National
Centre for
Agricultural Economics &
Policy Research

QUINQUENNIAL REVIEW REPORT

INDIAN COUNCIL OF AGRICULTURAL RESEARCH
NEW DELHI

OCTOBER, 2000

NCAP Quinquennial Review Report

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Preface

We are thankful to the Indian Council of Agricultural Research to invite us to review the academic programme and organisation of the National Centre for Agricultural Economics and Policy Research (NCAP), and make recommendations for its strengthening. The Centre is a unique institution in the ICAR system. The establishment of such a Centre indicates forwardlooking approach of ICAR management as it recognises and gives due importance to policy interventions in shaping our agriculture. It also reflects ICAR's commitment to sustainable growth in agriculture not only from environmental point of view but also from social and economic angles. This was indeed a welcome initiative.

From all that we have learnt during the course of the Review, the Centre has largely fulfilled the expectations of its sponsors, and has provided adequate justification for its establishment: by creditable academic research, serious efforts in dissemination and advocacy of its research output, and supportive role to the other related institutions of the ICAR system. It has also organised itself in a manner that right environment for high-quality and relevant research is created, responsibilities are shared and, proper accountability is ensured. There are still a number of areas where the Centre needs strengthening. This review, which is basically in the nature of a constructive commentary will, hopefully, help in correcting some of the existing gaps and will enable the Centre to move ahead more efficiently in fulfilling its mission.

Recognising the importance of an institution such as NCAP, we made special efforts to contact all the important stakeholders, and, of course, the staff of the Centre. In conducting this task we received unstinted co-operation from all concerned, right from the Deputy Director General of ICAR concerned with this institution, his other senior colleagues, and other important and knowledgeable persons in the State Agricultural Universities and related ICAR institutions, the scientific faculty and the staff of the Centre. The former Director of the Centre Dr. Dayanatha Jha, the current Director, Dr. Mruthyunjaya, and the interim Director Dr. P.K. Joshi, spared no efforts to support our activities. The research scientists and their

administrative colleagues were both forthcoming and supportive. All of them were courteous as well as efficient, the qualities, which generally do not go together! Above all, we were immensely helped by our able, willing and resourceful Secretary, Dr. S. Selvarajan. Every member of the QRT gave his best to make this joint effort of ours a pleasant and fruitful task. However, the contributions of Dr. C. Ramasamy and Dr. P.M. Shingi go much beyond their expected share.

The Centre has a record of activities of which it can be proud of, and can also look forward confidently to a future where its role will become all the more important. It is our earnest hope that the comments and suggestions made in this Review will help the Centre in that process.

4th Oct., 2000
New Delhi

Prof. V.S. Vyas
Chairman
Quinquennial Review Team
NCAP

1. Introduction

1.1 Quinquennial Review of NCAP

The Indian Council of Agricultural Research (ICAR) is the apex public institution in the agricultural sector. It promotes agricultural research, education, and extension in the country through its network of institutions and in partnership with state agricultural universities (SAUs). Each ICAR institution has its mandate assigned to it, and it operates within the overall rules and guidelines of ICAR. The ICAR (also referred to as Council) undertakes a quinquennial review of each institution to monitor the progress of research, its relevance and excellence, and to provide guidelines for better achievement of the mission and goals of the Institution.

The National Centre for Agricultural Economics and Policy Research (NCAP) was established by the ICAR in 1991. The Quinquennial Review Team (QRT) was constituted by the Council in November 1999 to conduct external review of the programmes of NCAP (also referred to as Centre) covering the period 1991-1999. The composition of the team was as follows:

Chairman : Prof. V.S. Vyas

Members :
Dr. C. Ramasamy
Dr. S.N. Mishra
Dr. S.K. Goyal
Dr. P.M. Shingi (from June, 2000)
Dr. J.P. Bhati (from June, 2000)
Dr. R.K. Patel (up to June, 2000)
Dr. D.S. Sidhu (up to June, 2000)
Dr. S. Selvarajan (Secretary)

The original Team underwent changes during the period of review for reasons of health and other commitments of some members. Two new members joined the team in place of Dr. R.K. Patel and Dr. D.S. Sidhu in June, 2000. Such changes midway resulted in delay in preparation of the report. Background information on the members of the Team is given in Appendix 1.1.

1.2 Terms of Reference

Terms of reference given to QRT, activities covered and processes examined are detailed in Appendix 1.2.

1.3 Review Process

Following ICAR guidelines, the Centre had prepared a background report highlighting its activities during the period under review and submitted it to the members of QRT. Along with this, the copies of annual reports, perspective plan (Vision 2020), project details, publication lists, and sets of publications of the Centre as well as individual scientists covering the review period were compiled and given to the members.

The review process started on March 27, 2000 with a meeting in the Council. The Deputy Director General, Animal Sciences, [DDG (AS)] had initiated the discussion in which overall information on the Centre's activities and outputs was presented by the Assistant Director General, Economics, Statistics, and Marketing [ADG (ESM)]. Following this, the team visited the Centre for an introductory meeting with the scientists and other staff. First review meeting was held on March 28, 2000. In the meeting, the activities of the Centre were presented by the Director and leaders of different research theme areas.

After the initial meeting, the QRT members held a series of meetings, individually as well as in group, on several occasions, to have detailed discussion on various activities and programmes. The sequence of visits and review programmes is listed in Appendix 1.3.

The review was conducted in a participatory and interactive mode with significant stakeholders. Individual discussions, group discussions and survey method were adopted by the QRT to elicit as much inputs as possible to make the review exercise broad based as well as futuristic in vision. The following interactions were noteworthy:

- ***Research Managers.*** The Team met six DDGs of ICAR to ascertain their perceptions about the performance of NCAP vis-à-vis its mandate and their expectations from the Centre in the coming years. Issues regarding the policy advisory/advocacy role of NCAP were also articulated during the discussions with the senior research managers of ICAR.

- ***Research Advisory Committee.*** An interactive meeting between the members of QRT and Research Advisory Committee (RAC) was conducted to understand the role and functions of the RAC as well as its effectiveness in guiding the Centre's research programmes, and to consider possible restructuring in the composition and terms of reference of RAC.

- ***Management Committee.*** An interactive meeting between the members of QRT and Management Committee (MC) was conducted to understand the role and functions of MC as well as its effectiveness in guiding the Centre's management, and to consider possible restructuring of the composition and terms of reference of MC.

- ***Multiple Stakeholders.*** Applying survey method, several categories of stakeholders were contacted to obtain inputs on four specific questions for aiding the review process. These questions were :

1. *What should be the scope of activities of an institution such as NCAP ?*
2. *How do you evaluate NCAP's output, in terms of quality and relevance ?*
3. *What types of linkages are in existence, or those you would like between your organisation and NCAP in research, training, extension and advisory work ?*
4. *What are your views on the future directions for the Centre ?*

The response pattern varied considerably. In spite of best efforts, the number of responses from the stakeholders was below expectation. One reason for the inadequate responses was the lack of adequate visibility of the Centre among private stakeholders and state governments. Indifference of these sectors, especially the state government functionaries to academic and research efforts, was also a contributing factor for poor response. Currently, the Centre has good visibility among the ICAR institutes and SAUs within the National Agricultural Research System (NARS). Nonetheless, the inputs received were highly valuable. The responses of stakeholders are given in Appendix 1.4 through 1.6.

Thirty-five vice-chancellors and four directors of national institutes with deemed university status under ICAR were contacted. Responses were received from 18 vice-chancellors/directors regarding the role, future functions, and suggested linkages with the Centre.

Thirty-two secretaries in the state governments dealing with agriculture and allied sector were contacted, of whom four responded with suggestions on the expected role, linkages, and relevance of output from the Centre.

Fourteen agricultural input industries in the private sector were contacted, of whom four responded with their suggestions for designing the future policy research activities and linkages for the Centre.

- ***Research Scientists.*** Individual and group meetings were held with the scientists in several phases. Research achievements and future programmes were discussed in individual research theme area based interactions. A designated member from QRT took up the primary responsibility for each theme area for the discussions based on which a position paper on the theme area highlighting the input, output, quality and relevance of the research activities was prepared for integrating later across all theme areas.

Issues related to organisational linkages, human resource development, work environment, performance evaluation, and administrative process were discussed with the scientists individually and in groups for understanding the current status and to elicit suggestions for improvement.

- ***Administrative and Supporting Staff.*** Meetings were held with administrative and supporting staff in several phases. Current performance of administrative and supporting staff and their limitations in fully supporting the mandated activities of the Centre were discussed. Suggestions for improving the work environment and efficiency in administration were elicited through these discussions.

Issues related to organisational linkages, human resource development, work environment, incentives, promotional avenues, and administrative process were discussed for understanding the current status and obtaining suggestions for improvement.

- ***Technical Staff.*** In the meetings held with technical staff, their performance and constraints in providing technical support to the scientists were discussed. Suggestions for improving the work environment and efficiency were obtained.

Issues related to human resource development and work environment were thoroughly discussed for understanding the present status and eliciting suggestions for improving efficiency.

- ***Former Director.*** The review team interacted with the former Director of the Centre to get an insight into his views on the administration, management, and research functions designed and implemented during the period of review.

- ***QRT Meetings.*** Six team meetings and several individual and group meetings were held by the QRT during the review process to discuss the output of each one of the assigned tasks covering each one of the activities referred to in the terms of reference. Independent report of the members in their primary task as well as their assessment in other relevant areas was then integrated and synthesised into the review report. The review was done broadly within the framework of ICAR regulations, currently in operation, although possibilities of making NCAP functionally and financially more autonomous were also examined keeping in view the Centre's specialised and unique role.

1.4 Organisation of the Report

The report is divided into eight chapters. While attempts were made to follow the format suggested in TOR, necessary changes were incorporated whenever the content of the report so demanded. After the introductory chapter, Chapter II provides a brief account of the evolution of NCAP, its organisational structure, human resources, infrastructure facilities, and financial resources.

Chapter III highlights the mandate of NCAP, its activities, the process of prioritisation of activities, and rationale and justification for its adopted strategy.

Chapter IV describes and comments on the research achievements and impacts. This is done individually for each theme area of research to present a comprehensive picture of relevance and quality of the Centre's major output.

Efforts made and activities undertaken by the Centre to establish linkages with various stakeholders are presented in Chapter V.

Chapter VI gives details on the dissemination activities of the Centre with suggestions to improve them further.

Chapter VII covers descriptive and evaluative aspects of management structures currently in operation and offers suggestions for improvements.

The last chapter suggests the future directions, and presents the key recommendations on policy research, policy interfacing, and capacity strengthening in the Centre.

Appendix 1.1 Composition of Quinquennial Review Team for NCAP

Prof. V.S. Vyas	Professor Emeritus, 39B, Vasundhara Extension, Tonk Road, Jaipur - 302 610, Rajasthan	Chairman
Dr. C.Ramasamy	Director, Centre for Agriculture and Rural Development Studies, Tamil Nadu Agricultural University, Coimbatore - 641 003	Member
Dr. S.N. Mishra	Former Director, Institute of Economic Growth; and Chairman, Society for Economics and Social Research, New Delhi - 92	Member
Dr. S.K. Goyal	Director, Institute of Studies in Industrial Development, Narendra Niketan, Indra Prastha Estate, Delhi -110 002	Member
Dr. P.M. Shingi	Faculty Member, Indian Institute of Management, Vastrapur, Ahmedabad, Gujarat - 380 015	Member (from June 30, 2000)
Dr. J.P. Bhati	Professor & Project Director, Department of Economics, Himachal Pradesh University, Shimla - 171 005	Member (from June 30, 2000)
Dr. R.K. Patel	Ex-Vice Chancellor, Rajasthan Agricultural University, 92/252 Agarwal Farm, Mansarovar, Jaipur - 302 020, Rajasthan	Member (up to June, 2000)
Dr. D.S. Sidhu	Retd. Professor of Marketing, Punjab Agricultural University, 107, Jeevanpreet Nagar, Ferozepur Road, P.O, Barewal Awana, Ludhiana -142 027, Punjab	Member (up to June, 2000)
Dr. S. Selvarajan	Principal Scientist, National Centre for Agricultural Economics and Policy Research, Library Avenue, Pusa, New Delhi - 110 012	Secretary

Appendix 1.2 Terms of reference for QRT

Activity	Process
Research achievements and their impact	To examine and identify the research achievements of the Centre, since the previous QR and critically evaluate them. Commensurate with the objectives, mandate and resources of the organisation, the socio-economic impact of research on farmers/ beneficiaries and transferability of results to farmers through extension should be critically reviewed.
Research relevance and budget allocation	To examine the objectives, scope and relevance of the research programmes and budget of the Institute for the next 5 years in relation to overall/state/regional/national plans, policies and long and short-term priorities. The Team may also draw its attention to the EFC/SFC Memo in relation to recommendations of the previous QRT and also the Perspective Plan and Vision 2020 document of the Centre.
Policies, priorities and strategies	To examine the policies, priorities, strategies and procedures adopted by the Institute and the system in relation to Perspective Plan in arriving at these decisions particularly the effectiveness of working of the Staff Research Council, Research Advisory Committee and the Management Committee as well as the consultative machinery like Grievance Cell and Joint Staff Council.
Collaboration with SAUs and other stakeholders	Whether the research programmes of the past and proposal for future are in harmony with the Vision of ICAR (HQ) and the programme of related centres of research and agricultural universities, state government, private sector, and IARCs.
Linkages with clients/ end users	To examine the kinds of linkages established with the clients and end users of research results, i.e., farmers/fishermen and the extent of interest displayed in conducting "on farm research", on farmers' fields and in organising demonstrations/training courses for the transfer of technology to extension agencies.
Proposed changes in organisation, programmes and budget	To examine whether any changes in the organisation set-up are called for, to achieve an improved and effective working. The Team may also examine and draw attention to any imbalances in the staffing pattern consistent with the scientific, technical and administrative needs as well as the allocation of research funds towards capital works, establishment and research contingencies. Further the Team may also examine the resource generation efforts and assess the problems and prospects of the same. The progress and problem of implementing Project Based Budgeting may also be highlighted. While proposing major changes in organisation and functioning, their feasibility in relation to ICAR's rules, autonomy, resources, etc., need to be kept in view.

Activity	Process
Organisation and management	Whether the organisational structure of the Institute is conducive to efficient functional/working autonomy, decentralisation and delegation of authority in day-to-day routine working and whether the Director and senior staff are interested in promoting a collegiate and co-operate method of administration is to be assessed. The Team may also critically examine the status of implementation of O&M reforms as introduced by the Council from time to time to suggest ways and means to implement them at the Institute level. They may also suggest further reforms to be considered by the Council. The suggested staff ratio by the Council may have to be kept in view while reviewing the staff position in the Institute.
Constraints	To examine constraints hindering the Centre in achieving its objectives and implementing its programme and goals and to recommend ways and means of minimising or eliminating them.
Looking forward	To look into any other points considered relevant by the Team or referred to it by the ICAR, the Centre Director or the Management Committee, in respect of future project development, research prioritisation and management changes.

Appendix 1.3 QRT meetings and review activities

Dates	Nature of meetings	Agenda
	Planning meeting	
March 27 - 28, 2000	Meeting with DDG (AS) and ADG (ESM) in the Council	Analysis of background report prepared by NCAP
	Visit to NCAP	Introductory visit & visit to NCAP facilities
	Meeting with Director and research theme area leaders	Presentation of background report
	QRT meeting	Work assignments and finalisation of review plan
	Review meeting with stakeholders and scientists	
May 25 - 27, 2000	Meeting with scientists by research theme areas	Review of research achievements
	Meeting with DDG (CS), DDG (Engg), DDG (Horti) and DDG (Fishery)	To discuss about the NCAP's performance and the Council's expectations from the Centre
	Meeting with DDG (Edn) and DDG (Extn)	To discuss about the NCAP's performance and the Council's expectations from the Centre
	QRT meeting	Review of assigned activities and future planning; and questionnaire for stakeholders
	Interactive meeting	
June 30 - July 1, 2000	QRT meeting	Review of assigned activities and future planning
	Interactive meeting with the Research Advisory Committee	To discuss the role and functions of Research Advisory Committee
	Interactive meeting with the Management Committee	To discuss the role and functions of Management Committee
	Discussions with ADG (ESM)	Institutional linkages- presentation and discussion of concept note

Dates	Nature of meetings	Agenda
	Meeting with scientists and other staff	
July 10 - 11, 2000	Meeting with scientists by research theme areas	Review of research achievements
	Meeting with all scientists, technical, administrative and supporting staff QRT meeting	Discussion on functioning environment and HRD plan Review of assigned activities and future planning
	Review report writing	
Aug 03, 2000	QRT meeting	Discussion of the first draft write-up on introduction, management, policies, programmes, priorities and strategies
Oct 3 - 4, 2000	QRT meeting	Discussion and finalisation of the Quinquennial Review Report

Appendix 1.4 Stakeholders' views and suggestions on NCAP : vice-chancellors of state agricultural universities

No*	Nature and scope of NCAP's activities	Existing collaborative activities	Areas of collaboration indicated	Views on the future direction of NCAP
1	Existing research, training and extension to be strengthened in agricultural policy related issues	Very limited; restricted to a few individuals	Linkages with SAUs, national institutions and NGOs in areas of agriculture & rural development	Regional problems in production and marketing of exportable horticultural products should be studied
2	Strengthening training and extension in policy related issues	Limited to lead-co-operating centres only. No linkages in training and extension; social science net working by NCAP not effective; agricultural education which is important for quality manpower development is being ignored	Stronger linkages in collaborative agricultural policy research, training and extension of national/ regional importance	Arrange short term courses for biological scientists on research priority setting and research methodologies; NCAP faculty should serve as visiting faculty and advisor in SAUs to strengthen teaching/ research/extension
3	Need active support and guidance in teaching UG and PG courses, syllabi improvement, HRD for SAU faculty, curriculum revision and faculty training	Nil	Linkage needed for evaluating research, extension and technologies developed by the university	Develop data bank on teaching, research and extension activities; provide for manpower development and funding support
4	Shifting from an ex-post analysis to a proactive approach in research priority setting, forecasting, designing strategies and personnel management in research and education	Nil	National Agricultural Economics Library and Information Centre for all NARP zones through internet connectivity for data base generation and exchange. More emphasis on inter-disciplinary approach	All India co-ordinated project in agricultural economics for coastal agriculture and high rainfall zone. Leadership role in agri-business management education, marketing and finance management, and HRD for faculty. Strengthening PG education/course curriculum in agricultural economics.
5	Multi-disciplinary institute (under the leadership of an agricultural economist) with agro-biological scientists, agri-business experts, sociologists, information technology experts and political scientists	Nil	HRD for horticulture and forestry, land/water/nutrient management, plant protection, post harvest, agri-business management, marketing and export strategies	Target holistic policy package on Indian farming sector and undertake issue based policy analysis
6	Focus policy research attention on livestock and fisheries sectors' role for economic growth & development	Nil	Linkages with institute/ university/ state department organisation involved in these sectors essential	Discussion/seminar in the area of livestock/fishery sector policy areas
7	Improve agricultural education in NARS, multi-disciplinary linkages within NARS, information/data	Nil	Linkages with SAUs in research, training and extension	Initiate multi-location research programmes on agricultural policy with a focus on increasing production; Create data bank and

No*	Nature and scope of NCAP's activities	Existing collaborative activities	Areas of collaboration indicated	Views on the future direction of NCAP
	repository sharing, national policy research			data sharing at state/regional/ national level.
8	Economic assessment of livestock technologies in collaboration with institutions; cost effective analysis of animal science research; HRD in economic analysis of technology development	Nil	Collaborative research programmes; training scientists for technology impact analysis, and advisory services	Shift emphasis from crop production to livestock production: international marketing of livestock and livestock products; future projections in respect of economic parameter of livestock production and health
9	More emphasis on training and extension; advisory/consultative role in important bodies of GOI in agriculture sector; NCAP and CACP to work in close liaison	No academic linkages now. Personnel links with a few scientists exist	Projects on the lines of AICRPs, collaborating with more institutions/centres	Build data base and get feed back on major policy variables from the states through the proposed AICRPs in agricultural economics and policy related research
10	Enforcement of uniformity in teaching agricultural economics course in U.G,P.G and Ph.D levels in the country; developing guidelines and promoting need based research in agricultural economics	Linkage with the Department of agricultural economics exists	Linkage with government undertakings, NGOs, national and international organisations for sharing and improving resources of the Department of agricultural economics of all SAUs, collaborative research and visiting	Act as a premier institution in the country, prepare comprehensive data base of manpower and facilities in agricultural economics departments of SAUs; support SAUs in terms of funds for research and training, organise vocational training

