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An Organisation Study of the  
**Indian Council of Agricultural Research**

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## PRELIMINARIES AND ACKNOWLEDGEMENTS

1. On November 16, 1970, the National Commission on Agriculture invited the Director of the Indian Institute of Management, Ahmedabad, to discuss with him the scope of the work of the Commission and the possible ways in which the Institute could assist the Commission.
2. Subsequently, in March 1971, Shri B. Sivaraman, Vice-Chairman of the Commission, visited the Institute to discuss various studies that he wished the Institute to undertake. One of the studies which he entrusted to the Indian Institute of Management, Ahmedabad, was (i) to examine the existing organisational structure of ICAR and its relationship with different constituent units, Agricultural Universities, and other institutions associated with agricultural research, and (ii) to recommend an organisation structure taking into account the objectives of ICAR and the emerging problems from the existing organisation structure and roles.
3. This report is based on interviews and discussions held at headquarters, some State Departments of Agriculture, Agricultural Universities, and a Central Research Institute, and on previous reports and other published material.
4. The report is divided into three parts. Part I deals with the objectives of ICAR, its existing organisation structure and problems. Part II recommends an organisation structure

for headquarters. Part I and Part II of the report are by Professor Kamla Chowdhry and Professor V.R. Gaikwad. Part III contains a framework for developing an Information and Control System required at ICAR headquarters. This part of the report is by Professor S.K. Bhattacharyya. Part IV contains our conclusions and recommendations.

5. If the broad framework which concerns the first order management system of ICAR is accepted then further work would be required in working through the problems related to the second order system. Simultaneously, educational strategies would have to be arranged so as to prepare people for the new roles demanded by a reorganisation. A one-way announcement by the Government or those in power though important is not sufficient. Involvement of people is important if recommendations are to be effectively implemented. Reorganisation implies change of roles and relationship, change in power and authority, acquiring new knowledge, skills and attitudes. Unless all these are dealt with in a systematic fashion, a reorganisation, even if accepted, remains on paper.
6. We are grateful to Shri B. Sivaraman and Dr.M.S. Swaminathan for their interest in the study and for the openness of discussions. We are also thankful to Shri K.P.A. Menon for his many acts of help and for the facilities provided for this study. A special word of thanks is due to Shri J.S. Sarma for his help in establishment of our contacts at various levels.

7. In the course of this project we had the pleasure of meeting and discussing with several senior scientists and administrators of ICAR and National Institutes, with academicians and educationists from Agricultural Universities and with senior officers of State Departments of Agriculture. These discussions have provided us with the necessary background and information, sentiments and feelings, on the basis of which we could get an understanding of the problems of planning, decision-making, communication and interactions with ICAR. We are grateful to them for their very valuable cooperation
  
8. A special word of thanks is due to Professor Ravi J. Matthai and Professor D.K. Desai, with whom we discussed our insights and anxieties during the process of this study. To Shri P.S.Nair and Shri K. Srinivasan we are grateful for the excellent secretarial assistance.

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CONTENTS



	Page
PRELIMINARIES AND ACKNOWLEDGEMENTS	i
PART I OBJECTIVES AND EXISTING ORGANISATION OF ICAR	
1. Objectives of ICAR	1
2. Historical Antecedents of ICAR	3
3. Existing Organisation Structure of ICAR	10
4. Some Comments on the Existing Structure	16
PART II REORGANISATION	
5. Recommended Reorganisation	22
6. Attempts at Organisational Changes at ICAR	37
PART III INFORMATION AND CONTROL SYSTEM	
7. Some Aspects of Information and Control System	43
PART IV SUMMARY AND RECOMMENDATIONS	
8. Summary and Recommendations	54
EXHIBITS	
1. Existing Organisational Structure of ICAR	63
2. Organisational Model of ICAR	64
3. Organisational Model for Project Management	65
4. Recommended Organisational Structure of ICAR	66
APPENDIX	
List of ICAR Institutes, Projects and Agricultural Universities	67

PART I

OBJECTIVES AND EXISTING ORGANISATION OF ICAR

## 1. OBJECTIVES OF ICAR

1.1 The main objectives of the Council as embodied in its Memorandum of Association are:

- (a) To undertake, aid, promote, and coordinate agricultural and animal husbandry education, research and its application in practice, development and marketing by all means calculated to increase scientific knowledge of the subjects and to secure its adoption in every-day practice.
- (b) To act as a clearing house of information not only in regard to research but also in regard to agricultural and veterinary matters generally.

1.2 The objectives stated above have three components in regard to promotion of agricultural and veterinary sciences, namely, research, education and extension (application in practice).

1.3 It is important to have a clear idea of the primary objectives of ICAR at the overall level, and the primary objectives of each constituent unit/Agricultural University for three reasons: First, it enables a better understanding of what ICAR is trying to achieve and become at an overall level on the one hand, and what each unit/university is trying to achieve and become at the operating level on the other hand, so that appropriate policies and decisions can be evolved by each within the framework of their primary objectives. Second, it provides a meaningful framework within which to analyse and assess the overall performance of ICAR on the one hand and of

the different units/universities concerned on the other hand.

Third, it helps define boundaries of different institutions so that problems related to territorial encroachments are minimised and consequently relationships are improved.

- 1.4 It seemed to us from our interviews and discussions that there was need to clarify the objectives of ICAR at an overall level in operational terms, and especially of the Agricultural Universities vis-a-vis State Departments of Agriculture. For instance, if ICAR's role is promotion and development of agricultural and animal husbandry education, research, and its application in practice so as to secure its adoption in everyday practice, then extension becomes a responsibility of ICAR and its constituent units and universities. There is need to clarify the responsibility for extension between ICAR and Central and State Departments of Extension. With overlapping objectives of ICAR and of State Governments regarding application of knowledge, territorial encroachments and conflicts are bound to arise.

## 2. HISTORICAL ANTECEDENTS OF ICAR

- 2.1 At the beginning of the 20th century it was realised that the establishment of agricultural research institutes and experimental farms and agricultural colleges was the first step necessary to bring about any progress in agricultural practices. Such realisation resulted in the establishment of the Imperial (now Indian) Agricultural Research Institute in 1905, at Pusa. It was then visualised that IARI would be the apex research organisation with ramifications extending into the provinces.
- 2.2 The Indian Veterinary Research Institute was established as early as 1889 in Poona. It was shifted to Mukteswar in 1893, and subsequently developed its main campus in Izatnagar.
- 2.3 In 1919, agriculture became a transferred subject, i.e., a subject under the direct control of the provincial governments. All powers of direction and control of agricultural and veterinary subjects, including research, teaching and policy making were transferred to provincial governments. At that time there was no agency with specific purpose of coordinating work on agriculture and animal husbandry in different provinces and bringing them in line with the policy of the Central Government.
- 2.4 In 1928, the Royal Commission proposed the establishment of a Central Council of Agricultural Research with the primary

function of promoting, guiding and coordinating agricultural research throughout India. In pursuance of its recommendation, the Imperial (now Indian) Council of Agricultural Research was set up in 1929 as a statutory body by an Act of the Central Legislature.<sup>1</sup> The Council is a Society registered under the Registration of Societies Act, 1860.

- 2.5 The First Commodity Committee, namely, the Indian Central Cotton Committee was established in 1921. Subsequently, many other Commodity Committees came into existence one after another under the auspices of the Ministry of Food and Agriculture for the purpose of intensifying research and development in certain industrial crops.
- 2.6 In 1958, the Ministry of Agriculture started a project for intensification of Regional Research of Cotton, Oilseeds, and Millets (PIRRCOM). Under this project, 17 composite regional stations spread over the entire country were established. These functioned under the administrative control of the Governments of the States in which they happened to be located.
- 2.7 Since agriculture was a State subject, the State Governments established in varying degrees and with varying degrees of effectiveness, research stations and educational institutions of their own. However, in most cases, the States left to the

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<sup>1</sup> M.S. Randhawa, Agricultural Research in India, 1963, p.ii.

Centre, the promotion of research. With the establishment of Agricultural Universities some States transferred their research stations and their research staff to the universities, whereas some States retained their control over the research because of their responsibility and involvement in extension activities.

- 2.8 The first Agricultural University was established in Uttar Pradesh in 1960. Subsequently, 17 other Agricultural Universities were established. ICAR has given support and assistance for the establishment and development of these Agricultural Universities.
- 2.9 Thus, it can be seen that even after the establishment of ICAR in 1929, the responsibility for agricultural research and education was very diffuse and spread to a multitude of agencies with overlapping objectives making any planning and coordination impossible. In order to have a more integrated approach to agricultural research and education, the Government of India appointed several teams from time to time to make recommendations for a more unifying and a more coordinated organisation system.
- 2.10 The two Joint Indo-American Teams on Agricultural Research and Education (1954 and 1959) emphasised the need for ICAR to become a more effective instrument for coordinating research on agricultural and animal husbandry in the country and made certain suggestions in that connection.

2.11 In 1963, the Agricultural Research Review Team (Parker Committee) suggested fundamental alterations in the structure and scope of activities of the ICAR. The various Central Research Institutes, Laboratories and Testing Centres, and Agricultural Universities were to be transferred to the broad guidance and control of ICAR. In fact, the Parker Committee also recommended the transfer of Forestry. The Government of India agreed to implement the recommendations of the Parker Committee with some major modifications in the organisation suggested by the Committee. The modifications related to reducing the number of Deputy Directors-General from 12 to 4, and ignoring the recommendation of appointing specialists. Accordingly, from April 1, 1966 started the process of the reorganisation of ICAR as a fully autonomous organisation responsible for national policy on agricultural research and also for promoting sound research programmes in agricultural and animal husbandry sciences in the country.

2.12 With the transfer of different research institutes/laboratories/ centres to ICAR, which were largely under the Ministry of Food and Agriculture, not only were the scientists and technical staff transferred, but also the administrative staff. In fact, what was transferred were all the existing administrative practices found in Government Departments.

2.13 The early beginnings of an institution play a significant role in the future institution building process. Thus, in the starting of Bhabha Atomic Research Centre (BARC), a group

of scientists and administrators were transferred from the Tata Institute of Fundamental Research (TIFR). The administrative practices were largely evolved by the scientists themselves, and these became the 'foundations' of the growth and development of BARC.

- 2.14 Although CSIR started from the beginning as an autonomous body registered as a Society it lost to a large extent its "freedom of action" by the adoption of Government rules and practices. As was pointed out by Bhabha:

"The opportunity of framing an administrative structure and rules and procedures appropriate for a scientific organisation, which this set up was intended to confer on the Council of Scientific and Industrial Research has, however, been lost to a large extent by the omnibus adoption of Government rules and regulations."<sup>1</sup>

- 2.15 The early antecedents of ICAR make the development of appropriate administrative practices relevant to the growth and application of agricultural sciences even more difficult. It inherited several institutions with different backgrounds, histories and administrative practices more relevant to Government than to a scientific institution.
- 2.16 If the administrative practices in ICAR are those largely followed in the Government then the objective of having an autonomous organisation with a scientist Director-General and a secretariat of senior scientists is essentially

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<sup>1</sup> Homi J. Bhabha, "Science and the Problems of Development," (Bombay: Atomic Energy Establishment, 1966), p.4.

defeated. The developing of new norms and new practices, and the nurturing of a culture suitable to scientists and scientific organisations is a difficult task and needs attention.

