

ESTIMATES COMMITTEE

1959-60

EIGHTY-FIRST REPORT

(SECOND LOK SABHA)

MINISTRY OF SCIENTIFIC RESEARCH AND CULTURAL AFFAIRS

PART III

1. National Atlas Organisation
2. Survey of India
3. Botanical Survey of India
4. Zoological Survey of India
5. Central Board of Geophysics.



**LOK SABHA SECRETARIAT
NEW DELHI - I**

March, 1960

Caitra, 1882 (Saka)

Price : Re. 1.00

CORRIGENDA

to

EIGHTY-FIRST REPORT OF THE ESTIMATES COMMITTEE ON THE MINISTRY OF S.R. & C.A. - PART III.

- Page 10, Para 26, line 8; *read* 'after referring' for 'after-referring'.
- Page 13, Para 33, Col. 3 - Actual Expenditure for 1956-57; *read* '4,81,521' for '4,02,521'.
- Page 13, Para 33, Col.3 - Actual Expenditure for 1957-58; *read* '1,19,55,516' for '1,29,55,516'.
- Page 17, Para 43, line 7; *read* 'Map Reproduction Offices' for 'Map Production Offices'.
- Page 23, Para 60 (d), line 4; *read* 'floristic' for 'florastic'.
- Page 27, Para 70, line 1; *read* 'that' for 'the' occurring between 'notice' and 'development'.
- Page 28, Para 91, line 4; *read* 'Pachmarhi' for 'Puchmarhi'.
- Page 28, Para 91, line 5; *read* 'Mandapam' for 'Mandanapan'.
- Page 38, Para 104, line 8; *read* 'Geophysical' for 'geophysical'.
- Page 39, Para 105, line 7; *insert* 'the' between 'for' and 'Wing'.
- Page 39, Para 107, line 1; *read* 'was' for 'were'.
- Page 65, Sl. 23, line 2; *read* 'liberal' for 'libera'.
- Page 71, S. No.27, line 3; *read* 'increase' for 'increasee'.

CONTENTS

	PAGE
Composition of the Committee	(v)
Introduction	(vii)
I. NATIONAL ATLAS ORGANISATION :	
A. Introductory	I
B. Organisation and Functions :	
(i) Organisation	1
(ii) Functions]	2
C. Dehra Dun Office	3
D. Employment of part-time staff	3
E. Advisory Board	4
F. Executive Committee	4
G. Location of Headquarters	5
H. Budget and Expenditure	6
I. Second Five Year Plan	7
J. Delay in Printing of Maps	8
K. Target for completion of the English Edition of the National Atlas	8
L. Amalgamation of National Atlas Organisation with the Survey of India	9
M. Translation of the National Atlas in regional languages	10
N. Use of Simple Hindi Terms	10
O. Co-ordination with State Govts.	10
P. Cheaper Edition of the Hindi Atlas	10
II. SURVEY OF INDIA :	
A. Introductory	11
B. Organisation and Functions :	
(i) Organisation	11
(ii) Functions	11
C. Budget and Expenditure	12
D. Five Year Plans :	
(a) First Five Year Plan	14
(b) Second Five Year Plan	14

E. Administration :

(a) Rationalisation of staff of the [Regional] Directorates	15
(b) [Superintending Surveyors and Deputy Superintending Surveyors	16
(c) Recruitment of Scheduled Castes/Tribes candidates	16
(d) Additional Staff	17
(e) Planned Training	17
(f) Accommodation	18

F. Delegation of Powers :

(a) Administrative Powers	18
(b) Financial Powers	18
G. Photogrammetric Equipment	19
H. Surplus Stores	19
I. Periodical Review	19
J. Appointment of a Technical [Commission	20
K. Completion of Survey of the [whole] country	20
L. Annual General Report	20
M. Publication of School Atlas	21

III. BOTANICAL SURVEY OF INDIA :

A. Introductory	22
B. Functions	22
C. Organisation	22
D. Territorial jurisdiction of the [Regional] Offices	23
E. Staff	24
F. Budget and Expenditure	24
G. Central Botanical Laboratory	25
H. Central National Herbarium	26
I. Coloured illustrations of Indian Plants	27
J. Specimens of Indian Plants with Kew Herbarium	28
K. Common Herbarium at Lucknow	28
L. National Orchidarium in Assam	28
M. Experimental Gardens	29
N. Indian Council of Ecological Research	29
O. Co-ordination	30
P. Floristic Survey of the whole country	31
Q. Reviewing Committee	31

IV. ZOOLOGICAL SURVEY OF INDIA :

A. Functions and set up	32
B. Regional Stations	32
C. Shortfall in Expenditure	33
D. Marine Survey Unit	34

V. CENTRAL BOARD OF GEOPHYSICS :

A. Introductory	35
B. Composition and Functions :	
(a) Composition	35
(b) Functions	36
C. Budget and Expenditure	37
D. Research Wings :	
(a) Geophysical Research Wing	38
(b) Oceanographic Research Wing	39
E. Acquisition of a Vessel for Oceanographic Research	40
F. Bore-Core Legislation	40

APPENDICES :

I. Organisational chart of National Atlas Organisation as on 31-8-1959	42
II. Statement depicting the course of action taken and stages gone through in printing i/M Calcutta Population Map	45
III. Organisational chart of Survey of India as in August, 1959	47
IV. Functions of Officers/Offices of Survey of India	49
V. Organisational chart of Botanical Survey of India	51
VI. Map of India with boundaries of the Regional Circles of the Botanical Survey of India	53
VII. Plan to complete the basic floristic survey of the whole country	55
VIII. Organisational chart of Zoological Survey of India	57
IX. Composition of Central Board of Geophysics	59
X. Summary of Recommendations/conclusions	61
XI. Analysis of recommendations contained in the Report	71

(vi)

SECRETARIAT

Shri S. L. Shakhder—*Joint Secretary.*

Shri H. N. Trivedi—*Deputy Secretary.*

Shri K. Ranganadham—*Under Secretary.*

INTRODUCTION

I, the Chairman, Estimates Committee, having been authorised by the Committee to submit the Report on their behalf present this Eighty-first Report on the Ministry of Scientific Research and Cultural Affairs—Part III on National Atlas Organisation, Survey of India, Botanical Survey of India, Zoological Survey of India and Central Board of Geophysics.

2. A statement showing analysis of the recommendations contained in this Report is also appended to this Report (Appendix XI).

3. The Committee wish to express their thanks to the Secretary and other officers of the Ministry of Scientific Research and Cultural Affairs for placing before them the material and information that they wanted in connection with the examination of the estimates.

NEW DELHI-1,
The 23rd March, 1960.
The 3rd Caitra, 1881 (Saka)

H. C. DASAPPA,
Chairman,
Estimates Committee.

I. NATIONAL ATLAS ORGANISATION

A. Introductory

A proposal for bringing out a National Atlas of India was made by Professor S. P. Chatterjee to the Prime Minister of India who referred it in May, 1953, to the Planning Commission and to the late Ministry of Natural Resources and Scientific Research. The Planning Commission agreed in principle, to investigations being carried out for the formulation of a scheme for the preparation of the National Atlas of India. An Advisory Board was set up by the Government of India in March, 1954, which was attached to the Ministry of Natural Resources and Scientific Research. A small staff consisting of 7 persons was sanctioned to assist Professor Chatterjee in formulating details of the National Atlas Project. In July, 1955, the Advisory Board was reconstituted under the Chairmanship of the Minister of Natural Resources and Scientific Research and an Executive Committee for the National Atlas was set up which was also attached to the same Ministry. The Advisory Board was further expanded two months later to represent all interests including all the State Governments, most of the Central Ministries, geographical and certain other learned societies. The Executive Committee was also reconstituted with nine members for dealing with all matters pertaining to the preparation and printing of the maps for the Atlas.

2. A detailed scheme for the National Atlas was discussed at several meetings of the Executive Committee and finally adopted and placed before the Planning Commission for their approval towards the end of 1955. This scheme was duly approved and included in the Second Five Year Plan. In August, 1956, the Government of India appointed Professor Chatterjee as Hony. Director and sanctioned 55 additional posts. Thus came into being the National Atlas Organisation which has now over 150 full-time cartographers, technical and administrative personnel on its staff.

B. Organisation and Functions

(i) Organisation

3. A copy of the Organisational Chart showing the position of staff as on 31-8-1959 is attached as Appendix I. It will be seen that there are two offices for the organisation: the main office at Calcutta and a drawing office at Dehra Dun. The following in brief is the position of staff at (i) Calcutta, and (ii) Dehra Dun:—

<i>Calcutta Office</i>		<i>Dehra Dun Office</i>	
<i>Gazetted Class I</i>		<i>Class III non-Gazetted</i>	
Director	I	Non-Ministerial	6
Deputy Director	I	Ministerial	2
Officer on Special Duty	I	Class IV Staff	4
Research Officers	2		
Drawing Officers	I	TOTAL	12

<i>Gazetted Class II</i>	
Statistical Officer . . .	1
<i>Non-Gazetted Class III</i>	
Non-Ministerial . . .	87
Ministerial	15
Class IV Staff	15

TOTAL	124

Posts Lying Vacant

Class I—Gazetted

Drawing Officers	2
Research Officers	1
Technical Officers	2

Class II—Gazetted

Statistical Officer 1

Class III—Non-Gazetted

Non-Ministerial 6

4. The Committee understand that the vacant posts of Class I and Class II could not be filled up due to the inability of U.P.S.C. to find suitable candidates. The two erstwhile Class II, posts of Technical Officers have now been upgraded and efforts are being made afresh to fill the posts through U.P.S.C. The Class III posts were all filled up except for some arising out of resignations. These are being filled up now. The Committee were informed that these unfilled posts reacted adversely on the target set for bringing out the main National Atlas in English in the Second Five Year Plan period and the programme laid down initially would have to be curtailed to some extent.

5. *The Committee are of the view that as a large percentage of the sanctioned staff is in position, the organisation should direct its efforts to adhere to the programme already laid down.*

(ii) *Functions*

6. The main functions of the N.A.O. is preparation of India's National Atlas based on data collected, compiled and analysed by this Organisation. The work involved two stages:—

Stage I

- Preparation of the Preliminary Hindi edition of the National Atlas in 26 Plates. (It was stated that the Hindi Edition of the National Atlas of India was completed according to schedule. It was published in October, 1957 and is now on sale).

Stage 2

Preparation of the main edition (in English) of the National Atlas in 300 plates, of which 150 are to be prepared in the Second Plan period. As the work of publishing maps of the main edition will be a continuous process over a long period of time, the maps are to be issued in fascicules or sets on different topics each fascicule normally containing 16 plates to cover the entire country. Work on the first four fascicules viz. Administrative, Population, Physical and Communication has commenced.

C. Dehra Dun Office

7. The Drawing Office of NAO was established in March, 1957 in Dehra Dun to keep close contact with the Map Reproduction Office of the Survey of India.

8. A Class III Officer (Field Officer) is nominally in charge of the office. Explaining this, the Director stated that the Drawing Officer-in-charge of the Office at Dehra Dun, had lately been transferred to Calcutta because of greater need for a Drawing Officer in the Calcutta Office.

9. *The Committee view with concern that there is no gazetted officer-in-charge of Dehra Dun Office. The Study Group of the Committee that visited the Drawing Office of the NAO and the Map Publication Office of the Survey of India at Dehra Dun found that there was no effective co-ordination maintained between these two offices. During the course of evidence, the representative of the Ministry stated that there was nobody there who could be taken as a responsible person and he agreed that there was a need for placing the Office in charge of a responsible officer. The Committee suggest that some responsible officer should be immediately appointed to be in-charge of the Drawing Office with sufficient powers to scrutinise the proofs received from the Map Publication Office at his own level and to maintain effective liaison with the Office of the Surveyor General.*

D. Employment of part-time Staff

10. *The representative of the Ministry informed the Committee that during the vacations, students of Geography, Geology and Allied Sciences had been employed by the NAO on a day-to-day basis for 5-6 weeks and it was proposed to make it a regular feature.*

The Committee consider this to be a move in the right direction because this scheme not only affords the students an opportunity for practical training but also enables them to utilise gainfully their vacation period. The Committee suggest that this method may be suitably emulated by other organisations also, wherever feasible.

E. Advisory Board

11. The Advisory Board, as at present constituted, consists of 51 members. All interests including the State Governments, most of the Central Ministries, Geographical and certain learned Societies are represented in the Advisory Board under the Chairmanship of the Minister of S.R. and C.A. The functions of this Board are to advise the Government of India on all matters concerning the preparation and publication of the National Atlas of India.

12. The Advisory Board had so far only one meeting on the 3rd August, 1954. It was reconstituted twice after its appointment in March, 1954 i.e. once in July, 1955 and again in September, 1955. *The Committee were informed that no meeting of the Board had been held for the last several years as its place had virtually been taken over by the Executive Committee and that the Board existed only "on paper but not in practice". The Committee consider it unfortunate that the Advisory Board, which was reconstituted twice after the first meeting, never met during the past five years and a half. They suggest that the Board should either function effectively or be wound up.*

F. Executive Committee

13. As the Advisory Board was considered to be an unwieldy body, an Executive Committee was constituted in July, 1955. The present composition of the Executive Committee is as under:—

- | | |
|--|-----------|
| 1. Secretary/Joint Secretary, Ministry of S. R. & C. A. | Chairman. |
| 2. Shri S. S. Khera, Secretary, Ministry of Steel, Mines and Fuel. | Member. |
| 3. Brig. Gambhir Singh, Surveyor-General of India. | „ |
| 4. Shri Subrahmaniam, D. G., Commercial Intelligence and Statistics. | „ |
| 5. A representative of the Ministry of Education. | „ |
| 6. Director, C. S. I. R. or his representative. | „ |
| 7. Prof. A. N. Kapur, President of Indian Council of Geographers, Punjab University. | „ |
| 8. A representative of the Ministry of Finance. | „ |
| 9. Dr. S. P. Chatterjee, Hon'y. Director, NAO. | „ |
| 10. A representative of the Planning Commission. | „ |

14. When the Hindi Atlas was under preparation the Executive Committee met almost once a month. Since then two or three meetings are held in a year.