No*	Nature and scope of NCAP's activities	Existing collaborative activities	Areas of collaboration indicated	Views on the future direction of NCAP
				entrepreneurship development; develop long term research strategy based on agro-climatic situation and present day changing economic scenario
11	Define an advanced and uniform course curricula and provide guidance through refresher courses for teachers; advice ICAR for starting B.Sc (agricultural economics) programme or School of agricultural economics	Linkage with the SAU is not so good	Entertaining simple, short duration but practically important and technically sound projects from the SAUs; training in different branches of economics (agriculture, horticulture, livestock and forest); visits by NCAP scientists	Research on hill agriculture; visit of NCAP experts to SAUs for problem solving and guidance
12	Take up leadership role not only in agricultural economics but also in policy research in agriculture, analysis of technologies in specific agro-ecologies, addressing the issue of balance between input ingredient and market forces in the context of globalisation, bringing the social science to fore front, developing	No direct linkages in research, education and extension. However, an advisory linkage exists	NCAP can assign research projects to SAUS and provide technical inputs	Undertake research on Agro-Ecological zones/regional issues; assigning location specific research to SAUs and provide financial assistance; organise workshops, guide farmers through SAUs on prospects of agro-exports; guiding Agro-Economic Research Centres (AERC);and AERC to be brought under the control of NCAP

No*	Nature and scope of NCAP's activities	Existing collaborative activities	Areas of collaboration indicated	Views on the future direction of NCAP
	agricultural economics centres at SAUs			
13	Need to diversify its activities to encompass different activity areas/ institutions of the ICAR			Carry out evaluation studies for ICAR Projects; suggest strategies so that the benefits also reach those living below poverty line, suggest priority areas of research for ICAR, lead role in identifying and carrying out co-ordinated research projects in association with SAUs
14	Serve as guideline for policy makers, act as role model for department of Agricultural Economics of SAUs		Strengthening linkage with SAUs and assisting in putting their research work into policy module	Bringing out a clear policy document every year highlighting changes in Agricultural policy and set up a volley of suggestions for the policy debate and follow up
15	Nil	Nil	Collaborative research projects	
16	Provide guidance to SAUs in respect of course curriculum development under changed situations, faculty exchange programme and faculty upgradation programme	At present, there does not exist any prominent linkage between NCAP and the SAUs	Organisation of annual national workshops by NCAP followed by regional workshops	NCAP should be decentralised and it should work more on regional issues through its regional centres. Organise intensive orientation course for economists of SAUs on their role in research programme; for

No*	Nature and scope of NCAP's activities	Existing collaborative activities	Areas of collaboration indicated	Views on the future direction of NCAP
				non-economists on the benefits of collaborating with economists and on the identification of need based research programmes
17	Conduct research on impact of export and import of agricultural products on domestic economy, impact of bringing agricultural products under OGL, policy initiatives to improve quality of produce to make them competitive in world trade, making PDS more effective, location and feasibility of agricultural processing industries	No formal linkage	Organising regional workshops on major Issues jointly with SAUs; involvement of the respective SAUs whenever the Centre implements a research project in a state or region; possibility of SAU scientists working as visiting professors at NCAP for specific periods	Regional centres of the centre could be established to address the regional problems effectively
18.	Identification of strategies to overcome adverse effects of liberalised economic policy on farming community and society	Limited, restricted to a collaborative research study that is already completed	Linkage for identification of priorities for research in agricultural economics	NCAP should act as a lead centre for research, training and extension in the policy related issues at the national level; take advantage of the SAUs to further strengthen its activities; initiate an information technology centre

*1. Marathwada Agricultural University, Parbhani
2. G.B Pant University of Agriculture and Technology, Pantnagar
3. University of Agricultural Sciences, Dharwad
4. Konkan Krishi Vidyapeeth, Dapoli
5. Dr.Y.S.Parmar University of Horticulture and Forestry, Solan
6. West Bengal Universtiy of Animal and Fishery Sciences, Calcutta
7. Agricultural University, Udaipur
8. Indian Veterinary Research Institute, Bareily
9. Universtiy of Agricultural Sciences, Bangalore
10. Birsa Agricultural University, Ranchi
11. University of Agricultural Science and Technology, Srinagar
12. Dr. Punjabrao Deshmukh Agricultural University, Akola
13. CCS Haryana Agricultural University, Hissar
14. Punjab Agricultural University, Ludhiana
15. Himachal Pradesh Krishi VisvaVidyalaya, Palampur
16. Assam Agricultural University, Jorhat
17. Tamil Nadu Agricultural University, Coimbatore
18. Mahatma Phule Krishi Vidyapeeth, Rahuri

Appendix 1.5 Stakeholders' views and suggestions on NCAP: private sector

No.*	Nature and scope of NCAP's activities	Existing collaborative activities	Areas of collaboration indicated	Views on the future direction of NCAP
1	Policies for higher and sustainable growth for domestic and export growth, quality standardisation-national/global marketing, WTO impacts, technology status and future needs, biotechnology role, public-corporate sector interface potentials, trade policies in conjunction with domestic needs and food and ecological goals	Nil	Linkages with corporate sector	Training and extension should be emphasised; research on performance and delivery of relevant policies including its implementation needed
2	Research should meet the requirements of private industries involved in agricultural sector; more operational funding support and avoiding duplication in research work; more emphasis on commercial agriculture research and HRD	Nil	Inter-institutional linkages involving more private sector organisations	More emphasis on export oriented agricultural policy research
3.	Suggest policy environment for farming sector, market studies on growth related areas like high value products,	Nil	Inviting NCAP scientists in various advisory committee meetings of FAI and also as faculty	Research on intensification and diversification of land use with high value products; encouragement of agro-

No.*	Nature and scope of NCAP's activities	Existing collaborative activities	Areas of collaboration indicated	Views on the future direction of NCAP
	commodities with export potentials and related constraints, etc.		in training programmes organised by FAI, participation of FAI experts in NCAP activities	processing industries, agricultural incentive-national and global dimension; impact of WTO agreement in Indian Agriculture
4.	Studies on the economic viability of a technology, current requirements and future trends	NCAP has carried out an impact evaluation of the industry's work on ICM	Officially involving private sector in extension, field and advisory works	Research on farmers' transition from "production" to "economic production"; assessment of viability of technologies generated; policies for adjustment in the context of rapid changes in economy.

*1. Venkateswara Hatcheries, Maharashtra
2. Asian Fisheries Technology and Management Co. Ltd
3. Fertiliser Association of India, New Delhi
4. Excel Industries Ltd, New Delhi

Appendix 1.6 Stakeholders' views and suggestions on NCAP: state governments

No.*	Nature and scope of NCAP's activities	Existing collaborative activities	Areas of collaboration indicated	Views on the future direction of NCAP
1	Nil	Nil	Consultancy to state governments in the field of agricultural development, farm management, marketing, etc.	Research for overall economic upliftment through agriculture; provide training avenues for interaction with state officials and farmers representatives towards working out state agricultural policy; strengthen the extension machinery in collaboration with state agricultural departments
2	A centre of NCAP has to be created in SAU	Nil	Nil	Conduct survey of agro-climatic regions for developing short-term and long-term strategies specially for harnessing the potential of crop production in temperate regions
3.	More focus on policy issues. Promote public debate on key issues for feeding inputs to government	Nil	Involvement of state planning commission in regional level policy debate	Centre should become autonomous with a Board of Directors to guide the Centre
4.	To have a national character and mandate	Nil	Strengthening decentralisation of research - basic research under the auspices of the NCAP and adaptive research under the	Involvement in policy decisions on training programmes relevant to development of state; development of management capability;

No.*	Nature and scope of NCAP's activities	Existing collaborative activities	Areas of collaboration indicated	Views on the future direction of NCAP
			auspices of states; identifying production and adoption constraints, prioritisation of problems, research needs from farmers' perspective; regular training of extension workers and technology dissemination	organisational development of co-operatives, voluntary agencies and research institutions, agro-industry, quality control, export etc.; analytical studies on development, extension method and models; provide consultancy and develop training capabilities

* 1. Government of Meghalaya
2. Government of Jammu and Kashmir
3. State Planning Commission, Tamil Nadu
4. Department of Agriculture, Meghalaya

2. Evolution and Organisation

2.1 Evolution

Agricultural growth is determined by the interaction of technology, policies, incentive structure, investments, and resource endowments. Move towards market driven economy, increasing complexity of research tasks, and goal of sustainable growth in agriculture demand strong agricultural economics input for improving the relevance and effectiveness of agricultural technology management in the country. The concerns for natural resource management, efficiency, equity, and environmental sustainability underline the need for appropriate policy interventions to guide resource allocation and production management strategies in future. Recognising this, the ICAR has created a social science based institution to articulate the relevance of agricultural economics input and policy research in the national agricultural system. In other words, integration of economics in planning, design, and evaluation of agricultural research, and policy oriented research to promote science-led agricultural growth, led to the establishment of the National Centre for Agricultural Economics and Policy Research (NCAP) in March 1991. In this chapter, we describe the organisation, physical facilities and budgetary details. Detailed comments on these aspects are provided in later chapters.

Mandate

The original mandate of NCAP covered:

- Agricultural policy analysis and research;
- Research priorities and allocation of research resources in the ICAR;
- Economic analysis of major agrobiological research programmes and technologies of the ICAR; and
- Interplay of technology, institutions and ecology in growth, equity and sustainability.

Subsequently, the Research Advisory Committee (RAC) of the Centre articulated a vision, which necessitated the recasting of the above mandate. The new mandate was formulated in the Vision 2020-Perspective Plan for the NCAP in 1997 as under:

- Policy oriented research on:
  1. technology generation, diffusion, and impact
  2. sustainable agricultural production systems
  3. interaction between technology and other policy instruments like incentives, investments, institutions, trade, etc.
  4. agricultural growth and adjustments with focus on role of technology
- Strengthening agricultural economics and policy research and teaching capability in the state agricultural universities and ICAR institutes
- Enhancing ICAR participation in agricultural policy decisions

The proposed mandate of the Centre was considered well tuned to focus on the critical role of agricultural economics and policy research in the national agricultural system besides being flexible enough to comprehensively capture the emerging opportunities and challenges in agriculture sector.

2.3 Organisation

The Centre is guided in its policies by a high-powered Research Advisory Committee (RAC). Management of the Centre is guided and supervised by the Management Committee (MC). The Centre's activities are directed and administered by its Director. The Centre's administrative structure (Fig 2.1) is decentralised with activity based approach.

With the increasing role for the Centre in policy research, policy interfacing, and social capacity strengthening within NARS, more number of staff in technical, administrative and supporting categories was proposed during the Ninth Five Year Plan as outlined in table 2.1. Four more scientific positions (two principal scientists and two senior scientists) were also proposed recently in response to the Council's plan to re-deploy existing posts across institutes for targeting better balance in expertise.

Organisation of research is theme-based with each major research theme headed by a Principal Scientist. Also, senior professionals coordinate each one of the activities within the areas of administration, research, information and infrastructure.

Research activities are grouped under five major theme areas, namely, technology policy, sustainable agriculture systems, markets and trade,

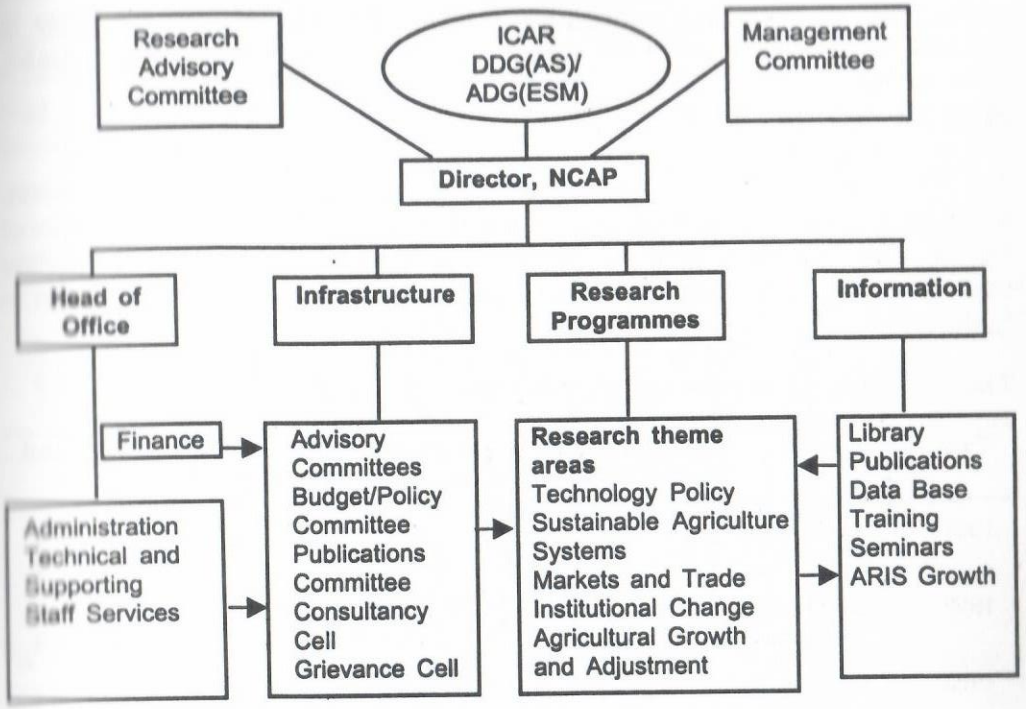

Fig 2.1 Organisational chart of NCAP

Table 2.1 Current and proposed staff positions at NCAP

Category	Current (as on 1999)	Approved in IX FYP	Total
Scientific	21	—	21
Technical	5	6	11
Administrative	8	3	11
Supporting	2	3	5
Total	**36**	**12**	**48**

institutional change and agricultural growth and adjustment. Flexibility is provided for pursuing research areas that cut across different theme areas.

Human resources

The Centre is presently having a Director, 18 scientists (4 Principal Scientists, 4 Senior Scientists, and 10 Scientists), one National Professor, one National Fellow, five technical staff; eight administrative staff, and two supporting staff. The details of sanctioned posts and the staff in position are given in table 2.2.

Table 2.2 Sanctioned posts and staff in position at NCAP

Year	Status	Scientific and RMP	Technical	Administrative and supporting	Total
1991	**Sanctioned**	**8**	**0**	**0**	**8**
	In position	1	0	0	1
1992	**Sanctioned**	**8**	**0**	**0**	**8**
	In position	3	0	0	3
1993	**Sanctioned**	**8**	**4**	**11**	**23**
	In position	4	4	11	19
1994	**Sanctioned**	**8**	**5**	**10**	**23**
	In position	4	5	10	19
1995	**Sanctioned**	**8**	**5**	**10**	**23**
	In position	4	5	10	19
1996	**Sanctioned**	**21**	**5**	**10**	**36**
	In position	17	5	10	32
1997	**Sanctioned**	**21**	**5**	**10**	**36**
	In position	19	5	10	34
1998	**Sanctioned**	**21**	**5**	**10**	**36**
	In position	20	5	10	35
1999	**Sanctioned**	**21**	**5**	**10**	**36**
	In position	20	5	10	35

Note

1. Position of National Fellow is excluded under sanctioned posts but included under staff in position.
2. In the proposed redeployment of scientific posts within the Council, two posts of Principal Scientists and two posts of Senior Scientists are additionally sought for the Centre over and above the existing 21 sanctioned posts.

The number of sanctioned posts as well as the number of staff in position increased gradually over the years. A majority of the scientific positions was filled up only after 1996 (Fig 2.2) which marked a watershed in the development of the Centre.

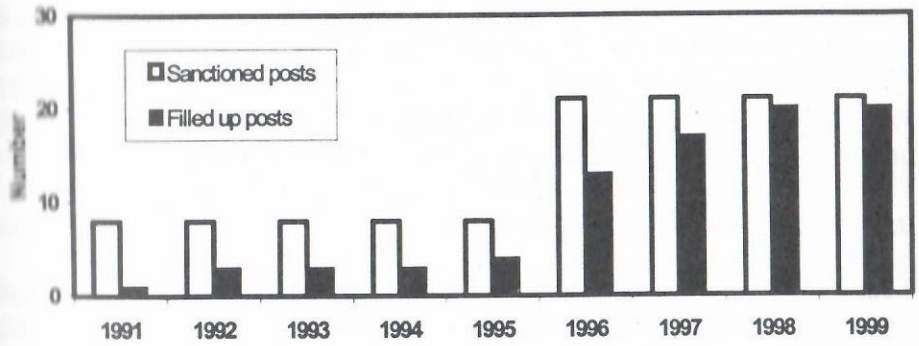

Fig. 2.2 Growth in scientific staff, NCAP

The Centre has become a full-fledged unit in terms of, scientific manpower during the last three years ending 1999. Keeping in view the Council's guidelines on the ratio of scientific/administrative/technical posts and the on-going expansion in research activities in IX Plan period, 80 per cent increase was proposed in the non-scientific positions to reach 27 posts. This is expected to provide necessary support base to around 25 scientists as well as other visiting scientists and the project staff.

Infrastructure

Office building. The Centre is presently housed in an old and small complex within IASRI. With the near doubling of staff strength during the past five years, and regular flow of visiting scientists and research scholars, the budget for strengthening physical infrastructure has been approved in the Ninth Five Year Plan to facilitate construction of an office complex and residential staff quarters. A piece of land measuring 4338 sq.m has been transferred/allotted in IASRI campus to NCAP by the ICAR. The work of construction of office building has been handed over to CPWD, which is in progress. An amount of Rs 400 lakhs was initially proposed and agreed in principle for the office building; out of which, Rs 300 lakhs have been provided for in the IX Plan allocation.

Staff quarters. In association with the regional Centre of National Bureau of Soil Survey and Land Use Planning, a sister institution located nearby, 20

quarters for NCAP are proposed to be constructed within Pusa Campus. An amount of Rs 100 lakhs was initially proposed for this purpose. This amount was agreed to in principle, out of which, Rs 70 lakhs have been provided for in the IX Plan allocation. In the first phase, 15 quarters are planned to be constructed.

Hostel-cum-guest house. The Centre does not have its own hostel or guest house facility. For this facility, at present it depends on other ICAR institutions in the campus. The experience in this regard has not been satisfactory. This remains as a major constraint for the Centre in developing full-fledged policy interfacing and social science capacity strengthening related activities.

Library and Information services

NCAP library has been developed within the overall concept of complementarity with the library facilities available at IARI and IASRI. Accordingly, only policy related books and journals that are helpful to implement the mandate of the Centre are procured, and the rest of the needs are met by sharing the available library resources in nearby institutions.

Maximum investment for strengthening the reference publications took place during 1993-96. During the later years, with increasing space constraint, the investment was targeted more towards data base development. Some of the data base development was also realised through ongoing research programmes.

The library facility of the Centre is being developed as an efficient information services unit. One computer and a printer are also placed in the library with connectivity to LAN. The proposed restructuring of library includes provision for online connectivity with national and international libraries for sharing of information.

As of now, the library has acquired 687 references related to database and 1364 references related to different research theme areas. Twentyfive research journals are currently subscribed to, of which, six are international journals. Library references are computerised using the 'Library' software package, which is installed in LAN server for online accessibility. These references are classified and indexed by key words, theme areas, authors, book titles and year of publication.

Electronic database has been acquired through several collaborative programmes. The district wise data base for 13 states collected by ICRISAT

under sustainable agricultural research and development project and FAO and NSSO data base have been acquired by the Centre, so far.