- 2.17 It is useful to make a distinction between the basic structure and the operating mechanisms which implement and reinforce the basic structure. Operating mechanisms include such factors as control procedures, information system, reward and appraisal system, standardised rules and procedures, and even spatial arrangements. If the operating mechanisms in ICAR are relevant to a Government department then changes in organisation structure will not lead to improvements. Problems of motivation and morale are likely to arise under the circumstances.
- 2.18 Both Bhabha<sup>1</sup> and Sarabhai<sup>2</sup> have pointed out that the administration of science requires different norms and a different culture. To quote Bhabha in this connection:

"The type of administration required for the growth of science and technology is quite different from the type of administration required for the operation of industrial enterprises, and both of these are again quite different from the type of administration required for such matters as the preservation of law and order, administration of justice, finance, and so on. It is my personal view, which is shared by many eminent foreign scientists, that the general absence of the proper administrative set-up for science is a bigger obstacle to the rapid

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<sup>1</sup> Ibid.

<sup>2</sup> Vikram A. Sarabhai, "Control and Management of Public Sector Undertakings," Foundation Day lecture at the Administrative Staff College of India, Hyderabad, December 1969.

growth of science and technology than the paucity of scientists and technologists, because a majority of the scientists and technologists we have are made less effective through the lack of the right type of administrative support. The administration of scientific research and development is an even more subtle matter than the administration of industrial enterprises, and I am convinced that it cannot be done on the basis of borrowed knowledge." <sup>1</sup>

2.19

"Government is spending large sums now on supporting scientific research and technical development, and it is in Government's interest to study and devise de novo the best administrative and financial procedures for scientific institutions and for getting the maximum return on the money spent. To apply existing administrative and financial procedures, devised for an entirely different purpose, to scientific institutions is largely to defeat the purpose which the Government has in view by letting the tail wag the dog." <sup>2</sup>

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<sup>1</sup> Bhabha, op.cit., p.12.

<sup>2</sup> Bhabha, op.cit., p.5.

### 3. EXISTING ORGANISATION STRUCTURE OF ICAR

3.1 In April 1966, ICAR was reorganised and some of the major changes made were:

- (i) The Rules and Bye-Laws of ICAR were revised so as to make it a "fully autonomous research organisation."
- (ii) The Governing Body of ICAR was reconstituted to make it a body of scientists.
- (iii) A scientist was appointed as the Director-General thereby making an important departure from appointing administrators.
- (iv) The administrative control of the following nine research institutes, previously administered by the Department of Agriculture was transferred to ICAR.
  - (a) Indian Agricultural Research Institute, New Delhi
  - (b) Indian Veterinary Research Institute, Izatnagar
  - (c) National Dairy Research Institute, Karnal
  - (d) Central Potato Research Institute, Simla
  - (e) Central Rice Research Institute, Cuttack
  - (f) Central Arid Zone Research Institute, Jodhpur
  - (g) Indian Grassland and Fodder Research Institute, Jhansi
  - (h) Central Tuber Crops Research Institute, Trivandrum
  - (i) Central Sheep & Wool Research Institute, Mampur
- (v) The Central Commodity Committees were dissolved and the following research institutes transferred to ICAR.
  - (a) Technological Research Laboratory (Cotton), Matunga, Bombay
  - (b) Jute Agricultural Research Institute, Nilaganj, Barrackpore
  - (c) Technological Research Laboratory (Jute), Calcutta
  - (d) Central Tobacco Research Institute, Rajahmundry

- (e) Central Coconut Research Station, Kayangulam
- (f) Central Coconut Research Station, Kasargod
- (g) Central Arecanut Research Station, Vittal
- (h) Indian Lac Research Institute, Mankum, Ranchi

(vi) Such of the PIRRCOM Centres not amalgamated with the State research institutions were placed under ICAR.

(vii) Administrative control of the following Institutes/ Centres was also assumed by ICAR from October 1967.

- (a) Central Inland Fisheries Research Institute, Barrackpore
- (b) Central Marine Fisheries Research Institute, P.O. Mandapam Camp
- (c) Central Institute of Fisheries Technology, Ernakulam
- (d) Soil Conservation, Research, Demonstration & Training Centre, Ibrahimpatan, Dist. Hyderabad
- (e) Soil Conservation, Research, Demonstration & Training Centre, Agra
- (f) Soil Conservation, Research, Demonstration & Training Centre, Vasad (Gujarat)
- (g) Soil Conservation, Research, Demonstration & Training Centre, Dehra Dun
- (h) Soil Conservation, Research, Demonstration & Training Centre, Kotah
- (i) Soil Conservation, Research, Demonstration & Training Centre, Chandigarh
- (j) Soil Conservation, Research, Demonstration & Training Centre, Bellary
- (k) Soil Conservation, Research, Demonstration & Training Centre, Ootacamund

(viii) The administrative control of Indian Institute of Sugarcane Research, Lucknow; Sugarcane Breeding Institute, Coimbatore; and All India Soil and Landuse Survey Organisation was transferred with effect from April 1969.

(ix) The Institute of Agricultural Research Statistics was transferred with effect from April 1970.

- 3.2 Thus, within a period of 1 to 2 years ICAR's responsibility increased manifold. From an organisational set up dealing with sponsoring ad hoc research projects it now had to administer about 30 research institutes/centres, help in the development of Agricultural Universities. It undertook as many as 70 All India Coordinated Projects. In order to deal with the manifold responsibilities the Parker Committee had suggested, a headquarter structure consisting of 12-13 Deputy Directors-General, each Deputy Director-General to be assisted by several Assistant Directors-General, and 18 Specialists in subject areas. As was mentioned earlier the recommendations concerning the organisation structure were modified by the Government reducing the number of Deputy Directors-General from 12 to 4 and abolishing the posts of Specialists.
- 3.3 The existing organisation structure of ICAR is shown in Exhibit 1. The list of research institutes, laboratories, and centres, Agricultural Universities, and All India Coordinated Projects under ICAR is shown in Appendix 1.
- 3.4 There are about 5000 scientists working in ICAR's constituent units and about 15,000 staff. The annual budget of ICAR for 1970-71 was Rs. 24 crores and the Fourth Plan budget was approximately Rs. 85 crores.<sup>1</sup>

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<sup>1</sup> Ministry of Agriculture, Government of India, Agricultural Research in India: New Horizons and Perspectives, (New Delhi: Indian Council of Agricultural Research, 1971), p.11.

3.5 The executive functions of ICAR are carried out under a Governing Body consisting of 22 members with the Minister of Agriculture as the President. The Governing Body consists of scientists and those with interest in or knowledge of agriculture. The Governing Body decides the research policy, approves all research programmes and also controls the funds of the Council. The Governing Body is assisted by 4 Standing Committees on:

1. Agricultural Research
2. Animal Sciences Research
3. Agricultural Education
4. Agriculture Economics, Statistics, and Marketing Research

There are also several Scientific Panels which assist in the scrutinising and recommending of the research projects to the respective Standing Committees. There is also a Standing Finance Committee which examines the annual budget of the Council, scrutinises the estimates for all research proposals. The Joint Secretary in the Ministry of Finance accredited to the Ministry of Food and Agriculture, is the Financial Adviser to the Council.

3.6 The executive head of ICAR is the Director-General who is also the ex-officio Secretary to the Government of India. The Director-General is also the Chairman of the 4 Standing Committees. On the technical side he is assisted by 4 Deputy Directors-General, one each in the field of (a) Crop Sciences,

(b) Soil, Agronomy, Irrigation and Agricultural Engineering, (c) Animal Sciences, and (d) Agricultural Education and Central-State relations.

3.7 Each Deputy Director-General is responsible for the growth and development of a number of research institutes. They are also responsible for the preparation, scrutiny, review and technical control of the research schemes and projects within their respective disciplines. For example, the Deputy Director-General Crop Sciences has 9 research institutes under him and many research projects directly under his group.

3.8 The Directors of the 3 National Institutions report directly to the Director-General. Their status is more autonomous than the other research institutes, and greater powers have been delegated to them.

3.9 On the administrative side, the Director-General is assisted by the Secretary of the Council who is ex-officio Joint Secretary to the Government of India. The Secretary looks after the recruitment of senior scientists, budgetary controls and coordination. He is also the Secretary to the Society, Council and the various Standing Committees of the Council. He is assisted by Additional Secretaries, Under Secretaries, and Director of Budget, Audit and Accounts, and Director of Recruitment.

- 3.10 The Director-General and the Secretary have the status of the Secretary and the Joint Secretary in the Government of India respectively, and as such have the necessary sanctioning powers of the Government of India. The Deputy Directors-General have no such status, so that papers for sanction have to go to the Secretary and to the Director-General.
- 3.11 The headquarters of ICAR share the same building as the Ministry of Food and Agriculture.

#### 4. SOME COMMENTS ON THE EXISTING STRUCTURE

4.1 From the interviews and discussions held, we identified 5 major areas, interdependent and inter-related, around which the problems of ICAR centred:

- (i) Long Range Planning
- (ii) All India Coordinated Projects
- (iii) Personnel
- (iv) Accountability
- (v) Centralisation

It seemed to us that these inter-related problems were causing feelings of unhealthy rivalry and competitiveness, perceptions of ad hoc and not objective use of authority, lack commitment, and a tendency to blame each other.

#### 4.2 Long Range Planning:

The rationale for putting the various institutions dealing with agricultural research and education was to provide ICAR a mechanism for better planning, integration and coordination. However, no adequate organisational mechanisms exist for long range planning. Research proposals which require ad hoc financing are submitted to ICAR which are processed through the Scientific Panels and Standing Committees. This system does not lend itself to long range planning, identifying gaps and needs, monitoring new developments and providing a broad framework within which the institutes and universities can plan their own research activities. Perhaps

the system of ad hoc financing of research projects continues from the early days of ICAR.

4.2.1 Because of lack of long range planning at headquarters the decision-making is often perceived by the members of the research institutes and universities as ad hoc and not objective. This generates personal lobbying for research projects on the one hand, and resentments on the other hand. Also, if there is no long range planning at the headquarters level many problems have to travel upwards for discussions and decisions leading to centralisation of decision-making.

#### 4.3 All India Coordinated Projects

4.3.1 The idea of All-India Coordinated Projects was to identify important projects which required an all-India approach and collaboration of many scientists in different institutions, and which had an urgency about time. A project by definition is temporary and is time bound. It requires different specialisations and the emphasis is on team work. The results of some of the earlier All India Coordinated Projects were so encouraging and gratifying that many research proposals were given the status of All India Coordinated Projects.

4.3.2 It seemed to us that the way All India Coordinated Projects are organised, funded and manned, has spread a net work of unhealthy rivalry and competitiveness among colleagues, resentments against headquarters, and a widespread feeling of unfair practices of recruitment and promotions.