15. *The Committee are of the opinion that in case the Advisory Board cannot function effectively and has to be wound up, the Executive Committee itself has to undergo a change in its nomenclature and assume the dual function of the Board and the Executive Committee. In such a contingency a few representatives of the State Governments may be added to its present composition.*

G. Location of Headquarters

16. The NAO took its initial start at Calcutta in 1954. The Executive Committee of the Organisation decided in its meeting held on the 29th March, 1956 which was presided over by the Minister for N.R. & S.R., that it should be located at Dehra Dun where "the entire facilities of the Survey of India as also accommodation" were available. The shifting of the Headquarters has not so far taken place. The Committee were informed that the principal reasons for the continuance of the Headquarters at Calcutta were as under:—

- (i) Only 25% of the man days were taken in printing the Atlas at Dehra Dun while 75% of the man days were accounted for by collection and compilation of data, evolving a technique for their transference on maps, the analytical and scientific study thereof and writing explanatory notes on the back of each map. All the people working in the Organisation were locally recruited and all facilities were available in Calcutta. In Britain also, such an Organisation was located in London and not at the headquarters of the Ordnance Survey;
- (ii) The existence of the National Library, the Library of the Geological Survey of India and the Statistical Institute in Calcutta facilitated the work of the Organisation
- (iii) The services of the Hony. Director were always available there;
- (iv) Whereas accommodation was originally available at Dehra Dun, with the shifting of some offices there, enough accommodation for the Organisation was not now available; and
- (v) The Executive Committee decided to set up a Drawing Office at Dehra Dun in March, 1957 to keep close liaison with the Map Reproduction Office of the Survey of India.

17. The Committee feel that the earlier decision of the Executive Committee which has not so far been rescinded by it must have been arrived at after taking all these factors into account in the interest of economy and efficiency. They find that as rental of accommodation for its Calcutta Office, a large sum of Rs. 6,700 p.m. is being paid at present. Besides, the Drawing Office at Dehra Dun, in the absence of an officer of appropriate status at its head, can hardly be considered as fulfilling its objective. The question of location of the Headquarter of the NAO has been pending for too long a time and should be decided finally one way or the other. They recommend that the Ministry should de novo re-examine in its entirety the question of location of the headquarters of the NAO and arrive at an early decision.

H. Budget and Expenditure

18. The following are the details of the budget and expenditure of the NAO for the past 3 years and also of the current year:—

Sub-Head	Budget	Actual
	Grant	Expenditure
	Rs.	Rs.
1956-57		
Pay of Officers . . . . .		..
Pay of Establishment		4,707
Allowances and Honoraria		3,602
Other Charges		24,292
	-----	-----
TOTAL	13,40,000	32,601*
	-----	-----
1957-58		
Pay of Officers	20,000	25,375
Pay of Establishment	40,000	76,728
Allowances and Honoraria	55,000	79,296
Other Charges	3,85,000	2,67,003
	-----	-----
TOTAL	5,00,000	4,48,402
	-----	-----

*Expenditure for March, 1957 only. Before that accounts were dealt with by the Ministry.

Sub-Head	Budget Grant	Actual Expenditure
1958-59		
Pay of Officers	55,000	28,926
Pay of Establishment	1,56,000	1,39,262
Allowances and Honoraria	1,23,600	1,28,446
Other Charges	2,15,400	1,19,066
TOTAL	5,50,000	4,15,700
1959-60		
Pay of Officers	56,200	
Pay of Establishment	1,97,000	
Allowances and Honoraria	1,80,900	
Other Charges	3,50,000	
TOTAL	7,84,100	

The Committee were informed that the shortfalls in expenditure were mainly due to late implementation of the scheme and non-recruitment of staff. This has been dealt with in subsequent paragraphs.

I. Second Five Year Plan

19. A sum of Rs. 80 lakhs was allocated for the compilation of the National Atlas under the Second Five Year Plan. This amount was subsequently reduced to Rs. 60 lakhs. The organization spent a sum of Rs. 8.97 lakhs approximately till the end of the year 1958-59 and proposed to spend a sum of Rs. 7.84 lakhs during the current year *i.e.*, 1959-60, leaving a balance of a little over 43 lakhs for the final year of the Plan. The representative of the Ministry admitted that it would not be possible to utilise the Plan provision fully and that it was, therefore, proposed to surrender about Rs. 34 lakhs. The shortfall was stated to be due mainly to non-availability of geographical equipment which had to be obtained from abroad and to a lesser extent to the non-availability of trained people. The Committee find that the margin is too large to be justified by such an explanation. *They recommend that while framing their requirements for the Third Plan the Ministries/Departments of the Government of India, should be realistic and take into account all the factors which would govern their capacity to spend the proposed sums usefully.*

J. Delay in Printing of Maps

20. Explaining the reasons for delays which occurred in the printing of maps of the NAO, the Surveyor General informed the Study Group of the Estimates Committee during the course of their study visit to Dehra Dun that, being a new body, the staff in the National Atlas Organisation was not very well trained. Extensive corrections were made at the proof stage with the result that several proofs of a single sheet had to be prepared before it was finally printed. A chronological statement depicting the course of action taken and stages gone through in printing I/M Calcutta-Population Map received from the Surveyor General is enclosed as Appendix II.

21. This map was first sent to the Surveyor General in June, 1958 and had yet to be published. Seven proofs of this map had to be approved before orders for final printing were received. Further, the maps of the population series under preparation were based on the 1951 census figures and by the time the series would be published (1960-61), the maps would become out of date. 16 sheets of the population map fascicule were intended to be published by March, 1959, but only a single sheet had so far been published. The representative of the Ministry during his evidence stated that the work was quite new and hence the first maps were bound to undergo several changes, and that the number of changes to be made would go down in the light of experience gained. The Hon. Director of the NAO explained that the difficulty was experienced in getting accurate locations of 22—30 per cent villages which were not shown even in 1" survey maps. The information had to be called for from the State Governments after the receipt of the first proof. The second difficulty related to the showing of different features, such as, agricultural population profession-wise. Trial and error was inevitable in this case. Still another difficulty was that of the non-availability of foreign exchange required for purchasing instruments.

22. *The Committee are of the view that the printing of the maps should not normally be taken up without adequate data. The case cited above has proved to be a costly experiment both in point of time as well as of money. The Committee were assured that the experimental stage was over, that the techniques have been finalised and that there would be no such delays in the case of the other maps. The Committee hope that the assurance will be fulfilled.*

K. Target for completion of the English Edition of the National Atlas

23. The Committee were informed that in 1958-59 material for the compilation of political (now administrative), physical and population maps were collected from various Ministries, State Governments and other sources and preparatory work of compilation for bringing out the pilot sheets of these three maps was taken up. In 1959-60 after initial experimental work of several maps in 1958-59,

it was decided to take up 4 maps namely, administrative, physical, population and communication for final compilation, drawing and printing. Each of these maps would be on the large scale available i.e., 1:1,000,000. All these 4 maps called for very detailed representation of data requiring as many as 16 sheets to cover the entire country for each map. It had been decided to do only 8 plates of each map during this year, i.e., a total of 32 plates. Later, during the course of evidence the Director stated that out of about 300 plates which the National Atlas would ultimately comprise, 15 had been sent to the Survey of India for supplying proofs. Proofs of 9 had been received and the entire lot would be printed by the end of June, 1960. The Atlas would come out in sections at the rate of 40—50 maps a year, so that it would be completed in about six years, viz., by the end of the Third Plan period. The Committee notice that the target of 32 maps to be completed by March, 1960 will not be achieved and only 15 maps are expected to be completed by June, 1960.

Although two years have passed since the completion of Hindi Edition in September, 1957, no tangible results have been achieved by the NAO in the matter of printing of the English Edition of the National Atlas during this period. *The Committee would like the Ministry to draw the attention of the Executive Committee to the slow progress made so far in the printing of part of the English Edition of the National Atlas and suggest drawing up of a detailed programme for completing the printing of the English Edition in instalments by set target dates.*

L. Amalgamation of National Atlas Organisation with the Survey of India

24. To an enquiry from the Committee as to whether the NAO could be amalgamated with the Survey of India which is a permanent organisation engaged in performing like task, the representative of the Ministry stated that the NAO was set up purely as a temporary organisation to bring out the two Atlases and after that it was intended to be wound up. If, however, a decision would be taken in future to keep it on as a permanent organisation, the representative of the Ministry agreed that some arrangements should be made such as merging it with the Survey of India or supplying its research results to Survey of India for the latter to be completely in-charge of production of maps. At present, there was a small Committee consisting of Surveyor General or his representative, the Hony. Director of NAO and the nominee of the Ministry, usually the Joint Secretary, which met frequently to discuss common problems. *The Committee suggest that the question of absorbing the trained hands of the NAO in the Survey of India, to the extent feasible, after the former has completed its allotted task may be kept constantly in view so that (a) the staff employed by NAO has not to be suddenly retrenched, and (b) the experience gained in preparing the National Atlas is usefully utilised by the Survey of India.*

M. Translation of the National Atlas in regional languages

25. The Committee were informed by the representative of the Ministry that the request from a private firm from Mangalore for permission to produce National Atlas in Kannada received in May, 1957 was turned down as at that time it was thought that the NAO itself might bring out an edition of the Atlas in different regional languages. Subsequently it was decided that the proposal for publishing editions of the National Atlas in other languages might be considered only after the main English Edition had been published. *Since it is not possible for the NAO to take up the production of National Atlas in regional languages in the near future, the Committee suggest that interested and reliable parties might be given a fair chance to produce translated versions of the Hindi Edition of the Atlas in regional languages, subject to such conditions as the NAO may consider necessary to impose.*

N. Use of Simple Hindi Terms

26. The Committee were told that the terms in Hindi Atlas were taken from the list approved by the Ministry of Education and the NAO would, if given the latitude, prefer to deviate from them to make the Atlas easily comprehensible to the layman. *The Committee suggest that the term for which there is no accurate Hindi equivalent should be taken normally from the glossary of technical terms prepared by the Ministry of Education. Where, however, a deviation is called for, action may be taken after-referring to the Ministry of Education.*

O. Co-ordination with State Governments

27. The Committee are glad to learn that out of 14 States, 12 had already agreed to the request of the NAO to designate one of their officers as Co-ordinating Officer for the National Atlas Organisation to supply information about their respective States. *The Committee hope that the remaining two States will also see their way to agree to the suggestion of the Organisation at an early date.*

P. Cheaper Edition of the Hindi Atlas

28. On an enquiry by the Committee whether it was proposed to bring out a cheaper edition of the Hindi Atlas (the present one costs as much as Rs. 100/-), the representative of the Ministry replied that the Atlas was also sold in sheets and people could buy the sheets covering their own States on the subject in which they were interested. Out of 3,000 printed copies of the Hindi Atlas 1,500 had been sold so far. *The Committee are of the view that since the sale price of Rs. 100 per copy of Hindi edition is beyond the reach of most of the schools and smaller institutions, the question of bringing out a cheaper edition of the Atlas may be examined.* Before leaving the subject, the Committee would like to make a reference with satisfaction that in recognition of his work as Director of this project, Dr. S. P. Chatterjee has been awarded the Murchison Grant of the Royal Geographical Society, London, for 1959.

II. SURVEY OF INDIA

A. Introductory

29. The nucleus of the organisation of the Survey of India was formed in 1767, when Lord Clive formally appointed the first Surveyor General of Bengal. Later, Surveyors General were appointed for Bombay and Madras also. It was in 1815 that the first Surveyor General of India was appointed with Headquarters at Calcutta with jurisdiction over the whole country.

30. The Department was responsible for carrying out both revenue and topographical surveys till 1905. In that year it was decided on the advice of the Survey Committee appointed by the Government of India that revenue surveys should be the responsibility of the State Governments concerned and that the Survey of India should concentrate on the topographical maps. This work was disrupted by the two World Wars during which the Departmental resources were diverted entirely to military needs. After the World War II, the Department had been mostly employed on extra-departmental surveys for multipurpose river valleys and other departmental projects. Since Independence the activities of the Department are almost entirely confined to areas within India. Surveys are also being carried out for the Nepal Government as an aid under the Colombo Plan.

B. Organisation and Functions

(a) Organisation

31. A copy of the organisational chart showing the staff position as in August, 1959, is given in Appendix III.

The Survey of India is a service Department of the Government of India. The Surveyor General is its administrative and technical head with headquarters at Dehra Dun. For the purpose of survey the whole of Indian Union is divided into four circles, each under the charge of a Director. Besides, there are three other Directorates carrying on specialised activities of the Department, viz., (i) Map publication, (ii) Air Survey and Training, (iii) Geodesy and Research. Functions and responsibilities of each of the Officers/Offices are given in Appendix IV.

(b) Functions

32. The main functions of the Survey of India are:—

- (i) Preparation on specified scales of up-to-date map cover of the whole country depicting physical and artificial features and political and administrative divisions.