Service Facilities

The Centre has fairly adequate service facilities. Computer facility has been provided to all staff. Though all the computers are physically connected to internet services provided by IASRI, the facility has not been fully functional. The Centre is now planning to get an independent Internet connection. The Centre has two vehicles, three photocopiers, one Risograph, five telephone lines, a fax line, and a shared e-mail and Internet connectivity with IASRI. There are two meeting halls (an auditorium and a committee room) fitted with audio-visual aids.

Financial resources

The Centre started with a modest annual budget of Rs 35 lakhs during 1992-93, which remained so till 1994-95 (Table 2.3).

Table 2.3 Budget outlay and expenditure for NCAP (Rs in Lakhs)

Year	Centre-outlay		Total	Externally funded	Grand Total	
	Plan	Non-Plan				
			Budget outlay			
1992-93	30.00	5.00	35.00	0.00	35.0	
1993-94	40.00	7.00	47.00	0.00	47.0	
1994-95	44.00	5.00	49.00	0.00	49.0	
1995-96	50.00	8.00	58.00	7.00	65.0	
1996-97	40.00	13.50	53.50	33.71	87.2	
1997-98	51.25	18.30	69.55	52.78	122.3	
1998-99	60.00	63.00	123.00	42.35	165.3	
			Budget expenditure			
1992-93	9.82	0.52	10.34	0.00	10.3	(29.5)
1993-94	20.99	5.93	26.92	0.00	26.9	(57.3)
1994-95	28.97	4.24	33.21	0.00	33.2	(67.8)
1995-96	49.86	5.55	55.41	5.87	61.2	(94.3)
1996-97	39.92	13.05	52.97	25.77	78.7	(90.3)
1997-98	51.25	18.17	69.42	47.75	117.1	(95.8)
1998-99	57.54	62.78	120.32	37.61	157.9	(95.5)

Figures in parentheses indicate percentage of gross outlay spent

The first external funded project in the form of a National Fellow project started in 1995-96. But it was only from 1996-97, the total budget outlay including plan and non-plan and externally funded budget started expanding substantially. With a major initiative in filling up the scientific positions during 1996-97 and 1997-98, more research projects were initiated during this period. Externally funded projects accounted for only 11 per cent of the total outlay in 1995-96, which went up to 39 per cent in 1996-97; 43 per cent in 1997-98, and 26 per cent in 1998-99 (Fig 2.3). This percentage is fluctuating because of the pay revision effected in 1998-99. As can be seen, the budget outlay for the Centre has almost reached a plateau if one takes into account the implication of pay revision.

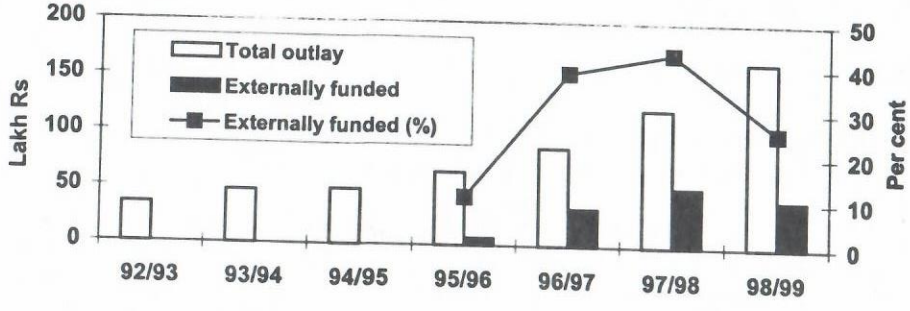

Fig 2.3 Total annual budget outlay and share of external funded projects

On an average, during the period 1996-97 to 1998-99, external funding to the tune of Rs 34 - 53 lakhs per year is being obtained by the Centre for expanding its research programmes and also for strengthening research infrastructure. The number of externally aided projects increased from one in 1995-96 to nine in 1998-99. Funding support through external aided sources was nil during 1992-95, which went up to Rs 7 lakhs in 1995-96, Rs 33.71 lakhs in 1996-97, Rs 52.78 lakhs in 1997-98 and Rs 42.35 lakhs in 1998-99. ICAR schemes like National Fellow, AP Cess funds and NATP, World Bank; and Australian Council for International Agricultural Research are the major sources through which funding support for the research projects was mobilised by the Centre.

As can be seen, the tempo of activities in NCAP accelerated after 1995. This was tthe reason, as would be noticed in the chapters that follow, why the review took into account the developments and achievements, which took place during this period.

3. Policies, Priorities and Strategies

3.1 Policy Orientation

The mandate of the Centre, as evolved during the period of review, has undergone changes. The present mandate, evolved after a thorough discussion in RAC (see chapter 2) covers major emerging concerns in the arena of policy research which entails strong social science input. The mandate encompasses policy-oriented research, strengthening agricultural economics, and policy research and teaching capability in state agricultural universities and ICAR institutes, and enhancing ICAR participation in agricultural policy decisions.

Compared to the original mandate of the Centre, present mandate has excluded from its ambit, the focus on economic analysis of major agro-biological research programmes and technologies of the ICAR. Given the concentration of research in a few selected regions, this needs to be reviewed.

3.2 Prioritisation of Activities

While, balanced focus on all the mandated areas is ideally expected, a Centre in the initial stage of growth, has to consider the tradeoff among several activities while targeting important and sustainable contributions to policy research. With 1996 as the watershed year for the Centre for transition into a full fledged functional unit, it has deliberately chosen to emphasise more on policy research and less on training and capacity development. The underlying concern then was to build up expertise and credibility through policy research first and then to take on other mandated activities. This deliberate strategy adopted by the Centre was obviously reflected in the output of the Centre, and the review too, for most part, covers the policy research output while evaluating the Centre's past performance. The time has now come to push forward the agenda in other mandated areas, namely, policy training, capacity strengthening and pro-active policy interfacing, and this will be reflected in the review while suggesting the future directions

3.3 Strategy

The Centre has evolved its strategies to fulfil the mandate through several processes in order to create a niche in the agricultural policy research domain in the country.

Research Theme Area Identification

In accordance with the suggestion of the Council, NCAP started developing a Perspective Plan with a visionary approach in 1995 for the next 25 years. NCAP held several rounds of meeting and consultations with eminent scientists, economists, and research managers in the preparation of this plan. This document had undergone several iterations based on the inputs of professionals and was finalised in March 1997.

Based on an analysis of future demand and supply scenario and the challenges facing the country, a broad perspective of research needs was identified for socio-economic research. Keeping in view the comparative advantage of the Centre (economics unit in the ICAR-SAU system), five major theme areas were identified as follows:

- Technology policy
- Sustainable agriculture systems
- Markets and trade
- Institutional change
- Agricultural growth and adjustment.

For determining priorities, the theme areas were ranked based on five criteria, *viz.*, efficiency, equity, sustainability, exports, and employment. Identified research programmes under these themes were prioritised to fix the role of NCAP as supportive or collaborative or in-house research, based on the comparative advantage of the Centre vis-à-vis state agricultural universities. The 12 programmes identified based on multi-criteria composite scoring are:

1. Evaluation of prospective technologies
2. Constraints to technology transfer
3. Agricultural research policy
4. Impact assessment
5. Efficiency of input use

6. Economic/social impact of degradation
7. Evaluation of sustainable systems
8. High-value and exportable products
9. Understanding group action
10. Institutional constraints
11. Investments in agriculture
12. Growth analysis and modelling

Out of the above 12 programmes, NCAP has till now, initiated research in eight programmes, namely, evaluation of prospective technologies, agricultural research policy, impact assessment, efficiency of input use, evaluation of sustainable systems, high value and exportable products, institutional constraints and investment in agriculture. The role NCAP should play in human resource development and in policy interactions and the type of linkage and co-ordination mechanisms needed were also identified and articulated in the Perspective Plan document

Rationale and Justification

Given the quantitative and qualitative changes in the agricultural research scenario, economic assessment of agricultural research priorities is imperative to gear up agricultural technology management in the country and make it efficient and dynamic to the changing environment. Monitoring and evaluation of existing and prospective technologies will provide effective interface among clientele, institution and development agencies for generating and promoting technically feasible, socially acceptable, economically viable and environmentally sustainable agricultural technologies. Apart from economic viability, a number of constraints inhibit technology transfer. These could be physical, socio-cultural or economic constraints in a location specific or macro-economic context. For example, infrastructure, credit, and investments in research and extension, and in institutions are crucial for promoting technology transfer. The processes of economic liberalisation and globalisation demand competitiveness, bringing efficiency to the forefront in every activity relating to agriculture and allied sectors. Policy research focussing on appropriate strategies for promoting efficiency in the use of resources in agricultural production is, therefore, essential.

Agricultural development in marginal production environments like rainfed areas, hill areas, tribal areas, coastal and other regions is crucial both for

achieving sustainable higher production and equity in income distribution within agriculture sector. With market led growth strategy, agricultural diversification towards high value crops, value-addition and agro-processing assumes special significance. These are intended to generate farm income and employment and contribute to national economic growth. With increasing emphasis on all round development for the welfare of the people, inter- and intra-generational equity considerations tend to gain prominence along with several other national goals like food security, efficiency and sustainability which shall have to be contended within the overall agricultural planning. The policy research initiated by the Centre covering the five theme areas, namely, technology policy, sustainable agriculture systems, markets and trade, institutional change and agricultural growth and adjustment, is considered highly relevant. Within the theme areas, research output is targeted on specific topics such as:

- prioritisation of agricultural research resource allocation,
- economic feasibility analysis of environment friendly agricultural technologies,
- agricultural trade,
- privatisation of farm extension services,
- resource use planning for sustainable production,
- agricultural growth analysis,
- prospective analysis in high growth areas like horticulture and fisheries, and
- technology and policy interactions.

This will have important bearing on the agricultural technology management covering crops, livestock, fisheries and agro-forestry in this country.

While the identified five theme areas continue to remain relevant, the concept of theme based research should remain responsive to the new demands, emerging challenges and diverse stakeholders of the Centre. More on this in the later chapters.

The activities of the Centre in the mandated area of policy research under each theme area have been reviewed in detail and commented upon in chapter 4.

Dissemination of Results

The Centre has initiated publication of policy papers based on ICAR sponsored research and its own research and policy briefs articulating professional views on important themes. Eleven policy papers, 12 policy briefs, five priority setting, monitoring and evaluation (PME) notes, five annual reports and seven workshop proceedings have been published by the Centre since its inception. The Centre's publications are listed in chapter 6. Besides these, several research papers have been published by the scientists in professional journals, and presented at professional meetings. The quality of publications by theme area has been commented upon in chapter 4.

The Centre organised several national workshops/seminars/conferences covering diverse areas of topical interest for providing a common platform to the researchers and stakeholders to come together and deliberate on policy related strategies. Details of the discussions held during the period under review are given in table 3.1.

Table 3.1 Policy related meetings held at NCAP

Name of the seminar/workshop/conference	Date
Seminar on Prioritisation of Agricultural Research in ICAR System	15 February, 1994
Dialogue on Economic Problems Related to Research on Crops	21-22 December, 1994
National Seminar on Small Farm Diversification : Problems and Prospects	21-22 May, 1995
National Workshop on Post-Graduate Teaching in Social Sciences	13-14 March, 1996
National Seminar on Vision of India's Rice Trade	25 April, 1996
Seminar on Export Potentials of Agricultural Commodities in Bihar	17-20 December, 1996
Brainstorming Session on Economic Liberalisation and Indian Agriculture	1 March, 1997
Seminar on Economic Aspects of Changes in Rice Production Systems in Eastern India	2-4 April, 1997
Workshop on Institutionalising Priority Setting, Monitoring and Evaluation in the Indian NARS	21-27 July, 1997
Workshop on Impact of Removal of Quantitative Restrictions (QRs) on Agricultural Imports on India's Agriculture Sector	10 September, 1997

Name of the seminar/workshop/conference	Date
National Conference of Agricultural Economics Research Association (India) on Agriculture-Industry Interface in the Changing Economic Environment	16-17 September, 1997
Brainstorming Session on Indian Agriculture and New Economic Policy	3 November, 1997
National Workshop on Land Use Planning	28-29 November, 1997
Brainstorming Workshop on ICAR-Private Sector Interface in Agricultural Research	2 April, 1998
Brainstorming Seminar on Food, Population and Environment	1 August, 1998
Workshop on Priority Setting, Monitoring and Evaluation in Agricultural Research	26-27 August, 1998
Workshop on Risk Analysis of Rainfed Rice System	21-23 September, 1998
Workshop on Research Prioritisation of Programmes in Rainfed Rice Production System	14 December, 1998
Meeting of the ICAR-ACIAR Collaborative Project on Equity Driven Trade and Marketing Policy Strategy in Indian Agriculture	4-6 January, 1999
Training Workshop on Research Prioritisation of Programmes and Production Systems in Different Agro-Eco-regions	1-6 February, 1999

Senior staff of the Centre actively participated in policy discussions relating to agricultural development. These covered areas such as: working group on agricultural research for IX FYP, NATP formulation, regional imbalances, national task force on agriculture, land records computerisation, WTO impacts on Punjab agriculture, land reforms, emerging trends in world agriculture, PG course curricula revision, irrigation sector O&M funding, cost recovery aspects, water rate revisions, investment prioritisation and rehabilitation of minor irrigation in different states, WTO related issues and sub-tropical area development in Bhutan (Table 3.2). While some tangible efforts were made in fulfilling the policy interfacing mandate during this period, major thrust was indeed lacking due to the increased emphasis deliberately placed on policy research. Further comments on this aspect along with suggestions for future directions can be seen in the subsequent chapters.

Table 3.2 NCAP staffs' policy interfacing activities

- Membership role in ICAR Sub-group on Socioeconomics, Informatics and Policy Issues constituted under the Working Group on Agricultural Research and Education for IX FYP
- Membership role in ICAR Steering Committee for NATP Formulation
- Membership role in Expert Committee on Remedying Regional Imbalance in Agricultural Progress set up by the Ministry of Agriculture and Cooperation, Government of India (GOI)
- Membership role in National Task Force on Agriculture
- Membership role in Planning Commission Working Group on Land Reforms, Land Use and Land Management for the IX FYP
- Membership role in a high level committee set up by the Ministry of Rural Areas and Employment, GOI to look into the functioning of computerisation of land records in U.P
- Membership role in the Sub-Group for IX FYP on Drinking Water Supply Mission, Ministry of Rural Development, GOI
- Membership role in ICAR Task Force on Priority Setting, Monitoring and Evaluation
- Membership role in the Standing Committee to Monitor Impact of WTO on Agriculture, Government of Punjab
- Membership role in National Committee on Agriculture, Confederation of Industries
- Membership role in Policy Advisory Group, Land Reforms Division, Lal Bahadur Shastri National Academy of Administration, Mussoorie
- Membership role in Planning Commission's Sub-Group on Land Use and Land Management
- Membership role in Indian Council of Social Science Research Review Committee
- Membership role in the Standing Group to Review and Analyse the Emerging Trends in World Agriculture constituted by the Ministry of Agriculture and Cooperation, GOI
- Membership role in the Sub-Group on Monitoring and Evaluation of Extension Component of NATP, Ministry of Agriculture and Cooperation, GOI
- Membership role in Research Advisory Committee, Ministry of Rural Areas and Employment, GOI
- Membership role in Research Advisory Committee, Lal Bahadur Shastri National Academy of Administration, Mussoorie
- Membership role in the Expert Group on Syllabus Revision for Indira Gandhi Open University
- Membership role in National Committee on Agriculture
- Membership role in Core Group of Indian Rural Development Report, NIRD, Hyderabad
- Membership role in Academic Council, Haryana Institute of Rural Development
- Special invitee to the meetings of the committee on all aspects related to the state of farmers in the country, constituted by the Ministry of Agriculture, GOI

- Membership role in the Standing Group to Review and Analyse the Emerging Trends in World Agriculture, Ministry of Agriculture, GOI
- Membership role in the Group for Monitoring the Preparation of Mid-Term Review of WTO on agreement on Agriculture set up by Ministry of Agriculture, GOI
- Membership role in the ICAR Subject Matter Committee for Restructuring PG Curricula in Social Sciences
- Membership role in the World Bank review missions dealing with O&M funding, water rates and cost recovery related policy formulations under water resources consolidation projects in Tamil Nadu, Haryana and Orissa states
- Membership role in the World Bank missions on irrigation and programme loans dealing with irrigation investment prioritisation, general irrigation and agricultural policy issues in Orissa state
- Membership role in the Expert Team to design investment planning for minimum rehabilitation of minor irrigation sector in Andhra Pradesh, Government of Andhra Pradesh.
- Leadership role in the Indian Mission for formulating sub-tropical area development proposal in Bhutan set up by the Ministry of Agriculture and Co-operation, Government of India
- Membership role in the Working Group on WTO of Ministry of Agriculture, GOI

Social Science Capacity Strengthening

The Centre is mandated to strengthen the social science capacity within the NARS. This consisted of several strategies and the major ones are: contributing to course curriculum development, PG teaching and research guidance in IARI, participation in advance training programmes of IARI, IASRI and other sister institutions within and outside NARS, developing linkages with social scientists at national and global level, and promoting collaborating research projects involving multiple national and international institutions. The details of collaborative activities achieved during the period are given in table 3.3. The Team observed that training and HRD in policy research received very little attention in the past. Agricultural education with a focus on social sciences is indeed critical but yet to get adequate attention in the Centre's agenda. Comments and suggestions are provided in later chapters so as to enable the Centre to make a balanced contribution to all its mandated areas.