- 4.3.3 For the All India Coordinated Projects appointments are made on a full time basis. Research workers in institutes and universities apply for these positions. Since the salaries in the projects are higher than what they are drawing many apply for these projects. People are consequently 'promoted' not because they deserve in terms of past accomplishment, etc., but because there is an opening in the project. Colleagues who were junior become senior overnight. Each project is inter-disciplinary in approach so that many different specialisations are included in each project. Since each project is a self-contained entity, though there is no full time work for a specialist in a given project, they are hired full time.
- 4.3.4 With over 70 All India Coordinated Projects spread over the country and membership in each project varying from a few to about 300 or so, the feeling of resentment, competitiveness, rivalry and unfairness is likely to be very widespread.
- 4.3.5 If projects appoint new people full time there is a built-in mechanism of not completing the projects. The research workers cannot return to their old jobs, and finishing their projects means an unknown future. Although many new projects have been initiated in the last few years we are not aware of projects which have been completed and terminated.

- 4.3.6 Project Management, in any case, has many problems of interpersonal conflict because the requirements of teamwork, integration, and urgency are high. But with the existing system of funding and manning the projects acquire an institutional character so that each research institution has superimposed on it several other on-going institutions over which they have relatively little control. The confusion of authority and responsibility under the circumstances is considerable.
- 4.3.7 The system also places the headquarters in competition with its own constituent units. Research workers working in institutions are hired away from their jobs thus making any planning or commitment to long term research impossible on the part of the research institutions.
- 4.3.8 The concept of project management although extremely useful needs to be re-examined, clarified, and reorganised. The organisational requirements of project management have been discussed to some extent in the recommended reorganisation.
- 4.4 Personnel
- 4.4.1 The recruitment of scientists was transferred to ICAR to provide greater flexibility and to put the responsibility of selecting scientists on scientists. It must be realised that recruitment is just one element in the continuum of locating, selecting, placing, promoting and developing scientists. The total process of recruitment needs to be considered and dealt with as one unified whole in the career planning and development of scientists.

4.4.2 In ICAR, recruitment is located under the Secretary. Earlier, recruitment was looked after by an Under Secretary, but now there is a Director in charge of recruitment reporting to the Secretary. ICAR performs the administrative function of advertising, screening of applications and appointing committees. The actual selection is done by appropriate scientists. The problem is not in recruitment per se, but in the many missing links which are required for effective selection, growth and development of scientists. Feedback mechanisms are required so that problems could be discussed and appropriate action taken to improve the practices before they become a crises. This has to be organised as an on-going activity.

4.4.3 Further, with ICAR taking responsibility for All India Coordinated Projects, the function of appropriately reallocating persons from projects to other activities assumes major proportions. The feeling of an uncertain future can create serious problems of morale and motivation.

#### 4.5 Accountability

4.5.1 The way the functions are subdivided in ICAR, the responsibility is in one group and authority in another group and accountability confused. Thus, the Deputy Directors-General who are held responsible for scrutiny of the scientific and technical needs of the institutes and laboratories under them, felt that they had no authority because sanctioning of

resources, that is, equipment, building, etc., is with the Secretary. Negotiations between the technical and administrative side have to take place on many matters causing delays and implicitly some degree of resentment.

- 4.5.2 If responsibility, authority and accountability have to go together it is important that the activities should be so divided and put together that each Deputy Director-General can have control over the resources which he requires for effective performance and can consequently be held accountable for results.

#### 4.6 Centralisation

The Director-General is assisted on the technical side by 4 Deputy Directors-General, and on the finance, administration and personnel side by the Secretary. Although notionally it is possible to divide problems into technical and administrative, in practice, the distinction between technical and administrative aspects is blurred. Statements reflecting misunderstandings between Deputy Directors-General and the administrative staff were mentioned. The sub division of activities and responsibilities lends itself to a highly centralised system. Organisationally, the only place where coordination can take place is at the Director-General level. And yet with about 30 research institutes, laboratories, and centres, 17 Agricultural Universities, and about 70 Projects ICAR cannot function centrally and must take steps to decentralise its working. Decentralisation would mean major changes in the division of work, and in the roles of senior persons at headquarters.

PART II

REORGANISATION

## 5. RECOMMENDED REORGANISATION

5.1 In designing an organisation structure for ICAR the following factors have been kept in mind:

- (i) To provide special attention to long range planning.
- (ii) To provide special emphasis on "renewal of scientists" by appropriate policies of recruitment, promotion and organisation development.
- (iii) To divide and organise functions so that there is clear-cut responsibility and accountability.
- (iv) To provide autonomy to constituent units and flexibility in their working within a given framework.
- (v) To bring decision-making as close to the point of information and action as possible.

5.2 This would mean decentralisation of working, with ICAR headquarters providing a broad policy and dealing with long range planning, broad financial controls, review of activities, renewal of scientists, and other service functions common to the many constituent units and universities.

5.3 The organisational model on the basis of which the ICAR headquarters is designed is shown in Exhibit 2. An organisation design essentially deals with division of functions and their location and mechanisms used for coordination to achieve unity of purpose. Functions inappropriately located not only lead to problems of misunderstandings and conflicts, but to delays and inefficiencies in communication and decision-making.

5.3.1 Some of the organisational concepts used in the designing the organisation are:

- (i) Primary tasks.
- (ii) Separating operating systems from managing systems.
- (iii) Separating first order management from second order management.
- (iv) Relating first order operating system to first order management system.

5.4 ICAR in its first order operating system has about 30 research institutes/laboratories/centres, 17 universities, and 70 All India Coordinated Projects. In order that these institutions and projects have sufficient autonomy and perform effectively, ICAR must have certain planning, coordination, control and service functions pertaining to overall functions of research, education and utilisation of knowledge. More specifically, the activities required of ICAR to 'manage' the different institutions and projects are:

- (i) Long range planning, i.e., looking ahead in terms of needs, resources, monitoring of new knowledge, identifying gaps and priorities. Planning at this overall level will have a 5 to 10 year perspective.
- (ii) Finance, budgetary controls, foreign exchange.
- (iii) Parliamentary affairs, public relations.
- (iv) Centre-State relations, interface with other Ministries and Governmental agencies.

- (v) International collaboration and interface with international agencies.
- (vi) Personnel or organisational development, i.e., manpower planning, personnel policies, dealing with career development, international conferences, seminars, and other activities relating to 'renewal of scientists' and motivation.
- (vii) Coordination, review and control.
- (viii) Documentation centre, publications and other activities dealing with storing and retrieval of information.
- (ix) Secretary to Society, Governing Body, Standing Committees.
- (x) Establishment of ICAR.

Although some functions have to be kept separate, some could be combined together under one head.

## 5.5. Long Range Planning

- 5.5.1 Long Range Planning division will include agricultural economists, statisticians, and operational research persons. The section dealing with Agricultural Economics and Statistics will be a part of this division. Scientists and others who can contribute to long range planning will work in separate panels to identify future priorities and gaps. These panels will not deal with evaluating research proposals submitted to ICAR regarding sanctions and funds relating to short term projects, i.e., of 1 to 3 years duration, but will deal with future requirements. Appropriate linkages with short range plans of the various

5.5.2 The interim report of the Commission has also emphasised this point. The report says:

"This system (scientific panels selecting projects submitted to it for funding) does not leave scope for it to take a comprehensive view of the researches in different disciplines and to formulate a forward-looking long-term research programmes for the country." <sup>1</sup>

5.5.3 The long range planning division would evaluate the 'mix' required of fundamental and applied research, and suggest broad research themes (not projects) which require a 5 to 10 year time span. The planning division will not allocate research programmes to different institutes/universities, it will merely identify programmes with the help of scientific panels.

## 5.6 Finance

5.6.1 For financial matters, besides the Financial Adviser who is not on full time work of ICAR, it is necessary to have a 'Financial Controller.' If ICAR is to provide broad financial control in a decentralised set-up it will require capable financial and budget analysts at both headquarters and at the unit levels. In our experience, this is the problem most often ignored. Management somehow seems to think that in a reorganisation a control system will operate by itself and that accounting personnel can be easily

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<sup>1</sup> National Commission on Agriculture - Interim Report "Some Aspects of Agricultural Research, Extension and Training," (Cyclostyled) (November 1971), p. 18.

converted to perform the analytical functions. In some cases, of course, it is possible to train present accounting personnel, but this is by no means universally true. Many people who perform well in a routine accounting job have neither the background nor the ability required for the new role.

## 5.7 Centre-State and Governmental Relations

5.7.1 To perform its many tasks of promoting research, education and utilisation of knowledge, ICAR has to relate itself to a complex environment. The relations at the Centre-State level are of special importance and of special sensitivity. There is also need to establish relationships with other Ministries and governmental agencies, farmers and farmer organisations.

5.7.2 The function of 'governmental relationships' and dealing with inter-face problems needs to be separated from 'educational activities.' The primary task of this division will be to establish, maintain, promote relationships and to assist the Deputy Directors-General, Directors, and Vice-Chancellors in their requirements of dealing with these offices.

## 5.8 International Liaison

The interim report has specially emphasised the need of international cooperation and collaboration between agricultural scientists of India and abroad on a regular basis.

If this function is to be given special importance, an office with the primary task of dealing with international collaboration and relationships should be separately organised.

This function like Centre-State relations cannot be a part of the job of any one of the Deputy Directors-General. This is a service function to all the different research institutions and universities related to ICAR and must, therefore, be independent of any of the Deputy Directors-General managing sub-systems.

#### 5.9 Parliamentary Affairs and Public Relations

ICAR deals with a subject very important to the nation, its responsibilities extend to different States, it employs perhaps the largest number of scientists and technical staff in its various constituent units and universities, and it uses large public resources. Consequently, the affairs of ICAR are of public concern and in the public eye. There are frequent Parliamentary questions raised concerning the working of ICAR and its units. It is suggested that a person is specially delineated to deal with Parliamentary Affairs and Public Relations.

#### 5.10 Personnel

The personnel function at headquarters had been specially emphasised. At present there is no systematic manpower planning done, which is related to long term planning; the recruitment problems are handled at the Under Secretary's

level. Delays of the order of one year from the point of need to the stage of appointments are common, and there are 'perceptions' of unfair promotions. The interim report of the Commission and earlier the Parker Committee report have emphasised the need of attracting good scientific talent, of creating good and fair conditions of work and rewards. This is a complex problem which requires good creative thinking. There is considerable growth in knowledge in the behavioural sciences, and it would be useful if this knowledge is applied and utilised for evolving better personnel practices for dealing with career plans of scientists and in generally improving the conditions of work. It is suggested that a Personnel/Organisational Development Division be separated from routine administration, and specialists in personnel and organisational development be in charge of these functions and directly report to the Director-General.

#### 5.11 Documentation and Library

In order that awareness and communication is improved between different institutions and between different scientists, a common pool of documentation needs to be maintained. The person in charge must understand modern methods of storing and retrieval of information. Films and other 'soft-ware' required for communication and utilisation of knowledge

at the farmer's level, etc., should also be maintained here.

The library would also be a part of this group.

5.12 National Research Institutes

The Director-General obviously cannot be in direct touch with all the activities of ICAR. It is suggested that only the 3 National Research Institutes be in direct touch with the Director-General, namely, Indian Agricultural Research Institute, Indian Veterinary Research Institute, and National Dairy Research Institute.

5.13 Research Institutes/Laboratories/Centres

5.13.1 The other research institutes/laboratories/centres are divided into three groups, namely, (i) Crop Sciences, (ii) Soil, Agricultural Engineering and Irrigation, and (iii) Animal Sciences and Animal Husbandry. Each group will be in the charge of a Deputy Director-General, and each Deputy Director-General will be assisted by the requisite number of Assistant Directors-General and other staff.