- (ii) Carrying out geodetic and geophysical survey operations, such as geodetic triangulation, precise levelling, tide predictions, magnetic, gravity and astrolabe observations etc., etc.
- (iii) Preparation of special large scale maps required for the planning and execution of various flood control measures and irrigation, hydro-electric and other development projects of Forests and Cantonments.
- (iv) To give advice and assistance to the State Governments for the execution of cadastral and revenue surveys by them in their respective areas.
- (v) Printing of maps, charts and other publications. The department maintains lithographic and letter-press printing offices at Dehra Dun and Calcutta for the printing of maps and charts in various colours and also books and publications of the Department. Litho and letter-press printing work is also undertaken for other Government departments and private indentors on payment. Currently the maps for the National Atlas of India are being printed by the Department for the National Atlas Organisation.
- (vi) Checking and correction of international boundaries on maps of India produced by private publishing firms is undertaken in the Map Publication Directorate of the Department on payment of nominal fees.
- (vii) The Department keeps an up-to-date record of all aerial photographs carried out in India from time to time and also arranges for the carrying out of fresh photographs required for departmental mapping purposes and also for the extra-departmental indentors.
- (viii) The Department maintains a Survey Training School at Dehra Dun for training the departmental officers as well as those sent by the State Governments or countries of the South East Asian region. There are, in addition, two more training establishments—one at Dehra Dun and one at Bangalore for imparting practical survey training to the subordinate staff.

C. Budget and Expenditure

33. The following are the figures of budget estimates, actual expenditure and the resultant savings or excesses in expenditure

during the past three years, 1956-57 to 1958-59 and the budget estimates for the year 1959-60:—

	Budget Estimates	Actual Expenditure	Excess or Saving
1956-57			
A. Surveyor General's Office	18,35,800	4,02,521	(-)13,54,279
B. Map Publication Office	14,64,000	13,97,113	(-)66,887
C. Survey Parties General	1,24,30,200	1,10,08,733	(-)14,21,467
D. Charges in England	3,34,000	1,32,806	(-)2,01,194
1957-58			
A. Surveyor General's Office	20,45,400	32,27,159	(+)11,81,759
B. Map Publication Office	14,20,400	13,69,137	(-)51,263
C. Survey Parties General	1,27,25,200	1,29,55,516	(-)7,69,684
D. Charges in England	2,94,000	2,29,738	(-)64,262
1958-59			
A. Surveyor General's Office	19,49,400	18,27,074	(-)1,22,326
B. Map Publication Office	14,14,000	15,34,058	(+)1,20,058
C. Survey Parties General	1,30,77,600	1,26,99,353	(-)3,78,247
D. Charges in England	2,68,000	(Final figures not yet available)	
1959-60			
		<i>Budget Estimates</i>	
A. Surveyor General's Office		3,42,800	
B. Map Publication Office		15,15,200	
C. Survey Parties General		1,39,88,000	
D. Charges in England		2,68,000	
	TOTAL	1,61,14,000	

The large excess of Rs. 11.82 lakhs in the year 1957-58, under the head 'A. Surveyor General's Office' is accounted for by the increased expenditure on material and equipment under T.C.A. Programme. The position of shortfalls in expenditure has shown improvement in the years 1957-58 and 1958-59. *The Committee find, however, that under the head 'Survey Parties General' shortfalls have been persisting. This is a measure of the field activity of the Department and the Committee suggest that special efforts should be made to utilise fully and usefully the budget provision under this head.*

D. Five Year Plans

(a) First Five Year Plan

34. The Committee understand that in 1953 when the First Five Year Plan of the country was already half way, it was decided to frame a five year programme of work for the Survey of India also. The Government of India convened a Survey Priority Committee to consider and finalise the programme for this Department for the next five year plan period. The Committee allocated a workload of 144 Party years.* Actually work totalling 33 Party years was executed in the years 1954-55 and 1955-56. Thereafter, the Department's programme was framed afresh for the Second Five Year Plan in the light of the decision of the new Survey Priorities Committee. No specific allotment was made for the First Plan period.

(b) Second Five Year Plan

35. The Second Five Year Plan of the Survey of India commenced with the survey year 1956-57 beginning in October, 1956. The Survey Priorities Committee in March, 1956 approved 140 Party years' work for the Second Plan period as under:—

Ministry of Irrigation and Power or Central Water & Power Commission.	60 Party years	For flood control, irrigation and other multi-purpose projects surveys throughout the country.
Ministry of Defence	50 Party years.	For topographical surveys in operationally important areas and cantonment surveys.
Ministry of External Affairs	25 Party years.	For surveys under Colombo Aid Plan and topo surveys in areas considered important by this Ministry.
Ministry of Home Affairs	1.9 Party years.	For surveys in Tripura, Manipur and A. N. Islands.
Ministry of Food and Agriculture	1.0 Party years.	For forest surveys.
Geological Survey of India	1.0 Party years.	For surveys in Rajasthan Lead-Zinc Zone.
Ministry of Transport	1.0 Party years.	
	139.9 Party years	

*The volume of work in the Survey of India is assessed in terms of Party years. A Party year is the amount of survey and mapping work carried out by a normal survey party in one year commencing from October and ending in September next year.

The Department has carried out the following amount of work during the first 3 years of the Second Plan:—

			Party years
1956-57	..	..	19·798
1957-58	..	..	22·685
1958-59	..	..	24·900 (programme of work only).

36. The Committee were informed that out of the programme of 140 Party years drawn up by the Survey Priority Committee, 110 Party years only would be completed by the end of the Second Plan period.

37. *The Committee consider it unfortunate that the performance promises to be very much poorer than the target. They suggest that steps should be taken immediately to step up the tempo of work so that the output during the Second Plan reasonably in conformity with the target.*

38. The Committee find that even this target fixed by the Survey Priority Committee is not very ambitious considering that at this rate, complete survey of the country will take inordinately long time to accomplish which will be referred to later. Added to this is the need for redrawing the existing contour maps due to the recent changeover to metric units. *The Committee recommend that the department should gear up its machinery for the task before it and find ways for the speedy removal of the hurdles in the execution of plan programmes.* In this connection, the Study Group of the Committee that visited Dehra Dun were informed by the Surveyor General that some minor jobs like tertiary levelling which could be done by the indentors themselves were at present being done by the Survey of India at their request. *The Committee suggest that the Ministry may take necessary action to relieve the Survey of India of this item of work.*

E. Administration

(a) Rationalisation of staff of the Regional Directorates

39. The strength of the staff (gazetted and non-gazetted) in the various Circles of the Survey of India as per Organisational Chart at Appendix III is summed up as under:—

(i) Regional Directorate, Northern Circle	..	..	810
(ii) Regional Directorate, Southern Circle	..	..	646
(iii) Regional Directorate, Eastern Circle	..	..	1093
(iv) Regional Directorate, Western Circle.	..	..	402

The representative of the Ministry in his evidence explained that the larger number of staff in the Eastern Circle was due to the larger volume of work on account of special surveys made in border areas and that this work was likely to continue for several years. *As, however, there is disparity in the strength of the other three regions also, the Committee consider that there is a case for a proper review of the strength of staff in the different circles. It may also be that the volume of normal work in each circle is not the same, in which case a re-adjustment of jurisdiction of circles is called for.*

(b) *Superintending Surveyors and Deputy Superintending Surveyors*

40. The Committee understand that the actual strength of Superintending Surveyors and Deputy Superintending Surveyors is 26 and 36 against the sanctioned strength of 35 and 30 respectively. Against the 9 vacant posts of Superintending Surveyors, 3 Deputy Superintending Surveyors are working as Officers-in-charge of Units, while 6 Deputy Superintending Surveyors have been appointed as Deputy Superintending Surveyors-in-charge. The Committee were told that this arrangement was continuing for the past 4 to 5 years as some Military Officers had reverted to military duties and other officers with requisite experience and qualifications were not available for being appointed as Superintending Surveyors. The intention was to fill up these posts eventually.

The Committee suggest that the position should be examined with a view to see if as a permanent measure it is possible to place certain units doing comparatively less important work under Deputy Superintending Surveyors without affecting efficiency and to that extent reduce the number of posts of Superintending Surveyors as a measure of economy.

(c) *Recruitment of Scheduled Castes/Tribes candidates*

41. The following is the strength and percentage of staff from Scheduled Castes and Scheduled Tribes working in the Survey of India Department:—

Class	Total Strength	No. of Scheduled Castes	No. of Scheduled Tribes	Percentage of	
				Scheduled Castes	Scheduled Tribes
I	76				
II	110	1	..	0.9	
III	2543	213	64	8.4	2.5
IV	1564	264	8	16.9	0.5

The representative of the Ministry informed the Committee that for Classes I and II posts, recruitment was made by U.P.S.C. by open competition. *While the representation of Scheduled Castes in Class IV is reasonably good, that for Scheduled Tribes is very poor and calls for improvement. As regards Class III posts, the Committee suggest that the position may be analysed in detail and suitable steps taken to rectify the imbalance.*

(d) *Additional Staff*

42. The Study Group of the Estimates Committee that visited the Survey of India Office at Dehra Dun were informed that the survey work demanded by the Ministries in connection with the projects under the Five Year Plans had increased and that they were not able to devote as much attention as was necessary to their normal work. Further, instead of 10 or 15 Survey Parties as before there were as many as 29 Parties at present. The number of reports and returns had also increased. Proposals had been put up to the Ministry that there should be some extra staff including one Assistant Surveyor General or Budget and Accounts Officer. The representative of the Ministry stated that they had supported this proposal of the Department and that it was under the consideration of Ministry of Finance. *The Committee suggest that an early decision may be taken in the matter.*

(e) *Planned Training*

43. All recruits for the Classes I, II and III technical posts are imparted training for period ranging between 2-3 years before being employed on productive work. There are at present 3 Survey Units engaged exclusively on the training of Officers and other topographical staff. Besides, the Drawing Officers at Calcutta, Dehra Dun and Bangalore impart training to Draftsmen trainees, while map reproduction trainees receive training at Map Production Offices at Calcutta and Dehra Dun. Trainees for photogrammetric units receive their training at the photogrammetric units in Calcutta and Dehra Dun. Training for computers (Trig) is given in the Computing Party in the Geodetic and Research Branch at Dehra Dun.

44. As fresh entrants have to be trained for a period of two to three years before they can be utilised for productive work, the requirements of trained personnel for fulfilling the targets have to be assessed well in advance and a phased programme of recruitment and training should be carefully laid out and implemented. The Committee consider that a start with such a programme should have already been made for the Third Plan. *They recommend that for avoiding short-falls in plan targets an assessment of the requirements of trained personnel during the Third Plan, and a phased programme of their recruitment and training should be drawn up and implemented expeditiously.*

(f) *Accommodation*

45. Many of the Survey of India Offices are now occupying rented buildings. This arrangement is not satisfactory in many cases. A lump sum provision of Rs. 23 lakhs for capital civil works including air-conditioning of buildings for the erection of photogrammetric equipment was included in the original proposal submitted to the Planning Commission which approved the scheme. Out of this sum, Rs. 7 lakhs had so far been expended. The difficulty in the construction was that C.P.W.D. were unable to complete the job in time. *The Committee regret the extremely slow progress in the construction work despite quite a liberal provision for the same, and suggest that the two Secretaries of the Ministry of Scientific Research and Cultural Affairs and the Ministry of Works, Housing and Supply should arrange a joint meeting urgently to draw up a programme of construction of buildings for the Survey of India at an accelerated pace which should be carried out as per schedule.*

F. Delegation of Powers(a) *Administrative Powers*

46. In a statement showing the list of items in respect of which powers had been delegated to the Surveyor General, it was indicated by the Surveyor General that administrative powers delegated to him were inadequate in regard to (a) fixation of pay of military officers, (b) fixation of pay of military and civil officers in Class III and Class IV services on re-employment, (c) relaxation of time limit prescribed for entitlement to T.A. for the family of Government servant on transfer, to precede and/or to follow him, and (d) sanction to write off losses of revenue etc.

47. The Committee were informed that there was a proposal under consideration in the Ministry, as part of the recent internal finance arrangements introduced in 1958, to delegate enhanced powers to the subordinate organisations and Heads of Departments including the Surveyor General. All the items referred to above would be taken up as part of the proposal. *The Committee suggest that the decision on the proposal for delegating enhanced powers should be expedited.*

(b) *Financial Powers*

48. Similarly in regard to financial powers for the purchase of survey instruments and equipments it was stated that the Surveyor General was empowered to purchase instruments upto Rs. 5,000 only and that the question of enhancing this limit was under consideration of the Ministry. *The Committee suggest that the decision may be taken expeditiously in the matter.*

49. The Study Group of the Estimates Committee that visited the Headquarters Office of the Survey of India at Dehra Dun were informed that the Department frequently experienced difficulty due to short or delayed supply of stationery. Similar complaints are sometimes heard from other Government Departments also.

The Committee suggest that each department should in the beginning be given a buffer stock, say, equal to the consumption of three months or so, and thereafter the stock may be replenished periodically so that in case of unforeseen delays in supply in any period, the departments could continue their work unhampered on the strength of their reserves.

G. Photogrammetric Equipment

50. Under the T.C.A. Programme of about \$500,000 Survey of India, among other things, received 5 Nos. of Wild 47 Autograph Machines and 12 Nos. of Wild A8 Stereoplotters as part of photogrammetric equipment. Out of these, 6 were to be installed in Calcutta and 11 at Dehra Dun in full air-conditioned rooms. The Committee were given to understand that after the order for purchase of the photogrammetric instruments was issued by the T.C.M. authorities and before the contract for procuring these was placed, the C.P.W.D. authorities were approached for air-conditioning of rooms. The C.P.W.D. were unable to import the air-conditioning plant for Dehra Dun and as a result the machines could not be installed.