Table 3.3 **Linkages and collaborations**

Activity/Project	Collaborating Institutions
A. National institutes	
Research prioritisation in Indian agriculture	Indian Agricultural Research Institute, New Delhi
Sustainable rainfed agriculture	Central Research Institute for Dryland Agriculture Hyderabad
Socioeconomic issues in Cropping systems research	Project Directorate on Cropping Systems Research Modipuram, U.P Indian Agricultural Statistical Research Institute, New Delhi
Agricultural research prioritisation and resource allocation	Indian Agricultural Research Institute, New Delhi
Development of small ruminant sector in India	Central Sheep and Wool Research Institute, Jaipur, Rajasthan; Central Research Institute on Goats, Makhdoom, Mathura, U.P
Networking of social scientists using internet technologies	Indian Agricultural Statistical Research Institute, New Delhi
Socioeconomic dynamics of rice production systems in eastern India	Central Rice Research Institute, Cuttack, Bhubaneswar Central Rainfed Upland Rice Research Station Hazaribagh, Bihar
Economic analysis of irrigation water use planning under uncertainty : a multi stage modelling approach	Indian Agricultural Research Institute, New Delhi
Equity driven trade & marketing policies and strategies for improved performance of Indian agriculture	Indian Agricultural Research Institute, New Delhi
B. State agricultural universities	
Economic analysis of irrigation water use planning under uncertainty : a multi stage optimisation modelling approach	Tamil Nadu Agricultural University, Coimbatore
Analysis of productivity changes and future sources of growth for sustainable rice-wheat production in Indo-gangetic region	CCS Haryana Agricultural University, Hissar, Haryana; Punjab Agricultural University, Ludhiana, Punjab; GB Pant University of Agriculture and Technology Pantnagar, U.P Rajendra Agricultural University, Pusa, Bihar Bidhan Chandra Krishi Visva Vidyalaya, Kalyani, West Bengal;

Activity/Project	Collaborating Institutions
	CSA University of Agriculture and Technology, Kanpur; Narendra Dev University of Agriculture and Technology, Faizabad, U.P
Potential of diversification towards high value crops in Indian agriculture	University of Agricultural Sciences, Bangalore; Viswa Bharati, Shanti Niketan, West Bengal; Rajendra Agricultural University, Pusa, Bihar; Rajasthan Agricultural University, Udaipur, Rajasthan
Socioeconomic dynamics of rice production systems in eastern India	Narendra Dev University of Agriculture and Technology Faizabad, U.P; Rajendra Agricultural University, Pusa, Bihar; Indira Gandhi Agricultural University, Raipur, M.P; Jawaharlal Nehru Krishi Viswa Vidyalaya, Jabalpur, MP; Orissa University of Agriculture and Technology Bhubaneswar, Orissa; Assam Agricultural University, Jorhat, Assam
Total factor productivity of livestock sector in India	CCS Haryana Agricultural University, Hissar, Haryana
Scope of agriculture based interventions for sustainable nutrition security	Tamil Nadu Agricultural University, Coimbatore
C. International Institutions	
Sustainable rainfed agriculture	International Food Policy Research Institute Washington, DC; International Crops Research Institute for Semi-Arid Tropics, Hyderabad; Overseas Development Institute, London
Trade and India's agricultural sector	CGPRT, Bogor, Indonesia
Pearl millet seed practices in Rajasthan	Overseas Development Institute, London
Competed funds for agricultural technology development	Overseas Development Institute, London
Optimising institutional arrangements for demand-driven post harvest research, delivery, uptake and impact on the livelihoods of the poor through public and private sector partnerships	International Crops Research Institute for Semi-Arid Tropics, Hyderabad

Activity/Project	Collaborating Institutions
Equity driven trade and marketing policies and strategies for improved performance of Indian agriculture	Australian Centre for International Agriculture Research, Canberra University of Wollongong University of Sydney
Socioeconomic dynamics of rice production systems in eastern India	International Rice Research Institute, Philippines
D. Other institutions	
Equity driven trade and marketing policies and strategies for improved performance of Indian agriculture	Institute for Development Studies, Jaipur
Socioeconomic dynamics of rice production systems in eastern India	Ministry of Agriculture, Govt. of West Bengal, Calcutta
Potential of diversification towards high value crops in Indian agriculture	Giri Institute of Development Studies, Lucknow
A diagnostic study on constraints in agricultural development in western UP	Vikas Bharati Foundation, Muzaffarnagar, UP
Impact evaluation of integrated crop management programme in cotton	Excel Industries Limited, New Delhi

Human Resources

As in other ICAR institutions, scientists are selected by direct recruitment through ASRB for junior level positions on the basis of written examination and interview. This can also be done by transfer within ICAR system. For senior level positions, lateral entry by direct recruitment or by transfer from sister institutions is more common. While selection of senior scientists can be targeted to match specific needs like specialisation in a particular theme area, in the case of junior scientists, this discretion is not available since they are directly recruited by ASRB and allotted by ICAR to the Centre. We consider it very critical to actively involve the Director and senior faculty in deciding the nature as well as number of positions to be filled up at any point of time. A differential management strategy is needed for meeting specific requirements of special situations since creation of NCAP itself is an unique experiment. With several O&M reforms taking place in ICAR, perhaps, it is

the right time to deliberate on the formulation of differential management strategies depending upon the mandate, functions and performance of the institutions within ICAR. Certainly, the NCAP's position demands such an opening up in the concept of common management strategy hitherto adopted by the Council.

Other Positions

The Centre, at present, has one position each of National Professor and National Fellow. This adds to the strength of research infrastructure. Their activities are also dovetailed within the research theme areas of the Centre. The Centre also has provision for visiting scientists' positions to attract senior researchers to join for a short to medium term period (up to one year) and work on a specific theme area of mutual interest and interact with the faculty in their on-going programmes. This facility is currently under-utilised mainly due to the absence of infrastructure facility to provide accommodation to the visiting faculty.

Networking of Social Scientists

The Centre initiated networking of social scientists within NARS to identify, complement and exploit mutual strengths by sharing information and methodologies. The efforts made during the review period were not significant. This activity is crucial for fulfilling the mandate of social science capacity strengthening but did not get adequate attention in the past. This deficiency needs to be addressed. Hardware and software support and specific agenda for action on this area are needed. *Adhoc* attempts like occasionally conducting meetings or putting up a web site are clearly not adequate to the tasks on hand.

Need for Balanced Contribution

Several strategies adopted so far by the Centre have provided a space for creating a niche for the Centre's role in the national agricultural policy research. Collaborative linkages which are still evolving will have to be better focussed and targeted to utilise the complementary linkages and maximise the comparative advantages of working in close collaboration with institutions within and outside the national agricultural research system. Linkages with international institutions will go a long way in promoting social science policy research and enhancing capabilities of the Centre's staff.

Centre's linkage with Indian Agricultural Research Institute (IARI) in the area of PG teaching and research existed briefly for two years only during the review period. We consider this linkage mutually beneficial for both NCAP and IARI and hence to be revived immediately. Besides, course curriculum development and HRD for new revised course modules will have to be squarely addressed to match with the emerging demands in specific areas. The Centre has to play leadership role in these areas. Inadequate efforts by the Centre in the mandated areas of policy training, policy interfacing and social science capacity strengthening have to be fully recognised now and addressed soon enough to balance the Centre's contribution to all its mandated areas.

4. Research Contributions and Impact

Policy oriented research on select themes remained the major focus of the Centre during the review period. The research activities thus far undertaken have been classified under five major theme areas, namely, technology policy, sustainable agriculture systems, markets and trade, institutional change, and agricultural growth and adjustment. While theme area based research structure is designed to develop a nucleus of expertise in each specific area of research over a period of time; enough flexibility is needed for pursuing crosscutting research themes. The evolution of theme areas and their importance have been reviewed in chapter 3. This chapter reviews the theme areas in terms of inputs, outputs, relevance and quality, and comments on the future outlook.

4.1 Inputs

Manpower

Quantity and quality of manpower, both scientific and technical, and matching infrastructure support are critical for conducting quality research. For theme area based research, a minimum core group of 4-5 scientists is considered essential for meaningful interaction and research planning. Unfortunately, project based budgeting is yet to be in position in the Centre. Financial resource allocation across theme areas is therefore not available. However, distribution of scientific manpower will broadly indicate the resource distribution. Based on the major contribution to a particular theme by the scientists, the allocation of scientific manpower among five theme areas was assessed by the Team as shown in table 4.1.

Obviously, past emphasis on technology related research has attracted more scientific manpower. While policy research received greater emphasis in the past among the mandate areas of the Centre, within policy research, technology policy theme area received more emphasis as compared to the other four theme areas of policy research. Resource allocation by mandates, and theme areas within mandate certainly has a tradeoff. Theme areas, viz., institutional change and agricultural growth and adjustment received the least attention despite their importance as articulated by the Centre in its Vision

Table 4.1 Scientific manpower distribution by research theme areas

Research theme area	Number of scientists (based on major area of contribution)
Technology policy	8
Sustainable agriculture systems	4
Markets and trade	4
Institutional change	2
Agricultural growth and adjustment	2
Total	20

2020 document. Other two theme areas, namely, sustainable agriculture systems and markets and trade had a reasonable share of scientific manpower during the past.

Selection of leadership to individual theme areas was by individual's choice, which was approved by SRC. At present, four Principal Scientists lead four theme areas, and the theme on institutional change does not have a leader. Other scientists too opted for various theme areas by choice. Selection of research projects appeared to be determined by the recommendations of Research Advisory Committee, requirements of ICAR, in-house discussion in SRC, scientists' choices and demand from stakeholders. In the time frame under review, the distribution of scientific manpower was skewed with larger component sliced off by the technology theme. Though, this appeared to be natural as NCAP being one of the ICAR Institutes has the onus to play a greater role in technology theme, this skewness cannot be justified since other theme areas are equally important. Otherwise, there is no justification in having as many theme areas as there are now.

Budget

No funding constraint was reported during the review period despite the plateauing off the budget support for the Centre during the past few years. This is largely due to increasing number of externally aided projects, which supplemented the Centre's budget effectively. External sources accounted for roughly one-fourth of the total annual budget. Technology policy and markets and trade themes attracted the largest share of external funds. In recent years the Centre has generated resources also by consultancy services and contract research.

Infrastructure

The Centre has a fairly adequate infrastructure in terms of space, computers, and library and has adequate administrative support. Junior scientist, however, has to share room with one of his junior colleagues. In the longrun, it will be better to provide offices for the junior scientists in separate rooms to enhance their productivity. The Centre provided all scientists with computers, and this has to be appreciated. The Centre had realised the need for HRD in software applications and had made efforts to train the researchers according to their needs. Thus, computer use capacity was enhanced. As for library facilities, though scientists have access to library in IARI, strengthening in-house capacity in this area will add to enhancing the quality of research as accessibility to information and also to internet is grossly inadequate now.

4.2 Output

Technology policy

Ever since its inception in 1991, the NCAP has considered technology policy as one of their priority areas of research and worked on several projects as listed below:

- Funding agricultural research and extension
- Research prioritisation in Indian agriculture
- Evaluation of agricultural research
- Total factor productivity in livestock sector
- Sources of growth in livestock production
- Socioeconomic issues in equine husbandry
- Production and productivity of rice
- Pesticide use in agriculture
- Economic evaluation of integrated pest management
- Production prospects and constraints to higher productivity of pulses in Madhya Pradesh.

It is impressive that the scientists working in 'technology policy' completed ten projects in approximately as many years. The NCAP has addressed critical areas under this theme, like resource allocation for agricultural research,

research prioritisation, and evaluation of agricultural research, total factor productivity and IPM. The Centre has sensitised the policy makers at ICAR particularly on the importance of agriculture research prioritisation.

Key results. A database on agricultural research, extension and education investments, containing state-wise data since 1960-61 has been developed and analysed. Researchers in the Centre have shown that presently, India is spending 0.49 per cent and 0.20 per cent of agricultural GDP on research (excluding education) and agricultural extension, respectively. This is a very useful finding for agricultural policy makers. Further, analysis of research resource allocation indicated that 26 per cent of research resources should go to cereals, 23 per cent to livestock, 13 per cent to the fruits and vegetables and about 10 per cent to oilseeds. An evaluation of agricultural research investment showed IRR ranging from 45 to 109 per cent for various research projects thus justifying the case for more allocation of resources for agricultural research. The growth analysis of livestock sector showed that the contribution of TFP to total output growth was 45 per cent which indicates the viability of research investment on research and technology generation in this sub-sector. The study on pesticide use in agriculture revealed sparse adoption of IPM in agriculture, suggesting redoubled efforts for promotion and popularisation of IPM.

Sustainable agriculture systems

Major activities under the theme area of sustainable agriculture systems, started in 1996, can be grouped as follows:

(a) Alternate development pathway analysis

- Technology, policy and sustainability interactions in wheat
- Sustainability issues in rice-wheat cropping system
- Agricultural typology for policy analysis in rainfed areas
- Long term fertiliser responses in different ecosystems
- Brackish water aquaculture production system
- Risk in rainfed production systems

(b) Natural resource use and planning studies

- Equity impacts of irrigation water distribution in India
- Irrigation system modelling

- Decline of indigenous knowledge in common property resource management
- Rehabilitation of deteriorating minor irrigation infrastructure

Given the fact that the theme area concept was actually evolved during 1996-99, the activities undertaken under this theme area with major focus on soil and water are considered highly relevant. Crop, cropping system, and agricultural typology based approaches have been independently adopted in the studies while analysing the implications of developmental pursuits on the key natural resources like soil and water.

Key results. The research group on sustainable agriculture systems focused on critical areas like sustainability issues in rice-wheat based cropping system, long term fertiliser responses in different eco-systems, risk analysis in rainfed system and systems analysis of major and minor irrigation systems. An analysis of total factor productivity (TFP) of rice-wheat based cropping systems in Indo-Gangetic states revealed that annual growth in TFP had declined drastically during 1970s through 1990s. In 1990s, output growth was entirely driven by higher level of inputs. Inclusion of legume area in the TFP decomposition model revealed a significant and positive impact on TFP highlighting the need for location specific technologies for legumes in rice-wheat based cropping system. A bio-economic simulation of wheat production strategies in northern parts of India highlighted that delayed planting of wheat in about half of the existing area requires additionally 1.6 lakh tonnes of fertiliser-N, 7.2 lakh ha m of irrigation water and energy for maintaining productivity at 4 tonnes per ha. Policy implication is to consider the response to per unit of scarce resources while generating technologies. Decelerating growth rates in yield, falling groundwater table and imbalance in soil nutrient status are the emerging challenges to the future development in this region.

Agricultural activity based classification of 201 rainfed districts from 13 states into 15 rainfed agricultural typologies effectively captured agro-ecological and socio-economic homogeneity to facilitate effective planning of policy interventions for sustainable development. Studies on the efficiency of chemical fertilisers and integrated nutrient management using data from long-term fertiliser experiments revealed less, and decelerating, wheat and rice yield response to chemical fertiliser application when compared to combinations of fertilisers with organic sources of nutrients. Equity impact analysis of irrigation water distribution in India revealed that major source for reducing the inequality in the distribution of irrigation facilities lies within the state level distribution of irrigation services across farm sizes. Decline of indigenous

knowledge in traditional water harvesting systems highlights the deterioration of historically important minor sources of water augmentation in several parts of the country. Neglect of minor irrigation infrastructure for instance aggravates inter-regional and inter-farm disparities, thereby affecting the sustainability of agricultural growth and development. Institutional reforms initiated selectively in major irrigation projects have to be accelerated and expanded to cover all sources and users of the water for ensuring the financial and physical sustainability of one of the important natural resources.

Markets and trade

Research conducted under the theme area of markets and trade can be grouped under six heads:

- Demand for inputs
- Demand for agricultural commodities
- Output supply response
- Vegetable marketing
- Agricultural processing
- Agricultural Trade

With limited manpower in this theme area, the Centre has completed six projects covering a spectrum of issues. It is not possible to work on every issue relating to markets and trade within a short time frame. In terms of quantum of research, the accomplishment has been impressive. In response to the economic liberalisation processes, which are taking place in the country, NCAP researched on issues such as implications of GATT agreement, import liberalisation and its effects on Indian agriculture, and vision on rice trade.

Key results. In the analysis of inputs, two studies on two important inputs, viz., energy and fertiliser have been completed. The study on energy cautions that the demand for non-renewable commercial sources would increase with commercialisation of agriculture. The study also indicates the scope for substitution of non-renewable energy with renewable energy. These results have important policy implications for the country, which is experiencing scarcity against fast growing demand for energy. The study on fertiliser has projected the potential demand for NPK to be 265 million tonnes in 2007. Research on demand for agricultural commodities confirmed the research findings of many other studies indicating that while the share of total food in household expenditure was declining, there is a sharp increase in the share of milk and

milk products, meat, egg, fish, vegetables, fruits and nuts and this is particularly pronounced in rural areas.

The study on output supply response suggests an important finding, *i.e.*, the impact of productivity is stronger than that of prices. These findings underscore the need for focussing more of our attention on strengthening the various sources of growth in productivity. An analysis of vegetable marketing highlights the inadequacy of physical and institutional infrastructure for perishables and semi-perishables. Evidences from the research on agroprocessing reveal that the units are mainly concentrated in the states where infrastructure is better, rather than the supply of raw materials.

The study on agricultural trade shows the strength of India on export of *basmati* rice, fine rice, cotton, tobacco, tea, coffee, rubber, spices, condiments, medicinal plants, onion, mangoes, grapes, banana, fruits, flowers and oil cakes and meals.

Institutional Change

Studies conducted under the theme area of institutional change were:

- Implications of liberalisation of tenancy
- Contract farming
- Access to credit and market facilities
- Institutional linkages in India's seed development
- Institutional reforms for restoring minor irrigation infrastructure
- Strengthening research and extension for rainfed farming
- Scope of privatising farm extension in India
- Optimising institutional arrangements for demand driven post harvest research

Though initiated rather late, the scientists associated with the theme area were able to address such issues: (a) To what extent the significant market-led opportunities offered by trade liberalisation towards high value crops improved the prospects of contract farming, and what has been the corporate response ? (b) Can agricultural research and extension be accelerated by diversified institutional arrangements, and can it attract private investment ? (c) What are the required changes in institutional factors to promote rainfed farming ? (d) Is government sponsored institutional reforms able to rehabilitate the natural resource infrastructure ?

Key results. Two case studies in Andhra Pradesh and Punjab on functioning of contract farming looked at the nature of backward and forward linkages and their implications for effective participation of small farmers in contract farming. Another study attempted to trace the evolution of institutional linkages among multiple stakeholders with conflicting interests in the seed industry and how these stakeholders were able to identify and concretise mutually beneficial and complimentary roles. The study convincingly showed how business-cum-social partnership resourcefully led to institutional, technological, and policy experimentation so significant in the context of ongoing economic reforms. The institutional model illustrated how sourcing of advance technologies, accessibility of global markets, provision of cost-effective R & D, seed multiplication, accessibility to domestic markets, technology transfer, sharing of academic facilities, and funding support could be integrated if based on mutual trust and benefits.

Studies conducted on information flow in commercial seed market indicated that there was little flow of information to farmers from the institutional sources. Farmer to farmer flow of information on varieties and hybrids still dominated the scene.

Multiplicity of research needs, increased availability of research infrastructure and trained manpower in private sector, expansion of market for new technology, and liberalised R&D regulation are forcing public sector research units to refocus its research priorities by adopting bottom-up participatory research planning. The NCAP plans to institutionalise mechanisms through organising training programmes to create in-house capability among the public sector research units.

A study documenting institutional reforms for restoring minor irrigation infrastructure in Andhra Pradesh rightly pointed out the significance of water users' involvement in planning, designing, and implementation of rehabilitation strategies. Formation of a large number of water users' association (WUAs), participatory surveys to identify system deficiencies, designing of rehabilitation activities, preparation of investment portfolio, and transfer of minor irrigation tanks to WUAs were contemplated to ensure both the physical and financial sustainability of the system in the future.

A study in collaboration with Overseas Development Institute (ODI) looked into required changes in the institutional factors for promoting rainfed farming. The study highlighted the significance of (a) inputs from wider stakeholders in research problem identification, monitoring, and evaluation; (b) contract

farming to make the system client oriented; (c) higher operational support for research and extension; and (d) changes in the incentive system.

An analysis of the scope of privatising farm extension in India revealed that, at present, the participation of private sector in agricultural extension is limited to a few horticultural crops, and that too, in regions having high growth potential. The study pointed out that a considerable scope exists for initiating paid extension services in India provided quality services are ensured.

Agricultural growth and adjustment

The research areas covered under the theme area of agricultural growth and adjustment are:

- Impact of technology, infrastructure and policy variables on agricultural development
- District-wise growth and variability in area, production and yields of crops
- Region-wise patterns of agricultural productivity and rural poverty
- Agricultural productivity growth on employment
- Issues concerning rice-wheat system in the Gangetic Plains
- Public investments in agriculture
- Regional disparities in agriculture
- Agricultural diversification

Key results. An analysis of district-wise time series data on various agro-climatic, technological and infrastructure variables for the period 1970-75 to 1994-95 indicated the need for zone specific priorities for investment in agriculture for higher pay-off. In zones, which show unutilised productivity potentials, roads, irrigation and education emerged as priority areas. The study on agricultural productivity and rural poverty indicated technological interventions and productivity growth to have a significant impact on poverty reduction. In regions where both agricultural productivity and poverty are high, accelerated development of non-farm employment opportunities would be necessary to contain poverty. The study on the impact of agricultural productivity growth on employment showed an inverse relationship between productivity growth and labour use. The findings clearly indicated that there is a limit beyond which crop farming sector cannot bear the burden of growing labour force. The research on rice–wheat system in Gangetic plains revealed major problems, which include the problem of water management, declining

soil fertility and factor productivity and socio-economic and infrastructure constraints.

Another study showed a widespread decline in public sector capital expenditure in agriculture in all the states. Regional disparity analysis revealed tremendous variation per hectare and per person agricultural income across the states. Also, different states are found to be moving on disparate growth path. Agricultural diversification in Punjab revealed a disturbing trend. The growth rate of NSDP of agriculture followed a sharp decline during 1990s compared to that for the decade of 1980s. The study suggested proper pricing of water resources to put a check on indiscriminate and excessive use of irrigation water.

Research publications

The NCAP has contributed to or brought out several forms of useful publications based on its research output. They are: policy papers, policy briefs, proceedings series, research papers in leading professional journals both national and international, technical reports, book chapters in publications, proceedings of international workshops, popular articles and rapporteur reports. Classified theme-wise, they are as follows (Table 4.2).