The Deputy Director-General will be responsible for coordination, review of activities and performance, and will assist the Directors of the institutes/centres in the growth and development of their activities.

5.13.2 The Deputy Directors-General would also be responsible for planning in their respective 'areas,' and for this purpose they will be assisted and advised by the Scientist Panels. Research proposals not dealing with long range planning

will be scrutinised and approved by the Scientist Panels and sanctioned by the Deputy Director-General concerned.

5.13.3 Under the present system the Deputy Directors-General have multiple tasks including the supervision of several All India Coordinated Projects. This distribution of activities seems to leave the Institutes as well as the Projects unhappy. It was stated by a senior person at the headquarters that "In our present set-up, it is doubtful whether the senior scientists of the Council will get enough time to do much thinking and planning unless the system is drastically changed. Taking into consideration the number of All India Coordinated Projects which have been sanctioned and the involvement with the workshops and seminars which goes with the allocation of work of the senior scientists, the free time available at the headquarters to examine the different research projects and programmes of the institute is indeed very little. On making a rough calculation I found that some of the Deputy Directors-General who have got the responsibility relating to a very large number of All India Coordinated Projects will have to spend certainly more than 200 days in a year in the workshops relating to All India Coordinated Projects and other plan schemes, taking into consideration the time required for travel also. If we add to this the number of days that will be required for various important

international events held in the country like symposia of learned societies, international conferences, etc., and also the time required to attend certain important meetings outside the country we will find that there is even greater pressure on their time. The position of some of the Assistant Directors-General who have got charge of the large number of All India Coordinated Projects is also pretty bad in this respect."

5.13.4 It is suggested that the primary responsibility of the Deputy Directors-General is helping the growth and improving the effectiveness of the institutions under them. In order to do so, they must have the authority to sanction budgets, approve plans within the broad framework relating to their group of institutions. The All India Coordinated Projects should be separated and made the primary responsibility of another division.

5.13.5 The Deputy Directors-General must be scientist-generalists and not specialists, that is, the Deputy Directors-General must perceive themselves as scientist administrators rather than as technical specialists.

#### 5.14 Education

There is a Deputy Director-General in charge of providing financial aid to Agricultural Universities. There are 17 Agricultural Universities already, with many more to come. The problems of universities, their growth and development, the starting of new universities, etc., must be the full

time responsibility of Deputy Director-General, Education. The concept is similar to aided institutions that Department of Atomic Energy has for TIFR (Tata Institute of Fundamental Research) and other research institutes under its broad direction.

5.15 Publication

Publications, which derive their materials not only from scientists from universities, but also from research institutes and from other outside agencies, both national and international, should be a separate function in the 'managing system' and not be included in the 'management of universities.' This function in its management could be combined with documentation, library, etc.

5.16 All India Coordinated Project Management Division

5.16.1 It is suggested that the management of All India Coordinated Projects be separated from the responsibility of the 3 Deputy Directors-General. Each of the All India Coordinated Projects have a specific well-defined task, have time limitations and constraints (or ought to have), are spread on an all India basis, and require a multi-disciplinary approach. It is suggested that the Project Leader (Coordinator) be made fully responsible for the management of the project, for planning, holding and arranging review meetings and for other aspects related to the project's successful mission. The Deputy Director-General in

charge of the Project Management is not expected to provide specialised technical knowledge, but is expected to provide necessary help and resources required for the projects and to monitor their progress. Organisational Model for Project Management is shown in Exhibit 3.

- 5.16.2 The Deputy Director-General, All India Coordinated Projects should be assisted by 4 Assistant Directors-General, dealing with (a) Crops, (b) Soils, Agronomy and Agricultural Engineering, (c) Animal Sciences, and (d) Fisheries. He should have his own administrative help and budgetary control personnel.
- 5.16.3 The problems of Project Management are very different from problems of building and developing research institutions. The project leader has to get collaboration and team work from members who are in different institutions and not under his administrative control. Conflicts of authority inevitably occur in Project Management. The Deputy Director-General, Projects as a senior member from headquarters can help in the 'negotiations' required for successful team work, which means dealing with inter-face problems of different institutions.
- 5.16.4 The emphasis in Project Management is on integration and on the requirements of team work. The project leader if he is to do justice to the project must be full time while in charge of the project. The project leader should 'sub-contract' various parts of the project to various

institutes/universities. In managing the project he will require some liaison help and some administrative assistance. Budgetary Control concerning the project must be with him if he is to exercise any control.

- 5.16.5 There is considerable experience available in Project Management in the Indian Space Research Organisation (ISRO). Tasks requiring complex technology, interdisciplinary approach, high requirements of integration and time constraints have developed the experience and concepts of Project Management. The basic concepts of Project Management are likely to be relevant to ICAR and worth considering in organising the management of All India Coordinated Projects.
- 5.17 The ICAR has a Society, Governing Body, several Standing Committees, and an Advisory Board. The Secretary, ICAR will be Secretary to all these Committees.
- 5.18 Further, ICAR will have its own establishment which needs supervision and control. It is suggested that the Secretary in charge of the various ICAR Committees mentioned above also supervises the establishment of ICAR.
- 5.19 As has been mentioned earlier finance and budget should be separated from the work of the Secretary and put under a Financial Controller. Also recruitment should be transferred to the Personnel Division mentioned earlier.

5.20 If farm technology and farm marketing needs to be emphasised and integrated with research, education and extension, it may be worthwhile to appoint a person who will monitor the environment in these aspects, and will advise the Director-General on matters of farm technology and farm marketing.

5.21 Board

5.21.1 ICAR has a Governing Body consisting of 22 members. It is an 'External Body,' where all the members except the Director-General and Secretary are from outside.

5.21.2 Such an External Body or Board which consists of part-time persons has been generally found to be not very helpful to the organisation concerned. The Administrative Reforms Commission has also stated that part-time Directors are unable to devote the time and attention required of a Director. Taking into account various pros and cons, the Administrative Reforms Commission have recommended a mixed Board.<sup>1</sup>

5.21.3 The size of the Governing Body should be small enough for members to interact in a cohesive fashion and large enough to bring in necessary skills and competences required. The Atomic Energy Commission is a 5 member Board. A size ranging from 5 to 12 permits of cohesive interaction.

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<sup>1</sup> Report of the Study Team on Public Sector Undertakings, Government of India, (June 1967), p.30-31.

- 5.21.4 It is suggested that the size of the Governing Body and its membership be reviewed so that a smaller and more cohesive Body could be formed. The concept of 'Mixed Board' is also relevant in this connection.
- 5.22 If the broad framework suggested for ICAR organisation is accepted then further work would be required in clarifying the second order management system, that is, management system required for each of the Deputy Directors-General and for other functions at ICAR.
- 5.23 Further work will also be required to work on the information and control systems required for broad management and control of the various institutes/units.
- 5.24 At this stage of ICAR's development, non-operational problems have become the limiting factors. Like other large scale endeavours, ICAR has a number of unusually complex managerial requirements.
- 5.25 The recommended Organisational Structure of ICAR is shown in Exhibit 4.

## 6. ATTEMPTS AT ORGANISATIONAL CHANGES AT ICAR

6.1 When ICAR was first established in 1929, it did not and could not play any significant role. The research institutes were under the control of Ministry of Food and Agriculture; commodity research, development, marketing, etc., under Commodity Committees, and there were research stations established by the States which were under the direction and control of State Departments of Agriculture. Under the circumstances ICAR's role was limited to giving ad hoc grants for individual research projects to various research and educational institutions dealing with agricultural and veterinary research.

6.2 Since overall planning and coordination were important if significant advances in research were to be made, the Government of India appointed from time to time expert teams to recommend the scope of the ICAR and the organisation structure required to meet its objectives. The following were some of the teams appointed to make recommendations:

- (i) Joint Indo-American Team on Agricultural Research & Education, 1954.
- (ii) Second Joint Indo-American Team on Agricultural Education, Research & Extension, 1959.
- (iii) The Agricultural Administration Committee (Malagath Committee)
- (iv) Committee for Agricultural Universities Legislation (Cummings Committee) 1962.
- (v) The Agricultural Research Review Team (Barker Committee) 1963.

The Administrative Reforms Commission had also a Study Team (1967) to study Agricultural Administration which was followed by a Parliamentary Seminar in 1968. Recommendations concerning ICAR were made both by the Study Team and the Seminar.

- 6.3 Then in 1970, the Government of India appointed a National Commission on Agriculture to look into the "achievements and deficiencies and potential of the development of agricultural research and steps needed for promotion of agricultural research and its application to field conditions...." Evidently, the Government felt that agriculture required a further depth study for further improvements.
- 6.4 Thus, between 1954 and 1970, at least 8 different groups and teams had studied the working of ICAR.
- 6.5 The recommendations of the Joint Indo-American Teams were either partially or not implemented. As the Secretary of the ICAR stated "The recommendations of many of these teams overlap one another, the main reason for it being the slowness in implementation;"<sup>1</sup> The Parker Committee recommended some radical changes in the scope and structure of ICAR. These were reviewed by a high powered committee and modifications were made in the structure and staffing pattern.

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<sup>1</sup> K.T.A. Menon, "Building Agricultural Research Organisations - The Indian Experience," Paper presented at the Seminar on National Agricultural Research Systems, (March 8-13, 1971), ICAR New Delhi, p.4

Although action was taken with promptness the implementation had many aspects which were unfinished. As the Secretary of the ICAR stated 'the process (of reorganisation) is still in progress.'<sup>1</sup>

- 6.6. The point that requires to be emphasised is that although the Government of India has expressed concern about the scope and effectiveness of ICAR at least since 1929, and has appointed several distinguished teams and committees for making recommendations, the implementation of these reports have had serious gaps and problems.
- 6.7. Recommendations dealing with transfer of institutions to ICAR, of raising salary scales, of changing recruitment from UPSC and State Recruitment Boards to ICAR or Agricultural Universities were implemented. But the philosophy behind the recommendations of providing for greater autonomy and greater flexibility on the whole does not seem to have resulted for various complex reasons. Nor were there many material changes in the working culture of the research institutes and universities which was hoped from the transfer of the institutes from the Ministry to an autonomous body.
- 6.8. A major reorganisation of the type suggested by the Parker Committee meant significant changes in the roles of people at headquarters, and in their relationships with constituent

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<sup>1</sup> Ibid, p.5.

units. It meant designing appropriate information and control systems, of introducing creative personnel practices to deal with scientific manpower planning, training, development, evaluation and appraisal, promotion, etc. The detailed working of the many anticipated and unanticipated problems of reorganisation was not given sufficient attention, at least so it seemed to us.

6.9 With about 30 research institutes/laboratories and centres, 17 Agricultural Universities, and about 70 All India Coordinated Projects, ICAR can only function if it adopts a decentralised system of working. The need for decentralisation is accepted by senior members of ICAR. However, the details of decentralisation must be worked out. And organisational changes must be accompanied by educational strategies to change the working roles of concerned persons.

