cs of the M. O. for supervision and guidance 1 of the technicians in their day to day work) 2
Technicians 3 per team.

In addition a Lower Division Clerk, a driver and to Class IV staff have been provided at Headquarters for the Medical Officer in charge.

Provision has been made for office and store buildings and limited staff quarters as well as for procurement of equipment and drugs such as field workers haver sacks, vaccine etc. and purchase of one Jeep for the Medical Officer's tours.

(b) Goitre Control

Iodised salt for Goitre control is imported from India and distributed throughout Bhutan. Godowns for the storage of salt have already been constructed at Phuntsholing, Gaylegphug and Deothang. The construction of a fourth godown at Sarbhang is proposed in the Second Plan. The godowns will be under the charge of a Store Keeper with one Chowkidar. The Civil Sub-Divisional Officers of the respective areas have been entrusted with the supervision of the sales and maintenance of accounts for which they will be given an honoraria of Rs. 50 per month. The sale of iodised salt to the Public will be subsidised to keep the price at par with that of common salt. The expected cost of subsidy is about Rs. 15,000 a year. Provision for the subsidy and for the construction of a godown at Sarbhang as well as accommodation for staff at all the places has been made in the Second Plan.

(e) Trachoma Control

It is proposed to form one team to be engaged for Trachoma control, a disease which is very prevalent in Bhutan.

The staff proposed is:

Medical Officer 1
Compounder 1
Driver 1
Class IV Staff 2

Provision has been made for the construction of staff quarters and the cost of one Jeep.

With the anticipated delays in obtaining qualified personnel, it is expected that the team will only be able to function in the Second Year. Provision has, therefore, been made from the Second Year.

Detailed break up of the expenditure is given in Vol. No. II.

Department Health Services
Scheme No. XII
Name of the Scheme Training Programme
Proposed Outlay Rs. 0.73 lakhs.

The training of literate Bhutanese candidates for various technical courses was the responsibility of the Education Department in the First Plan.

In the Second Plan, it is proposed that each department should obtain suitable candidates in consultation with the Education Department and arrange their own training courses, either in their own establishments in Bhutan or in establishments in India.

As the Education Department has made provision in the first year for those trainees, already undergoing training in Medical courses, provision has only made from the second year onwards.

During the plan period, it is proposed to train 12 compounders, 16 auxiliary Nurses 15 Vaccinators, 4 dressers, 2 X Ray technicians and 2 Laboratory technicians.

Provision has been made at the rate of Rs. 100 per month as stipend for the compounders, nurses and technicians and at the rate of Rs. 80 per month for 9 months a year in the case of vaccinators and dressers who will mainly be trained in our own establishment.

Provision has also been made for expenditure on R. A. Uniforms for nurses and incident-al charges for sending Compounders, Nurses and Technicians to suitable institutions in India for training.

Detailed break up of the expenditure is given in Vol. No. II

CHAPTER-VIII: POSTAL DEPARTMENT

There was traditional runner service between Dzongs in existence in Bhutan for several years.

In 1962 a regular Postal Service was established in Bhutan and postage stamps were issued for the first time. The first post office was opened in Phuntsholing followed by Paro in the same year and by Thimphu in~ 1963. But service was restricted to despatch and deli- very of unregistered mail only. In all other places the runner service under the Civil Administration continued to function

The Postal adviser was appointed in 1964 and the programme for development of the Postal Services was incorporated into the plan from February, 1965.

During the First Plan, 15 departmental post offices and three extra departmental post offices were established. Bhutanese personnel were also selected and trained for manning the new post offices. A fleet of vehicles was organised to operate the mail services.

Construction of departmental buildings at Phuntsholing and Thimphu as well as in the interior at Tashigang and Wangdiphodrang was commenced.

Steps were also taken for evolving a sound philatelic programme.

During the First Plan period arrangements were made for the acceptance of registered mail for despatch to India through Indian Post Offices, on an informal footing. The Bhutan post offices are accepting registered mail at the owner's risk and arranging for it to be taken to Indian Post Offices for registration levying an additional charge for the purpose. Similar arrangements exist for despatch of Money Orders.

In the Second Plan, it is proposed:

- (1) to spread the postal facilities further by establishing post offices at all the Dzongs and Sub Divisional Headquarters.
- (2) to improve the carrier strength by supplementing the present fleet of vehicles to bring the operating strength to at least 20 at any time (for this purpose provision has been made for the purchase of 19 vehicles which will include replacements for worn out vehicles of the existing fleet of 15).
- (3) to take over completely, the runner services at present operating between the Dzongs and operate them on a more regular and organised footing.

In addition at various post offices, it is proposed to provide regular facilities for parcel, insurance and V. P. P. services on a proper basis and to enter into suitable arrangements with the Govt. of India for transmission of such mail under Bhutan postage.

Department Postal
Scheme No. I
Name of the Scheme Direction
Proposed Outlay Rs. 5.65 lakhs

In the Second Plan the organisational set up envisaged is of a Director (Postal Adviser) in charge of the Department with a Divisional Superintendent of Post Offices, in charge of the postal operations, a Divisional Engineer, Telephones and Telegraphs and in charge of the Telephone net work, which is to be taken over from the Border Roads Organisation, and an Officer in charge of the Philatelic Branch.

The staffing pattern proposed for Headquarters is:
Director (Postal Adviser) 1

Stenographer 1
Office Assistant 1
Upper Division Clerks 2
Lower Division Clerks 2
Class IV Staff 2

In addition an accounts organisation with one Accountant, three Accounts clerks and one Peon under the direct control of the Director has been envisaged.

The Executive staff of the three divisions has been catered for separately.

Provision has also been made for contribution to the U. P. U. to which Bhutan has already applied for membership under sponsorship of Government of India and for an ex-penditure on attendance of Conferences organised by the U. P. U.

Detailed breakup of the expenditure on the Director's Headquarters is in Vol. No. II.