51. *The Committee were informed that with the use of the machines the output of work was expected to increase by 50%, but that proper use could not be made because of the delays in the installation of the machines. They suggest that steps be taken to have the machines installed without further delay.*

H. Surplus Stores

52. During the course of their visit the Study Group of the Estimates Committee were informed that on 1-1-1959 stores worth Rs. 8,57,000 were surplus to the departmental requirements. Out of these, stores worth Rs. 2,81,000 had been retained for departmental use and stores worth Rs. 2,44,000 had since been disposed of. Stores worth Rs. 72,000 were awaiting disposal and the balance worth Rs. 2,60,000 were under review to explore possibilities of their being used departmentally. The Committee were told during the course of evidence that in fact the entire surplus stores worth Rs. 8,57,000 (including stores worth Rs. 2.6 lakhs) excepting a small quantity worth Rs. 80 to 90 thousand, were usable. Steps had already been taken to sort out the usable stores. *The Committee are unable to appreciate the position that even when a sizable portion of stores was usable, they were declared surplus. The surplus can only arise when the stores are not required within a reasonable period. In any case, the question of proper utilisation or disposal of surplus stores should be settled at an early date, since delay will lead to their deterioration.*

I. Periodical Review

53. The representative of the Ministry informed the Committee that no regular machinery existed for the evaluation of the work done by the Survey Department. A broad review was done about 5 years

ago by the representatives of two or three Ministries who were members of the Inter-Ministerial Committee assessing priorities. *Looking to the volume and importance of work involved, the Committee suggest that some arrangement should be made for reviewing the work of the Department quinquennially by a technical committee.*

J. Appointment of a Technical Commission

54. The Special Reorganisation Unit of the Ministries of Finance and Home Affairs in their report on the working of Survey of India had recommended as far back as 1952 that a Technical Commission should go into the question of modernising the methods of survey. The Committee understand that this has not been done so far. *In view of the fact that the target of party years of work set by the Survey Priorities Committee for the Second Plan is not likely to be fulfilled and that there are no prospects of topographical survey of the country being completed in the near future (referred to in the next paragraph), the Committee are of the view that it would be useful to appoint a Technical Commission for examining the working of the department with the main object of stepping up its tempo of work.*

K. Completion of Survey of the whole Country

55. The Committee were informed that the whole of the Indian Union had already been surveyed on the foot-pound system and contour topographical maps were available for 84 per cent area of the entire country. The remaining 16 per cent area was covered only by old maps without contours. With the introduction of metric system with effect from 1956-57, the entire country, including the areas for which contour maps of foot-pound system already exist, is to be surveyed on the metric system. The Committee understand that if, as at present, the Survey of India continues to be engaged on extra-departmental surveys in connection with various development projects in addition to its own departmental work, the time required to cover the entire country will be about 45—50 years. *The Committee consider this period to be inordinately long. They are of the view that by extending the use of modern survey methods and by streamlining the department, its tempo of work should be increased as to complete the survey of the country in the metric system within a much shorter period to be determined by the Technical Commission referred to earlier.*

L. Annual General Report

56. The Committee were informed that the Annual General Reports for the years 1955 and 1956 were under print. The reports for 1957 and 1958 were not completed yet. The reasons for delay were stated to be (i) Ministries of Defence and External Affairs had to be consulted and (ii) introduction of metric system. The reasons given

for these abnormal delays in publishing the reports are not convincing. *The Committee suggest that the Ministry should ensure that the four pending reports are published early and that the report for a particular year is in future published before the budget is presented during the succeeding year.*

M. Publication of School Atlas

57. The Committee understand that the Department has prepared a School Atlas containing authoritative geographical information about India for the use of school children, which has not been published yet. The Committee were informed that the proposal for the publication of this Atlas made in 1956 was shelved. *The Committee recommend that steps may be taken to publish the proposed School Atlas at an early date.*

III. BOTANICAL SURVEY OF INDIA

A. Introductory

58. The Botanical Survey of India, which was established in 1890, is one of the oldest scientific departments under the Government of India and has its headquarters in Calcutta. Upto 1953, the Department functioned with two Divisions, namely, Systematic Division at the Indian Botanic Garden, Sibpore and the Industrial Section at the Indian Museum, Calcutta. It was reorganised and expanded during the fourth year (1954) of the First Five Year Plan.

B. Functions

59. The main functions of the Botanical Survey of India are—

- (i) to obtain the fullest possible knowledge of the flora of India,
- (ii) to act as the Keepers of the botanical collections of India on which the identification of the flora of India is based, and
- (iii) to carry on all scientific work for the fulfilment of these objectives.

The Botanical Survey of India undertakes exploration work in the unexplored and under-explored regions of India and also collections from already explored areas in order to understand fully the flora of India, maintains national and regional herbaria in India, undertakes intensive investigation of Cytotaxonomy Cytogenetics, Physiology, Economic Botany including Ethnobotany and Ecology of plants, etc.

C. Organisation

60. For the purposes of field work and other scientific work, this Department is divided into the following sections:—

- (a) A Headquarter established under the Chief Botanist at Calcutta for co-ordinating the activities of the different sections for implementing the policy laid down by Government to render help, advice and guidance in the field of botanical exploration and investigation.
- (b) A Central Botanical Laboratory at Allahabad for intensive investigation on cytotaxonomical, genetical, physiological, ecological and related subjects and for study on the effects of radio-isotopes on living plants.

- (c) Industrial Section for the maintenance of galleries of economic plants of India and of a Botanical Museum on modern lines in Calcutta with fully representative collection of authentic plant specimens and investigation of plant resources, supply of economic and scientific information, visual education and museum services and training in Museum methods.
- (d) A National Herbarium at Calcutta for housing type specimens and a fully representative collection of plants comprising of flora of India (and also of other countries). This wing of the Survey also aids in floristic work, taxonomy, systematic nomenclature and training in modern herbarium.
- (e) Four regional circles—Eastern, Western, Northern and Southern—with Headquarters at Shillong, Poona, Dehra Dun and Coimbatore respectively to explore and accurately map the flora and vegetation of the respective regions, collection of specimens and data in respect of ecological groups and economic plants at regular intervals and during different seasons of the year to bring them up-to-date and revise the flora of the country and collection of fruits, seeds and other representative parts of plants in their natural surroundings, for experimental cultivation and introduction etc.

A copy of the organisational chart as on 1st September, 1959 of the Botanical Survey of India is attached as Appendix V.

D. Territorial jurisdiction of the Regional Offices

61. A map of India indicating the present distribution of Botanical Regions is enclosed in Appendix VI. It will be seen that the areas of operation of the Southern Region cover Madras, Andhra, Madhya Pradesh and Vindhya Pradesh. The Study Group of the Committee that visited the regional office of the Botanical Survey at Coimbatore learnt that if instead of Madhya Pradesh, the work relating to Mysore and Kerala (which were in the Western Region of the Botanical Survey) was entrusted to Southern Region, the officers concerned could approach that area in a shorter time as compared to the Western Region and the work could be intensified. At present, it took them a long time to reach the forests of Madhya Pradesh which was nearer to Western Region. Besides, because of heavy rains, the forests were unapproachable. So the whole of Madhya Pradesh was stated to be almost unexplored. The Committee were informed that these regions had been formed on the basis of their botanical features and that the question of regrouping the areas was under consideration. *They suggest that the Regional Circles should be realigned on a rational basis at an early date.*

E. Staff

62. The Committee were informed that out of the total strength of staff of 260 in the Department as many as 208 were temporary. As already stated the reorganisation started in 1954 and the staff was recruited mostly in 1956-57. Out of the 208 temporary staff there were 98 who had put in over three years of service. *The Committee suggest that action may be taken to fix the strength of permanent posts in the Department in relation to its continuing functions so that members of staff who are eligible for confirmation may be confirmed according to the rules in force.*

F. Budget and Expenditure

63. The year-wise expenditure figures during the years 1956-57, 1957-58 and 1958-59 as against the sanctioned grants for the respective years and the budget estimates for 1959-60 are indicated below:

Year	Sanctioned Grants	Actual Expenditure	Savings
	Rs.	Rs.	Rs.
1956-57	9,43,000	6,05,699	3,37,301
1957-58	10,67,000	6,89,734	3,77,266
1958-59	12,50,000	9,36,935	3,13,065
1959-60	15,35,000		

The Committee understand that the shortfalls in expenditure were mainly in respect of the provisions made for the following proposals included in the scheme of expansion and reorganisation of the Botanical Survey of India:

- (1) Development of the Central National Herbarium.
- (2) Establishment of a National Orchidarium.
- (3) Establishment of Indian Council of Ecological Research at the Central Office.
- (4) Major Civil Works.

64. The reasons for the shortfalls under the first three items are referred to later in this Chapter. The shortfall under major civil

works is dealt with below. It was stated that the sanction of Government for the following items under major civil works had been accorded only for the year 1960-61:—

	Rs.
(i) Construction of the Central Herbarium	5,00,000
(ii) Purchase of land and construction of buildings for the Central Botanical Laboratory	3,00,000
(iii) Purchase of land and construction of the Central National Herbarium staff quarters	3,00,000
(iv) Purchase of land and construction of building on long term lease of building for the establishment of different circle offices of Botanical Survey of India and additional space for the Central Office	2,50,000
	13,50,000

Preliminary work of drawing out plan and estimate for these items had been completed with the help of C.P.W.D. and Chief Architect, New Delhi. Certain plans were submitted to Government for their approval. Steps had been taken for the purchase of 'Woodlands', Shillong.

65. *The Committee regret that provision should have been made year after year for works programme without a reasonable prospect of its being utilised. They suggest that remedial measures should be taken firstly to ensure that estimates are drawn up on a realistic basis and are carefully scrutinised by the Ministry and secondly to utilise the grants fully.*

G. Central Botanical Laboratory

66. Amongst other things, the reorganisation scheme provided for the setting up of a Central Botanical Laboratory under the charge of a Director at a suitable place where the living plant could be studied in relation to its botanical features and utility. Thus the Central Botanical Laboratory came into existence on the 13th April, 1954. The Laboratory started its activities in the Indian Museum, Calcutta. From there the Laboratory was temporarily moved to Lucknow and located in rooms rented from the Central Drug Research Institute, where it remained for three years *i.e.*, from 2nd December, 1954 to 3rd December, 1957. Subsequently on grounds of lack of space at Lucknow it was shifted to Allahabad with the intention of locating it there permanently.

67. In regard to the location of the Laboratory the Committee were informed by the representative of the Ministry that for it to play an effective role from a scientific point of view, it should be shifted to

Calcutta so as to be near the Central National Herbarium. He added that this question was discussed in the last sitting of the Central Advisory Board and that the recommendation of the Board to that effect had been received recently by Government. Negotiations were going on for getting additional land at Indian Botanic Garden, Sibpore near the Central National Herbarium.

68. The Committee regret that the Central Botanical Laboratory was shifted from place to place without allowing it to develop adequately. They are unable to appreciate the reasons for the latest shift from Lucknow to Allahabad when the facilities of botanical plants, herbarium and laboratories in the various Institutes like National Botanic Gardens, Birbal Sahni Institute and the Central Drug Research Institute were available in Lucknow. However, in view of the fact that for a proper functioning of the Laboratory from the scientific angle, it should be near the Central National Herbarium, *the Committee suggest that the Laboratory should be shifted to Calcutta when additional land is made available in the proximity of the Herbarium. Meanwhile the plans for acquisition of additional lands for the Laboratory at Allahabad and other items of expansion, if any, involving a substantial outlay on which its location has a bearing, should be shelved. The Committee are surprised to note that expenditure on the purchase of land and construction of buildings for the Laboratory should have been sanctioned for the year 1960-61, apparently without a careful examination of the suitability of its present location which was admittedly not the best place for it.*

H. Central National Herbarium

69. The Central National Herbarium, whose origin dates back to the end of the eighteenth century is located at the Indian Botanic Garden, Sibpore, Calcutta on Hooghly river. It was transferred from the West Bengal Government to the Botanical Survey of India on the 1st April, 1957. The Herbarium maintains about 25 lakhs specimens and contains the largest number of representative specimens of the flora of India.

70. Being housed in the office building of the Superintendent, Indian Botanic Garden, the accommodation is very limited and there is no scope for expansion. Many of the sheets lie in open racks and some are stored in an old dark room in the adjacent building. It has, therefore, been proposed to erect a new building on the northern side of the existing building on 3 acres of land which was to be transferred by the West Bengal Government to the Government of India. The representative of the Ministry informed the Committee that the transfer of land by the West Bengal Government was in final stage. The construction of office building and staff quarters would be started soon after it was acquired. A provision of Rs. 5 lakhs and Rs. 3 lakhs respectively has been made in the budget for 1960-61 for these two items of work.

The Committee notice the development of the Central National Herbarium has been hampered due to delay in the transfer of land. They suggest that the matter should be expedited and the construction of the buildings completed without delay.

I. Coloured Illustrations of Indian Plants

71. Dr. William Roxburgh, who was the Superintendent of the Indian Botanic Garden, Sibpore, nearly a hundred and fifty years ago prepared a set of portfolio size coloured illustrations with the help of Indian artists. He described about 2600 species of Indian plants and had paintings made of about 2500 of them. Two sets were made, one of which is preserved in the Royal Botanic Garden, Kew, London, and the second set is available in the Indian Botanic Garden, Sibpore.