6.10 For instance, in decentralisation, ICAR headquarters will exercise only broad influence and control over the constituent units. This is done principally at the point where plans and budgets are reviewed. Since plans and budgets formulated are the basis for future review of performance it is important that the planning and the budgeting system is good. And good planning and good budgeting system requires trained people and it is not inexpensive.

6.11 There is a big gap between designing a new organisation structure on paper and bringing it into working reality.

The difficulty of implementing reorganisation and structural changes is that it also involves changes in roles, relationships, patterns of communication, authority and power, behaviour and attitudes. Consequently, considerable thought and attention need to be paid to the series of steps that would lead to the acceptance and implementation of the new organisation design.

6.12 In the type of reorganisation that we have suggested, there is a significant change in the roles to be performed by senior headquarters staff. The most important change is that senior staff will have to withdraw from the day to day problems of operating units and limit and concentrate their activities on overall planning, review, control and coordination.

6.13 Any reorganisation involves a redistribution of power and influence, and some of these changes are likely to be painful to those whose roles will be significantly affected by the reorganisation.

6.14 If action for implementation is being contemplated, it will be important that senior members of ICAR are involved in the problem solving activities arising out of reorganisation. It will be important to provide opportunities to clarify ambiguities and doubts, to deal with problems visualised,

and anxieties expressed. And above all it will be important to train and develop people at various levels in a planned way in new skills and attitudes required. For unless we do all this, the reorganisation will not succeed.

PART III

INFORMATION AND CONTROL SYSTEM

## 7. SOME ASPECTS OF INFORMATION AND CONTROL SYSTEM

7.1 Background

According to information available, the current year's (1971-72) budget for ICAR is approximately of the order of nearly Rs. 24 crores, as set out below:

	<u>Rs. In Crores</u>		
	<u>PLAN</u>	<u>NON-PLAN</u>	<u>TOTAL</u>
Agricultural research	3.65	0.03	3.63
Agricultural institutes	2.63	5.13	7.76
Animal Husbandry research	1.60	Nil	1.60
Animal Husbandry institutes	1.09	1.67	2.76
Education and Training	6.47	Nil	6.47
Headquarters operations	Nil	0.62	0.62
Cess	Nil	0.90	0.90
<b>Total</b>	<b>15.44</b>	<b>8.35</b>	<b>23.79</b>

7.2 Objectives and Their Accomplishment

## 7.2.1 The major objectives of the Council are:

- a. research in agricultural and animal sciences
- b. education and training
- c. extension programmes.

7.2.2 The policies of the Council are directed by the Director-General of ICAR assisted by four Deputy Directors-General and several Assistant Directors-General on the technical side and the Secretary, two additional Secretaries and several Deputy Secretaries on the administrative side. The objectives of the Council regarding agricultural and animal science research, education and extension are accomplished

by providing funds to the various organisations which are concerned with these activities, for example:

#### Research

- a. The institutes under the administrative control of the ICAR including the three national institutes on agricultural research, dairy research and veterinary research,
- b. Agricultural universities, State Governments, All India Coordinated Projects, and
- c. Others - on ad hoc basis.

#### Education

- a. The three national institutes on agricultural research, dairy research and veterinary research,
- b. Agricultural universities,
- c. Agricultural colleges,
- d. Scholarships and fellowships.

#### Extension Programmes

- a. State Governments,
- b. ICAR institutes.

7.2.3 The size of the research and development activity sought to be coordinated and controlled by ICAR and their complexity, as well as the scattered geographical location of the organisations through which such activities are channelled, make it evident that the operations of the ICAR should be decentralised for planning, decision-making and control. The appropriate organisational structure for effective decentralisation is the subject matter of a separate study.

The present study attempts to set out a framework of management information and control consistent with the philosophy of decentralisation.

### 7.3 Management Planning and Control

If the processes of management planning and control are to be defined in their appropriate positive connotation, they would essentially relate to:

- a. The process by which resources are acquired consistent with the objectives decided upon by an organisation, and
- b. The process by which resources of an organisation are used effectively and efficiently for attaining the pre-determined objectives of an organisation.

Effectiveness in this context would essentially have quality connotations - in other words, the output must be of the desired quality. Efficiency would essentially connote a satisfactory level of economic cost performance in terms of resource usage, i.e., the tasks are completed with the minimal resource usage by way of scientific and administrative manhours, equipment and funds.

7.4 In order to provide the required base for management planning and control it is essential that requests for resources to be allocated to the various organisations (ICAR institutes/ Agricultural Universities/State Governments/others, etc.) are supported by targets of achievements during a specified period, mutually acceptable to the provider and user of the funds, i.e., ICAR and the research organisations concerned. Presently, the allocation of resources for agricultural

research, education and extension work is carried out by the provisions made in this regard in the Five Year Plans. The resources to be committed for such purposes are essentially determined by the Planning Commission by holding a series of discussions with the Ministries of Agriculture and Finance along with the ICAR officials (wherever it is appropriate, the Council also consults the appropriate institutes under its control for purposes of advice and guidance). Once the amount of resources is decided upon, the allocation of funds to agricultural research and education as well as animal science research and education are determined by the Director-General in consultation with the Deputy Directors-General and the Secretary. The percentages of the ICAR funds allocated to these activities in the past have been by and large steady, thereby providing a basis for resource allocation on the basis of historical experience as well as planned activities.

- 7.4.1 The institutes under the Council are asked to furnish the data relating to their requirements of funds by way of draft annual budgets. In the light of funds allocation to various activities decided upon earlier, these budgets are scrutinized and approved after appropriate modification to the extent required because of financial constraints. Agricultural Universities are provided with grants-in-aid essentially for specific activities like building laboratories

or hostels for purchase of equipments, etc. Grants are also provided to State Governments for extension work and education. The Coordinators of All India Coordinated Research Projects submit their budgets through the institutes which provide the administrative base and the funds allocated to them are disbursed through such administrative institutes in most cases.

7.4.2 The resource allocation process (in keeping with governmental accounting system) is essentially related to the objective of expenditure control. The budgets do not spell out the specific time targets for accomplishment of research activities (which constitute the major activity of the Council - almost Rs. 16 crores out of Rs. 24 crores) and the planned progress during the budget period for projects likely to continue for more than one year. It is, therefore, not surprising that the reports received from the organisations under the ICAR focus primarily on expenditure control rather than achievement reporting of the research projects. In the case of the institutes controlled by the ICAR, expenditure statements comparing actual expense against budget are received monthly, thereby highlighting the funds required during the remaining months of the budget period. On this basis, the required funds are released every month. In relation to funds for education spent through Agricultural Universities and State Governments, an annual utilization certificate in relation to the funds

by the auditors of the user organisation is received.

Similarly, Coordinators of All India Coordinated Projects furnish annual statements.

7.5 It will be seen that all these financial statements essentially relate expenditure to funds sanctioned, essentially with a view to forecast the requirements of funds during the remaining months of the budget period. The attempt to monitor the progress in respect of All India Coordinated Projects is essentially by way of annual workshops which are organised by the concerned Assistant Directors-General and Deputy Directors-General, who present a progress report to the Council. The annual workshop is essentially a technical review which does not attempt to quantify the extent of the accomplishment with the targeted accomplishment for the simple reason that specific achievement targets broken up in terms of discrete time spans during the life of the research project are not formulated at the time of preparation of the budget. The annual workshops also attempt to present a plan for the future which focuses on the future thrust of research activity, which again is not backed up by estimates of probabilities of accomplishments in terms of specific time spans and revised estimates of cost to complete the project.

7.5.1 The National Institutes furnish their annual reports to the Director-General which are thereafter presented to the Council. The non-National Institutes present their technical reports

to the Assistant Director-General and Deputy Director-General concerned and normally include plans for the next year. The annual reports of the institutes are essentially descriptive - providing quantitative data relating to work done as well as funds spent but without any attempt to correlate the accomplishment of pre-determined targets.

7.5.2 It was obviously felt that the workshops and the annual reports do not provide a complete basis for measurement of achievement and accordingly, it was decided to have the activities of the various organisations under the control of ICAR reviewed by achievement audit committees every five years. The work of the achievement audit committees is visualised in terms of review rather than measurement of operational performance in quantified term. The examination of several achievement audit committee reports confirms this view.

7.5.3 It can, therefore, be concluded that the present management control system in practice in the ICAR is essentially financial expenditure control oriented and provides little or no data for quantified targets to be achieved. Since periodic measurements of performance in relation to pre-determined targets is not possible in such circumstances, decisions relating to remedial action to be taken in respect of areas of shortfall are essentially impressionistic in nature. It is reasonably clear that the present system of

planning, measurement of performance and reporting does not provide the required degree of management control (as distinct from expenditure control).

#### 7.6 Problems in Management Control of R & D Based Organisation

Before proceeding any further, three problem areas in developing an appropriate management control system of an R & D based organisation should be identified. They are:

- (a) The demand for research funds is much higher than the resources available for research projects. However, resources allocation is not backed up by determination of quantitative targets of accomplishments during the period of resource usage.
- (b) The risks and uncertainties which attach to research activities at all levels beginning from pure research to translation of research findings to production have a wide spectrum, and
- (c) There exists differences in perception as to what constitutes "achievement" in research situations among those who are concerned with performance evaluation.

#### 7.7 A Suggested Framework

After taking into account the problem areas of management control identified earlier for an R & D based organisation, a broad approach in relation to the ICAR operations could be as follows:

- (a) The organisational structure should provide for a formalised planning agency which decides upon not only the amount of funds allocated to the research institutes, but also incorporates the estimated targets of achievements during different stages of the research project.

- (b) The formats for budgeting by the institutes as well as of All India Coordinated Projects should provide details of accomplishment of targets and expenses to be incurred research projectwise (rather than a consolidated budget developed according to the traditional government accounting heads - salaries of officers, salaries of establishment, dearness allowance, travelling expenses, leave salary, other charges, etc.) The draft budget should be prepared by the Director of the institute concerned or the Project Coordinator and should include the estimates relating to accomplishments during different stages of the project, including the budget year.
- (c) The Central Planning Committee should decide upon such budgets and the targets of accomplishment in the light of:
- (i) the funds available to it,
  - (ii) in the case of new projects, the importance and criticality of the project, based on appraisal by competent scientists,
  - (iii) in the case of existing projects, the probability of successful completion as well as the estimated incremental costs of completion, and
  - (iv) the requirements of funds for on-going administrative expenses (by way of salary of administrative and maintenance staff), depreciation of buildings, equipments, etc., house keeping expenses, etc.
- (d) The monthly expenditure statements received from the institutes and the annual statements received from other organisations should not merely compare the actual expenditure with the budget and show the variances, but also indicate the accomplishment of the project or in appropriate cases, the stage of completion of the project (e.g., construction of hostels, libraries, etc.)
- (e) The organisation of the annual workshops must be structured in such a way that a part of the workshop activity relates to assessment, in quantitative terms to the extent possible, of the success achieved in respect of various research projects against the targeted achievement, as well as the probability of successful completion (again spelled out in quantitative terms to the extent possible) backed up by

estimated time and cost of completion. Such a format for reporting would also be appropriate in respect of the annual reports of the Institute. Obviously, for this purpose the scientific panels constituted by the Council would have to be involved in the measurement of achievement as well as the determination of the probability of successful completion and cost and time estimates for completion. (It is to be emphasised that such a management reporting procedure would be appropriate only in respect of applied research).