Department Postal
Scheme No. II
Name of the Scheme Executive Staff for the Postal Services
Proposed Outlay Rs. 3.07 lakhs

With the larger number of post offices contemplated and the increased facilities such as Registration, Money Orders and V. P. P. services, as well as the expanded scope of the carrier service both by vehicles and runners, it is necessary to have direct executive supervision. For this purpose it is proposed to set up an executive organisation under a Divisional Superintendent with four Sub Inspectors and limited clerical staff.

The staff proposed is :
Superintendent 1
Assistant Superintendent 1
Sub Inspectors 4
Clerical Staff 6
Class IV Staff 4

Note: Vehicles both for the Superintendent and Directorate are included in the overall requirement of vehicles shown in the separate scheme.

Detailed break up of the expenditure is given in Vol. No. II.

Department Postal
Scheme No. III
Name of the Scheme Existing Post Offices
Proposed Outlay Rs. 7.04 lakhs

There are at present 21 post offices which were established during the First Plan. It is proposed to increase their activities under the separate scheme for registration, insurance parcel and V. P. P. services.

The present strength of the staff overall is:
Postmasters 21
Postmen 4
Class IV Staff 15

In the Second Plan provision has been made for adding 17 Class III staff (Postmasters), one postman and 6 Class IV staff to cope with the increasing loads.

Detailed break up of the expenditure is in Vol. No. II.

Department Postal
Scheme No. IV
Name of the Scheme Establishment of new Post Offices
Proposed Outlay Rs. 1.52 lakhs.

Under the Second Plan, it is proposed to open 1 new departmental Post Offices at:

Chenmari, Deothang, Kalikola, Dorokha, Doong, Gasa, Shemgang, Lingsi, Chapcha, Yangshi, and Tala.

In the Second Plan period these will be manned by a single Postmaster and no other staff will be provided.

The additional post offices are being established with a view to having regular post offices at every Sub Divisional Headquarters in Southern Bhutan and Dzong Headquarters in Northern Bhutan.

Detailed break up of the expenditure is given in Vol. No. II.

Department Postal
Scheme No. V
Name of the Scheme Extra Departmental Post Offices
Proposed Outlay Rs. 19,030.

It is proposed to open 11 extra departmental post offices mainly to cater to our establishments in remote areas. For these extra departmental post offices one of the local officials will be appointed as Postmaster and given a nominal allowance of Rs. 40 per month.

Detailed break up of the expenditure is given in Vol. No. II.

Department Postal
Scheme No. VI
Name of the Scheme New Service
Proposed Outlay Rs. 31,000.

In the Second Plan, it is proposed to introduce registered parcel, insurance and V. P. P. services.

No additional staff is necessary for this purpose. Provision has only been made for the initial expenditure on printing of forms and purchase of some equipments, such as balances and safes.

Detailed break up of the expenditure is given in Vol. No. II.

Department Postal
Scheme No.VII
Name of the Scheme Philatelic Service
Proposed Outlay Rs. 3,12,944.

In order to organise the Philatelic service on a sound footing a separate unit is being created under Philatelic Officer. We have at present an arrangement under which Bhutan Stamps Agency Ltd. (an American Firm with Headquarters at Bahamas), print four com-memorative issues a year on our behalf.

The stamps issued during the past couple of years have been extremely popular and have been an important source of revenue. It is proposed to continue this arrangement for the present. But the Philatelic unit has been set up to organise the sale and advertisement of the issues to come out, as well as prepare designs for new issues and first day covers, folders etc.

The contract with the Bhutan Stamp Agency is upto 1969. The Philatelic unit is being organised to be able to take over the entire responsibility at the end of this period if necessary.

The staff proposed for the Philatelic unit is:

Philatelic Officer 1
Philatelic Assistant 1
Clerks 4
Class IV Staff 2

Detailed break up of the expenditure is given in Vol. No. II.

Department Postal
Scheme No. VIII
Name of the Scheme Carriage of Mails by Vehicles
Proposed Outlay Rs. 11,62,000.

We have at present 15 vehicles, many of them decrepit for the carriage of mails. With the improvement of roads and increased milage available as a result of road construction programmes, further extension of this service is considered necessary.

It is proposed to purchase 19 vehicles in the Second Plan for the expansion, as well as, for replacement of the existing Vehicles. It is hoped with these 19 vehicles, that a fleet of 20 will always be in operation.

This includes the vehicles for the Director, Divisional Superintendent of Post Offices and Divisional Engineer, Telephone and Telegraphs.

Detailed break up of the expenditure is given in Vol. No. II.

Department Postal
Scheme No. IX
Name of the Scheme Runner Services
Proposed Outlay Rs. 4.20 lakhs.

From early times there has been a traditional runner service under the control of the Dzongs. With the inception of the Postal Service, it was felt that runner service should be taken over and carriage of mails put on a regular and organised footing.

In the First Plan 27 runner routes were organised. In the Second Plan, it is proposed to take over the remaining 33 runner routes with effect from the second year.

No staff apart from the runners will be required for the purpose.

Detailed break up of the expenditure is given in Vol. No. II.

Department Postal
Scheme No. X
Name of the Scheme Training of Postal and Philatelic Staff
Proposed Outlay Rs. 36,720.

During the Second Plan period, it is proposed to train one officer as Superintendent of Post Offices by attaching him to similar officers in India for 10 months.

Similarly four Sub Inspectors, 15 Postmasters, one Philatelic Assistant, three Philatelic Clerks and three Accounts Clerks will be sent for short training and attachment in India.

Detailed break up of the expenditure is given in Vol. No. II.

Department Postal
Scheme No XI
Name of the Scheme Telephone Services
Proposed Outlay Rs. 12,55,924 (Say Rs. 12.56 lakhs)

Telephone Exchanges have been installed at Thimphu, Paro and Phuntsholing and are being installed in Tashigang, Wangdiphodrang, Ha, Sambrup Jongkhar and Deothang. As the exchanges are completed, it is proposed that the Government of Bhutan would take them over.