72. The Committee understand that 300 of these coloured drawings were reproduced in Roxburgh's book entitled "The Coromandal Plants" and 400 black and white reproductions were available in printed form in Wright's Book "Icones Plantarum Indae Orientalis". Thus 700 out of 2500 Roxburgh's drawings had been reproduced. Of the plants described by Roxburgh, about 400 were named by him for the first time. The Committee were informed that the plates of these were more important than the others; and these were to be printed first and published in a separate publication with suitable annotations. The printing and publication of the rest might be done afterwards.

73. The printing of Roxburgh's Icones has to be done in 3 phases—*i.e.* first the 400 plates of plants to which Roxburgh gave botanical names; second, the 900 plates of plants named by other botanists, but which have never been printed and last, the plates numbering 700 which are available in print in Roxburgh's "Coromandal plants" and Wright's "Icones Plantarum". Taking the cost of each plate at Rs. 500/- the printing of the whole set would cost Rs. 12,50,000/-.

74. The set of Roxburgh's Icones in the Indian Botanic Garden is still in the custody of the Government of West Bengal and the transfer to the Central National Herbarium is under negotiations with the West Bengal Government.

The Committee suggest that Roxburgh's collection may be obtained from the Government of West Bengal for the National Herbarium and that action be taken to draw up a plan to print the whole set in stages.

75. The Library which is housed in the same building as the National Herbarium is still in the hands of the West Bengal Government who are in charge of the Indian Botanic Garden. The representative of the Ministry stated that a part of the library was already with the National Herbarium and that the whole of the library had to go over to the Herbarium and that they were negotiating for the same with the West Bengal Government. *The Committee suggest that action*

may be taken in consultation with the West Bengal Government to get the rest of the library remaining with the Indian Botanic Garden and develop it into a good reference library.

J. Specimens of Indian Plants with Kew Herbarium

76. Dr. Nathaniel Wallich, Superintendent of the Indian Botanic Garden, Calcutta (from 1813 to 1842) made extensive collections of plants from different parts of India, Nepal, Burma and Malaya Peninsula. He took to London specimens of over 8,000 species of plants with many duplicates, greater part of which was identified by himself. The specimens were then distributed over the large Herbaria of Europe during the years 1828 to 1832. The complete and original set was in the Linnean Society of London, later transferred to the Herbarium of the Royal Botanic Garden, Kew. No set was sent to Calcutta at that time, although Dr. Wallich requested the Council of the Linnean Society in October, 1832 to transmit the best set to Calcutta. Later in 1954, when the Botanical Survey was reorganised, attempts were made for getting specimens of importance from foreign Herbaria. As a result of this the Swiss Government out of goodwill sent three consignments of important Indian collections (Wallichian and others). The Department has also received duplicates of Nepal Himalayan herbs from the British Museum.

The Committee would like to lay stress on the importance of getting back duplicates of the 8,000 specimens now in Kew Herbarium in the interest of making the Indian collection as extensive as possible.

K. Common Herbarium at Lucknow

77. During discussion with the representative of the Ministry regarding the necessity for a number of herbaria, such as in Central Botanical Laboratory, Allahabad, Central National Herbarium at Sibpore in Calcutta and the National Botanic Gardens at Lucknow, the Committee were informed that one Herbarium in Lucknow should be able to serve the purpose of various Institutes there. *The Committee suggest that as far as Lucknow is concerned, a common herbarium for the use of National Botanic Gardens, Birbal Sahni Institute of Palaeobotany and Central Drug Research Institute should be maintained to avoid duplication of effort.* The representative of the Ministry agreed with this view.

L. National Orchidarium in Assam

78. The Committee understand that a decision had been taken by the Government that the Botanical Survey of India should develop an orchidarium in the Second Plan for the study of the germination and growth habits of orchids and for the hybridization for the production of new varieties. The orchids were to be collected from forests and kept in orchidarium. Suitable land for the orchidarium had been located in Shillong and negotiations for its purchase were under way.

79. It was also stated that a beginning would be made with a keeper to collect and maintain the orchids, and a Scientific Assistant to carry on scientific work. In the Third Five Year Plan it was proposed to provide scientific staff for more intensive studies on orchids. During the last three years the officers of the Botanical Survey of India had collected a large number of orchids during their exploration tours. With the establishment of the Orchidarium at Shillong these plants would be shifted there and kept under proper conditions.

80. The Committee were informed that the delay in the implementation of the scheme was due to the fact that the Second Five Year Plan of the Department was finally sanctioned as late as in June, 1959 and the orchidarium could start only after the property where it was to be located was purchased. The office, library, herbarium and the laboratory of the Eastern Circle would be ultimately shifted to this site.

81. Meanwhile the collection of orchids was increasing and it had become difficult to keep the specimens in proper form in the Regional Circle Office with the existing staff and facilities. The Committee also understand that the orchidarium can become a source of foreign exchange earning apart from its scientific utility. *The Committee feel that the work in connection with the scheme has not proceeded speedily. They recommend that the matter should now be pursued vigorously so that the National Orchidarium is established at an early date.*

M. Experimental Gardens

82. During the course of discussion on the subject of co-ordination between Botanical Survey and other allied Departments, it was stated by the Chief Botanist that the Department also maintained some specimens from the collections of medicinal plants as exhibits in colours. *In the next Five Year Plan, the Department would consider the setting up of experimental gardens for studying growth habits and the germination capacity of medicinal plants as also of other economic plants in different climatic regions of India. The Committee consider that this can be a useful line of research which could be steadily pursued.*

N. Indian Council of Ecological Research

83. Indian Council of Ecological Research was first established under the Ministry of Food and Agriculture about 1955. Later, it was considered that it would be more appropriate to bring the ICER under the former Ministry of Natural Resources and Scientific Research and in 1957 the scheme was transferred to the Botanical Survey of India. The important departments of the laboratory would be soil science, plant physiology, microbiology, climatology and vegetation mapping. But when the scheme, with a probable expenditure of Rs. 17 lakhs, was proposed in 1957, it was objected to because it was not included in the original scheme of the Second Five Year Plan; and it was decided that during the Second Five Year Plan a small unit might be started with a

provision for further expansion in the Third Five Year Plan. Skeleton staff sanctioned in the Second Five Year Plan was in the course of selection. The Committee understand that the delay in implementing the scheme was due to the fact that the Second Five Year Plan of the Botanical Survey of India was sanctioned as late as in June, 1959.

84. During the last three years, apart from ecological observations during exploration tours to different parts of the country, some schemes of research had been taken up by the Botanical Survey of India. Systematic Botanists and others had undergone a special course of training on ecological methods under Professor Emberger, under whose leadership the UNESCO organised a training course in Jaipur in 1958. They had started work and recently some skeleton staff had been provided. In the proposed new regional circle in Jodhpur or Jaipur there would be a special unit to study the ecology of the arid zone flora which was important for the prevention of soil erosion and the control of the march of the desert. While the staff for ecological research in the regional circles would select specific areas of importance for their ecological studies of flora, the Central Laboratory unit at the headquarters would carry on research work on soil, climate and other factors bearing on ecological studies. They would also guide and co-ordinate the investigation at the four circles.

The Committee feel that the scheme of ecological research has not been proceeded with in right earnest. The transfer of a scheme from one Ministry to another should not be allowed to hold up or to slow down its implementation. They hope that the scheme would now be pursued vigorously.

O. Co-ordination

85. The Committee understand that the Botanical Survey of India was collaborating with the universities and similar institutions in the country in various ways, such as, (i) giving facilities to research students for the study of the problems relating to the flora of India, (ii) giving practical instruction to students on collection and processing of herbarium specimens, (iii) associating research students with the exploration parties of the survey. The students and research workers in botany and allied subjects were helped in identification of plants and were supplied scientific information on different plant products as also plant materials for teaching and research. Close collaboration was also maintained with the Inter-University Board.

86. The Committee were informed that there was no separate committee of an advisory character for co-ordination between the Botanical Survey on the one hand and Forest and Agricultural Departments on the other. The Committee consider it desirable to have such a body to meet periodically to consider matters of common interest.

P. Floristic Survey of the whole country

87. The Committee were informed that the basic floristic survey of the whole country could be completed in 15 years. During the last three years, about one-tenth of the work had been accomplished. A copy of the Plan received in this connection is enclosed as Appendix VII.

The Committee recommend that complete basic floristic survey of the country should be carried out by the Department during the course of the next 15 years and the results published. The Department should plan its out-turn for each year and take steps to realise it.

Q. Reviewing Committee

88. The representative of the Ministry informed the Committee that no regular review of the work of the Botanical Survey Department had been made during the past few years except a casual review once made some-time back by a technical committee. *The principle of quinquennial review may also be followed in regard to Botanical Survey as indeed it should be in respect of all the scientific departments, a suggestion which found acceptance at the hands of the representative of the Ministry.*

IV. ZOOLOGICAL SURVEY OF INDIA

A. Functions and Set-up

89. The Zoological Survey of India, with the status of a Government Scientific Department, was constituted in 1916 with its Headquarters in Calcutta.

The functions of the Zoological Survey of India are—

- (i) To acquire all possible information regarding the animals that inhabit this country by carrying out faunistic surveys and researches on systematic zoology, animal ecology and zoogeography;
- (ii) To publish three works on Indian Zoology: (1) Record of the Indian Museum (quarterly), (2) Memoirs of the Indian Museum (an occasional periodical), and (3) The Fauna of India Series;
- (iii) To develop and maintain the standard national zoological collections;
- (iv) To act as a Bureau of Systematic Zoology for India and as an Adviser to the Government of India in zoological matters; and
- (v) To maintain and add to the exhibits of the public zoological galleries of the Indian Museum.

90. In addition, facilities for research leading to the post-graduate and doctorate degrees of Indian universities which have recognised it as a centre of higher zoological research are provided by the department in its laboratories to students from all over the country. Such facilities are provided in the fields of systematic zoology, zoogeography, fisheries and animal ecology which are not taught in universities in India. Besides, information is supplied to Zoological Department of universities and institutions within the country and abroad on certain matters of interest.

A chart showing the organisational set up of the Department is attached as Appendix VIII.

B. Regional Stations

91. The Committee were informed that in addition to the two regional stations already established at Shillong and Poona, a decision for the establishment of 4 additional regional stations proposed to be set up at Jodhpur, Puchmarhi (now to be set up at Jabalpur instead), Dehra Dun and Mandapan was taken in 1958. Negotiations for suitable accommodation were going on in respect of these

stations. The representative of the Ministry stated that though the overall plan of the zoological survey had been accepted earlier, the detailed plans were sanctioned in 1958 only.

92. In regard to the time taken by the Administrative and Finance Ministries in scrutinising and sanctioning a scheme, the representative of both the Ministries stated that ordinarily each Ministry would take about one month for this purpose. The Financial Adviser added that unfortunately some of the schemes received in the Finance Ministry were incomplete and lacking in details and this led inevitably to delays in issuing sanctions. He stated—

“In the case of major schemes received in the Finance Ministry, the procedures are already fully worked out and the usual time taken is a maximum of one month if the schemes are complete in all details. What happens generally is that, in the case of some of the schemes at least, they are half-baked, certain parts hanging on, certain data not complete and so on. That is why delay occurs in the case of some in the Finance Ministry. It is not always that every scheme is complete in all respects. If that was so we could have passed the schemes in a fortnight’s time.”

The representative of the Ministry did not subscribe to these views. The fact, however, remains that a number of schemes have not progressed according to the schedule, resulting in shortfalls in actual expenditure.

93. *The Committee are of the opinion that the entire procedure whereby inordinate delays occur in the sanctioning of schemes needs to be carefully examined. They would like that steps should be taken from now on to ensure that schemes to be implemented in the Third Plan are prepared in sufficient detail and that they are sanctioned well in time to ensure their timely implementation with a view to avoid heavy shortfalls such as have been referred to in the next paragraph.*

C. Shortfall in Expenditure

94. The following are the figures of budget estimates and the actual expenditure incurred during the last three years and the budget estimates for the current year (1959-60):

Year	Estimates	Expendi- ture	Shortfall
	Rs.	Rs.	Rs.
1956-57	11,17,000	4,38,248	6,78,752
1957-58	10,24,000	5,23,469	5,00,631
1958-59	11,87,000	5,60,264	6,26,736
1959-60	11,35,000	..	..

The Committee observe that the shortfall in expenditure has become a regular feature of the Department, nearly half the estimated amounts not being utilised each year. The reasons for the shortfall were stated to be (a) delay in sanctioning schemes and (b) inability of the Department to fully expend the sanctioned amounts.

95. In regard to the sum of Rs. 22,64,000 sanctioned for expansion and reorganisation of the Department under the Second Five Year Plan, the Department had spent Rs. 42,000 only in 1958-59. The Director of the Zoological Survey stated that there was always some time-lag between sanctioning the posts and actually filling them. The Committee were informed that the Department did not expect to spend more than Rs. 13 lakhs by the end of the Second Plan.

The Committee are not satisfied with the reasons for the heavy shortfalls in expenditure and suggest that the Administrative and Finance Ministries should arrive at agreed arrangements for issue of necessary sanctions for the schemes so as to obviate delays in carrying out Plan schemes. The Department, on its part, should also display greater activity and see that sanctioned schemes progress according to a well laid out programme.

D. Marine Survey Unit

96. The Committee were informed that studies of marine fauna of the Indian Ocean, particularly of the deep sea fauna would be undertaken by the Marine Survey Unit which was to be established at Calcutta in this year. It was stated that one officer and 3-4 scientific assistants required for this unit were being recruited. A ship was required for survey work and provision was being made therefor only in the Third Plan.

The Committee suggest that it would be useful for the Marine Survey Unit to maintain close co-ordination from its very inception with the State Fisheries Departments, since the latter would be able to throw some light on the studies of ocean fauna already undertaken by them.