- (f) In respect of pure basic research, it would be quite adequate if the reporting is limited to actual expenditure against budgeted expenditure. The dimensions of creativity and innovation in pure basic research are substantially different from applied research and should be appropriately reflected in the management control process by limiting such an exercise to one of accounting of historical expenditure and reallocation of scientists manhours available for doing such pure research projects to research projects of highest potential.
- (g) The role of the achievement audit committee would need substantial modification so that they are also concerned with the evaluation of the achievement of organisations audited by them essentially in terms of long term targets - say the achievement targets accepted for five year plans. The work of the achievement audit committee should be specifically structured to include such measurements of long term performance as well as making recommendations relating to continued provision of funds for such long term projects.

## 7.8 Systems Administration

- 7.8.1 In order to administer the proposed management control system, it is essential that the primary management control reports should be made available to the Assistant Director-General concerned with the activity of the organisation concerned. The periodic financial as well as the accomplishment reports should be thoroughly reviewed for identifying the areas of

shortfalls from planned targets and for suggesting appropriate remedial action to the organisation concerned.

- 7.8.2 The reports received from the organisations should be consolidated by the Assistant Directors-General concerned for transmission to the Deputy Director-General who is concerned with that group of activities. The Deputy Directors-General should then consolidate their comments and suggestions along with a review of their respective activities (both financial and achievement reports) in terms of a comprehensive report to the Director-General. These reports can be reviewed monthly at a meeting of the Director-General, the Secretary as well as the Deputy Directors-General and Assistant Directors-General for purposes of providing the necessary control as well as making available such assistance and guidance in respect of areas of shortfalls of performance.

PART IV

SUMMARY AND RECOMMENDATIONS

8. Summary and Recommendations

- 8.1 The study was undertaken at the request of the National Commission on Agriculture. This report studies the role of the Indian Council of Agricultural Research in agricultural research, education, and extension and suggests an organisational structure which permits more effective long range planning, coordination, control and services.
- 8.2 We believe there is a need to explicitly clarify the primary objectives of ICAR at the overall level, and the primary objectives of each constituent unit/Agricultural University for three reasons. First, it will enable a better understanding of what ICAR is trying to achieve and become at an overall level on the one hand, and what each unit/university is trying to achieve and become at the operating level on the other hand, so that appropriate policies and decisions can be taken by each unit within the framework of their primary objectives. Second, it will provide a meaningful framework within which to analyse and assess the overall performance of ICAR on the one hand and of the different units/universities concerned on the other. Third, it will help define boundaries of different institutions so that problems related to territorial encroachments are minimised and consequently conflicts are minimised.

- 8.3 In the 1966 reorganisation based on the Parker Committee report, ICAR inherited several institutions with different backgrounds, histories and administrative practices which made it difficult to initiate new practices more suitable to a scientific culture.
- 8.4 It is useful to make a distinction between the basic structure and the operating mechanisms which implement and reinforce the basic structure. Operating mechanisms include such factors as control procedure, information system, reward and appraisal system, standardised rules and procedures and even spatial arrangements.
- 8.5 If the administrative and other operating mechanisms in ICAR do not change, then changes in organisation structure will not lead to improvements. The objectives of reorganisation were largely not achieved because there were no training programmes on a widespread basis which would have helped in preparing people for the new roles required by the reorganisation.
- 8.6 The five major areas, interdependent and inter-related, around which the problems of ICAR centred were:
- (i) Long Range Planning
  - (ii) All India Coordinated Projects
  - (iii) Personnel
  - (iv) Accountability
  - (v) Centralisation

8.7 These inter-related problems were causing feelings of unhealthy rivalry and competitiveness, perceptions of ad hoc and subjective use of authority, lack of commitment, and a tendency to blame each other.

8.8 In ICAR no adequate organisational mechanism exists for long range planning for identifying gaps and needs, monitoring new developments and providing a broad framework within which the institutes and universities can plan their own research activities.

8.9 The way All India Coordinated Projects are organised, funded and manned, has spread a net work of unhealthy rivalry and competitiveness among colleagues, resentments against headquarters and a widespread feeling of unfair practices of recruitment and promotions.

8.10 The problems of recruitment and promotions in ICAR are dealt with mechanically. There are many missing links in the personnel policy, which are required for the effective growth and development of scientists.

8.11 With many All India Coordinated Projects, which are supposed to be temporary in nature, the function of appropriately reallocating persons from projects to other activities assumes major proportions.

8.12 The way functions are allocated in ICAR the responsibility is in one group and authority in another group and accountability is confused. If responsibility, authority and accountability

have to go together it is important that the activities should be so divided and put together that each Deputy Director-General can have control over the resources which he requires for effective performance and can consequently be held accountable for results.

- 8.13 Organisationally, the only place where coordination can take place in ICAR is at the Director-General's level. With about 30 Research Institutes, Laboratories, Centres, about 70 Projects, and 17 Universities, ICAR must have a decentralised set-up.
- 8.14 Decentralisation would mean ICAR headquarters providing broad policy and dealing with long range planning, broad financial controls, review of activities, renewal of scientists, and other service functions common to the many constituent units and universities.
- 8.15 There should be a Long Range Planning Division to help identify future priorities and gaps. This division should evaluate the 'mix' required of fundamental and applied research, and suggest broad research themes (not projects) which require a 5 to 10 years time span. The division will not allocate research programmes to different institutions/universities and will not deal with evaluating research proposals submitted to ICAR regarding sanctions and funds relating to short term projects of one to three years duration.

- 8.16 If ICAR is to provide broad financial controls in a decentralised set-up it will require capable financial and budget analysts at both headquarters and at the unit levels - a problem most often ignored.
- 8.17 The relations at the Centre-State level are of special importance and of special sensitivity. This task should be a differentiated function and the primary responsibility of a given Deputy Director-General.
- 8.18 It is recommended that there should be a Deputy Director-General with the primary task of dealing with international cooperation and collaboration between agricultural scientists of India and abroad on a regular basis. This is a service function to all the different research institutions and universities related to ICAR and must, therefore, be independent of any of the Deputy Directors-General managing sub-systems.
- 8.19 Affairs of ICAR are of public concern and in the public eye. There are frequent Parliamentary questions raised concerning the working of ICAR and its units. It is recommended that a person is specially delineated to deal with Parliamentary Affairs and Public Relations.
- 8.20 There is need of attracting good scientific talent, of creating good and fair conditions of work and rewards, of evolving better personnel practices for dealing with career plans of scientists. It is suggested that Personnel/

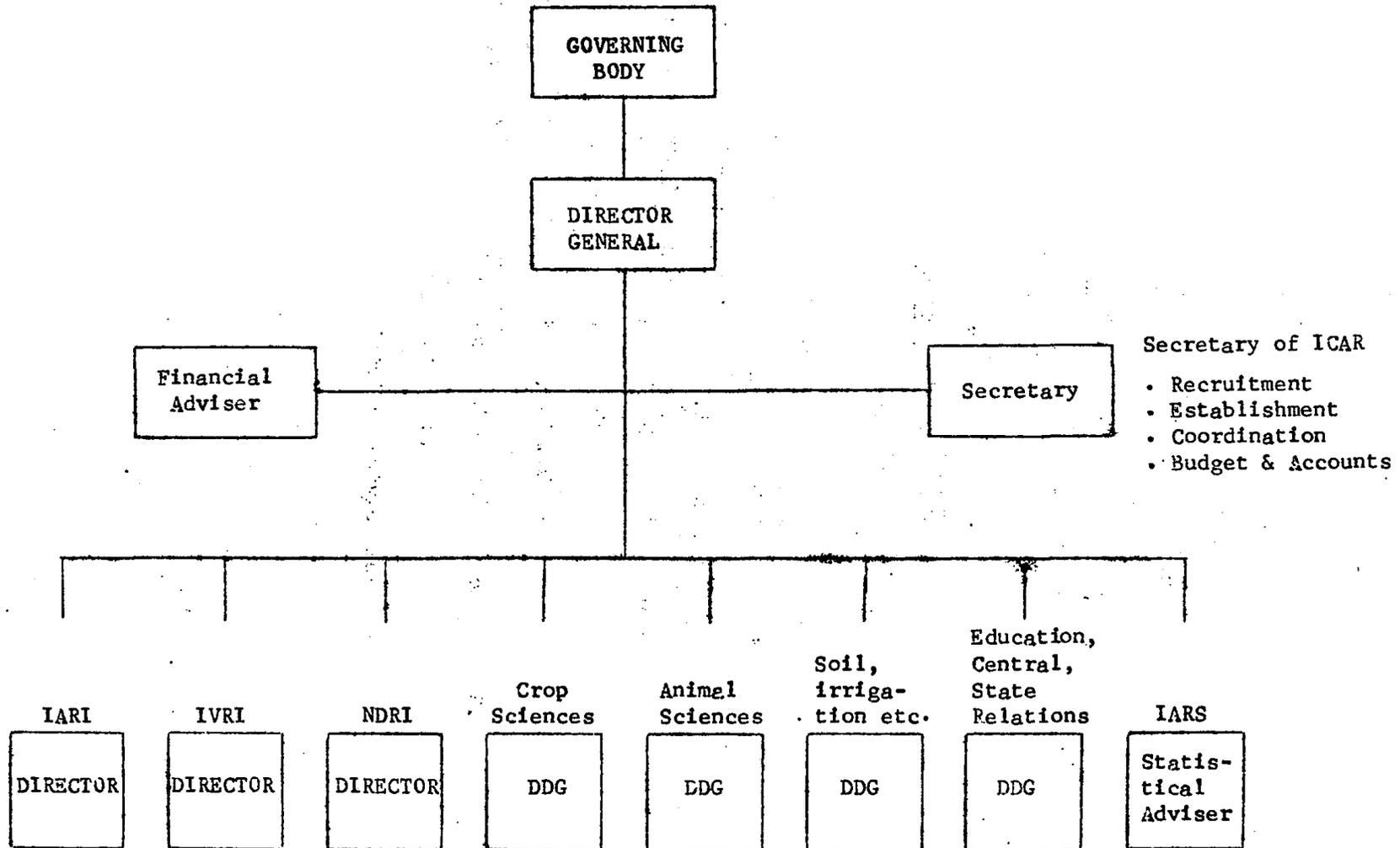
Organisational Development function be separated from routine administration and specialists in personnel and organisational development be in charge of these functions.

- 8.21 A Documentation Division has been suggested. The person in charge of this Division must understand modern methods of storing and retrieval of information.
- 8.22 Only 3 National Research Institutes should be in direct touch with the Director-General. The other research institutes/laboratories/centres are divided into three groups, namely, (i) Crop Sciences, (ii) Soil, Agricultural Engineering and Irrigation, and (iii) Animal Science and Animal Husbandry. A Deputy Director-General should be in charge of each group. He should have his own administrative help and budgetary control personnel.
- 8.23 The role of ICAR vis-a-vis universities should be similar to the concept of aided institutions followed in Department of Atomic Energy and Department of Space. There should be a Deputy Director-General in charge of this function.
- 8.24 It is recommended that the primary responsibility of the Deputy Directors-General is helping the growth and improving the effectiveness of the institutions under them, and not being involved in operating responsibility.