Provision has been made for taking over these eight exchanges in the next five years.

The staff proposed is:

Divisional engineer 1
Engineering Supervisor 2
Telephone Operators 30
Linemen 50
Electricians 8
Instrument mechanics 8
Stenographer 1
Upper Division Clerk 1
Lower Division Clerk 1

Accounts Clerks 2
Class IV Staff 2

In addition provision has been made for special instruments such as Sacraphones and plan 103 sets and for the underground cables which the Border Roads Organisation will not be providing.

Hiring charges for use of telephone lines in India has also been provided for from the second year.

Detailed break up of the expenditure is given in Vol. No. II.

Department Postal
Scheme No. XII
Name of the Scheme Training of Telephone Operators
Proposed Outlay Rs 51,240

In order to meet our needs of telephone technicians such as Linemen, Instrument mechanic and Telephone Operators, it is proposed to send 10 Linemen, two Instrument mechanics, two Electricians and six Telephone Operators per year for training. Provision has been made for their stipends and for their T. A. and other expenses including payment to Government Institutions where they will be trained, as well as, for their messing charges.

Detailed break up of the expenditure is given in Vol. II.

Debarment Postal
Scheme No. XIII
Name of the Scheme Introduction of Telegraphic Services
Proposed Outlay Rs. 1,65,468 (say Rs. 1.65 lakhs)

In the Second Plan, it is proposed to introduced telegraphic services utilizing the existing telephone lines.

Provision has only been made for a limited amount of equipment and staff which will be under the overall control of the Divisional Engineer, Telephones.

The staff proposed for this scheme is:
Telegraph Master 1
Telegraphists 4
Telegram messengers 6

Telegraph facilities will be established mainly at Thimphu, Paro and Phuntsholing.

Detailed break up of the expenditure is given in Vol. No. II.

Department Postal
Scheme No. XIV
Name of the Scheme Buildings
Proposed Outlay Rs. 10,73,600 (Say Rs. 10.74 lakhs)

The Post Office building at Phuntsholing was started in the First Plan and it is expected to be completed in the first year of the Second Plan. Provision for the spill over to meet this expenditure has been made in the Second Plan.

In addition the Post Office buildings at Thimphu, Sarbhang, Gaylegphug, Paro, Wangdi- phodrang, Sibsoo, Chirang, Ha, Lhantai and Byagar have also been provided for.

Residential accommodation at Phuntsholing, Sarbhang, Gaylegphug, Paro, Samdrup Jongkhar, Samchi, and Sibsoo has also been included in the plan.

Where there are large concentrations of staff only 50% of the accommodation is catered for bearing in mind our limitations for construction.

Detailed break up of the expenditure is given in Vol. No. II.

CHAPTER-IX: PUBLICITY DEPARTMENT

The necessity of establishing a Publicity department to bring home the activities of the Development Departments to the people was felt in the First Plan. A Director of Publicity was appointed in July, 1965 with ad hoc staff borrowed from the Development Wing Head- quarters.

With the increasing activities in the Second Plan, more intensive and organised publicity is considered necessary, and certain expansion of staff as well as publicity activities is contemplated

There was a Press, originally under the control of the Education Department, which is being transferred to the Publicity Department from this Plan. The Press will continue to handle the printing of text books and other printed matters required by all the departments of the Development Wing, as well as publishing a regular newsletter in Bhutanese, Nepalese and English. Provision has been made for purchase of equipment and additional type founts for this purpose.

Details are furnished separately.

Department Publicity
Scheme No. I
Name of the Scheme Direction
Proposed Outlay Rs. 10,71,500.

The present strength of the Publicity Department is :

Director 1
Upper Division Clerk 1
Lower Division Clerk 1
Reporter (Bhutanese) 1
Driver 1
Class IV Staff 2

In the Second Plan the following additional staff is proposed:

Publicity Officer 1
Translator (Nepalese) 1
Photographer 1
Accounts Clerk 1
Steno typist 1
Projector Operators 2
Class IV Staff (including handyman for assisting the Projector Operators) ... 4

With the increasing development activities, it is proposed to intensify the publicity works in the interior, both from the point of view of collecting material for outside publicity, as well as showing of documentary films etc. It is also proposed to publish a regular news- letter for distribution in the interior. The newsletter will be printed in Bhutanese, Nepalese and English.

Provision has been made for the purchase of three jeeps, one at the beginning of the Plan period as a replacement for the existing vehicle, one for the Publicity Officer, and one as a replacement at the end of the Plan period.

Provision has also been made for the purchase of projectors, tape recorders, cameras, dark room equipment and public address equipment.

Details of the expenditure are given in Vol. No. II.

Department Publicity
Scheme No. II
Name of the Scheme Printing Press
Proposed Outlay Rs. 8,52,00

A printing Press was started in the First Plan in the last quarter of 1965 and was under the control of the Education Department.

The present staff is:

Assistant Manager 1
Reader (Bhutanese, who is also responsible for producing books in Bhutanese and is at present preparing a History of

Bhutan) ... 1
Press Operators 5
Lower Division Clerk 1
Class IV Staff 2

The additional staff required for manning the additional equipment proposed in the Second Plan is:

Operator of Cylinder Printing Press. 1
Operator for Litho machines 1
Bhutanese Writer for Litho Plates 1
Inker 1

It is also proposed to train three trainees from the third year and two trainees from the fourth year on a fixed stipend of Rs. 80 per month.

The equipment proposed in the Second Plan is:

Bhutanese and Nepalese Type Founts -
Perforating machine 1
Power driven Cutting machine 1
Envelope Punching machine 1
Power-driven pen Ruling machine 1
Power driven Letter Press (Cylinder Printing machine) 1
Power driven Letter Printing machine 1 (To be imported foreign exchange equivalent to Rs. 50,000 will be required. If possible, the equipment will be purchased from one of the countries with whom rupee payment arrangements exist).