V. CENTRAL BOARD OF GEOPHYSICS

A. Introductory

97. The science of Geophysics, as the name implies, is the study of the physical properties of the Earth and is as old as the science of Physics itself. Geophysics is part of what has now come to be recognised as the Earth Sciences which include geography, geology, geodesy, geophysics and geochemistry. In the broadest sense, geophysics comprises the study of physical phenomena occurring in all parts of the Earth from all possible angles. Under Geophysics, the following Sciences are included:—

- (i) Meteorology;
- (ii) Seismology;
- (iii) Gravitation and Isostasy;
- (iv) Terrestrial Magnetism;
- (v) Oceanography-Volcanology;
- (vi) Hydrology;
- (vii) Terrestrial and Atmospheric Electricity; and
- (viii) Exploration Geophysics.

B. Composition and Functions

(a) *Composition*

98. The Central Board of Geophysics is composed of:—

- (i) An Advisory Board
- (ii) A subordinate Office (also named as the Central Board of Geophysics) under the Ministry of S.R. & C.A.

The Advisory Board consists of a body of scientists and technologists who are experts in their respective fields. The Advisory Board usually meets twice a year. Its present constitution is given in Appendix IX.

99. The Advisory Board has a number of Committees/Sub-Committees to assist in dealing with matters relating to the different Branches of Geophysics. The following Committees are in existence at present:—

- (i) Committee for Exploration Geophysics.
- (ii) Committee for Oceanography.
- (iii) Sub-Committee for Solar Activity and Aeronomy.

The appointment of the following additional Committees is now under the consideration of the Government:—

- (i) Committee for Meteorology, Hydrology and Glaciology.
- (ii) Committee for Geodesy, Seismology, Volcanology and Geomagnetism.

(b) *Functions*

100. The following are the main functions of the Board:—

- (i) Co-ordination of the existing resources of the Scientific Department and Universities in Geophysics for research, field work and training of personnel;
- (ii) Development of these resources; and
- (iii) Implementation of the recommendations of the Committee for a Central Geophysical Institute.

There has been no change in the functions of the Board since its inception in 1949 excepting that the Board has been acting as the National Committee in India of the International Union of Geodesy and Geophysics since 1953.

101. The Central Board of Geophysics as a subordinate office of the Ministry of S.R. & C.A. is composed of three units, viz. the Central Office in Calcutta, the Oceanographic Research Wing in Cochin and the Geophysical Research Wing in Calcutta. The chief Geophysicist, Geological Survey of India, is the Hony. Secretary of the Board and has been declared as 'Head of Office' and Controlling Officer in respect of pay and allowances (including T.A.) of the staff of the three units of the office. He has also been declared as the appointing authority in respect of Class III and Class IV staff with effect from 9-9-1959.

102. The Committee were given to understand that the following concrete steps had been taken in the field of development of geophysical research since the constitution of the Board:—

- (i) Establishment of Central Seismological Observatory at Shillong under the Indian Meteorological Department in pursuance of a recommendation by the Central Board of Geophysics. The Observatory records all seismic and earthquake disturbances for the determination of epicentres and publishes periodical bulletins.
- (ii) A scheme is in operation at the Central Marine Fisheries Research Station, Mandapam, for the collection and analysis of sea water samples. A systematic study of these samples will furnish valuable information regarding the physical and chemical properties of sea waters along the routes of vessels.

- (iii) The syllabus, as prepared by the Central Board of Geophysics for the M. Sc. Geophysics courses in Applied Geophysics and Meteorology, has been adopted by the Banaras and Andhra Universities.
- (iv) Establishment of Geophysical Research Wing.
- (v) Establishment of Oceanographic Research Wing.
- (vi) Inviting and processing proposals for the promotion and development of oceanographic research from concerned Universities and Government Departments.

C. Budget and Expenditure

103. The following are the Budget Estimates and Actual Expenditure for the years 1956-57 to 1958-59:—

	Budget Estimates	Expendi- ture
	in rupees	
	1956-57	
Central Office	42,900	30,890
Oceanographic Research Wing	1,57,000	
Geophysical Research Wing . . . . .	..	..
TOTAL	1,99,900	30,890
	1957-58	
Central Office	1,35,600	42,300
Oceanographic Research Wing	1,00,000	
Geophysical Research Wing	2,00,000	..
TOTAL	4,35,600	42,300
	1958-59	
Central Office	59,000	53,301
Oceanographic Research Wing	1,50,000	16,274
Geophysical Research Wing	4,00,000	..
TOTAL	6,09,000	69,575

The budget provision made in 1959-60 is as under:—

	Rs.
Central Office	88,000
Oceanographic Research Wing	1,64,000
Geophysical Research Wing	<u>2,37,900</u>
	4,89,900

The shortfalls in expenditure are mainly under the two Research Wings—Oceanographic and Geophysical—and the reasons therefor have been dealt with in the succeeding paragraphs.

D. Research Wings

104. The Central Board of Geophysics recommended in 1955 that the Geophysical Research Wing should be established as a unit of the Geological Survey of India at Calcutta and that the Oceanographic Research Wing should be established at the Indian Naval Physical Laboratory, Cochin. The Planning Commission approved of these two schemes in 1956 and initially made an allocation of Rs. 80 lakhs for the same for the Plan period. Subsequently, in March, 1957, the amount was reduced to Rs. 74 lakhs—Rs. 64.92 lakhs for geophysical Research Wing and Rs. 9.08 lakhs for Oceanographic Research Wing. The Committee understand that this had recently been further reduced to Rs. 44 lakhs.

(a) *Geophysical Research Wing.*

105. The amount of Rs. 64.92 lakhs allotted to the Wing under the Second Five Year Plan was to be distributed as under:

	Rs.
(a) Purchase of equipment	18 lakhs
(b) Purchase of land	3 lakhs
(c) Building for the Wing	22 lakhs
(d) Pay and Allowances and other charges	21.92 lakhs

This was approved in principle by the Expenditure Finance Committee in 1957. Rs. 2 lakhs and Rs. 4 lakhs were provided in the Budget Estimates for the Wing in 1957-58 and 1958-59 respectively but no expenditure was incurred against the provision. The main reasons for the shortfall were stated to be as follows:—

- (i) The Gazetted posts could not be filled up.

- (ii) Purchase of equipment was allowed subject to availability of T.C.M. aid which could not be arranged. Subsequently proposals for obtaining equipment under other foreign aid programme were not accepted by the Ministry of Finance.
- (iii) The decision of Ministry of Finance to hold in abeyance the works programme for Wing due to shortage of cement and steel.

106. In 1959-60, Rs. 2,37,900 have been provided for the Wing. The Committee understand that due to difficulties in obtaining facilities on a long term basis such as sharing the equipment, accommodation etc. available with the Geophysics Division of the Geological Survey of India, the Board in June, 1959 recommended that the Wing should be taken over by the CSIR. This recommendation of the Board was under consideration of Government. Meanwhile in September 1959, an allotment of foreign exchange worth Rs. 2 lakhs had been made and action for procuring equipment was stated to be under way.

The Committee regret the repeated heavy shortfalls and feel that the Budget Estimates for the later years viz. 1958-59 and 1959-60 at least should have been more realistic. They suggest that a decision on the question whether the Wing should be taken over by the CSIR or should continue under the Central Board of Geophysics may be taken at an early date to avoid further uncertainties in the way of its future progress.

(b) *Oceanographic Research Wing*

107. The Committee notice that no expenditure were incurred against the budget provision of Rs. 1,57,000 and Rs. 1,00,000 during 1956-57 and 1957-58 respectively, while Rs. 16,274 was incurred against Rs. 1,50,000 provided for during 1958-59. The main reasons for the shortfall were stated to be (i) non-filling of gazetted posts through the normal prescribed channels and (ii) difficulty in the procurement of foreign exchange for essential equipment. The Wing has started functioning at the Indian Naval Physical Laboratory, Cochin, sharing the equipment available with that organisation with one Gazetted Officer recruited in August, 1958. *The Committee reiterate their observation made earlier in para 106, that the budget estimates should have been more realistic. Such repeated shortfalls against budget provision for various schemes—a feature which is not uncommon to most of the Ministries, lead the Committee to the inescapable conclusion that schemes lacking in essential details are often included prematurely in the budget estimates and that the departments concerned have themselves no clear idea as to how and when the schemes are likely to mature. This is not a happy state of affairs. While a certain amount of variation between an estimate and actual expenditure is inherent in the administrative set-up dictated generally by regard to economy or circumstances beyond control, the shortfall such as now under consideration with margins which cannot be explained call for an immediate examination at the hands of the*

Government of India. The Committee would like the Government of India to give a careful consideration to these observations and take effective measures to eliminate such heavy shortfalls.

E. Acquisition of a Vessel for Oceanographic Research

108. There is at present no proper deep sea going and fully equipped vessel for the survey of the Indian seas. Consequently the organisations that are engaged in Oceanographic studies have confined their work to the study of coastal waters. The Board has recommended for the allotment of Rs. 40 lakhs during the Third Plan for procuring a vessel for this purpose. The Committee were told that it was proposed to acquire a ship of about 500 to 600 tons at this cost. The acquisition would have to be done in consultation with the Ministry of Defence and the Indian Navy. *The Committee suggest that necessary action to acquire the ship may be taken early.*

F. Bore-Core Legislation

109. In pursuance of a resolution adopted at the 8th General Conference of UNESCO, the Director-General requested UNESCO's member countries to consider the enactment of legislation for the systematic collection of core samples and ground water data obtained in the search for an abstraction of ground water in well sinking and bore hole drilling operations. On this matter being referred to the Board by the Government of India, the Board prepared a draft bill with the guidance of an expert Committee formed for the purpose and submitted it to Government.

110. The Committee were informed that the draft Bill was sent to the Ministry of Steel, Mines and Fuel because the work, in their opinion, properly related to the Geological Survey of India which was under that Ministry. They had, however, returned it. The Bill could, under the circumstances, be now piloted by the Central Water and Power Commission because they also did survey of ground water work. If they did not take up, then the Ministry of Scientific Research and Cultural Affairs would examine whether they themselves could do it.

The Committee suggest that the Ministry may themselves sponsor the draft Bill to avoid further loss of time.

NEW DELHI;
The 23rd March, 1960.
The 3rd Caitra 1882 (Saka).

H. C. DASAPPA,
Chairman,
Estimates Committee.

APPENDIX II

(Vide para 20)

Statement depicting the course of action taken and stages gone through in printing I/M Calcutta Population Map received from Surveyor General.

PRINTING OF I/M SCALE CALCUTTA—POPULATION MAP

27-6-1958.

Received from National Atlas Organisation five originals and four colour separation and deletion guides.

Required 10 proofs in NINE colours.

7-8-1958.

Supplied to National Atlas Organisation FIRST proof (10 copies) in nine colours. 9 negatives and 3 positives prepared in printing these proof copies.

Cost incurred—Rs. 1026.37 nP.

20-8-1958.

Received from National Atlas Organisation one examined proof with large corrections together with 5 amended originals and 5 guides for re-photography.

Required 8 fresh proofs in NINE colours.

24-9-1958.

Supplied to National Atlas Organisation SECOND proof (8 copies) in nine colours. 7 negatives and one positive freshly prepared and two negatives and two positives amended. Previous ones written off.

Cost incurred to-date—Rs. 1479.30 nP.

10-12-1958.

Received from National Atlas Organisation examined proofs with corrections together with one original, three applique slips one guide.

Required 6 fresh proofs in NINE colours.

16-1-1959.

Received from National Atlas Organisation further corrections and instructions to change green negative to red negative and red negative to green, for incorporation in the above proof.

11-2-1959.

Supplied to National Atlas Organisation **THIRD** proof (6 copies). All negatives amended and fresh plates prepared to print these proof copies.

Cost incurred to-date—Rs. 1940.69 nP.

3-3-1959.

Received from National Atlas Organisation instructions to prepare proofs with hill shading printed from the shade negative prepared for Physical Map of Calcutta.

Required four proofs with hill shading.

6-3-1959.

Supplied to National Atlas Organisation **FOURTH** proof (4 copies). One additional plate was prepared to print these proofs with shade.

Cost incurred to-date—Rs. 2020.69 nP.

1-5-1959.

Received from National Atlas Organisation two new originals, two guides and one corrected proof.

Required five proofs in **NINE** colours.

21-5-1959.

Received from National Atlas Organisation further material *e.g.* two originals of Calcutta inset Map for incorporation on the above proof.

2-6-1959.

Received from National Atlas Organisation further material *e.g.*, one original of Index Map and notes and applique slips for incorporation on the above proof.

16-6-1959.

Supplied to National Atlas Organisation **FIFTH** proof (five copies) in **NINE** colours. Blue and Shade negatives freshly prepared and other negatives and positives amended to print these proof copies. Blue negative written off.

Cost incurred to-date—Rs. 2720.81 nP.

22-6-1959.

Received from National Atlas Organisation one examined proof with corrections.

Required five proofs in **NINE** colours.

4-8-1959.

Received from National Atlas Organisation further material *e.g.* one fresh original and strip original for photography and incorporation in the above proof.

28-8-1959.

Supplied to National Atlas Organisation SIXTH proof (2 copies) in NINE colours. One additional negative prepared and other negatives and positives corrected to print these proof copies. One negative prepared to print notes and Index Map on the back of proof copies.

Cost incurred to-date—Rs. 3411.75 nP.

7-9-1959.

Received from National Atlas Organisation one examined proof with corrections and amended original of the Index Map and also orders for final printing.

Required 4050 printed copies of the map.