- 8.25 The Deputy Directors-General must be scientist-generalists and not specialists, that is, the Deputy Directors-General must perceive themselves as scientist administrators rather than as technical specialists.
- 8.26 The management of All India Coordinated Projects be separated from the responsibility of the 3 Deputy Directors-General. There should be a Deputy Director-General in charge of the Project Management Division who is not expected to provide specialised technical knowledge, but is expected to provide necessary help and resources required for the projects and to monitor their progress. He should have his own administrative help and budgetary control personnel.
- 8.27 The emphasis in Project Management is on integration and on the requirements of team work. The project leader should be made fully responsible for the management of the project, for planning, holding and arranging review meetings, and for other aspects related to the projects' successful missions. He should be full time while in charge of the project.
- 8.28 The Secretary, ICAR will be Secretary to Society, Governing Body, Standing Committees and Advisory Board. Finance and Budget has been separated from the work of the Secretary and put under a Financial Controller. Also recruitment has been transferred to the Personnel Division.

- 8.29 The size of Governing Body should be small enough for members to interact in a cohesive fashion and large enough to bring in necessary skills and competences required. It is suggested that the size of the Governing Body and its membership be reviewed so that a smaller and a more cohesive Body could be formed. The concept of a mixed Board is also relevant in this connection.
- 8.30 Present management control system in practice in the ICAR is essentially financial expenditure control oriented and provides little or no data for quantified targets to be achieved. Since periodic measurements of performance in relation to pre-determined targets is not possible in such circumstances, decisions relating to remedial action to be taken in respect of areas of short fall are essentially impressionistic in nature. It is reasonably clear that the present system of planning, measurement of performance and reporting does not provide the required degree of management control (as distinct from expenditure control).
- 8.31 While allocating funds to the research institutes, estimated targets of achievements during different stages of the research project should be incorporated. The monthly expenditure statements received from the institutes and annual statements received from other organisations should not merely compare the actual expenditure with the budget and show the variances, but also indicate the present degree of accomplishment of the project (indicating the probability of successful completion) and the revised estimates of time and costs to complete the project.

- 8.32 The role of the Achievement Audit Committee would need substantial modification so that they are also concerned with the evaluation of the achievement of organisation audited by them essentially in terms of long term targets.
- 8.33 There is a big gap between designing a new organisation structure on paper and bringing it into working reality. The difficulty of implementing reorganisation and structural changes is that it also involves changes in roles, relationships, patterns of communication, authority and power, behaviour and attitudes. Consequently, considerable thought and attention need to be paid to the series of steps that would lead the acceptance and implementation of the new organisation design.
- 8.34 In the type of reorganisation that we have suggested there is a significant change in the roles to be performed by senior headquarters staff. The most important change is that senior staff will have to withdraw from the day to day problems of operating units and limit and concentrate their activities on overall planning, review, control and coordination.
- 8.35 If action for implementation is being contemplated, it will be important that senior members of ICAR are involved in the problem solving activities arising out of reorganisation.



**Exhibit 1 : Existing Organisational Structure of ICAR**

(Source: Report of the Seminar on Agricultural Administration, Administrative Reforms Commission, May, 1968).