In addition, provision has also been made for accessories for the existing press and the new equipment. A Press building is under construction and Rs. 1,10,000 has been provided in the First Year for completion of the project.

Residential Buildings to half the total accommodation required have also been provided for the Press staff.

Details of the expenditure are given in Vol. No. II.

CHAPTER-X: TRANSPORT DEPARTMENT

The Technical Team of the Planning Commission had for the First Plan recommended the development of a transport service (a) to provide quick and comfortable travel facilities for the public and the Government, and (b) a goods service to offer facilities for transport of goods both of the Development Department and the public. Provisions was also made for a workshop for overhauling etc. An overall outlay of Rs. 1,85,57,000 was approved for this purpose. It was anticipated that the transport service would yield about Rs. 70 lakhs in revenue.

In the First Plan our experience has been that due to the early stage in the development of the roads, wear and tear of vehicles had been considerable and both fuel consumption as well as maintenance costs have been much higher than normally expected. Delays and idle time due to landslides and other factors which make it impossible to stick to schedules have also considerably affected the earnings. Vehicles have also deteriorated very rapidly.

The position today is that out of 131 vehicles, only 61 are runners, 45 are completely condemned and action for write off and disposal is being taken separately. 14 others are beyond economical repair and maintenance, and similar action will be taken for their write off also. We may cannibalise the useable parts of all these vehicles and take them on charge as used parts before auctioning the condemned vehicles.

We have loaned nine vehicles to the Civil Department for the Dzong construction and other works and two more have been attached to the Development Wing Headquarters pool to amount their present strength of vehicles, as these have also become old and need con-tinuous repair.

In the Second Plan, it is proposed to purchase 100 vehicles in all, partly for replace-ment and partly for catering to the additional needs.

The break up of requirement of vehicles is in Vol. No. II.

The break up of the cost involved is in Vol. No. II.

With the improvement in roads, the major routes such as Phuntsholing-Thimphu, Phuntsholing Paro, will be put on regular bus schedules. However, as the requirement of passengers is partly high and there are very few loads on the return journey for goods vehicles, passengers will also be carried on the downward journey by the goods vehicles whenever practicable at a slightly lower charge.

Routes Operated

At present the Transport Service operation routes from:

- (1) Phuntsholing to Hasimara.
- (2) Phuntsholing to Alipurduars.
- (3) Phuntsholing to Kalimpong.
- (4) Sarbhang to Kokrajhar.
- (5) Gaylegphug to Bongaigaon.
- (6) Samdrup Jongkhar to Rangia.
- (7) Samchi to Banarhat.
- (8) Phuntsholing to Thimphu.
- (9) Thimphu to Paro.

Bus services are now proposed to be opened between Phuntsholing and Samchi, and to increase the services to meet the increasing load between Gaylegphug Bongaigaon and Sarbhang- Kokrajhar.

As the roads improve, bus services will be extended from :

- (1) Thimphu to Wangdiphodrang.
- (2) Samdrup Jongkhar to Riserbu.
- (3) Sarbhang to Chirang.
- (4) Gaylegphug to Mangdichu.

The routes will be further extended if the road programme progress beyond these points.

It is also proposed to rationalise the connecting services at present run from the border towns of Bhutan to various railhead in India to avoid duplication. With the increasing traffic, it is anticipated that our bus services should become genuinely revenue earning from this Plan. The anticipated gross revenues from the bus services is at Page No. 193, Vol. No. I.

Goods Traffic

Goods traffic on most routes has up to now been carried in 1 1/2 ton power wagons because of the condition of the road. With the improvement now in hand, the major roads such as Phuntsholing Thimphu/Paro, Samdrup Jongkhar Tashigang, Gaylegphug Mangdichu and Gaylegphug Sarbhang should be able to take heavier vehicles. The power wagons will continue to be utilised on roads which are still being developed and a considerable number (about 20) of power wagons will continue to be required throughout the Plan period because of the further expansion of roads. The increased development activities will place a considerable demand on the transport organisation, and on anticipated utilisation of such vehicle for about 40 miles a day, this operation should also prove a paying proposition. The anticipated revenue from goods carried is in Vol. No. II.

Overall, it is expected that taking into consideration the cost of operating the Transport Department including maintenance and repairs of vehicles etc., the net profit should be about Rs. 2.70 lakhs in the First year, and a little under Rs. 3 lakhs in the subsequent years.

Though for purpose of calculating net profits maintenance costs have been shown in the statement in Vol. No. II funds for this purpose have not been asked for under the Transport Service, as provision for the purchase of spares and for the staff, equipment and materials require for repairs has been fully made in the Workshop for which a separate proposal is being submitted.

The present staff for supervisory purposes at headquarters is:

Transport Officer	1
Office Assistant	1
Accountant	1
Upper Division Clerks	5
Lower Division Clerks	17 This includes staff for out stations
Stenographer	1
Class IV Staff	5
Mechanic	1

In the Second Plan with the increased operations, it is considered necessary to appoint:

Assistant Transport Officer ... 1
Depot Managers for outstation Depots ... 2
Additional Class IV Staff (Choukidars etc. for outstations) ... 14

The operating staff at present on the Transport Department strength is :

Traffic Inspector 1
Assistant Traffic Inspectors 11
Conductors..... 18
Drivers 77
Handyboys..... 77

With the additional vehicles which will be operating, it is proposed to increase the staff as follows:

Traffic Inspectors 3
Booking Clerks cum Checkers 5
Drivers 25
Conductors 9
Handyboys 9

The number of clerks will also be reduced to 12 from 17.

It is also proposed to appoint handyboys only for heavy transport vehicle. The increase in handyboys is, therefore, far below the increase in vehicles.

As far as non residential buildings are concerned, they are mainly bus stands, waiting shades and ticket office buildings. Residential accommodation for about 50% of the total requirement has been provided.

Detailed break up of the expenditure is in Vol. No. II.