26-9-1959.

Received from National Atlas Organisation telegraphic instructions to suspend printing of the map. At the time of receipt of these orders one negative of the Index Map freshly prepared and negatives corrected but printing not taken up.

3-10-1959.

Received from National Atlas Organisation instructions to amend black and grey negatives for printing certain items of black colour in grey.

Required 2 fresh proofs before final printing.

Cost incurred to-date—Rs. 3792:19 nP.

Approximate additional cost of printing 4050 copies is estimated at Rs. 2,000.00 nP. excluding the cost of paper and ink to be supplied by National Atlas Organisation.

APPENDIX IV

(Vide para 31)

Functions of Officers/Offices of Survey of India

(1) *Surveyor General of India* is the head of the Department. He is also the Director of Military Survey. In his dual capacity he is Advisor to both the Government of India and the Army on survey matters. He is responsible, subject to such delegation of authority as he may make to his Directors, for all technical and administrative matters in the Survey of India. The particular matters dealt with directly by him are:—

- (i) Departmental expansion and mechanisation and 5-year programme of work.
- (ii) Terms and conditions of service of all Officers, recruitment, promotion and postings of gazetted officers and Class III Division I staff.
- (iii) Control of unfixed establishment of the Department; and
- (iv) all matters involving Departmental policy.

(2) *Deputy Surveyor General*: He is Deputy to the Head of the Department and assists him in exercising administrative and technical control over the Department. He is also the Vigilance Officer of the Department. His main functions are:—

- (i) to deal with all technical matters regarding surveying, fair drawing and map printing;
- (ii) to frame budget estimates and keep account of the Departmental expenditure;
- (iii) to issue financial sanction on behalf of the Surveyor General;
- (iv) to give or obtain from Government clarifications and decisions on the interpretation of rules and regulations on all matters including service conditions;
- (v) to act as controlling officer of the Surveyor General's Office and the Stores Office.

(3) *Director, Map Publication (Dehra Dun)* is responsible for directing and co-ordinating the map-drawing and map-reproduction policy of the Department in consultation with the Surveyor General. He also organises the stocking and sale of the Departmental Maps. The preparation of small scale general and topographical maps of India and the printing of large number of maps is also carried out under him.

(4) *Director, Northern Circle (Dehra Dun)* is responsible for execution of all topographical surveys and mapping in Northern India covering the whole Jammu & Kashmir, Punjab and U.P. States, a part of Madhya Pradesh State and the Union Territories of Delhi and Himachal Pradesh.

(5) *Director, Southern Circle (Bangalore)* is responsible for execution of all topographical surveys and mapping in Southern India covering the whole of Andhra Pradesh, Kerala, Madras and Mysore States, major portion of Madhya Pradesh State and the Union Territories of Pondicherry, Laccadive, Minicoy and Amin-divi Islands.

(6) *Director, Eastern Circle (Calcutta)* is responsible for all surveys and mapping in Eastern India covering the States of Assam, Bihar, Orissa and West Bengal and the Union Territories of Andaman and Nicobar Islands, Manipur and Tripura. Any surveys required by the States of Sikkim and Bhutan who are attached to India by special treaties are also carried out by this Circle.

(7) *Director, Western Circle (Abu)* is responsible for surveys in the States of Bombay and Rajasthan.

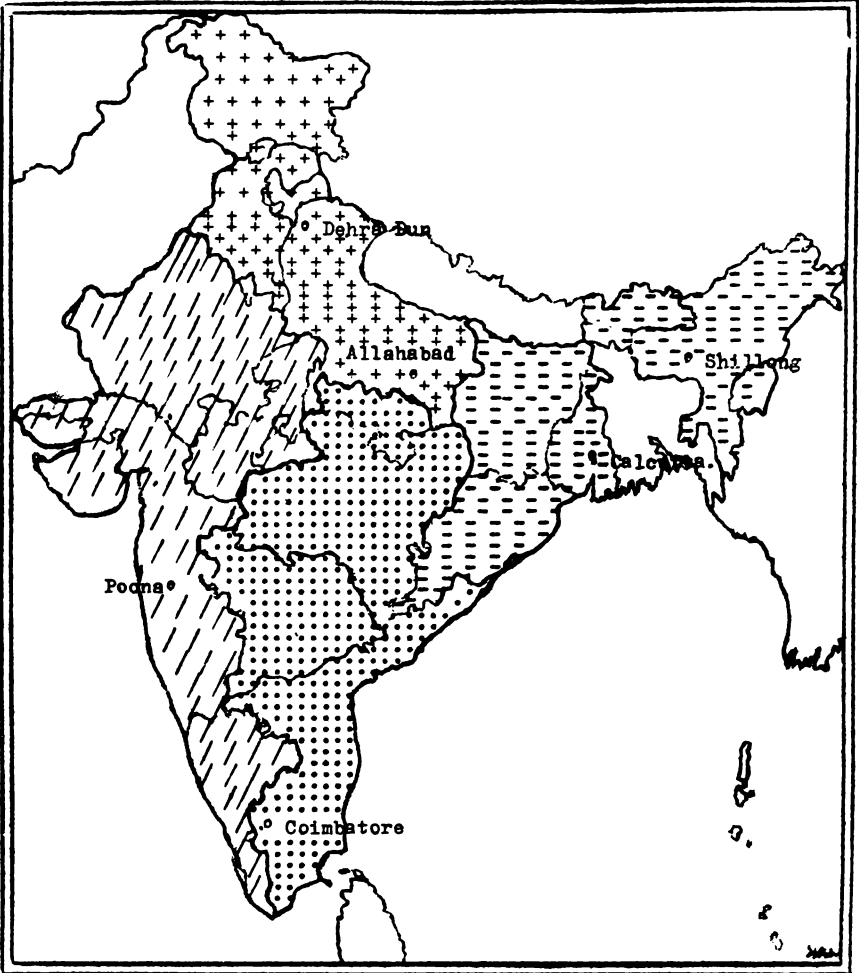
(8) *Director, Air-survey and Training Directorate (Dehra Dun)* controls the training and photogrammetric units at Dehra Dun. Presently the special surveys required by the Central Water and Power Commission for flood control investigations are also carried out under this Directorate.





(9) *Deputy Director, Geodetic and Research Branch (Dehra Dun)* is responsible for all geodetic and geographical work of the Department and concomitant research. One Unit engaged on demarcation of boundary between India and West Pakistan is also placed under the control of this Branch.

There are number of survey parties and other units/offices in each Circle/Directorate to carry out survey and mapping of areas falling under its jurisdiction and to carry out other technical work entrusted to it. Normally composition of a Survey Party comprises one Class I Officer (as Officer-in-charge), 3 Class II Officers (as Camp/Section Officers), 5 Class III Division I Officers (to carry out control work and/or supervisory duties), 29 Class III Division II personnel (*viz.*, Planetablers, Survey Draftsmen, Computers etc.), 4 ministerial personnel and an adequate number of Class IV personnel. The strength of the Drawing and Printing Offices varies according to the nature and extent of the work tackled by each of them.

Appendix VI
(Vide para 61)

Map of India with boundaries of
the Regional Circles of the
BOTANICAL SURVEY OF INDIA.
(State boundaries as in 1955)



- | | | | | | |
|-----------------------|---|---|-----------------|---|---|
| Eastern Circle | . |  | Northern Circle | . |  |
| Western Circle | . |  | Southern Circle | . |  |
| Calcutta | - | Headquarters Organisation & Industrial Section,
Indian Museum. | | | |
| Calcutta
(Sibpore) | | Central National Herbarium. | | | |
| Allahabad | - | Central Botanical Laboratory. | | | |
| Shillong | - | Eastern Circle. | | | |
| Poona | - | Western Circle. | | | |
| Dehra Dun | - | Northern Circle. | | | |
| Coimbatore | - | Southern Circle. | | | |

APPENDIX VII

(Vide Para 87)

Plan to complete the basic floristic survey of the whole country

(1) Sir Joseph Hooker's book "Flora of British India" in 7 volumes is still the standard book on Indian plants. This includes plants of Burma, Ceylon, Pakistan and Malaya, along with those of India. The publication of the seven volumes was completed in 22 years, between 1875 and 1897. Since then quite a number of plants have been discovered in India and many names have been changed. Many of the described species of plants have been split up into more than one species. For these reasons a new book for Indian plants should now be prepared.

(2) The Botanical Survey of India has listed the regions which are still unexplored or are underexplored. It is proposed to make a complete survey of the plants of these unexplored and underexplored areas in the first instance and also to make complete collections of the flora from areas which are explored, because a more thorough collection at different seasons is expected to show further records of plants.

(3) The basic floristic survey will mean a collection of all plants of India and printing an account of the flora either by publishing supplements of existing flora or preparing new volumes. During the last three years a large number of unexplored and underexplored areas have been visited and a large number of plants have been collected and incorporated in the regional herbaria. When a complete collection of the flowering plants has been made, the flora of India will be studied family-wise so that the staff may take up definite families. The writing of Monographs on the basis of families has already been started; and by the end of the Third Five Year Plan the collection should be more or less complete. In the 4th Five Year Plan it is expected that most of the Monographs on families will be written.

(4) The Ferns and other plants of the lower orders viz. the mosses group, the fungi or the algae group which do not produce flowers or fruits are not included in Flora of British India. To begin with only the Angiosperm and Gymnosperm in this new flora will be studied, as was done in Flora of British India. Of these 2 groups it is estimated that about 18,000 different plants (with one or two varieties in some cases) occur within India proper; and the Botanical Survey of India might be able to finish the work in 15 years.

The plan of work will consist of writing elaborate description of each species; list of synonyms will also be given together with detailed distribution in India and the range of distribution outside India. Recognised economic uses if any of the species will also be mentioned against

each. Names of the species in the Indian languages will be included as far as practicable. Keys to the families and genera will be given for identification. Line drawings of plants may be given in selected cases, such as exotics and newly discovered ones and outline maps may be given to indicate the range of distribution of families and genera.

The first volume will deal with the Gymnosperms with not more than 100 different species of plants in India. The Angiosperms are subdivided into 2 groups, the Monocotyledons and the Dicotyledons. In the Monocotyledons there will be about 3,000 Indian species; and in Dicotyledons about 15,000. For the Monocotyledons 2 volumes will be necessary, and for the rest of the species included in the Dicotyledons 8 volumes will be necessary. There will be another volume to give the index and supplements if there be any. The work is thus proposed to be completed in altogether 12 volumes.

(5) Work on Cryptogams (flowerless plants) such as algae, fungi, lichens, bryophytes, pteridophytes in India has however been limited; and there are only a few published accounts of comprehensive study of groups. It is proposed to start a comprehensive cryptogamic collections of different groups of plants in the Third Five Year Plan at the Headquarters Organisation in Calcutta.

APPENDIX IX

(Vide Para 98)

Composition of the Central Board of Geophysics (Advisory Board)

The present composition of the Central Board of Geophysics (Advisory Board) is as under:—

Representative of the Ministry of Irrigation & Power

1. The Chairman, Central Water & Power Commission, New Delhi.
2. The Secretary, Central Water & Power Commission, New Delhi.

Representative of the Survey of India

3. Surveyor General of India, Dehradun.
4. The Deputy Director, Geodetic & Research Branch, Dehradun.

Representative of the Geological Survey of India

5. Director, Geological Survey of India, Calcutta.
6. The Chief Geophysicist, Geological Survey of India, Calcutta.

Representative of the Ministry of Communications

7. The Director-General of Observatories, New Delhi.
8. Seismologist, Central Seismological Observatory, Shillong.

Representative of Oil & Natural Gas Commission

9. Director of Geophysics, Oil & Natural Gas Commission, Dehradun.

Representative of Council of Scientific & Industrial Research

10. Director-General, Council of Scientific & Industrial Research, New Delhi.

Representative of the Ministry of Education

11. Shri L. S. Chandrakant, Deputy Educational Adviser (Tech.), Ministry of Education, New Delhi.

Representative of the Ministry of Defence

12. Principal Scientific Officer (Navy), Defence Science Organisation, Naval Headquarters, New Delhi.

13. Representative of the Ministry of Scientific Research and Cultural Affairs.

Nominated by the National Institute of Sciences of India

14. Dr. K. S. Krishnan, F.R.S., D.Sc., Director, National Physical Laboratory, Hillside Road, New Delhi.

Nominated Non-official Members

15. Dr. K. R. Ramanathan, D.Sc., Director, Physical Research Laboratory, Navrangapura, Ahmedabad.

16. Dr. B. Sundarama Rao, Department of Geophysics, Andhra University, Waltair.

17. Dr. M. S. Krishnan, Head of Department of Geophysics, Andhra University, Waltair.

18. Representative of University Grants Commission.

The Board is headed by an Honorary Chairman (Elected) and an Honorary Secretary who is in charge and Head of Office of the Secretariat of the Central Board of Geophysics and the two Research Wings viz. the Geophysical Research Wing and the Oceanographic Wing.

APPENDIX X

Summary of Recommendations/Conclusions

Serial No.	Reference to para- graph No.	Summary of recommendations/conclusions
1	2	3
1	5	The Committee are of the view that as a large percentage of the sanctioned staff is in position, the N.A.O. should direct its efforts to adhere to the programme already laid down.
2	9	The Committee view with concern that there is no gazetted officer in charge of Dehra Dun Office. They suggest that some responsible officer should be immediately appointed to be in charge of the Drawing Office with sufficient powers to scrutinise the proofs received from the Map Publication Office at his own level and to maintain effective liaison with the Office of the Surveyor General.
3	10	The Committee were informed that during the vacations students of Geography, Geology and Allied Sciences had been employed by the NAO on a day-to-day basis for 5-6 weeks and it was proposed to make it a regular feature. The Committee consider this to be a move in the right direction because this scheme not only affords the students an opportunity for practical training but also enables them to utilise gainfully their vacation period. The Committee suggest that this method may be suitably emulated by other organisations also, wherever feasible.
4	12	The Committee were informed that no meeting of the Board had been held for the last several years as its place had virtually been taken over by the Executive Committee and that the Board existed only "on paper but not in practice."