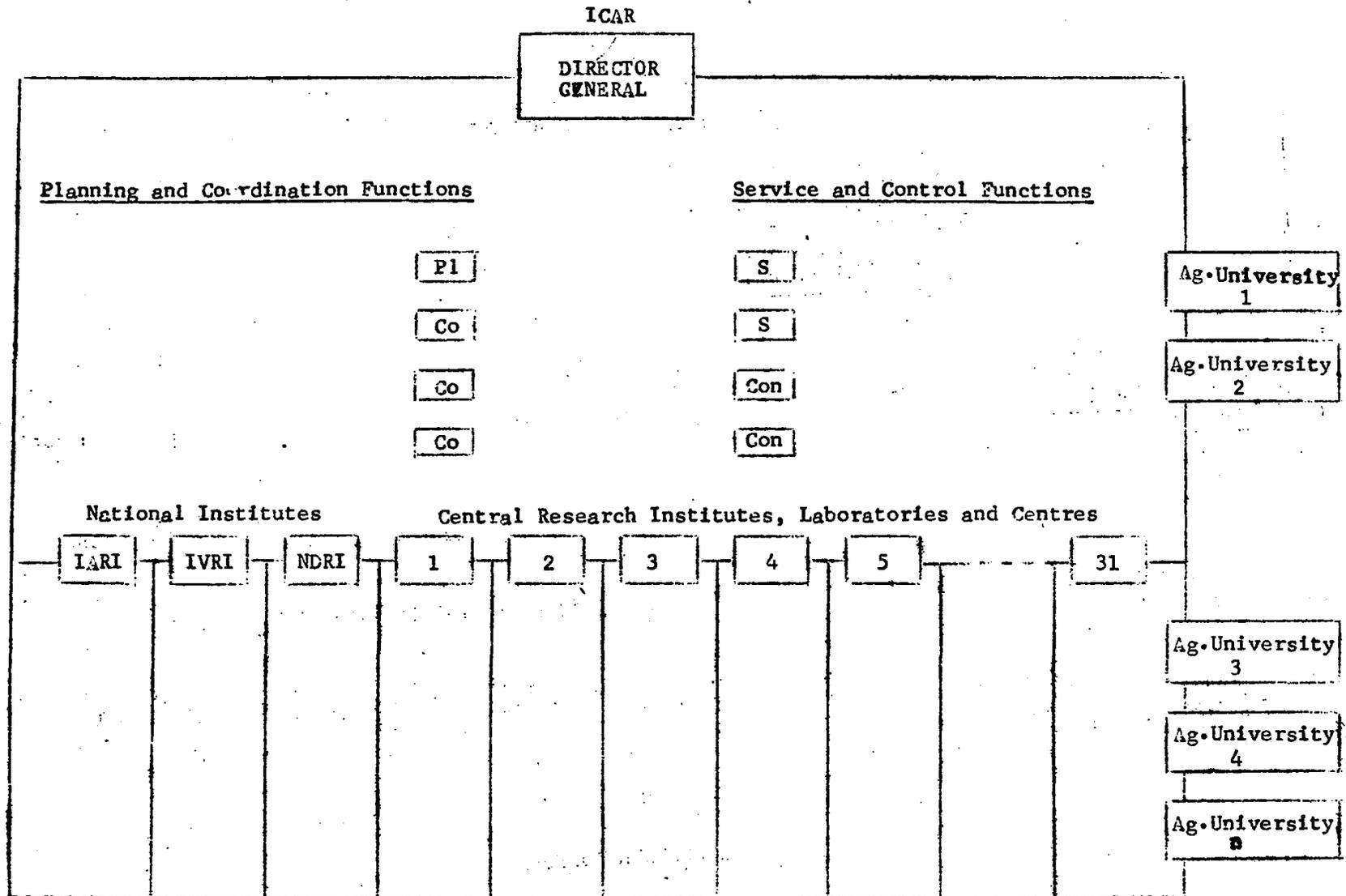


Exhibit 2 : Organizational Model of ICAR

PROJECT MANAGEMENT

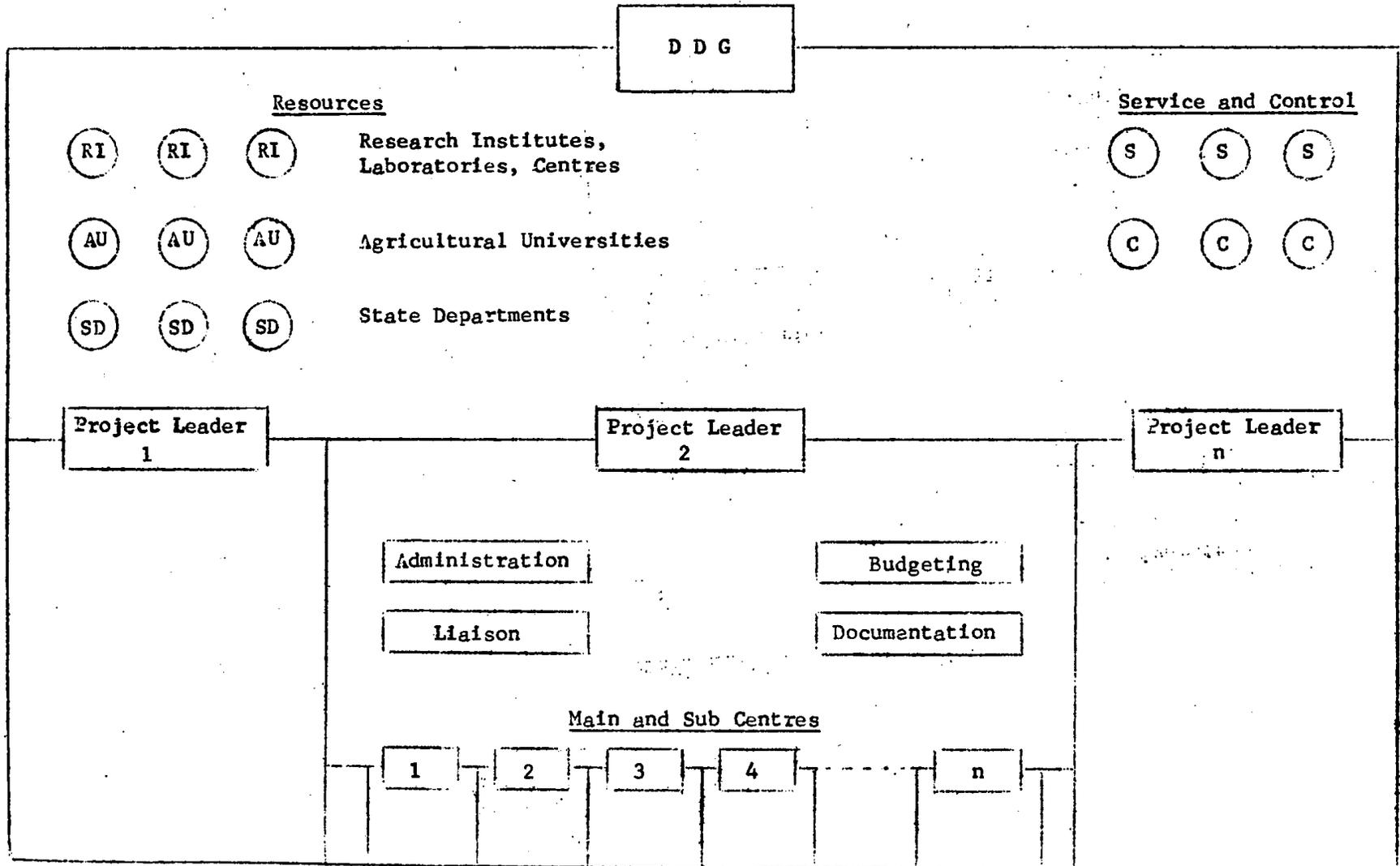


Exhibit 3: Organisational Model for Project Management

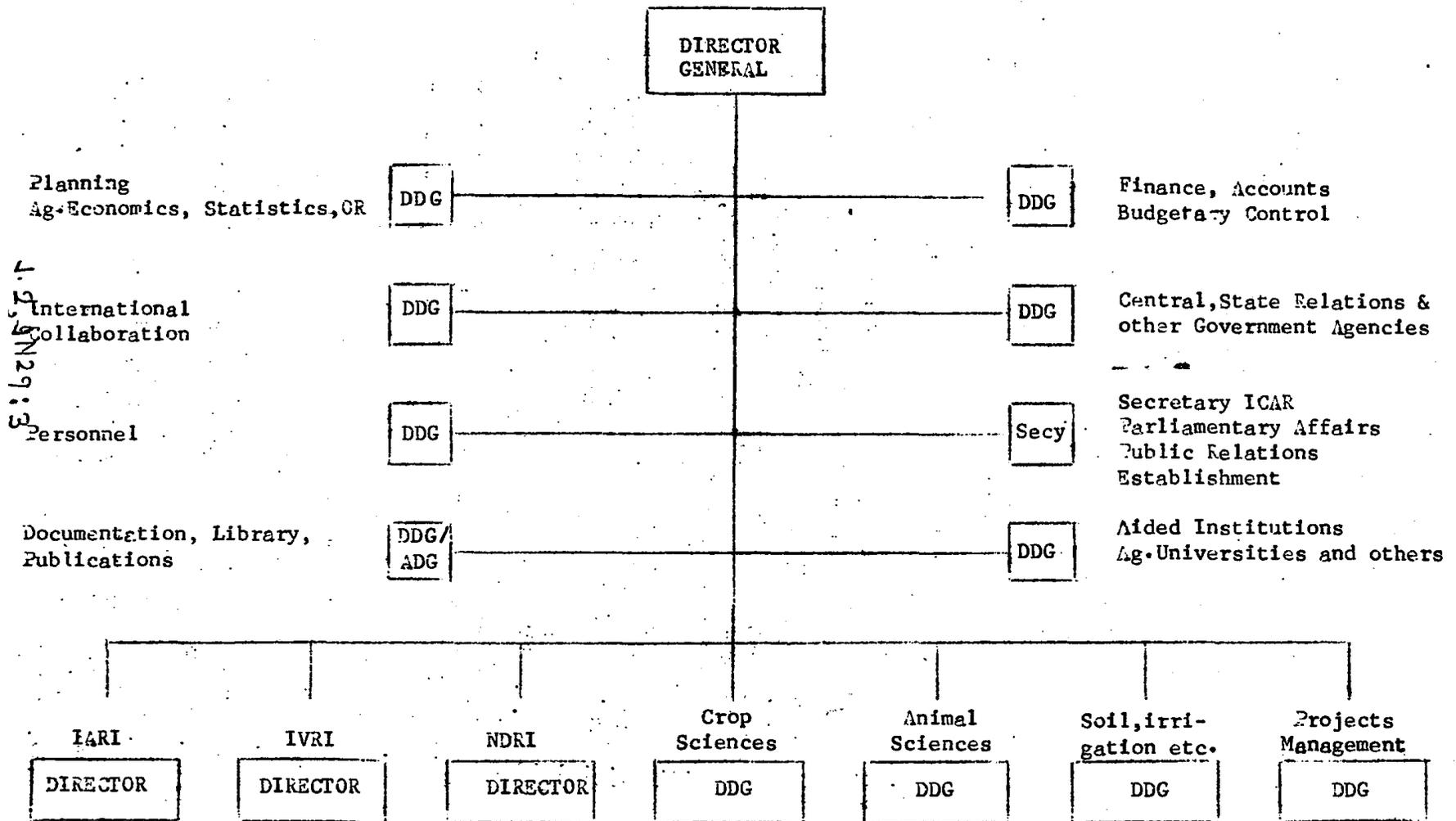


Exhibit 4: Recommended Organisational Structure of ICAR

Appendix

List of Research Institutes, Laboratories and Centres; and All India Coordinated Projects under ICAR and List of Agricultural Universities

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## 1. RESEARCH INSTITUTES AND LABORATORIES

A. Agriculture

1. Indian Agricultural Research Institute, New Delhi-12
2. Central Arid Zone Research Institute, Jodhpur (Rajasthan)
3. Cotton Technological Research Laboratory, Adenwala Road, Matunga, Bombay-19
4. Indian Grassland & Fodder Research Institute, Jhansi (Uttar Pradesh)
5. Institute of Horticultural Research, 255, Upper Palace Orchards, Bangalore-6 (Mysore)
6. Jute Agricultural Research Institute, Nilganj, P.O. Barrackpore (West Bengal)
7. Jute Technological Research Laboratories, 12 Regent Park, Calcutta-40 (West Bengal)
8. Indian Lac Research Institute, P.O. Namkum, Ranchi (Bihar)
9. Central Plantation Crops Research Institute, Post Kudlu, Kasaragod (Kerala)
10. Central Potato Research Institute, Simla-1 (Himachal Pradesh)
11. Central Rice Research Institute, Cuttack-6 (Orissa)
12. Central Soil Salinity Research Institute, Karnal (Haryana)
13. Indian Institute of Sugarcane Research, Rai-Bareilly Road, P.O. Dilkusha, Lucknow-2 (Uttar Pradesh)
14. Sugarcane Breeding Institute, Lawley Road, Coimbatore-7 (Tamil Nadu)
15. Central Tobacco Research Institute, Rajahmundry-1 (Andhra Pradesh)
16. Central Tuber Crops Research Institute, Trivandrum-10 (Kerala)

B. Animal Sciences

17. Indian Veterinary Research Institute, Izatnagar (Uttar Pradesh)
18. National Dairy Research Institute, Karnal (Haryana)
19. Central Inland Fisheries Research Institute, P.O. Barrackpore (West Bengal)
20. Central Marine Fisheries Research Institute, Marine Fisheries P.O. Mandapam Camp, Distt. Ramanathapuram (Tamil Nadu)
21. Central Institute of Fisheries Technology, P.B.No.1039, Chittor Road, Ernakulam, Cochin-11 (Kerala)
22. Central Sheep & Wool Research Institute, Avikanagar (Rajasthan)

### C. Statistics

23. Institute of Agricultural Research Statistics,  
New Delhi-12.

### 2. SOIL CONSERVATION RESEARCH DEMONSTRATION AND TRAINING CENTRES

1. Soil Conservation Research, Demonstration and Training Centre, 37, Vijay Nagar Colony, Agra.
2. Soil Conservation Research Demonstration and Training Centre, Bungalow No.25/52 Bellary (Mysore State).
3. Soil Conservation Research, Demonstration and Training Centre, House No.D-12/266, Sector-C, 23/A, Chandigarh.
4. Soil Conservation Research, Demonstration and Training Centre, Saleem Nagar Colony, Hyderabad-32 (Andhra Pradesh).
5. Soil Conservation Research, Demonstration and Training Centre, Dehra Dun.
6. Soil Conservation Research, Demonstration and Training Centre, Kotah (Rajasthan).
7. Soil Conservation Research, Demonstration and Training Centre, Jotacamund.
8. Soil Conservation Research, Demonstration and Training Centre, Vasad (Western Railway), Gujarat.

### 3. AGRICULTURAL UNIVERSITIES

1. Andhra Pradesh Agricultural University, Dilkusha, Hyderabad.
2. Assam Agricultural University, Jorhat-4.
3. Rajendra Agricultural University, Patna.
4. Haryana Agricultural University, Hissar.
5. Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur.
6. Mahatma Jhule Krishi Vidyapeeth, Rahuri, Dist. Ahmednagar.
7. Punjabrao Krishi Vidyapeeth, Krishi Nagar, Akola.
8. University of Agricultural Sciences, Bangalore.
9. Orissa University of Agriculture & Technology, Bhubaneswar.
10. Punjab Agricultural University, Ludhiana.
11. University of Udaipur, Udaipur.
12. Uttar Pradesh Agricultural University, Pantnagar, Dist. Nainital.
13. University of Kalyani, T.O. Kalyani, Dist. Nadia.
14. Kerala Agricultural University, Mannuthy, Trichur.
15. Tamil Nadu Agricultural University, Coimbatore-3.

## 4. ALL INDIA COORDINATED RESEARCH PROJECTS

A. Crops

## 1. Food Crops

1. Rice
2. Wheat
3. Barley
4. Maize
5. Sorghum
6. Millets
7. Pulses

## 2. Commercial Crops

1. Sugarcane
2. Sugarbeet
3. Cotton
4. Jute
5. Oilseeds
6. Soyabeans
7. Tobacco
8. Spices and Cashewnut
9. Coconut and Arecanut

## 3. Horticulture

1. Fruits (including mango malformation and research on citrus die-back)
2. Tuber Crops
3. Potato
4. Vegetables
5. Certification, inspection and registration of virus free citrus trees
6. Establishment of regional research stations for medical and aromatic plants
7. Floriculture

## Others

1. Forage Crops

B. Research in Soils, Agronomy and Agricultural Engineering

## Soil and Water Management

1. Coordinated agronomic experiments
2. Correlation of soil tests with crops response

3. Micronutrients of soils
4. Soil structure
5. Microbiological decomposition of organic matter
6. Irrigation research in river valley projects
7. Research on new cropping patterns and water use in selected command areas
8. Strengthening of research on soil salinity, irrigation drainage and water management
9. Studies on engineering aspects of design and construction of openwells/tubewells
10. Strengthening of research under rainfed conditions (Dryland Agriculture)
11. National Demonstrations on major food crops
12. Long term fertilizer experiments

#### Research on Farm Power and Machinery

13. Establishment of zonal research centres, for improved agricultural implements
14. Energy requirements of intensive agricultural production programmes.

### C. Animal Science Research

#### Veterinary and Animal Husbandry

1. Cattle
2. Buffaloes
3. Sheep for fine wool
4. Sheep for mutton
5. Goats for Mohair/Tashmina
6. Goats for milk
7. Pigs
8. Poultry for eggs
9. Poultry for meat
10. Investigation of agricultural by-products and industrial waste material for evolving economic rations for livestock
11. Scope of synchronisation of heat and superovulation in sheep and goats for improved productivity
12. Foot and mouth diseases central Typing Laboratory
13. Respiratory diseases of poultry and their control
14. Biology and control of stephanofilarial dermatitis
15. Epizootology of Nasal Schistosomiasis
16. Calf mortality
17. Blood groups and biochemical polymorphism found in Indian Farm Animals

**Dairying**

1. Determination of the economics of milk production under the intensive dairy farming conditions in relation to high yielding varieties of cereals and cash crops
2. Cost of chilling and transportation of milk to city dairies
3. Economic methods of utilisation of surplus/sub-standard milk
4. Technological and economic problems of operation in liquid milk plants

**Animal Science Technology**

1. Study of the technological problems in the commercial production of dressed poultry and piggery products
2. Studies on the utilisation of slaughter house by-products
3. Utilisation of trash fish
4. Study of technological problems of handling and transport of fresh fish
5. Studies on canary colouration of India wools
6. Studies on the manufacturing trials of graded wools for the principal breeds of sheep

**D. Fisheries Research****Fisheries**

1. Investigation on riverine carp spawn prospecting and collection techniques
2. Studies on the ecology and fisheries of fresh water reservoirs
3. Studies on marine prawn biology and resources
4. Propagation of stocking of fish seeds of air breathing fishes for culture in swamps
5. Composite culture of Indian and exotic species for maximum fish production in the culture operations