CHAPTER-XI: WORKSHOP

In the First Plan, it was proposed to establish three Main Workshops with six Auxiliary Workshops Class I and five Auxiliary Workshops Class II, in support.

In the light of experience gained and the difficulty of manning these workshops, it has been decided to modify the concept of workshop cover to make it more economic and provide efficient and fuller utilisation of facilities available in the existing workshops.

It is proposed to have one central workshop at Phuntsholing, fully equipped for all major jobs and three Divisional Workshops at Thimphu, Gaylegphug and Samdrup Jongkhar to cater to the needs of Western, Central and Eastern Bhutan. Major jobs and works such as painting and upholstery etc. will be carried out at the main workshop along with body building and reconditioning of parts.

The workshop at Thimphu was established in the First Plan and a limited amount of equipment has been procured.

In the Second Plan, it is proposed to enlarge the scope of the Central Workshop at Phuntsholing to provide further facilities for Tyre Retreading and Resoling, Metal Spraying and Fuel Injection pump testing and Calibration.

The workshop at Gaylegphug for which some equipment has already been procured in the First Plan will also be established and a new workshop opened at Samdrup Jongkhar.

In addition the workshop at Phuntsholing will undertake the training of Bhutanese Nationals in various trades as Mechanics & Drivers. 25 trainees a year will be put through the course.

The entire workshop organisation will be under the charge of a Mechanical Engineer, who has been recently appointed.

The existing sanctioned staff in the Mechanical Engineer's office is:

Mechanical Engineer 1
Accountant 1

U.D.C 1
L.D.C. 2
Class IV Staff 2

No increase in the staff is contemplated.

The staff in the main workshop is:

Officer In charge 1
Section Officer 1
U.D.C... 1
L.D.C. 1
Class IV Staff 1
Foreman 1
Mechanics 13 (to be brought down to 12 when other workshops start functioning fully).
Assistant Mechanics 23 (to be brought down to 20 when other workshops start functioning fully).
Helpers 20 (to be brought down to 15 when other workshops start functioning fully).
Fitters 2
Turners 3
Electrician 1
Painter Grade I 1
Welders 2
Auto Electricians 4 (to be brought down to 3 when other workshops start functioning fully).
Armature Winder 1
Blacksmiths 2
Tinsmith 2
Carpenter 2
Upholsterers 2
Vulcanisers 2
Painter Grade II 2
Engine Drivers 3 (to be retained as long as necessary, their services will be dispensed with when Phuntsholing will receive power from Jaldhaka Line).
Class IV Staff (Chowkidar etc.) 11 (to be brought down to 6 from the second year).
Time Keeper 1
(No increase in staff is contemplated in the Central Workshop at Phuntsoling).

As a matter of fact there will be some slight decrease in the present sanctioned staff in certain categories as part of the load is taken over by the Divisional Workshops.

I. Thimphu Workshop

Officer In-charge 1
Section Officer 1
U.D.C. 1
Peon 1
Head Mechanic 1
Mechanics 2
Assistant Mechanics 6 (to be brought down to 4)
Welder 1
Blacksmith 1
Auto Electrician 1
Painter Grade II 1
Carpenter 1
Tinsmith 1
Vulcaniser 1
Turner 1
Helpers 12 (to be brought down to 6)
Class IV Staff 3
No further posts envisaged though vacancies in some categories will be filled in.

II. Gaylegphug Workshop

In Gaylegphug the following staff is proposed :
Officer In-charge 1
U. D. C. 1
Mechanic 1
Electrician cum Engine Driver 1

Turner	1
Assistant Mechanics	2
Welder	1
Blacksmith.....	1
Tinsmith	1
Auto Electrician	1
Vulcaniser	1
Helpers	4
Class IV Staff	4

III. Samdrup Jongkhar Workshop

In Samdrup Jongkhar Workshop, it is proposed to have the following staff, mostly from the second and third year, though at present there is one Mechanic and one Assistant Mechanic against this workshop for running repairs in that area.

Officer In-charge	1
U.D.C.	1
Mechanic	1
Electrician cum Engine Driver	1
Assistant Mechanics	2
Turner	1
Welder	1
Blacksmith	1
Tinsmith	1
Auto Electrician	1
Vulcaniser	1
Helpers	2
Class IV Staff	4

In addition we have at present two driving Instructors for the trainees and it is proposed to appoint one Automobile Instructor also.

Details of the tools and plant required and running the cost of different workshops are in Vol. No. II. The workshop at Phuntsholing will also act as a Central Depot for stocking of spare parts required for all the vehicles of the Transport Department, as well as all other departments of the Development wing. The expenditure has been shown against the workshop as mere proforma adjustment will be made against various departments and the B.G.T.S., no actual credit being given. With this in view no provision has been made under the various departments or under the BGTS budgets for this expenditure. Provision has been made under the budget heads of the other departments for P.O.L. and minor local purchases only.

Details of the expenditure on stocks of spares required are given in Vol. No. II. The total expenditure on the budget comes to Rs. 64,89,000 (Say Rs. 65 lakhs).

Details break up of the expenditure is in Vol. No. II.

CHAPTER-XII: POWER

Hydel Directorate

At the beginning of the First Plan, two senior officers of the C. W. & P. C., Government of India, carried out reconnaissance surveys in Bhutan, and having satisfied themselves of the prima facie availability of hydro electric power potential, the team recommended detailed investigation for micro hydel schemes. The Technical Team of the Planning Commission while formulating the First Plan, also recommended the setting up of a Division of the C. W. & P. C. to investigate micro hydel schemes in Western Bhutan and to carry out detailed investigation of the Chukha Hydel Scheme.

The First Plan provided for:

- (i) Detailed survey and investigation of 10 micro hydel schemes at different places in Bhutan.
- (ii) Detailed surface and sub-surface investigation of the Chukha Hydel Project.
- (iii) Utilisation of the Jaldhaka power at Samchi (250 KW).