Table 4.2 NCAP's publications under different research theme areas

Publications	Technology policy	Sustainable agriculture systems	Markets & trade	Institutional change	Agricultural growth and adjustment
Research papers	11	15	10	13	14
Technical reports	1	1	1	2	9
Conference papers	14	11	6	13	Nil
Books	Nil	1	Nil	2	2
Chapters in books	2	7	3	11	7
Popular articles	4	Nil	4	3	5
Rapporteur's report	Nil	4	2	1	Nil

These publications by NCAP researchers are of professional quality and have appeared in reputed journals, books and proceedings, which are of both national and international standing. The present system of dissemination of research findings through policy briefs and policy papers published by the Centre is appreciable and should be continued.

4.3 Relevance

The NCAP has accomplished significantly on research in the area of 'economics of agricultural research investment' which covered research resource allocation, research prioritisation and evaluation of agricultural research. The studies on growth of livestock sector and pesticides use, IPM, etc., are worth mentioning. The Centre's research focus was not only on important technology and developmental issues but also on areas hitherto unexplored by the socio-economic researchers in this country. Overall, the research ventured on 'technology policy' was relevant as it strengthened policy making in the Council. However, there exists more scope to cover some important areas such as impact of technology on rural poverty, equity and sustainability.

Research undertaken so far by the Centre in the theme area of sustainable agriculture systems covers crop, system and region related sustainability issues representing irrigated and rainfed environment; natural resources like soil and water; and inputs like inorganic and organic fertilisers and pesticides. The issues addressed are relevant and have wider implications. The topic of the theme area itself encompasses everything related to agricultural development. Indexing the current sustainability status, to quantify the tradeoffs among multiple goals and assessing their dynamic impacts on sustainability trends entail imbibing new and latest skill development by the researchers. Although the group has demonstrated their capability in this area, a major HRD support will be useful to focus on methodology development for policy analysis in this area of research. In the past, research programmes appeared to be loosely structured, possibly due to gradual evolving of the theme based research in this period. Research projects will have to evolve around the theme; this requires planning and prioritisation within the theme area.

The research studies completed under the theme area on markets and trade are very relevant. Particularly, the analysis of demand for inputs and agricultural commodities would be useful for planning purposes by both public and private sector agencies that are involved in agricultural development. The research on 'output supply response' and 'vegetable marketing' could have been avoided by a National Centre like NCAP as a number of researchers/post graduate students are doing research in these areas. The studies on 'agricultural processing' and 'trade' are important because in these areas not much work has been done in the country. Currently, three studies are being undertaken under this theme: These are: (i) demand-supply projections of livestock products towards 2020 and their policy implications,

(ii) equity driven trade policies for improved performance of Indian agriculture, and (iii) market and price analysis for semi perishables: a case study of onion and potato. The first study proposes to estimate systems of demand and supply equations at disaggregate livestock product level. This study is quite important. The second study is of very topical nature as it focuses on trade policies which have acquired great significance in the wake of ongoing liberalisation process. This kind of study should be on continuous basis as international scene is changing very fast. The study keeps track of the latest price scenario in international market and should provide analysis of trade prospects based on that. The third study proposes to undertake price trend analysis and to evaluate the extent of seasonality in the production of onion and potato. Generally, studies of this kind stop short of giving policy prescriptions.

The research issues addressed in the theme of institutional change covered critical areas such as agrarian structure, contract farming, evolution of linkages in seed industry, information flow across institutions and across farmers, research infrastructure, trained manpower, privatising farm extension, and institutional reforms in restoring minor irrigation infrastructure. None of the areas indicated are less important. However, there is a need for identifying more issues in institutional change and address them comprehensively on priority basis.

The research studies in the area of agricultural growth and adjustment are relevant as they dealt with issues such as regional variations in agricultural investment, development, interaction and impact of technology, infrastructure and policy variables, agricultural growth and equity. All the studies had much of policy relevance in the context of emerging trends. The findings would be helpful for determination of region specific investment priorities, understanding the relationship between public and private investments and their impact, and assessing the benefits and constraints to diversification in agriculture.

4.4 Quality

Strength. The outreach domain of research output from NCAP is not only India but global as many international institutions may use the products from NCAP. Surely, the expectation of stakeholders is very high. A closer examination of research output confirms the commitment of the Centre for quality output. The Centre has first rate senior researchers; the junior

researchers need more experience and training to turn out high quality output. The research standard in 'technology policy' analysis is of high quality as reflected by the quality of publications. The challenge is that the research output must move to international standards in the years to come. The research on agricultural research priority setting has deviated from trodden path.

Senior scientists in the sustainable systems area have shown their expertise in analytical approaches like crop growth simulation, bio-economic modelling, tradeoff analysis, etc., in their ongoing projects and through their publications in international journals. Diversity in the PG research guided by the faculty also underlines the potential for taking up macro level policy related research in this theme area. Their long experience in the area of natural resource management will be useful for modelling and evaluating policy options in this area. While the output is of high quality, there is always scope to improve and excel, the opportunity for which should not be missed. Appropriate HRD will help in orienting the group towards comprehensive modelling development in the areas of natural resource use, environmental impacts and sustainable pathway for development. The group can simultaneously contribute to the characterisation of the existing status of sustainability by production systems and regions to bench mark the base level while projecting for future.

The studies, completed so far in markets and trade theme area, exhibit high standard. Particularly, the researchers deserve greater appreciation for articulating specific policy recommendations based on research output. The studies in markets and trade theme require futuristic element in the analysis. In-depth analysis of future behaviour of domestic and world markets is critical for designing management strategies for demand and supply of agricultural commodities and farm inputs. The Centre has the necessary strength to deal with this kind of analysis.

Though initiated rather late, the scientists associated with the institutional change area were able to address vital questions relating to contract farming, diversified institutional arrangements for strengthening agricultural research and extension and priority sector lending. The research findings are useful for policy designing for agricultural development.

The research in the area of agricultural growth and adjustment addressed the critical issues of technology, infrastructure, policy environment, imbalance in agricultural investment, diversification of agriculture and economic importance of high value crops.

The major strength of the studies is that the future growth of agriculture will largely depend on strategies to deal with the issues indicated above. Thus

the findings will provide more relevant input in framing strategies aimed to accelerate future growth of agriculture.

Weaknesses. Some of the research projects on technology policy are microlevel in nature. In future, NCAP should concentrate only on macro level studies and on networked projects covering multi-locations. Individual crop, commodity or system based production constraint studies should be done by the social science units in NARS. The scientists who have just entered services in the Centre are given research projects generally confined to microlevel studies, which can better be implemented by the scientists in SAUs working in the field in close association with the agrobiological scientists and farmers. The lack of experience in handling research leads to a lot of pressure on the junior scientists. The right strategy will be to place the scientists with no research experience under senior/principal scientists on one or two projects to gain confidence and to ensure quality. Particularly, they need more guidance and training on macrolevel studies and policy research.

In the Centre, it appears that the identification of research problem area is done within the institution. It is better if the stakeholders' demands are enlisted and research projects prioritised and undertaken.

The theme area of sustainable agriculture systems is very wide. With a small group of four scientists, there will always be a tendency to take up projects covering diverse areas, which may be loosely linked and lacking coherent approach. Past projects while individually addressed soil and water related sustainability issues for a specific crop or production or resource environment, they were not evolved within the theme area as such. Consequently, the results despite being high quality in nature cannot be integrated for deriving, common policy messages that can be directly translated into strategies. It is also important to develop core projects addressing natural resource management policy issues by the senior researchers so that limited scientific manpower is put to efficient use within the theme area. It is however important to involve other institutions in a collaborative mode to have a wider coverage of the problem. For better focus, the title of this theme area could be changed to 'Natural Resource Policy'.

Macrolevel studies on the theme area of 'markets and trade' are very important for providing policy support to the decision makers. The NCAP has rightly moved in this direction but more needs to be done. The manpower working in this theme area is presently inadequate. Hence, manpower in this area must be strengthened immediately both in number and quality. At present,

only one senior researcher is involved. There is a need to put one more senior researcher to handle research in this area.

The research in institutional change falls short of developing internationally recognisable body of knowledge for want of the discipline specific literature and library support. The interaction within the area is lacking at present. The theme area has greater potential to work closely with strategically selected client groups.

The studies in agricultural growth and adjustment provide the macro perspectives, as the implications of changes in technology, infrastructure and policies are to be assessed across sector levels and across different sections of the society. It requires macro modelling to assess the impacts, which, at present, is lacking.

4.5 Future Outlook

The Centre has made good beginning in the area of policy research. The research covered several issues of current importance and a few of them were unexplored before. The outreach of research findings through workshops / seminars / guest lectures, publications and policy discussions has been significant. The NCAP has made some attempt to sensitise the top-level research managers and agricultural policy makers in different ministries and departments both at central and state levels. There may be more collaboration with SAUs and the Centre may take up network projects *a la* AICRP. However, a dynamic institution such as NCAP must not feel complacent with what it has achieved.

Some of new research topics in technology policy theme area which deserve consideration are:

- Economic evaluation of high-tech agricultural technologies with national perspectives
- Comprehensive research prioritisation studies in an open economy modelling framework, by considering trade, sustainability concerns, changing demand situation, externality, and spill over effects
- Internalising indigenous knowledge into technology generation process
- Impact assessment of technologies at National level in collaboration with SAUs

The technology policy group should phase out the projects on 'research priority setting' and restrict to only new methodology development, and move to new areas. The SAUs and ICAR institutions may continue the work of priority setting.

More focused research programmes and outputs will further strengthen the research in the theme area of sustainable agriculture systems, which should be renamed as 'Natural Resource Policy' area. Planning for sustainable agricultural development should be based on a thorough analysis of the options for agricultural development. Such options for sustainable agricultural systems can be evaluated by analysing the tradeoffs between agroecological goals at regional level and the attainable socio-economic options at farm household level. Modelling at micro or farm level, ecological or regional level and macro or national level in a modular approach in phases to be interfaced across levels and components subsequently, is the suggested strategy. There has to be more collaboration with SAUs and the Centre may take up network projects in the manner of AICRP. Other suggested areas for future policy research in this theme area are as follows:

- Mapping of sustainability status of natural resources - resource based and resource use based assessment and development of sustainability indicators - identification and indexing of economic, equity and ecological dimensions by regions and zones.
- Analysing sustainability trends in natural resources and related implications - resource based and resource use based analysis, and spatial analysis by production systems, regions and zones
- Evaluating sustainability dimensions in natural resource management and use -regional/production system based analysis; policy and technology; conflicts and interactions; externalities; tradeoff analysis for alternative development pathways; and trade liberalisation and sustainability implications

The researchers working on the theme of markets and trade may consider the following research agenda for the future

- To prepare a model to provide short and long term outlook for agriculture and food
- To analyse price behaviour and price spreads for major agricultural commodities and relate it to market structure, infrastructure and regulations

- To analyse market integration over time, space and form, and factors affecting conduct and performance of agricultural markets
- To assess market infrastructure for meeting changing needs of agriculture
- To develop a macroeconomic agricultural policy model to estimate and analyse impact of changes in foodgrains procurement, price support, input subsidy, public investments and trade policy

Implementation of first and the last items in the agenda would require rigorous training to the concerned scientists in the area of policy modelling to acquire the required skill to run CGE model and macro-econometric models. At present this skill is lacking in the Centre's faculty.

In addition to the above agenda, the Centre would do well to initiate studies on the following topics:

- Assessment of buffer stocking policy of foodgrains of Government of India
- Locational distribution of agro-processing units
- Direction for modernisation of agro-processing facilities
- Increasing participation of private sector

While market studies have very broad relevance, those by the ICAR-SAU system need to concentrate on growth related areas such as high-value products, commodities with export potential, and factor-product market constraints. There is poor understanding of supply, demand, price and market conditions, especially for commodities, which were traditionally minor but will now become important. Because of their better understanding of the underlying production and technology conditions, the ICAR-SAU groups would be specially suited for such work. Relatively, the impact of price policy on these parameters on the one hand, and the effects of quality enhancement, processing, grading, etc., on prices and incomes on the other, constitute important research areas.

On the basis of discussions with the members of the theme area of institutional change individually, and evaluation of their future plans and the type of output that was generated, the QRT members feel that the area has made a modest beginning but it needs to be strengthened further.

The following suggestions can be considered:

a) At present, only a couple of scientists are devoting their full time for the area. Other members are contributing roughly between 25 and 75 per cent of their academic time. It would be desirable to have a core group of at least four to five full time scientists as primary members of the theme area.

b) To make a dent in the area of institutional change and to develop internationally recognisable body of knowledge, the discipline specific literature and library support to the theme area will have to be strengthened substantially.

c) Natural resource management as a broader category could be added to the existing priority areas for institutional change.

d) At present, the institutional change as a theme area is functioning as a loose entity. Group anchored processes for identification of research topics, proposal scrutiny and approval, periodic review, and final evaluation need to be institutionalised. This will also increase the level of interaction within the area, which is seriously lacking at present.

e) With the opening up of the economy, the institutional factor is becoming as important, if not more, as the technology factor in the sphere of development. The area would benefit substantially by consciously identifying and working closely with strategically diverse client group. It has a potential to capture a wider audience.

f) Members working on the theme area of institutional change should also devote more time analysing and understanding the functioning of self-help groups and producer organisations.

g) The area should actively pursue the possibility of inviting visiting scientists to undertake focused research in their area of specialisation and explore possibilities for collaboration with institutes of eminence in India and abroad. Institutional change area should have close formal linkages with other theme areas of the Centre as well.

Better understanding of the process of agricultural growth and adjustments is required to design agricultural development policies, which must ensure efficiency, equity and sustainability. Though the research in this theme area has addressed vital issues so far, there lies greater scope to cover more relevant issues, which are going to affect the future of agriculture and rural development in India.

The vision 2020 document has identified future thrust areas in this theme, which we find are quite relevant.

Trends and determinants of investments in agriculture, constraints to private investment and investment priorities are some important research themes. Macro modelling work to assess the impact of investments and other instruments on growth and simulating the effects of alternative investment portfolios will become more important as the availability of public investible funds becomes increasingly constrained. Basic issues like methods of estimation, data problems, relationship between public and private investments, etc., should also be investigated.

Analysis of agricultural growth patterns, changes in rural society including occupational structure, determinants of agricultural growth and potential of high-value and low-input agriculture need to be studied. In all relevant researches, gender dimension needs to be added. High priority may be given to developing policy modelling.

Policy Modelling

Inter-play of technologies, institutions and policies drives agricultural development while influencing the pattern and use of natural resources and environment with varying degrees of impact. Factoring in such spatial and temporal impacts has now become central to the resource management while pursuing sustainable agricultural development. Appropriate technologies and innovative institutional alternatives are continuously evolved, matching with the increasing complexity and multiplicity of societal goals. Designing an optimal pathway for sustainable agricultural development that would efficiently meet the needs of the present generation without the risk of sacrificing those of future generations assumes more significance now than ever before. Appropriately designed socioeconomic policies have to guide such an optimal pathway for sustainable agricultural development. This is possible only when such policies, institutional frameworks and public expenditure patterns are conducive to sustainable agricultural development.

A basis for agricultural development planning is a thorough analysis of the options for agricultural development. Policy research to address multiple and often conflicting demands placed on the agricultural research system calls for comprehensive modelling of Indian agriculture. Strategic planning aided by policy modelling to analyse options for alternative pathways of development process is critical to our future agriculture growth.

Such options for sustainable agricultural development can be evaluated in an integrated modelling framework for analysing the tradeoffs between agroecological goals at regional level and the attainable socio-economic options at farm household level. Policy instruments to influence farmers' decisions on resource use and factor allocation need to be based on a thorough knowledge of structural characteristics of farm households - their resource endowments and multiple objectives - and the market and institutional environment both nationally and globally. Modelling at micro or farm level, ecological or regional level and macro or national and global levels in a modular approach in phases to be interfaced across levels and components subsequently is the suggested strategy.

Presently, this focus on modelling Indian agriculture is lacking. It is considered extremely important by the QRT. It is suggested that a modelling group consisting of 4 to 5 scientists comprising 2 to 3 senior researchers, one good programmer and one or two junior level scientists be constituted. A separate theme area on policy modelling is suggested for the Centre to undertake this activity.

5. Interaction and Linkages

The NCAP needs very close interaction with every other organisation involved in agricultural research, development and policy to improve its understanding on the problems and needs of these organisations and in addressing them. For a social science research and policy institute like NCAP, institutional linkages with ICAR management, other ICAR institutes, SAUs, policy research institutions within the country and abroad, central and state government ministries, industries in public and private sector and other organisations such as NGO and farmer interest groups are important. The Centre has made a good beginning in establishing close linkages with many of these organisations with varied intensity and success. This chapter first describes briefly the devices used by the centre to promote interactive processes. It then probes into, and gives suggestions to strengthen, NCAP's efforts in providing a system-wide platform and leadership for establishing research and policy linkages with a group of important stakeholders. More detailed analysis is then presented with respect to interface with state agricultural universities (SAUs) and the private sector.

5.1 Interactive Processes and Linkages

The centre used some of the well-tested devices like seminars, workshops, and conferences, a series of publications, and a number of collaborative projects to initiate and nurture interactive processes and linkage with some of its conventional stakeholders.

Seminars, Workshops and Conferences

Since 1994, 20 seminars, workshops and conferences were organised by the Centre, almost one every quarter (See Table. 3.1). Such discussions covered all research themes in a balanced manner. The topics covered include agricultural research prioritisation, agriculture diversification, post-graduate teaching, agricultural trade, ICAR-private sector interface and, agriculture-industry interface. Seminars, conferences and workshops organised at the Centre, has attracted a wide spectrum of participants representing planners, policy makers, NGOs, private sector, academicians and research managers.

Publications

Another important strategy pursued by the Centre for establishing linkages is through publications based on the studies conducted by its scientists. During the review period, a total of 11 policy papers, 12 policy briefs, seven workshop proceedings and five Prioritisation, Monitoring and Evaluation (PME) notes, were brought out (See table 6.1). Besides these, popular articles and news items in print media, and annual reports highlighting the research activities and major findings continued to disseminate information to the public.

Collaborative Projects

The Centre had been successful in establishing linkages with several national and international institutions. During the review period, nine collaborative projects involving eight national institutions and six collaborative projects involving 15 state agricultural universities; seven collaborative projects involving eight international institutions and five collaborative projects involving five national institutions outside the NARS were implemented. Both in terms of reach and coverage, the Centre's efforts in establishing linkages were successful as more and more institutions seeking collaborative linkages with NCAP came forward.

Other Means

Policy outreach activity, initiated in collaboration with an NGO in western U.P to identify interventions for rural development, is another example of innovative strategy of the Centre to develop linkages for dissemination. Apart from these, the Centre has contributed to the post-graduate teaching and research guidance programme of IARI.

Along with demand for publications, offers for joint projects and consultancies with NCAP have been on the rise. Demand for the centre's services in the mandated areas is a reflection of its achievements in the field of linkage management. However, the outcome was not always commensurate either with the need or the required quality of its services. Interactive meetings held with multiple stakeholders during the review process did throw light on several such issues for future planning.

Feed-back from Stakeholders

Feedback from some of the stakeholders highlighted several areas of demand for possible future linkages with NCAP. Many SAUs felt that the current level of linkages with the Centre is limited to a few research projects (see Appendix 1.4) and that too, through personal level contacts. More institutional level linkages are needed particularly for data generation and dissemination; and methodology development for co-ordinated projects in critical areas.

Responses received from a few state governments and private sector organisations also emphasised the diverse nature of expectations from the Centre with the overall assessment suggesting good initiatives taken in the past and recommending stepping-up the momentum in the coming years.

Meeting the multiplicity of expectations from the stakeholders pose new challenges to the Centre but they are not insurmountable provided a more focused strategy is developed in the coming years.