1	2	3
10	24	The Committee suggest that the question of absorbing the trained hands of the NAO in the Survey of India, to the extent feasible after the former has completed its allotted task, may be kept constantly in view so that (a) the staff employed by NAO has not to be suddenly retrenched, and (b) the experience gained in preparing the National Atlas is usefully utilised by the Survey of India.
11	25	The Committee suggest that interested and reliable parties might be given a fair chance to produce translated versions of the Hindi Edition of the Atlas in regional languages, subject to such conditions as the NAO may consider necessary to impose.
12	26	The Committee suggest that the term for which there is no accurate Hindi equivalent should be taken normally from the glossary of technical terms prepared by the Ministry of Education. Where, however, a deviation is called for, action may be taken after referring to the Ministry of Education.
13	27	The Committee hope that the remaining two States will also see their way to agree to the suggestion of the Organisation at an early date to designate one of their officers as Co-ordinating Officer for the NAO.
14	28	The Committee are of the view that since the sale price of Rs. 100 per copy of Hindi edition is beyond the reach of most of the schools and smaller institutions, the question of bringing out a cheaper edition of the Atlas may be examined.
15	33	The Committee find that under the head "Survey Parties General" shortfalls have been persisting. This is a measure of the field activity of the Department and the Committee suggest that special efforts should be made to utilise fully and usefully the budget provision under this head.
16	37	The Committee consider it unfortunate that the performance of the Survey of India during the Second Plan promises to be very much poorer than the target. They suggest that steps should be taken immediately to step up the tempo of work so that the output during the Second Plan is reasonably in conformity with the target.

1	2	3
17	38	<p>(i) The Committee recommend that the department should gear up its machirery for the task before it and find ways for the speedy removal of the hurdles in the execution of plan programmes.</p> <p>(ii) The Committee also suggest that the Ministry may take action to relieve the Survey of India of some minor jobs like tertiary levelling which could be done by the indentors themselves.</p>
18	39	<p>The Committee consider that there is a case for a proper review of the strength of staff in the different circles of Survey of India. It may also be that the volume of normal work in each circle is not the same, in which case a re-adjustment of jurisdiction of circles is called for.</p>
19	40	<p>The Committee suggest that the position should be examined with a view to see if as a permanent measure it is possible to place certain units doing comparatively less important work under Deputy Superintending Surveyors without affecting efficiency and to that extent reduce the number of posts of Superintending Surveyors as a measure of economy.</p>
20	41	<p>The Committee suggest that the position regarding the stength and percentage of staff from Scheduled Castes/Scheduled Tribes working in the Survey of India in Class III and IV posts may be analysed in detail and suitable steps taken to rectify the imbalance. While the representation of scheduld castes in Class IV, is reasonably good, that of scheduled tribes is very poor and calls for improvement.</p>
21	42	<p>The Committee were informed that the proposal regarding extra staff including one Assistant Surveyor General or Budget and Accounts Officer received from the Surveyor General was under the consideration of the Ministry of Finance. The Committee suggest that an early decision may be taken in the matter.</p>
22	44	<p>The Committee recommend that for avoiding short-falls in plan targets an assessment of the requirements of trained personnel during the Third Plan, and a phased programme of their recruitment and training should be drawn up and implemented expeditiously.</p>

1	2	3
23	45	The Committee regret the extremely slow progress in the construction work despite quite liberal provision for the same and suggest that the two Secretaries of the Ministry of Scientific Research and Cultural Affairs and the Ministry of Works, Housing and Supply should arrange a joint meeting urgently to draw up a programme of construction of buildings for the Survey of India at an accelerated pace which should be carried out as per schedule.
24	47	The Committee suggest that the decision on the proposal for delegating enhanced powers in respect of the following four items should be expedited : (a) fixation of pay of military officers ; (b) fixation of pay of military and civil officers in Class III and Class IV services on re-employment ; (c) relaxation of time limit prescribed for entitlement to T.A. for the family of Government servant on transfer, to precede and/or to follow him, and (d) sanction to write off losses of revenue etc.
25	48	The Committee suggest that the decision regarding enhancing financial powers of the Surveyor General for the purchase of Survey instruments and equipments may be taken expeditiously.
26	49	The Committee suggest that each department should in the beginning be given a buffer stock of stationery say, equal to the consumption of three months or so, and thereafter the stock may be replenished periodically so that in case of unforeseen delays in supply in any period, the departments could continue their work unhampered on the strength of their reserves.
27	51	The Committee were informed that with the use of the photogrammetric equipment the output of work was expected to increase by 50% but that proper use could not be made because of the delays in the installation of the machines. They suggest that steps be taken to have the machines installed without further delay.

1	2	3
28	52	The Committee are unable to appreciate the position that even when a sizable portion of stores was usable, they were declared surplus. The surplus can only arise when the stores are not required within a reasonable period. In any case, the question of proper utilisation or disposal of surplus stores should be settled at an early date, since delay will lead to their deterioration.
29	53	Looking to the volume and importance of work involved, the Committee suggest that some arrangement should be made for reviewing the work of the Survey Department quinquennially by a technical committee.
30	54	In view of the fact that the target of party years of work set by the Survey Priorities Committee for the Second Plan is not likely to be fulfilled and that there are no prospects of topographical survey of the country being completed in the near future, the Committee are of the view that it would be useful to appoint a Technical Commission for examining the working of the department with the main object of stepping up its tempo of work.
31	55	The Committee are of the opinion that by extending the use of modern survey methods and by streamlining the department, its tempo of work should be so increased as to complete the survey of the country in the metric system within a much shorter period to be determined by the Technical Commission referred to earlier.
32	56	The Committee suggest that the Ministry should ensure that the four Annual General Reports for the years 1955, 1956, 1957 and 1958 are published early and that the Report for a particular year is in future published before the budget is presented during the succeeding year.
33	57	The Committee recommend that steps may be taken to publish the proposed School Atlas at an early date.
34	61	The Committee suggest that the Regional Circles of Botanical Survey of India should be realigned on a rational basis at an early date.

1

2

3

- 35 62 The Committee suggest that action may be taken to fix the strength of permanent posts in the Department in relation to its continuing functions so that members of staff who are eligible for confirmation may be confirmed according to the rules in force.
- 36 65 The Committee regret that provision should have been made year after year for works programme without a reasonable prospect of its being utilised. They suggest that remedial measures should be taken firstly to ensure that estimates are drawn up on a realistic basis and are carefully scrutinised by the Ministry and secondly, to utilise the grants fully.
- 37 68 The Committee regret that the Central Botanical Laboratory was shifted from place to place without allowing it to develop adequately. In view of the fact that for a proper functioning of the Laboratory from the scientific angle, it should be near the Central National Herbarium, the Committee suggest that the Laboratory should be shifted to Calcutta when additional land is made available in the proximity of the Herbarium. Meanwhile the plans for acquisition of additional lands for the Laboratory at Allahabad and of other items of expansion, if any, involving a substantial outlay on which its location has a bearing, should be shelved. The Committee are surprised to note that expenditure on the purchase of land and construction of buildings for the laboratory should have been sanctioned for the year 1960-61, apparently without a careful examination of the suitability of its present location which was admittedly not the best place for it.
- 38 70 The Committee notice that the development of the Central National Herbarium has been hampered due to delay in the transfer of land. They suggest that the matter should be expedited and the construction of the buildings completed without delay.
- 39 74 The Committee suggest that Roxburgh's collection may be obtained from the Government of West Bengal for the National Herbarium and that action be taken to draw up a plan to print the whole set in stages.

1	2	3
40	75	The Committee suggest that action may be taken in consultation with the West Bengal Government to get the rest of the library remaining with the Indian Botanic Garden and develop it into a good reference library.
41	76	The Committee would like to lay stress on the importance of getting back duplicate samples of the 8,000 specimens now in Kew Herbarium in the interest of making the Indian collection as extensive as possible.
42	77	The Committee suggest that as far as Lucknow is concerned, a common Herbarium for the use of National Botanic Garden, Birbal Sahni Institute of Palaeobotany and Central Drug Research Institute should be maintained to avoid duplication of effort.
43	81	The Committee feel that the work in connection with the scheme for the establishment of National Orchidarium has not proceeded speedily. They recommend that the matter should now be pursued vigorously so that the National Orchidarium is established at an early date.
44	82	The Committee consider that the setting up of experimental gardens for studying growth habits and the germination capacity of medicinal plants as also of other economic plants in different climatic regions of India can be a useful line of research which could be steadily pursued.
45	84	The Committee feel that the scheme of ecological research has not been proceeded with in right earnest. The transfer of a scheme from one Ministry to another should be not allowed to hold up or to slow down its implementation. They hope that the scheme would now be pursued vigorously.
46.	86	The Committee consider that it is desirable to have an advisory committee for co-ordination between the Botanical Survey on the one hand and Forest and Agricultural Departments on the other. The Committee could meet periodically to consider matters of common interest.

1	2	3
47	87	The Committee recommend that complete basic floristic survey of the country should be carried out by the Department during the course of the next 15 years and the results published. The Department should plan its out-turn for each year and take steps to realise it.
48	88	The Committee suggest that the principle of quinquennial review may also be followed in regard to Botanical Survey as indeed it should be in respect of all the scientific departments.
49	93	The Committee are of the opinion that the entire procedure whereby inordinate delays occur in the sanctioning of schemes needs to be carefully examined. They would like that steps should be taken from now on to ensure that schemes to be implemented in the Third Plan are prepared in sufficient detail and that they are sanctioned well in time to ensure their timely implementation with a view to avoid heavy shortfalls such as have been referred to in paragraph 94.
50	95	The Committee are not satisfied with the reasons for the heavy shortfalls in expenditure and suggest that the administrative and Finance Ministries should arrive at agreed arrangements for issue of necessary sanctions for the schemes as to obviate delays in carrying out Plan schemes. The Department, on its part, should also display greater activity and see that sanctioned schemes progress according to a well laid out programme.
51	96	The Committee suggest that it would be useful for the Marine Survey Unit to maintain close co-ordination from its very inception with the State Fisheries Departments, since the latter would be able to throw some light on the studies of ocean fauna already undertaken by them.
52	106	<p>(i) The Committee regret the repeated heavy shortfalls and feel that the budget estimates for the later years <i>viz.</i> 1958-59 and 1959-60 at least should have been more realistic.</p> <p>(ii) The Committee suggest that a decision on the question whether the Geophysical Research Wing should be taken over by the CSIR or should continue under the Central Board of Geophysics, may be taken at an early date to avoid further uncertainties in the way of its future progress.</p>

1	2	3
53	107	<p>The Committee notice that no expenditure was incurred for the Oceanographical Research Wing against the budget provision of Rs. 1,57,000 and Rs. 1,00,000 during 1956-57 and 1957-58 respectively, while Rs. 16,274 were incurred against Rs. 1,50,000 provided for during 1958-59. The Committee reiterate their observation made earlier in para 106, that the budget estimates should have been more realistic. Such repeated shortfalls against budget provision for various schemes—a feature which is not uncommon to most of the Ministries—lead the Committee to the inescapable conclusion that schemes lacking in essential details are often included prematurely in the budget estimates and that the departments concerned have themselves no clear idea as to how and when the schemes are likely to mature. This is not a happy state of affairs. While a certain amount of variation between an estimate and actual expenditure is inherent in the administrative set-up dictated generally by regard to economy or circumstances beyond control, the shortfall such as now under consideration with margins which cannot be explained call for an immediate examination at the hands of the Government of India. The Committee would like the Government of India to give a careful consideration to these observations and take effective measures to eliminate such heavy shortfalls.</p>
54	108	<p>The Committee suggest that necessary action to acquire the ship required for marine survey may be taken early.</p>
55	110	<p>The Committee suggest that the Ministry may themselves sponsor the draft Bore Core Bill to avoid further loss of time.</p>

APPENDIX XI

Analysis of recommendations contained in the Report.

I. CLASSIFICATION OF RECOMMENDATIONS

A. Recommendations for improving the organisation and its working	
S. Nos. 1, 2, 4 to 9, 12 to 18, 20, 21, 23, to 25, 29 to 41, 43 to 47, 49, 50 to 52, 54 and 55.	TOTAL 44
B. Recommendations for effecting economy	
S. Nos. 19, 22, 27, 28, 42, 48 and 53	TOTAL 7
C. Miscellaneous recommendations	
S. Nos. 3, 10, 11 and 26	TOTAL 4

II. ANALYSIS OF THE MORE IMPORTANT RECOMMENDATIONS DIRECTED TOWARDS ECONOMY

S. No. as per summary of recommendations (Appendix X)	Particulars
19	As a permanent measure certain units doing comparatively less important work may be placed under Deputy Superintending Surveyors and to that extent reduce the number of posts of Superintending Surveyors.
27	Steps should be taken to instal photogrammetric equipment without further delay as the output of work was expected to increase by 50%.
28	The question of proper utilisation or disposal of surplus stores should be settled at an early date, since delay will lead to their deterioration.
42	A common herbarium for the use of National Botanic Gardens, Birbal Sahni Institute of Palaeobotany and Central Drug Research Institute should be maintained to avoid duplication of effort.