Progress Achieved in the First Plan

1. The investigation for the micro hydel schemes as well as the Chukha Hydel Project are being carried out directly by a Division of the C. W. & P. C. In the Plan period, investigation of nine schemes, namely Thimphu, Paro, Wangdiphodrang, Ha, Phuntsholing, Sarbhang, Tashigang, Deothang and Mongar have been completed. The tenth scheme for investigation of Byagar has been held in abeyance as the roads in that area are not likely to be completed in the near future.

Detailed topographical survey and surface investigation of the Chukha Project has been almost completed. Further exploration of rock structure below the surface is being carried out, and a drilling programme has been taken up on the recommendations of the geologists. A little over half the drilling programme has been completed and the remaining drilling will be completed by the end of 1966 or so. The Project Report should be available by late 1967. A total expenditure of about Rs. 19 lakhs was incurred on these investigations, and was met by the C. W. & P. C., Government of India.

2. The construction of the Thimphu Hydel Project was taken up at the beginning of 1964. Work has been considerably delayed due to delays in procurement of material and shortage of technicians and labour, particularly in the initial stages. The project gained momentum in 1965 and is expected to be completed by the end of 1966 (within the first year of the Second Plan).

Till July, 1965 the construction of the project was also entrusted to the C. W. & P. C. Division in addition to their investigation work. In August, 1965, the Government of Bhutan established their own Hydel Directorate for the construction of the various micro hydel projects. The Executive Engineer, C. W. & P. C. Division, is holding additional charge of the post of Director, Hydel Directorate.

The construction of the Thimphu Project was financed from Plan funds, except for direction expenses for about two years. The total expenditure on the Thimphu Project up to the end of the First Plan was about Rs. 13.50 lakhs.

3. Preliminary work such as the procurement of some materials, location survey etc., in respect of the Paro Project were also started in the First Plan, and an expenditure of about Rs. 2 lakhs has been incurred so far against this project in the First Plan.

Programme for Second Plan

In the Second Plan it is proposed to:

- (i) Complete the Thimphu Project by the end of 1966.
- (ii) Complete the Paro Project by 1968, and
- (iii) Start the Sarbhang Project in 1968-69, and complete it by the end of the Plan period.

A total outlay of about Rs. 70.50 lakhs has been provided for the actual construction work of these projects. Further projects have been deferred for subsequent Plans bearing in mind our limited resources of technical personnel and labour.

Provision has been made for the construction of residential and office accommodation for the Directorate at about Rs; 1,50,00.

As regards operating and maintenance cost of the projects, a limited amount has been provided for the first year's operation of each project, as it is anticipated that with an off take of even 30% of the installed load, each hydel project should give a net revenue of Rs.30,000 per year. The rates proposed to be levied in the initial stages are 50 paise per unit for domestic use and 25 paise per unit for power.

The foreign exchange requirement for the Plan is approximately Rs. 4,50,000 for turbines and generators already ordered for Paro, and a limited amount for the Sarbhang project. It is expected that by the time the Sarbhang Project is undertaken, turbines and generators will be available from indigenous sources. If they are not available, additional foreign exchange taking into consideration the post devaluation rates of about Rs. 4,00,000 will be necessary for Sarbhang also, though no provision has been made in the Plan at present.

The present staff of the Directorate is :

Director	1
Assistant Engineers	2
Section Officers	4
Draftsmen	4
Tracers	2
Surveyor	1
Clerical Staff (including 2 clerks for the Sub Division) ...	12
Drivers	6
Store Keepers	2
Motor Mechanic	1
Class IV Staff	6

The staffing pattern at each project while under construction is:

Assistant Engineer 1
Section Officers 3
Surveyor 1
Upper Division Clerk 1
Lower Division Clerk 1

The operating and maintenance staff for each power house on completion as proposed is:

Power House Superintendent 1
Foreman 1
Cables Joints 1
Turbine Operators 4
Switch Board Attendants 4
Electrician 1
Linesmen 2
Assistant Linesmen 4
Class IV Staff 5

On completion of each project, it is contemplated that the responsibility for the operation and maintenance of the power house, as well as distribution of power and construction and maintenance of transmission lines, will be taken over by the Electrical Division of the Engineering Department.

It is expected that after construction of all the proposed hydel projects, the hydel Directorate as such will be wound up.

The technical details of each project are :

I. Thimphu

Installed capacity 400 KW
Length of Power Channel 5,400 ft.
Head 330 ft.
Length of Penstocks 780 ft.
Utilised discharge 12 cusecs
Length of Transmission lines 10 miles
Anticipated date of completion November, 1966
Estimated cost Rs. 23.50 lakhs.

II. Paro

Installed capacity 400 KW
Length of Power Channel 19,000 ft.
Head 160 ft.
Length of Penstocks 500 ft
Utilised discharge 30 cusecs.
Length of Transmission Lines 9 miles
Anticipate date of completion March, 1968.
Estimated cost Rs. 32.50 lakhs.

III. Sarbhang

Installed capacity 400 KW
Length of Power Channel 13,000 ft.
Head 380 ft.
Length of Penstocks 1,250 ft.
Utilised discharge 12 cusecs
Length of Transmission Lines 25 miles
Anticipated date of completion August, 1970
Estimated cost Rs. 28 lakhs

Detailed break up of the expenditure is in Vol. No. II.

CHAPTER-XIII: BHUTAN ENGINEERING SERVICES

Bhutan Engineering Service was started from 1st October, 1961 with technical personnel mostly on deputation from the Central Public Works Department. Apart from road projects, It was responsible during the First Plan for the construction of buildings both residential and non-residential for the other departments as well as for the Water Supply and electrification schemes.

The major difficulties faced by this department were:

- (i) Shortage of experienced technical personnel.
- (ii) Shortage of technicians.
- (iii) Shortage of unskilled labour, practically no labour being available from local sources, and
- (iv) Limited capacity for providing food for the imported labour, limiting the numbers we could bring in.