5.2 Strengthening Linkages

The NCAP needs linkages as follows:

- Linkages with ICAR management
- Linkage with Indian Agricultural Research Institute
- Linkage with ICAR institutes and SAUs
- Linkage with agro-biological scientists
- Linkage with other policy research institutions
- Linkage with other public and private sector organisations
- Linkage with central and state government ministries
- Linkage with international research and policy institutes

Linkage with ICAR management

Interactive discussions held in the Council revealed that-

Role perception for the Centre by ICAR senior management is very important to perform satisfactorily the servicing role or policy research role for the Council, or to act as a think tank for the Council. Functional autonomy and

operational freedom need to be emphasised in this connection. Formal mechanism for continuous interaction between NCAP and ICAR senior research managers on programmes and policy output of the Centre is needed. Orientation courses, seminars and meetings could facilitate continuous dialogue between senior research managers of the Council and policy analysts of the Centre. Bringing out the following two publications by NCAP, namely, an annual survey of policy issues and a regular publication "Agricultural Outlook" covering important commodities, would perhaps strengthen NCAP's and ICAR's linkages with other policy making bodies and Ministries of the Government of India.

Linkages with Indian Agricultural Research Institute

It is widely recognised that centre's output will be of high quality if research is combined with teaching and advising Ph.D. candidates. NCAP had this advantage earlier through its linkage with the Division of Agricultural Economics, IARI, which is not there at present. This linkage has to be revived for mutual benefit of IARI and NCAP.

Linkage with ICAR Institutes and SAUs

The NCAP has made a good beginning in providing a system-wide platform and leadership to establish fruitful research linkage with eight ICAR institutes and 15 SAUs. These linkages have to be deepened and extended. The proposed social science networking activity of the Centre is planned as a mechanism to strengthen and sustain this linkage. The social science units in the ICAR institutes and SAUs will be conducting longitudinal, field level studies in all major agro-ecological zones of the country and interpret their implications for agricultural technology. Thus, the social science units in ICAR institutes and SAUs while working on their own mandated areas should now get integrated with macro policy research at NCAP. Together they can provide a meaningful blending of micro-macro perspectives in policy analysis. Details on this are discussed later in this chapter.

Linkage with Agro-biological Scientists

The comparative advantage of agricultural economists naturally lies in their own subject matter knowledge and it could be enhanced through linkages with agro-biological scientists. Besides collaborative research projects, active involvement of agro-biological scientists at all levels, forums, committees meetings, membership in bodies of NCAP etc, will be helpful. The visiting

scientists programme may be pursued in a manner that experienced researchers from different disciplines may work at the Centre to examine implications of their work. The NCAP can attract such visiting scientists due to its location, provided it offers suitable environment for interdisciplinary work and necessary creative comforts, most importantly, residential accommodation.

Linkage with other Policy Research Institutions

Agricultural economists in NARS in general have maintained poor linkage with mainstream economics and other social sciences which has detracted them from their effectiveness. There are areas such as international trade, macro economic policies, environmental economics, growth economics, policy modelling, etc., where the Centre can benefit from mainstream economics. Such linkages will enhance Centres' capacity to handle policy issues more competently. Linkages with other policy research institutions in India and abroad with strong discipline base will strengthen Centre's capacity. This needs to be pursued vigorously by identifying suitable mechanisms.

Linkage with Other Public and Private Sector Organisations

In the context of widening stakeholders in agriculture, linkage with them will add to research relevance and improved policy influence. The NCAP has already taken initiatives to help ICAR to establish functional interface with private sector. These efforts need to be pursued more systematically. Details on this are discussed at the end of this chapter.

Linkage with Central and State Government Ministries

Policy interfacing should be an important activity for NCAP. Such interfacing becomes strong and sustainable if it is built on strong academic contributions. The Centre in the last few years has been able to make a mark in academic excellence and has established credibility. It has also tried to interface with different central and state government ministries such as ministries dealing with agriculture, rural development, food and civil supplies, fertiliser and chemicals, planning, commerce, finance, water resources etc. This interfacing should be gradually strengthened and extended. But it should be noted that such interfacing should address research based policy questions rather than day to day economic issues faced by the government at various levels. The Centre has neither the comparative advantage nor mandate or strength to deal with the questions related to the second category. This would also result in dilution of research agenda and damage its comparative strength.

Mechanisms for effective linkage could include, (as suggested earlier)

- a publication on "Annual Survey of Agricultural Policies" on the basis of paper clippings and other sources (by a special unit of the Centre) which may be presented and discussed in December every year before a selected audience of high level policy makers, well known academicians, top-level research managers, etc.
- The Centre can think of bringing out an "Agricultural Outlook" publication each year once it develops macro and econometric models of Indian agriculture. It can start with a simple model, maybe with a single commodity like rice or wheat, and extend it to other commodities/sectors. Policy makers and research managers may be called for a meeting and the results shared.
- The staff can publish articles in newspapers on issues of topical interest in popular style based on policy papers and put these on the internet.

Linkage with International Research and Policy Institutes

Linkage with international research institutions and advanced research Centres becomes critical to upgrade the professional skills of NCAP staff. NCAP has developed some such linkages with ICRISAT, IFPRI, ODI, ACIAR, etc. But such linkages should be expanded in future, if it has to remain as a think tank of ICAR and continue providing leadership in agricultural economics policy and research not only in India but also in the region, especially in the SAARC countries.

5.3 Measures to Strengthen Linkage with State Agricultural Universities

Among several possible stakeholders as well as clients, SAUs have a special place in the Centre's collaborative activities. NCAP has been quite successful in achieving linkage with ICAR institutes and SAUs. This needs to be further strengthened. The possible mechanisms are given below.

Co-ordinated projects. There is no dearth of micro-level studies addressing socio-economic aspects of agriculture in India. Both agricultural and mainstream economists have researched extensively covering various states and regions of Indian sub-continent. Added to this is the substantial number

of post-graduate research studies conducted every year. But macro level studies either using state and or national level data or coordinated studies by networking several centres (SAUs) is sparse. Most notable deficiency is the absence of policy research addressing various issues relating to agriculture. Coordinated studies may provide not only perspectives but also deep insights about the developmental problems. The NCAP has the comparative advantage of taking up these kinds of national level studies. Various SAUs could be the partners in these large-scale projects.

Multi-disciplinary and multi-locational studies will be a major strategy, so as to fully exploit the NCAP's comparative advantage. Co-ordinated project is the right approach to achieve the above objective. The ICAR has a long history of implementing the coordinated projects in agro-biology research. Similar model with some modifications to suit socio-economic research may be appropriate for NCAP. As visualised in 'Vision 2020' document of NCAP, a well-thought out MOU between participating institutions incorporating mutual responsibilities such as funding, staff pattern, credit sharing, time frame, etc. may be developed. The NCAP may coordinate and monitor the projects on the basis of MOUs. To start with, a few selected SAUs, representing various agro-ecological regions of the country, may be chosen for coordinated projects.

Visiting scientists programme. Though visiting scientists programme (VSP) was conceived and approved by the Management Committee of NCAP as early as 1993, it has not taken off as originally visualised. Under this programme, the visiting scientists may be engaged in: (i) editing/ revising and preparing publishable reports based on ICAR sponsored Cess Fund Projects in agricultural economics and / or (ii) research projects of short-term nature on matters of priority interest in agricultural policy. Besides ICAR Institutions and other educational and research organisations, SAUs could be a rich source from where NCAP can attract good researchers under this programme.

One of the constraints was lack of living accommodation for the visiting scientists. The NCAP may rent-in residential space in IARI student / staff quarters and unoccupied ICAR quarters (earmarked for ADGs) for the visiting scientists. Most SAUs may not provide sabbatical and, therefore, NCAP may set apart a separate fund for paying to visiting scientists. The remuneration should be fixed at a reasonably higher level so as to attract top class scientists. This programme would be mutually beneficial to NCAP and SAUs. This may partly be considered as a training programme as the visiting scientists will be exposed to new and advanced areas of research. The NCAP will be greatly benefited through the output generated by the visiting scientists.

Students research. Research forms part of postgraduate education in Indian agricultural education system. Postgraduate education in agriculture has become highly mature, meeting manpower demand from agricultural education, research and development sub-sectors. With increasing strength in postgraduate admission, many SAUs lack both manpower and research infrastructure to support postgraduate research. At present, many SAUs developed tie-up with CGIAR institutions by which the students take up their research in CGIAR centres with advanced facilities available with these institutions. The NCAP may look for similar arrangements with SAUs and other ICAR institutions to support student research. It will be worthwhile for NCAP to garner some fellowships from ICAR to support PG research. The researchers at NCAP may also accommodate student fellowships in project budget.

The NCAP deserves appreciation for initiating activities geared towards strengthening post-graduate teaching in social sciences. A national workshop was organised to discuss improvements in post-graduate curricula in the fields of agricultural economics and agricultural extension. The workshop has recommended several measures in this regard. But this has not been pursued. The NCAP may pursue this initiative and contribute to the quality enhancement of social sciences component in agricultural education.

Social sciences networking. Indian NARS has a large pool of scientists; the exploitation of this potential needs innovative institutional arrangements. The NCAP pioneered the concept of social scientists network in Indian NARS and organised a workshop at Dharwad in 1999. This networking will provide a platform for closer and professionally useful interaction among social scientists and for exchanging ideas, information, data and facilities for mutual benefit. The networking programme should emerge as a permanent mechanism to strengthen and sustain the linkages with SAUs. Networking will be the launching pad for social science units in different institutions to conduct longitudinal, field level studies in all major agro ecological zones of the country and interpret their implications for agricultural technology and other policies.

Training on Policy Modelling and Research. Policy analysis, research and modelling are the weakest area in social sciences domain in Indian NARS. The NCAP has ventured into this area and is showing the way to others. However, social sciences group in ICAR institutes/SAUs does not possess the capability to undertake policy research, to a larger measure due to lack of training in this field. The NCAP may initiate a series of training programmes as has been done in the case of training in 'agricultural research priority

of post-graduate research studies conducted every year. But macro level studies either using state and or national level data or coordinated studies by networking several centres (SAUs) is sparse. Most notable deficiency is the absence of policy research addressing various issues relating to agriculture. Coordinated studies may provide not only perspectives but also deep insights about the developmental problems. The NCAP has the comparative advantage of taking up these kinds of national level studies. Various SAUs could be the partners in these large-scale projects.

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setting' to impart knowledge and skill on policy research and modelling. Drawing resource persons from leading institutions within the country may be one of the strategies to enrich the training. Alongside, NCAP must develop expertise in this area, in turn by training their researchers in leading institutions elsewhere. In addition, organising regional workshops and short courses to sensitise top-level research managers on modern research management and importance of policy analysis will be a fruitful activity which will catalyse to modernise the country's agricultural education and research management.

Policy seminars in study site. The fruits of any research must reach the clientele groups and stakeholders. An important outreach activity suggested is to organise policy seminars at the site of the study (i.e., in the states or regions where particular problem has greater relevance). The research output and the interaction will provide feedback to the development planners and functionaries to improve their programmes qualitatively. Such policy interfacing should be an important area of linkage for NCAP. Such interfacing becomes strong and sustainable if it is built on strong academic contributions. The NCAP in the last five years has been able to make a mark in academic excellence and establishing creditability. It has successfully tried to interface with SAUs. The NCAP and SAUs may jointly organise such activities with minimum input from NCAP. This could be another mode of strengthening linkages with SAUs / ICAR institutes. Even the national level seminars may be organised in different SAUs instead of concentrating such activities in Delhi. The local resources could be used effectively to organise the meetings.

5.4 Linkages with Private Sector

The progress made by NCAP in establishing linkages with the private sector has to be seen against the backdrop of its mandate and objectives. The establishment of NCAP itself was considered an exercise in experimentation and its mission was woven around the policy and economic analysis of agro-biological research programmes and technologies of ICAR system. The identification of five major themes and the proposed mandate further focused the much needed attention on policy oriented research on technology generation and diffusion to warrant impacts on sustainable agricultural production systems and resultant agricultural growth. Given the unbounded involvement of government administered or government-assisted programme in the field of agricultural development, it was but natural for the NCAP to develop linkages with the government agencies. Linkages which were

considered as desirable even in the Vision-2020 document focused more on those with (a) SAUs and ICAR institutes; (b) other policy research institutes like Agro-Economic Research Centres, ICSSR institutions, and universities; (c) international agricultural research systems; (d) policy making ministries; and (e) NGOs and donors. In the process, the development of linkages with the private sector remained on the periphery.

Various studies carried out by the Centre, however, provided some opportunities to individual scientists to interact with private agencies during the course of data collection. Studies on institutional linkages in the seed industry and contract farming looking at institutionalised contractual arrangements of selected private agro-processors are some of the good examples.

The NCAP had also facilitated the ICAR's recent efforts to strengthen ICAR-private sector interface by preparing background papers for the working groups and providing other academic support.

While it is true that a major part of the research agenda of NCAP provides inputs essential for improving the relevance and effectiveness of government sponsored agricultural research, some special studies were also initiated in collaboration with private sector industries and NGOs. Studies in collaboration with Excel Industries to evaluate technologies and another with an NGO in Uttar Pradesh on identifying constraints in agricultural diversification are good pioneering efforts. Pesticides Association of India was exploring a possibility, for example, on how to develop pesticides policy. In a seminar conducted at Jorhat, scientists had planned to explore the opportunities which the private sector saw in agro-processing in the N-E region. Remaining sensitive and responsive to the promising inquiries from the private sector can strengthen such efforts further.

A major portion of the research output of NCAP by way of policy papers and briefs, however, still goes only to professional economists, international institutions, state agricultural universities, and relevant functionaries of the development bureaucracy, Private sector organisations benefit only incidentally from these outputs. Whenever any event offered an opportunity to involve private sector participation, NCAP scientists did make attempts to make use of it. During the organisation of National Seminar on Aquaculture, several invitations were sent to private entrepreneurs for their participation. Responses were not up to the level of satisfaction; nonetheless, their presence was regarded as desirable. Similarly, the participation of 4-5 rice exporters in the

seminar on India's Rice Exports was found highly stimulating and enriching. Some NGOs were invited to participate in a workshop on Land Use Planning. Besides, the representation of NCAP scientists on some committees helped them establish some linkages with the private sector. However, such encounters are sporadic and infrequent.

While individual level interaction with a small number of farmers' organisations was observed, a formal mechanism at the Centre level was missing.

The following suggestions can be considered to improve linkages with the private sector:

- Increased participation of private sector in policy seminars of NCAP
- Increased number of research studies focusing on the initiatives of private sector management of R&D.
- Involvement of prominent executives or entrepreneurs from the private sector in the Research Advisory Committee (RAC). (This will help in the identification of current concerns of the industry that needs further research or policy analysis). If needed, appropriate modifications should be made in the constitution of RAC.
- Finding more opportunities to offer research outputs on cost basis, if necessary, to private sector companies dealing with agricultural inputs and outputs.

To evolve effective policies for the future, the private sector participation is essential. Therefore, the initial efforts of NCAP in developing linkages with the private sector, howsoever tentative they may be, need to be fortified with renewed interest. Working with heterogeneous group will help NCAP expand its horizons and take academic advantage of such an expansion. This interaction will also help identify common areas of interest for further work. Such interaction obviously will have to be mutually beneficial. Going closer to private sector will pave the way for multi-disciplinary and multi-sectoral studies. However, the manpower strength of NCAP is still limited, and this factor should be kept in mind before any ambitious programme is drawn. Developing a focused linkage that can be highly effective could be the preferred alternative. The nature of linkage, of course, should remain within the framework of public policy.

6 Dissemination

Value of research, or for that matter, any academic activity, is decided on the basis of the strength of its applicability and eventual adoption by the intended clients. Dissemination is the key to realization of this value. The NCAP had been active on the dissemination front. It did not narrow down the concept of dissemination to circulating its publications alone; but had an enriched portfolio of activities that together helped it achieve the objective realistically and sensibly in the short span of its existence. This portfolio included exchange of ideas, issues, themes, proposals, findings, databases, references, recommendations, advocacy material, policies, status information, newsworthy items, and discriminating but judicious commentary on subjects of its mandate. To do this, it had to by necessity employ different vehicles. Besides the traditional mode of mailing publications, these vehicles included organizing topical seminars and workshops, encouraging participation in various committees, activating international contacts, promoting theme specific collaborative efforts, nurturing consulting opportunities, cultivating a network of social scientists, working closely with sister organizations, and fostering a group of Ph.D. students as potential disseminators.

6.1 Portfolio of Major Activities

Dissemination through Participation in International Seminars and Workshops

The NCAP scientists have been actively participating in international gatherings where they could share the current thinking and relevant outputs of NCAP. During the last four years, they visited important institutions in countries like Thailand, The United Kingdom, The United States of America, Philippines, Indonesia, Republic of China, and Nepal on 13 different occasions.

Interaction with Distinguished Visitors

Distinguished visitors to the Centre provide invaluable opportunities to share accomplishments and exchange thoughts. These visitors then become the carriers of references and recommendations. The quality of visitors also

reflects the credibility they attach to the outputs of the institution. The NCAP had been extremely fortunate to attract visitors of international eminence. During the last four years, the Centre had more than 100 prominent visitors whose contributions in the field of NCAP's mandate are recognized by scientific community globally. All these occasions were used to share the attainments and potentials of NCAP.

Popular Articles to Form Opinions

Newspaper articles do not necessarily provide a forum for articles with scientific potency. But they do disseminate appropriate ideas in an understandable manner to thousands of readers coming from different walks of life who can use these ideas to broaden their vision. Popular articles in that sense has a unique dissemination value. It has been observed that a lot of opinion formation in the bureaucracy takes place on the basis of newspaper reporting. The NCAP staff used this forum wisely on different occasions.

Membership Roles as Dissemination Opportunity

Membership roles in different committees and task forces offer a scope and an occasion to disseminate and/or put to use collective output reasonably in a proper framework. The very act of invitation to participate in these roles reflects the recognition of the application utility of the work carried out by the institution. The Centre and its staff have been involved in close to 30 such national level sub-groups, steering committees, expert teams, task forces, working groups, high level committees, standing committees, policy advisory groups, academic councils, and review missions during the period under review (Table 3.2). The ICAR, Planning Commission, Ministry of Agriculture, Ministry of Rural Development, State Governments of Andhra Pradesh, Orissa, Tamil Nadu and the Government of Bhutan are some of the important clientele whom NCAP faculty has provided their expertise as members of various committees.

Policy Seminars/Conferences/Workshops

Twenty national level seminars and workshops were organised since 1994 on important topics like Prioritisation of Agricultural Research, Small Farm Diversification, Vision of India's Rice Trade, Removal of Quantitative Restrictions (QRs) on Agricultural Imports, ICAR-Private Sector Interface, Effects of Trade Liberalisation on Agriculture, Post-Graduate Teaching in Social Sciences, and Land Use Planning (Table 3.1).

All these seminars had policy implications as an underlying theme. Seminars and workshops serve an important function of stimulating academic and administrative interests in the furtherance of work, which is one of the primary objectives of dissemination activity. On important occasions, NCAP had initiated a follow-up action to ensure that its seminar recommendations resulted in the desired course of action. These efforts of NCAP were appreciated by sponsors and participating organisations.

The NCAP scientists have also been actively participating in workshops, seminars, conferences, consultations, dialogues, symposia, and planning meetings organized by other institutions on more than 130 different occasions collectively during a span of five to six years. Such participation too effectively served the cause of dissemination.

Consultancy and Contract Research as Dissemination Tools

The NCAP's research programmes and outreach activities are slowly expanding to meet the increasing demand for socio-economic inputs for policy analysis. The Centre is evolving multiple mechanisms to use existing complementary linkages among national and international research institutions for feeding social science inputs into agricultural technology management. This it attempts to achieve through focused research on targeted areas with more breadth and depth of coverage along with consultancy and contract research activities. The consultancy and contract research activities are still marginal and have been broadly formalised as per the Council's guidelines. Nonetheless, they are specifically designed to complement the ongoing and emerging research thrusts. Consultancy services and contract research in collaborative mode were provided to ICRISAT, Overseas Development Institute, UK, CGPRT, and World Bank during the period under review.

Publications

The scientists of NCAP have generated an impressive body of knowledge. While the scientists have been publishing their outputs in the form of books, articles in journals, and working papers, the NCAP concentrated on bringing out selectively a number of policy papers, policy briefs, and PME notes for distribution (Table 6.1).