During the First Plan, the Bhutan Engineering Services undertook the construction of :

- (i) Phuntsholing-Paro Road, which was subsequently handed over to the Border Roads Organisation for widening and completion.
- (ii) Confluence--Thimphu Road, which branches off from the main Phuntsholing- Paro Road to Thimphu. This was also transferred to Border Roads for further completion. Lump provision of Rs. 1,00,000 each for these two roads has been provided for paying off outstanding liabilities.
- (iii) Tsalemappe-Wangdiphodrang Road (44 miles). This will form part of the main East West link. Progress on this road has been slow due to shortage of labour, but by the end of the First Plan about 30 miles of it were jeepable. Continuance of work on this road has been provided for in the Plan.
- (iv) Sarbhanga-Chirang Road--This is one of the main highways into Central Bhutan, and along with the two other roads handled by Border Roads, namely Samdrup Jongkhar-Tashigang and Phuntsholing-Paro/Thimphu, will provide the three main links from the interior of Bhutan to the plains of West Bengal and Assam. This will link up with the East-West road which will extend further from Wangdiphodrang to Tashigang. About Rs. 1,12,93,000 has already been spent in the First Plan on this road. Provisions of about Rs. 90 lakhs as been kept in the Second Plan with an anti- capitate spill over of about Rs. 70 lakhs in the Third Plan.
- (v) Lobeyssa-Punakha-Borthoka Road This is an offshoot of the Tsalemappe- Wangdiphodrang Road (Length 14 miles), and opens up communications with the Punakha valley which is one of the granaries of Bhutan, but for want of communications is unable to export sufficient grain to other areas. Punakha is also important from the Political and administrative point of view as the old capital and the winter residence of the Head Lama.
- (vi) Samchi-Dorokha Road (50 miles)--This road was not taken up in the First Plan but it is proposed to undertake at least a part of this road in the current Plan period as it opens up the hinterland, which is very suitable for fruit orchards which could feed the food Preservation Factory already established at Samchi.
- (vii) Approach Road to Tala--This road will connect Tala with Putlibir on the main Phuntsholing-Paro road. The length of the road is only three miles, and the place is of administrative importance because of the establishment of a farm and a school at the place.

Township Roads

Apart from continuance of work on the above roads, it is proposed in the Second Plan to construct internal roads in the important townships. The total length of roads that will be required in this five townships is about 30 miles. Provision of Rs. 40,00,000 has been made in the current plan for this purpose (Please see Page, No. 229, Vol. No. II.) Provision of Rs. 2,00,000 has also been made for the improvement of existing mule paths. This amount will mainly be spent in the form of subsidies to local villagers for improving existing mule paths, and for their maintenance and clearance. The number of roads contemplated hardly cover the main points in the three important regions, and a considerable amount of the communication is still by mule/foot paths. Rs. 1,00,000 has also been provided for survey operations for new schemes.

Nangkur-Shumar Road

In addition to these schemes, it is proposed to open a road to Nangkur-Shumar, which will branch off from the Samdrup Jongkhar-Tashigang Road. In the first instance, only a one tonner unsurfaced road is proposed to enable the Geological Survey of India to take in their heavy equipment for drilling and survey activities of this area where large deposits of Gypsum have been reported by them after a preliminary survey. The Fertilizer Corporation of India has shown its interest in working these deposits either on payment of royalty or in partnership with the Government of Bhutan, and further detailed survey are necessary before finalisation of an agreement with the Fertiliser Corporation. This would be a valuable source of both raw material and income to Bhutan. Extraction will probably be done by a ropeway.

Approach Road to Border Towns

Improvement of 51 miles of approach roads from border towns to the Indian border is also essential. However, due to our shortage of labour and other resources, only 25 % of the required work will be executed in the Second Plan, for which provision of Rs. 25,00,000 has been made (Please see Page No. 229, Vol. No. I.)

Bridges

In the Second Plan it is proposed to construct one major bridge on the Tsalemaphe- Wangdiphodrang Road, for which a provision of Rs. 16,00,000 has been kept.

A further provision of about Rs. 10,00,000 has also been made for the construction of wire rope bridges on bridal paths or important tracks, including the approaches to Punakha Dzong, and further provision of Rs. 2,00,000 for minor bridges on mule tracks has also been made, which will be utilised mainly for providing material such as wire ropes to the local authorities for improving existing bridges on mule paths in the interior.

A provision of Rs. 2,00,000 has also been kept in the Second Plan for improving protection works around Punakha Dzong, which is being seriously affected by erosion of the Phochu and Mochu. Preliminary surveys in this connection have already been carried out in the First Plan. This work is very necessary, as otherwise the foundations are likely to be completely eroded and a very valuable and historically important structure will be destroyed. Punakha Dzong, as stated earlier, is also the winter headquarters of the Head lama. (Please see in Vol. No II).

Buildings

During the Second Plan, provision has been made for construction of 12 rest houses at various important places in Bhutan (Please see in Vol. No. II.) A further provision of about Rs. 1,00,000 has been kept for public buildings such as libraries etc., in the new Capital at Thimphu.

Rs. 14,00,000 has been provided for the construction of accommodation for the Bhutan Engineering Service staff and Offices in various areas in Bhutan.

Water Supply

The Bhutan Engineering Services were responsible for the construction of protected water supply works in various towns in Bhutan, though the provision was made under Health. In the current Plan this provision is being made in the Bhutan Engineering Service Budget.

A total provision of Rs. 21,00,000 has been kept for the improvement of existing water supply schemes in nine towns (Please see Page No. 231 32, Vol. No. II.)

New schemes have also been provided for in the various townships and administrative centres as well as the main water supply scheme for the new Capital at Thimphu (Please see Page 232). The total outlay proposed in the Second Plan is Rs. 60,00,000.

Electrification Schemes

The Bhutan Engineering Service have in the First Plan been responsible for the installation of diesel generators at Thimphu, Paro, Phuntsholing and other important centres. In the Second Plan they will also take over the work of installing distribution lines and the distribution of power as well as maintenance and running of the three hydel generators at Thimphu, Paro and Sarbhang, as and when construction is completed and the power houses are handed over by the Hydel Directorate. In addition, they will be installing distribution lines at Phuntsholing and Samchi for the power to be obtained from the Jaldhaka Project. Detailed break up of the expenditure on electrification is at in Vol. No. II.

Purchase of Mechanical Equipment

In the Second Plan provision of Rs. 50,00,000 has been made for the purchase of mechanical equipment for the use of the Bhutan Engineering Service on the various projects, particularly the road projects mentioned above. Of this about Rs. 20 lakhs will be required in foreign exchange depending on the source from which machinery, particularly earth-moving machinery drills and jack hammers are obtained (Please see in Vol. No. II)

Maintenance

Rs. 60,00,000 has been provided for the maintenance of the electrification schemes, water supply schemes, roads, buildings and mechanical equipment (Please see in Vol. No. II.)

Establishment

Details of the establishment of the Chief Engineer and a Division are given in Vol. No. II.

During the First Plan, the Bhutan Engineering Service maintained its own medical staff as the medical cover in Bhutan was still very inadequate, and large concentrations of labour were working at points far from established medical facilities.

With the expansion of our medical facilities and also due to the fact that most of the works contemplated in the Second Plan will be within easy (motorable) reach of established hospitals and dispensaries, it is proposed to discontinue this unit from the second year of the Second Plan to avoid unnecessary duplication.

Provision has been made in the Chief Engineer's establishment for a small workshop unit mainly for providing front line maintenance of heavy equipment at work sites. It is hoped that we will be able to make considerable savings under this head by the fuller and proper utilisation of the mechanical workshop at Phuntsholing, though field repair and

maintenance facilities on a limited scale will always have to be maintained by the Bhutan Engineering Service for their equipment in the field.

The total outlay on the Second Plan will be about Rs. 7.50 crores excluding the construction of buildings for other departments, which will also be the responsibility of the Bhutan Engineering Service. The anticipated expenditure on buildings of other department is Rs. 3.10 crores.

Detailed break up of the expenditure is in Vol. No. II.

CHAPTER-XIV: INDUSTRIES AND EXPLOITATION OF NATURAL RESOURCES

Reports of the Geological Survey of India indicate that there are large deposits of Gypsum in the Nangkur-Shumar area in Eastern Bhutan (about 87 million tons) with possibility of locating about 57 million tons of cement grade limestone also in the vicinity in the Chaibar area. Similarly in South Western Bhutan (Samchi District) there are about 15 million tons of cement grade limestone with possibilities of further quantities being located on detailed test boring and surveys.

Graphite deposits in sufficient quantities have also been discovered in the Chilaila area but qualitative analysis of the deposits are still being carried out though preliminary analysis done locally indicate a rather low carbon content.

While no proposals for establishing a Cement Factory or Mining operations for the Gypsum have been included in the Second Plan, provision has been made for Feasibility Surveys and if these prove favourable for Project Reports to be prepared before further steps are taken to establish these industries either with long term easy payment loans from the Government of India or to allow exploitation by Private Sector or Public Sector industries from India on a royalty basis.

In addition with a view to improving the revenue of the State as well as the gross national product, the establishment of the Tea industry and Forest based industries such as Plywood and Match etc., are worth exploring.

Provision is being kept in the Second Plan for Feasibility Surveys and Project Reports for these industries also.

The total provision kept is Rs. 10,00,000.

CHAPTER -XV: PROTECTION AND PRESERVATION OF ANCIENT MONUMENTS

Bhutan has a rich cultural heritage which has been gradually deteriorated by the process of time and in order to preserve valuable ancient monuments such as old Dzongs with interesting paintings, carvings etc., a sum of Rs. 5,00,000 has been provided during the Plan period

APPENDIX 'A'

GOVERNMENT OF BHUTAN
DRAFT PROPOSAL SECOND FIVE YEAR PLAN

Sl.No.	Department	Proposed Outlay 1st Plan	Actual Outlay 1st Plan	Proposed Outlay 2nd Plan
1.	Dev.Wing & F.A.&C.A.O's Office	21,00,000	34,92,263	73,00,000
2.	Agriculture	29,20,000	19,07,733	3,85,00,000
3.	Animal Husbandry	12,40,000	15,01,438	75,00,000
4.	Small Scale & Cottage Industries	1,32,00,000	4,82,495	9,00,000
5.	Education	1,80,70,000	94,44,991	2,76,00,000
6.	Forest	50,60,000	32,13,305	89,00,000
7.	Health	83,90,000	31,47,073*	1,42,00,000
8.	Postal	--	5,33,230	63,00,000
9.	Publicity	2,00,000	37,065	19,00,000
10.	Transport	1,85,60,000	74,89,701	1,69,00,000
11.	Mechanical Workshop	--	--	65,00,000
12.	Power (Hydel)	33,50,000	15,13,694	80,00,000
13.	B.E.S.(Roads-Works)	10,10,00,000	6,29,19,612*	7,54,00,000
14.	Industry & Mining	--	--	10,00,000
15.	Preservation of Ancient Monuments	--	--	5,00,000
	Total	17,40,90,000	9,57,12,600	22,14,00,000
	Suspense to grant heads	--	52,67,027	--
16.	Food Preservation Factory	6,20,000	6,32,974	--
17.	Defence	--	55,99,878	--
	Total	17,47,10,000	10,72,12,479	22,14,00,000

(Say : Rs. 22,00,00,000) *Note 1. Expenditure in First Plan against B.E.S. includes construction costs of buildings for all departments.

*Note 2. Expenditure against health includes expenditure on drainage & Water supply.

*Note 3. Departmentwise figures for not payments under suspense & remittance heads of Rs. 52,64,027 pending clearance by debit to grant heads and not included in expenditure shown above.