Table 6.1 Research Publications of NCAP (1991-99)

NCAP policy paper series

1. *Impact of Tenancy Reforms on Production and Income Distribution-A Case Study of Operation Barga in West Bengal*
2. *Production Prospects and Constraints to Higher productivity of Pulses in Madhya Pradesh*
3. *Research Priorities in Indian Agriculture*
4. *GATT and Agricultural Exports - Hopes and Realities*
5. *Small Farms, Employment and Surplus Generation - A Case of West Bengal*
6. *Import Liberalisation and Indian Agriculture: The Challenge and Strategy*
7. *Agricultural Research and Extension in India: Institutional Structure and Investments*
8. *Improving the Effectiveness of Agricultural Research and Extension in India: An Analysis of Institutional and Socio-economic Issues in Rainfed Areas*
9. *Sources of Growth in the Livestock Sector*
10. *Privatising Agricultural Extension in India*
11. *Emerging Trends and Regional Variations in Agricultural Investments and their Implications for Growth and Equity*

NCAP policy brief series

1. *Privatising Agricultural Research.*
2. *Privatising Agricultural Extension-Need for a Cautious Approach*
3. *Funding Agricultural Research.*
4. *Intellectual Property Rights and Indian Agriculture: Some Issues*
5. *Strengthening Research and Extension for Rainfed Farming: Role of Social Science and Institutional Factors*
6. *On the New Agricultural Policy*
7. *Livestock Sector in India: Agenda for the Future*
8. *Are Regional Disparities in Indian Agriculture Growing?*
9. *Agricultural Extension in India- The Next Step*
10. *IPRs and Agricultural Technology: Interplay and Implications for India*
11. *Plant Variety Protection: Lessons from a Cross-Country Perspective*
12. *Improving Competitive Agricultural Research Funding in India*

NCAP workshop proceedings series

1. *Small Farm Diversification: Problems and Prospects.*
2. *Vision on India's Rice Trade*
3. *Social Science Education in Agriculture: Perspectives for Future*

4. *Food, Population and Environment: Strategies for Sustainable Indian Agriculture*
5. *Land Use Planning in India*
6. *New Paradigms of Agricultural Research Management*
7. *Aquaculture Development in India: Problems and Prospects*

Prioritisation, Monitoring and Evaluation (PME) notes series

1. *The New Paradigm for Agricultural Research*
2. *Prioritisation in Agricultural Research*
3. *Prioritisation of Production System Research*
4. *How Trade Policies affect Agricultural Research*
5. *Research Priority Setting, Monitoring and Evaluation under NATP*

Annual reports

1. *NCAP Annual Report, 1995-96*
2. *NCAP Annual Report, 1996-97*
3. *NCAP Annual Report, 1997-98*
4. *NCAP Annual Report, 1998-99*
5. *NCAP Annual report, 1999-2000*

The Centre maintained a carefully prepared list of about 650 addresses, national as well as international, to mail these publications free of charge. The NCAP is now contemplating to introduce a system of priced publications to make them available to other interested readers. The NCAP publications went to almost all the major libraries of the ICAR system and to those of other institutions involved in agricultural research. These publications were basically targeted for policy makers and academicians.

Training Programmes as Avenue for Dissemination

The NCAP scientists have been participating as resource persons in training programmes conducted by various institutions like The Indian Agricultural Research Institute, Indian Agricultural Statistics Research Institute, National Bureau of Plant Genetic Resources, Water and Land Management Institute, National Academy of Agricultural Research Management, and the Indian Institute of Public Administration. These programmes provided them avenues to share their research based understanding with practitioners. The training activity of NCAP itself had been noticeably negligible otherwise. It has a rich reservoir of output that can be used for training purposes.

Liaison with Extension and Development Agencies

As a Centre dealing with policy issues related to agricultural development, it has been keeping close linkages with the extension and development agencies. The Centre has been participating in the meetings of the Extension Division of ICAR and the Directorate of Extension of the Department of Agriculture and Co-operation (Ministry of Agriculture). The Centre is actively involved with the monitoring and evaluation of extension component of NATP (Innovations in Technology Dissemination).

6.2 Future Plans

Social Science Information Depository

The NCAP realises that generating and maintaining information/data banks on rural issues for current as well as future research use are very important. The existing thrust on crop or production oriented data collection ignores systems, resources, technology, and institution in its totality, and this needs to be squarely addressed for promoting quantitative analyses of policy changes. Documenting socio-economic diversity in terms of impacts, experiences, and experimentation is crucial. A Social Science Information Depository is therefore proposed to be set up at NCAP to collate and supplement diverse information base generated by multiple agencies at different levels and synthesise them for quick dissemination to the users. This Social Science Information Depository along with the proposed social science networking system will focus on the farm level technology impacts comprehensively over space and time. Intensive work on Social Sciences Information Depository should, however, be subject to additional fund availability.

Social Sciences Networking for Future Dissemination

A vast network of 197 research institutions within NARS provides a basis for responding to diverse production environments. Limited presence of social scientists, spread across locations, makes it imperative to plan for networking the socio-economic units and bring them under one umbrella for effective information exchange and research programming. Such a Social Science Networking System organised and operated at NCAP would help in exploiting the existing strengths, and in planning well focussed, demand driven agricultural research. In the long run, the proposed Social Science Networking

System will facilitate scaling up of relevant research findings for cost effective policy, technology, and research interventions having a great deal of dissemination value.

6.3 Suggestions

In general, NCAP had been highly active on the dissemination front and had an inspiring portfolio of activities that together helped it achieve its objective. It has some innovative plans for the future as well. We are giving below some suggestions for its consideration:

- The NCAP now has a website that can be used effectively for dissemination of synthesised findings of its research output. This should be attempted.
- The NCAP does not have a system of priced publications. Such publications can go beyond the restricted mailing list and bring a needed visibility in many quarters outside the government and academic systems.
- The NCAP now has a sizeable, impressive and field-tested body of knowledge having a strong potential for influencing policies and policy dialogues. This knowledge can now be translated into training programmes to disseminate the insights at the implementation-agency level. The NCAP has gained sufficient credibility to mount such activity and is ready for higher payoffs on its academic investment.
- The Centre's innovative plans of developing a Social Science Information Depository, and Social Sciences Networking should not experience a setback on account of shortage of funds.
- Dissemination value of NCAP's research would go up if dissemination potential itself becomes the starting point in the research initiation process. This in simple terms means that proper need assessment should lead to identification of research topic.
- Carefully identified and executed consultancy projects have a great deal of dissemination potential. Consultancy as an academic activity therefore needs to be supported and strengthened further.

7 Management

This chapter briefly describes and reviews organisational practices and procedures adopted by NCAP for its internal governance and academic administration. It focuses on four critical functions: (a) research management; (b) staff involvement in administration; (c) budget and finance; and (d) infrastructure support. An evaluative analysis of operating procedures aimed at improving organisational effectiveness in achieving NCAP's mandate is also included.

7.1 Research Management

The Centre's research activities are broadly grouped into five theme areas, namely, technology policy, sustainable agriculture systems, markets and trade, institutional change, and agricultural growth and adjustment. Each theme area is headed by a Principal Scientist. A small group of scientists is associated with each theme area. Scientists, however, can take up projects in other theme areas as well.

Leadership role for each theme area is decided based on the individual choice of the Principal Scientists. Other scientists have the option to choose the theme area as per their expertise and interest, which is generally discussed and approved in the Staff Research Council (SRC) meetings. Presently, the leadership role is restricted only to the level of Principal Scientist. No time frame is fixed for rotating this responsibility. Similarly, the junior level scientists are not involved in identifying the theme area leader. Distribution of scientists by theme areas is given in table 4.1. As can be seen from that table, there is an uneven distribution of scientists associated with different theme areas. It was noticed that at least two areas were not properly represented. Only one theme area had a number of scientists, which could be considered as a viable number. The QRT felt that each theme area should have at least 4-5 members to bring about meaningful output and to promote cross-fertilisation of ideas.

Research projects are primarily taken-up based on the priorities as reflected in the perspective plan document prepared by the Centre. A few projects are

taken up in response to the demand from different stakeholders. New research proposals are discussed in the SRC meeting before approval and implementation. Currently, the research proposals are first discussed within the respective theme area before presenting them to SRC. Progress of research projects is discussed in a regular sequence in SRC meetings held on the penultimate Saturday of every month. Besides, a review process is carried out by RAC and MC in their meetings held once and twice in a year, respectively. Research output from completed research projects is published in the form of policy papers, or in journals for wider dissemination. Workshops on the completed research projects are also organised in relevant theme areas.

Initially, junior scientists were associated with the senior scientists for inclusion in the ongoing research projects. Later, all scientists were encouraged to take up research projects and seek external funding.

Technical staff support is available to the Centre, but is limited to general services like library management, general maintenance, and computer services. This affects the technical support needed for research work. Presently, most of the technical support is emanating from the staff recruited under externally funded projects.

Every scientific and project related technical staff is provided with computing facilities. Their capacity in computer use has been enhanced through a need based HRD in software applications. It is now planned to store all research data and output in electronic format for quick retrieval and speedy exchange among the users.

All principal investigators (PIs) of the Centre-sponsored projects are delegated with powers to approve leave, tours, TA advances of project staff, and sanction permissible expenditure up to Rs 20000. For externally funded projects, full powers are delegated as per the provisions made by the funding agency.

The concept of work plan for the scientists was introduced for experimentation, after intensive deliberations, for the first time from March 1999. Accordingly, annual work plan was prepared individually by the scientists in consultation with the Director in the month of April. This plan was reviewed after six months in the month of October. At the end of the year, the performance of the scientists was evaluated based on the fulfilment of the annual work plan, which was also reflected in the annual assessment report of the scientists. Presently, the annual work plan is decided individually by the scientists, and

not based on the inputs from the theme areas. Scientists are advised to adhere to the approved work plan.

7.2 Staff Involvement in Administration

The Centre's administration is decentralised to a large extent. Most of the functions are assigned to, and undertaken by, various committees. These committees cover important functions like budget, publications, official language promotion, consultancy, library, maintenance, stores, seminars, vehicles and transport, computer services, dissemination, and building construction. Each committee comprises a few scientific/administrative staff as its members. Some functions are managed by individual members of staff. The chairpersons and members of all committees are appointed by the Director. No specific time frame is stipulated for the committees but membership can be modified by the Director depending upon the administrative requirements.

Monthly staff meetings are held regularly on the last Saturday of every month in which all scientists, administrative, technical, supporting, and project staff participate. Management and administrative issues are discussed, and implementation of earlier decisions is reviewed.

The Institute Joint Staff Council (IJSC) for the Centre was constituted in 1998. Members and office bearers are elected to represent various categories of the staff. This Council is chaired by the Director. Members of staff are invited to attend IJSC meetings to expose them to the work culture promoted by the ICAR. Important circulars and information received from the Council by the Secretary, IJSC are briefly presented in the regular monthly staff meetings to promote awareness about the rights and responsibilities of every member of staff.

The Grievance Cell has been duly constituted in the Centre to address the grievances and suggest appropriate follow-up action. As a part of the participatory management process adopted in the Centre, monthly staff meetings are conducted on the last Saturday of every month in which various issues related to the Centre are discussed. These monthly meetings provide a platform to raise any institutional as well as individual related issues. Because of these frequently held staff meetings, there were no occasions to requisition the Grievance Cell's intervention during the period under review.

7.3 Budget and Finance

The Centre started with a modest annual budget of Rs 35 to 50 lakhs during the initial years ending 1995. Only from 1996-97, the budget outlay, including plan, non-plan, and externally funded sources, started expanding.

With more scientific staff joining the Centre since 1996, and with the initiation of more research projects since then, total budget outlay including external funding reached Rs 158 lakhs in 1998-99. Out of this, nearly one-fourth was from externally funded projects (Table 7.1)

Table 7.1 NCAP's expenditure components. 1995-96 to 1999-2000 (Rs. In lakhs)

Expenditure Head	1995/96	1996/97	1997/98	1998/99	1999/2000
Pay & allowances	12.42	21.26	29.84	70.98	66.28
T.A	1.20	1.15	1.19	2.49	5.21
Works	4.17	4.00	10.37	6.00	128.80@
Other charges	37.62	26.60	27.97	40.87	44.58
Total Plan and Non Plan	55.41	53.01	69.37	120.34	244.87
External funding	5.87	25.77	47.75	37.61	35.25
Grand Total	61.28	78.78	117.12	157.95	280.12

@ includes Rs 123.31 lakhs for office building and staff quarters

The NCAP administration is conscious of resource generation function. The consultancy and contract research activities have been broadly formalised as per the Council's guidelines. These activities are expected to complement the ongoing and emerging research, and supplement the financial resources of the Centre. Consultancy services and contract research in collaborative mode provided by the Centre during the period under review are given in table 7.2.

In 1997-98, an amount of Rs 1.56 lakh was generated as against the target of Rs.0.50 lakh. In 1998-99, an amount of Rs 1.38 lakh was generated as against the target of Rs 1.00 lakh.

The Centre has also initiated a step towards project based budgeting and gradually all activities of the Centre are expected to come under this budgeting mode.

Table 7.2 **Consultancy/contract research provided by NCAP**

Institution to which consultancy provided	Area	Status
ICRISAT/World Bank	Primary data on cost of cultivation: planning, generation and reporting	Completed
ICRISAT/World Bank	Methodology for validating rainfed agriculture typology	Completed
Overseas Development Institute, London	Improving the effectiveness of research & extension systems: an analysis of institutional and socioeconomic issues	Completed
CGPRT, ESCAP, UN, Bogor, Indonesia	Effects of trade liberalisation on agriculture in selected Asian countries: Phase-1	Completed
CGPRT, ESCAP, UN, Bogor, Indonesia	Effects of trade liberalisation on agriculture in selected Asian countries: Phase-2	In progress
ICRISAT/World Bank	Supply responsiveness in India's rainfed agriculture	Completed
Overseas Development Institute, London	Pearl millet seed practices in Rajasthan	Completed
Overseas Development Institute, London	Funding for agricultural technology development : Phase-2	In progress

7.4 Infrastructure Support

Hostel-cum-Guest House Accommodation

The Centre is facing severe constraints in providing accommodation to the visiting scientists and faculty from national and international institutions and SAU's. The QRT strongly felt that NCAP should have hostel-cum guest house facility to benefit from frequent interactions with social science units within the NARS and from abroad.

Staff Quarters

The Centre's staff does not have any staff quarters presently. Absence of residential quarters is affecting individual and institutional performance. This issue needs to be resolved expeditiously.

Staff Welfare

Several measures were taken to promote welfare of staff. Some of these include creation of facilities like common room, a small pantry, a first aid box, water filters for drinking water, and equipment to keep food warm.

7.5 Management: An Evaluative Analysis

The QRT reviewed various components of NCAP's organisational structure and management style to identify changes needed in the internal governance and operating procedures to improve the organisational effectiveness of the Centre.

As a part of management restructuring, the Centre had set-up a few committees. These committees evolved their own modalities and reported to the Director on a regular basis. The terms of reference (TOR) for different committees were worked out and modified from time to time.

The terms of reference for Budget and Policy Committee, covered (a) planning, reviewing, and monitoring expenditure and income, including those for sponsored projects; (b) ensuring compliance of proper procedures; and (c) constituting proper purchase committees as and when needed. The Centre was experiencing difficulties on purchase functions.

The terms of reference of the Publications Review Committee were (a) planning, formatting, and making recommendations regarding Centre's publications; (b) preparing guidelines for and arranging internal and external reviews, and coordinating revisions; (c) helping and advising young faculty on publication related matters; (d) identifying printers, and (e) suggesting pricing and circulation norms.

Official Language Committee was constituted to (a) watch the progress of work done in official language from time to time and suggest relevant programmes for improvement; (b) organise *Raj Bhasha* week / day; and (c) report to the Council and other agencies on progress from time to time.

Consultancy Processing Cell examines proposals related to consultancy with reference to guidelines of the Council issued from time to time, and recommends appropriate action.

Women Cell (a) recommends measures for the welfare of the women employees, and (b) makes recommendations for expeditious relief and redress of grievances.

Research Committee was constituted to (a) ensure that research proposals were consistent with the mandate and priorities of the Centre; (b) review research proposals and make recommendations; and (c) maintain and monitor RPF and liase with ARIS, and prepare annual reports and research highlights

There was also a Director Advisory Committee consisting of all principal scientists and the head of the office as the Member Secretary. This committee, however, did not function on a regular basis.

In addition to the tasks assigned to these committees, other tasks were assigned to one or two individuals. These tasks included coordination of activities related to (a) library; (b) overall maintenance; (c) stores; (d) Centre's reports; (e) seminars; (f) staff research council; (g) vehicles; (h) national agricultural technology project; (i) agricultural research information system/ computer services; (j) data depository; (k) printing; (l) distribution of publications; and (m) building construction (liaison).

The QRT identified 8 important dimensions requiring revision in the stance: (a) involvement of scientists in academic administration; (b) restructuring of committees; (c) theme area membership and workload norms; (d) research advisory committee; (e) management committee; (f) separation of planning function from evaluation function; (g) academic infrastructure deficiencies; and (h) activation of consultancy. These points are elaborated below.

Involvement of Scientists in Academic Administration

In our assessment most of the above mentioned committees and individuals entrusted with specific tasks have been working satisfactorily. They were successful in providing the needed services collectively for the benefit of all the members of the NCAP community. We noticed that a good deal of decentralisation had been taking place and the experimentation was admirably successful. We recommend that not only this innovation should continue, but it should also be strengthened further.

NCAP would benefit by evolving pro-active steps to influence the staff recruitment processes to its advantage, and carefully guard its academic interests. One needs to deliberate on how to strengthen the inputs from the theme area scientists in the recruitment process. The QRT strongly felt that

the Director of the Centre and the scientists should have a greater role and say in the future recruitment of staff.

Restructuring of Committees

The Team looked into how the current structure of academic administration can be made more purposeful to meet the Centre's objective in the expanded phase of its academic and institutional growth. In our assessment, NCAP today needs strengthening management on three dimensions: (i) encouraging participation; (ii) giving directions; and (iii) provisioning incentives and deterrents.

An analysis of the current management structure reveals that (a) SRC and other committees mostly provide avenues for participation but have limited role in giving policy directions; (b) RAC, as it is constituted, is neither in a position to give policy direction on academic administration, nor positioned to provide incentives or deterrents; and (c) the Management Committee, in a similar way, is more of an agency for approval/resource allocation/reviewing particularly in relation to plan implementation. To take care of these gaps, we suggest the constitution of an Academic Planning and Policy Committee (APPC) to strengthen internal planning and policy direction function; a Scientist Evaluation and Development Committee (SEDC) to encourage critical participation and strengthen socially acceptable incentives and deterrent mechanism; and separation of budget and purchase functions to bring in more professionalism.

In our recommendations we are guided by the principle that we should build new structures on the basis of our current strengths, and at the same time exercise minimum dislocation of current mechanisms. Similarly, we do not want to start anything de-novo. The QRT believe that NCAP had some good institutional traditions and these need to be maintained. Therefore, it has only identified some gaps, which could be taken care of by marginal restructuring to garner added advantage. Thus, NCAP should have two types of committees: (a) mandated committees, and (b) NCAP initiated academic administration committees.

Mandated committees should include (i) Consultancy Processing Cell; (ii) Women Cell; (iii) Official Language Committee; and (iv) Grievance Cell. There is very limited scope for proposing changes in these committees, as they exist in the ICAR system.

Academic administration committees, on the other hand, could include:

- Academic Planning and Policy Committee (APPC) consisting of Director as the chairperson, all the leaders of the theme areas as members, one or two chairpersons of important committees, and AAO;
- Scientist Evaluation and Development Committee (SEDC) consisting of 2-3 nominated scientists for a three-year term under the chairmanship of the Director;
- Budget Committee consisting of Director as the Chairperson, one or two nominated scientist(s), AAO, AFAO, and Officer in-charge of Stores;
- Purchase Committee consisting of a Principal Scientist as chairperson, a nominated scientist, chairman, Publications Committee, AAO/AFAO, Officer in-charge of Stores, Officer supporting building construction, Officer in-charge of maintenance, and Officer in-charge of library; and
- Publications Committee consisting of a Principal Scientist as the chairperson, a nominated scientist, and Officer in-charge of Library.

We recommend that the normal term of appointment for all the committees, except the SEDC, should be two years.

The membership suggested here is only indicative. The proposed APPC should be able to decide on this aspect.

Theme Area Membership and Workload Norms

All the current and future theme areas should have 4-5 primary members and a small number of secondary members. Each scientist can give his preference to become a primary member of a theme area of his choice when asked by the Director. Once accepted the primary membership should not be normally changed unless the request is in the interest of the academic health of the Centre and is accepted in writing by the chairpersons of the concerned themes and approved by the Director. Any new recruit will be directly placed in the theme area as a primary member.

As a primary member of the area, a scientist will have to devote at least 50 per cent of his academic time (that is 300 working hours as indicated later) for the activities associated with the theme area.

A scientist can, however, become a secondary member of any other theme if approved by the Director in consultation with the chairperson of the concerned theme area.

The proposed APPC will design the work norms, nevertheless, the QRT would like to give a few recommendations for its consideration.

The normal workload of an NCAP scientist can be considered as 600 working hours in a year. A scientist proposing a research project as a primary member of the theme area would indicate in his proposal the time estimate in hours, which will be considered by his colleagues in the theme area at the time of discussion and approval of the proposal. Hours can be assigned for participation in academic administration depending on the workload that APPC collectively evolves, as every scientist would be a member of it.

An indicative scheme for assessing work load could be as follows:

- Chairman of the Committee: 100-200 hours
- Chairman of the Theme Area: 150 hours
- Member of the Committee: 50-100 hours
- Coordinator of a Seminar/Training Programme: 50-150 hours
- Teaching: 1 session of 60-70 minutes, equal to 3 hours of workload
- Research Papers/Articles: 25-75 hours depending on where published

This list is only indicative and APPC will have to fine-tune it.

Consulting time should be in addition to this and not a part of the annual workload. Secondary members are not obliged to undertake a research project in that theme area but can participate in their research as long as 300 hours of committed research is ensured to the primary theme area. In essence, it means that every scientist, irrespective of his status, is encouraged to participate at least in one research project of his choice in a year, publish something worthwhile, and participate in academic administration meaningfully.

The Centre does not experience funding constraint, at present. But allocation of manpower to different themes is a constraint. One needs to evolve a mechanism to strengthen the theme area concept whereby they can collectively decide, plan and implement their priorities.

Organisational changes suggested here are marginal in nature but can improve the functioning of the Centre.

The Management Committee on two occasions in 1998 and 1999 had made suggestions that NCAP should adopt a project based budgeting format. We agree with this suggestion and strongly recommend that this practice should

be adopted and implemented forthwith. The proposed APPC can take such decisions.

Research Advisory Committee

The Research Advisory Committee (RAC), which generally met once in a year covered various topics for discussion. The powers and functions of the RAC generally included:

(a) To suggest research programmes based on national and global context of research in the thrust areas

(b) To review the research achievements of the Centre and to see that these are consistent with the mandate of the Centre

(c) Any other function that may be specifically assigned by the Director General, ICAR

After reviewing the composition and functions of RAC and proceedings of RAC meetings, QRT offers following suggestions.

- The present composition of RAC do not adequately represent the multiple stakeholders and clients of NCAP. We consider it necessary to widen its membership and/or change its composition to include one or two more stakeholders.
- The RAC should be restructured and revitalised to perform the research planning and research review functions more effectively and frequently, say twice in a year. The QRT emphasises on the academic review role of RAC for the Centre.

Management Committee

The Management Committee (MC), which generally met once in six months covered various topics for discussion and made valuable recommendations. The powers and functions of the MC generally included:

(a) consideration of proposals for five year plan, annual plan, and budget;

(b) periodical review of the progress of development schemes;

(c) consideration of items of expenditure beyond the powers of the Director;

(d) policy issues relating to the Centre including the rights and obligations of the staff;

(e) consideration of action taken on the recommendations of the Grievance Cell and the Institute Joint Council; and

(f) any other item as per the powers delegated by the Governing Body.

We consider these functions as appropriate for the MC.

It should, however, avoid functions like review of ongoing research projects (best suited for the Research Advisory Committee), institute publications (best suited for the proposed Publication Committee), constitution of various academic committees (best suited for the proposed Academic Planning and Policy Committee), and recommendations on collaborative projects or seminar proposals (best suited for the proposed Academic Planning and Policy Committee). Basically, it means that MC should focus attention on non-academic aspects of management. These could include critical decisions on physical infrastructure facilities like buildings; financial aspects like budgets, allocation of funds, and expenditures, overall planning aspects like review of annual and perspective plans, and overall staff related aspects like review of grievance redressal mechanisms.

While the current norms and practices in relation to the composition of MC may continue, at the current stage of its development, it can benefit by incorporating more members who bring external credibility, and who can contribute to the growth of the Centre. We feel that MC should definitely be more than an advisory body. It should be a decision making body but for the defined sphere of activity.

Both MC and RAC, however, can suggest from time to time how to change NCAP from inward looking to an outward looking organisation.

Involvement of visiting faculty would help NCAP in acquiring multi-disciplinary inputs. Because of housing difficulty, it is not able to make the best use of such facility. The Centre should at least have transit houses for this purpose. Administrative obstacles for acquiring transit houses will have to be immediately addressed.

Separation of Planning Function from Evaluation Function

The QRT was specifically concerned about the morale of the staff working in NCAP. During the close interactions with most of the staff, we were convinced that their morale in general was admirable. Some of the younger scientists, however, experienced stressful situation. After careful deliberations, we felt

that the separation of annual planning function from the evaluation function will restore the needed healthy atmosphere and improve the academic efficiency. As is accepted these days, the evaluation should reflect quality, commitment, and involvement. These aspects would not get reflected in the plan document, which at best is the statement of intentions. Besides, in academic institutions the process of evaluation should be more transparent. Work plans have their own value but the process of evaluation has different value premises. And, therefore, they should be differentiated.

Academic Infrastructure Deficiencies

Major constraints, at present, include, grossly inadequate access to discipline-specific library, unreliable internet access and lack of staff quarters.

An institution having a national and international presence must have its own library to service the needs of highly qualified group of social scientists working on themes of considerable significance to ICAR's overall contributions to national development. Duplication at institutional and even at individual scientist level in this area should even be encouraged. Scientists with externally aided projects should have full freedom to subscribe to print and electronic media publications of their choice needed for their project work.

Internet access is a serious limitation with only a token presence now. The NCAP cannot afford to remain isolated from the scientific community. It must invest on a priority basis in acquiring dedicated lines to successfully and effectively discharge its responsibilities. Its dependence on others is high at present.

The NCAP does not have staff quarters. This is affecting the time that the staff can, and would like to, devote for professional contributions to NCAP. As mentioned earlier, it also acts as a disincentive to the visiting scientists who otherwise may like to affiliate with the Centre.

Activation of Consultancy

The ICAR had wisely and thoughtfully introduced a consultancy provision in its system. This was done with a view to making the best use of the expertise it had generated in various fields of agricultural research over the years. It was hoped that the consultancy provision would not only enrich research work of the scientists but would also bring in more funds both for the individual scientist as well as the ICAR. More importantly, consulting

route was expected to accelerate the process of much needed transfer of technology.

The NCAP was one of the ICAR institutions best suited to make optimum use of this provision and help achieve the Council's overall development objectives. Unfortunately, the experience had not been satisfactory. The string of procedures that govern the processing of consultancy proposals had been the major difficulty. In fact, the consultancy document very forthrightly makes one aware that-

> "In view of certain highly competent consultancy services already operating in the country with their network spread all over India, the ICAR which is new comer in this field will have to establish its presence through competitive level of efficiency in handling the problems and rendering the satisfactory service to the clients. To achieve this objective, *the Council will have to devise simple procedures to ensure fast track clearance of the consultancy proposals received from the clients*" (page 21 of Consultancy Rules and Guidelines and emphasis added).

Furthermore, the document says "(O)ne of the most crucial factors for success is to ensure processing of consultancy proposals as quickly as possible and in any case within one month".

But NCAP experiences with 2-3 excellent opportunities belie hope generated with these stipulations. Unfortunately, such experiences had a dampening effect on the enthusiasm of the scientists. They are shying away from responding to the consultancy requests. This will defeat the very purpose for which consultancy system was introduced. We feel that there is a need to have careful and urgent review of the procedural bottlenecks associated with consultancy approval process, and to simplify it further. This is particularly important for proposals from international agencies. Given the specialised and unique nature of NCAP with a challenging mandate in agricultural economics and policy research, we make the following recommendations for ICAR's consideration:

- Proposals which are meant for foreign agencies, multinational companies, or multi-institutional consultancies, and not exceeding Rs. 25 lakhs, can be approved by the Director of Centre/institute. Consultancy projects with national institutions should be handled only at the institute level and the Director should be the exclusive authority to approve, implement and complete the projects.

- The Directors of the Centre/Institutes should be empowered to receive all the consultancy project money, maintain project-wise accounts, and send the ICAR's share periodically giving relevant documentary details. This process will improve the efficiency of fund allocation for project implementation.
- Long duration consultancy projects should be sanctioned for the entire duration of the project; and not on an yearly basis, which not only results in more paper work and processing delays, but also puts the valued scientist at the mercy of the bureaucracy. However, a periodic report, say annually, may be sent to the Council.
- A common meeting of the Consultancy Processing Cell (CPC) heads should be held once in a year at the Council headquarters to sort out procedural problems.

The QRT examined all these aspects in detail and recommended appropriate reorganisation in the academic and administrative structures and procedures in the firm belief that these changes would lead NCAP to attain scholarly heights.

8. Future Directions and Recommendations

8.1 Future Directions

In the ICAR system, NCAP is a centre of national importance for agricultural economics and policy research. The Centre is nearing completion of a decade of its existence. In this short span of its existence, the Centre, through its mandated activities and carefully evolved strategies in research, policy and linkages, has created a niche for itself in the NARS. The Centre has made a mark in the identified theme areas of research covering technology policy, sustainable agriculture system, markets and trade, institutional change and agricultural growth and adjustment. Linkages with national and international institutions are evolving. Dissemination mechanisms to reach the multiple stakeholders have been put in place.

A policy research based institution particularly in agriculture has to be forward looking and proactive to face emerging issues and anticipate future challenges. For this, the institution has to be responsive to the dynamic situations and needs. The Centre will have to continue to conduct high-level policy research through its linkages with ICAR, participate in the policy dialogue, and strengthen capacity in agricultural economics and policy research within NARS.

8.2 Key Recommendations

Mandate

In the changing circumstances, NCAP has to define its role carefully and design its strategy accordingly. The Centre can partake of the characteristics of a " think tank " as well as of an advanced research centre. In the present situations, it should lean more towards the latter. The mandate of NCAP is flexible enough to accommodate all necessary changes in programming. The Centre was correct in emphasising research in the initial period. However, conscious efforts should be made to -

- study problems of more fragile and more disadvantageous agro-ecological systems
- take more balanced view on all the three mandated areas, namely, policy research, policy advocacy and capacity building
- formulate strategies to revitalise the post graduate programme in agricultural economics in SAUs and other relevant institutions

Policy Research

Existing research theme areas are relevant and can continue for at least next 4 to 5 years. A separate theme area on "agricultural modelling", focusing on modelling Indian agriculture as a sector as well as its various components is strongly recommended.

The work can be initiated with a modular approach, i.e., covering crops to start with and later integrating different modules and construct a model of country's agricultural economy. High priority should be accorded to building econometric or a partial equilibrium models to facilitate understanding of policy implications.

Organisation of research under selected theme areas may continue. However, the themes may be redefined, and wherever necessary - as in the case of sustainable agriculture theme area - by changing the title, and adding new sub-theme as suggested in Chapter 4. All projects in future should be evolved within the identified theme areas with primary focus on policy prescription.

Each theme area group should have a mix of projects, some of medium duration (1 to 3 years) and some of short duration, covering areas of topical interest. The results in the case of the latter should be available within 6 months to a year.

Each theme area should have a senior level scientist as a leader and at least 4-5 faculty as primary members. Wherever feasible, leadership should be rotated within the theme area, once in 3 to 5 years. The group should have regular interactions so that they can collectively decide, plan and implement their priorities.

Balanced allocation of resources across all the theme areas is recommended. Certain activities of an area, e.g., the micro level projects could be phased out to collaborative institutions and utilise the Centre's comparative advantage existing over other social science units within the system.

More concentration of research in well endowed areas like Indo-Gangetic plains and rice-wheat system has occurred at the cost of much more demanding sites like rainfed areas, hill areas and coastal areas, where need for policy interventions is urgent. Eastern, western and southern regions exhibiting differing potentials and constraints for agricultural development should receive adequate attention by a national level policy Centre like NCAP.

After due preparations, the Centre should bring out an annual publication on agricultural outlook based on the modelling output and informed judgement of the faculty.

The Centre should focus the research in critical areas as listed below against each theme.

Technology policy. Technology forecasting, methodology improvement for priority setting at different levels as well as for NRM research, quantification of spill-over effects of technology, internalising society's preferences in technology generation, emerging areas like IPRs, biotechnology, private sector participation in agricultural research are the emerging and challenging areas.

Sustainable agriculture systems. Modelling the trade-offs between agro-ecological goals at regional level and the attainable socio-economic options at farm household level, mapping of sustainability status of natural resources, development of sustainability indicators, institutional alternatives, policy, technology and sustainability modelling, conflicts, interactions and scenario analysis in NRM, tradeoff analysis for alternative development pathways, trade liberalisation and sustainability implications. Methodology for quantifying the externalities and internalising them into the policy analysis is one of the critical areas in which the Centre should play a leading role.

Markets and trade. WTO, international trade and IPR related issues, and modelling development to analyse the impact of changes in agricultural procurement, price support, policies on subsidy, and public investments are the topics on which the Centre may concentrate in the near future.

Institutional change. Supply of supporting services, including extension, markets, trade and community organisations, evaluation of alternative sources for technology development and diffusion, and pro-active research to evaluate and guide the appropriate institutional mix in agriculture sector matching with the specific needs, need attention on priority basis.

Agricultural growth and adjustment. Analysis of agricultural growth patterns, changes in rural society including occupational structure, determinants of agricultural growth and potential of high-value and low-input agriculture, and modelling of regionally differentiated growth strategies to evaluate alternative pathways and their impacts on resource base while meeting the multiple but conflicting goals of the society as well as farm households, commend themselves as topics deserving attention on priority basis.

Policy Advocacy

The Centre may organise an Agricultural Outlook seminar every year to take stock of the agricultural scenario in the current year and identify the areas for the consideration of planners and policy makers for the coming year.

A compendium of agricultural policies initiated in the reference year may be brought out with suitable commentaries, and be distributed among all stakeholders.

In order to be effective, the Centre should take initiative in forging linkages with institutions of ICAR and SAUs, policy and development research institutions and development departments of central and state governments through research as well as policy advisory roles. As all these efforts take time and effort, a discriminatory approach should be adopted.

Strengthening Research and Training in Agricultural Economics in NARS

The NCAP should build up institutional linkages with at least four to five SAUs in different regions on a medium to long term basis with involvement around specific theme area taking into account the complementary strengths of participating institutions.

Training. The Centre should resist the temptation of organising general training in agricultural economics. It should try to find a niche for itself by developing short duration modules based on the work in the theme area, e.g.: priority setting, technology assessment, natural resource policy, environmental impacts and policy modelling. These programmes should be in a workshop mode. In organising such programmes it should avail of the services of other experts especially from the ICAR system. However, the Centre's contribution should go beyond the provision of logistic services.

As a support to the training activities in agricultural economics, the Centre should focus on curriculum development in social sciences for agriculture, and training of faculty in new areas like natural resource and environmental economics, agricultural trade, sustainable development, agri-business, and modelling.

The Centre's linkage with the PG programme of IARI should be restored and strengthened before the Centre can target other social units within NARS.

Dissemination. The Centre should take a re-look at its strategy of dissemination. Its major clients should be the policy makers in agriculture. Mechanisms should be developed to assess periodically, how effective is its reach. The strategy for dissemination should be basically client oriented and the means adopted should be congruent with the message the Centre wants to convey.

Management

The governance and the management of the Centre need some changes.

The administrative control of the Centre in ICAR under the Deputy Director General (Animal Sciences) can hardly be justified. Its right home would be a Directorate of Policy and Planning.

Research Advisory Committee. The RAC of the Centre should be reconstituted and revitalised. Its character should reflect a body more meant to advice a policy research institution.

The number of members in RAC may be restricted to 9 or 11, but the membership should include, apart from senior agricultural economists, one or two representative(s) from other social sciences as well as from the biological sciences, one or two senior scientists from SAUs, and an experienced agricultural administrator and an enlightened representative from the private sector.

The RAC should meet twice a year. A planning meeting should review and advice on the research and training activities which the Centre proposes. A second mid-term meeting may review the progress.

Management Committee. We consider the functions of Management Committee framed by the Council appropriate for guiding the Centre in its management. The MC should, however, avoid functions like review of ongoing

research projects, institute publications, constitution of various academic committees and recommendations on collaborative projects or seminar proposals.

The MC should focus its attention on non-academic aspects of management like critical decisions on physical infrastructure facilities like buildings, financial aspects like budgets, allocation of funds, and expenditures, overall planning aspects like review of annual and perspective plans, and overall staff related aspects like review of recommendations on grievance redress mechanisms and other staff related matters referred to it.

The MC will greatly benefit by incorporating more members from outside the system with management experience and credibility who can contribute to the growth of the Centre. We feel that MC should definitely be more than an advisory body. It should be a decision making body with well-defined sphere of activities.

Internal committees. The NCAP should have two types of committees (a) mandated committees (as required by ICAR), and (b) NCAP initiated academic administration committees. Our comments on mandated committees, i.e., RAC and MC are given above.

NCAP initiated academic administration committees may include (i) Academic Planning and Policy Committee (APPC); (ii) Scientist Evaluation and Development Committee (SEDC); (iii) Budget Committee; (iv) Purchase Committee; and (v) Publications Committee.

The Team is impressed with the decentralisation and empowerment of the principal investigators and scientists working in both internal and external funded research projects. This should however be protected and further strengthened.

Theme Area Membership and Workload Norms

All the current and the future theme areas will have a number of primary members and a small number of secondary members. As a primary member of the area, a scientist will have to devote at least 50 per cent of his academic time (that is 300 working hours as indicated later) for the activities associated with the theme area.

The proposed APPC will design the work norms. Following suggestions are given for its consideration. A normal workload of the NCAP scientist can be

considered as 600 working hours in a year. A research project of the size which can be initiated and completed in one academic year would be considered as having 300 working hours of workload. Hours can be assigned for participation in academic administration depending on the workload that APPC collectively evolves. An *indicative* proposal is given below:

- Chairman of the Committee: 100-200 hours
- Chairman of the Theme Area: 150 hours
- Member of the Committee: 50-100 hours
- Coordinator of a Seminar/Training Programme: 50-150 hours
- Teaching: 1 session of 60-70 minutes equals 3 hours of workload
- Research Papers/Articles: 25-75 hours depending on where published

This list is only suggestive and APPC will have to fine-tune it.

Consulting time should be in addition to this and not a part of the annual workload. Secondary members are not obliged to undertake a research project in that theme area, but can participate in its (secondary area's) research as long as 300 hours of committed research is ensured to the primary theme area.

Project Based Budgeting

Despite the strong and repeated recommendations by the MC in the past, project based budgeting is not adopted. A forward looking Centre like NCAP with many managerial innovations to its credit, should lose no more time in shifting to project based budgeting. This should cover every project irrespective of its source of funding, plan, non-plan and external sources. To the extent possible every activity of the Centre should be projectised.

Separation of Planning Function from the Evaluation Function

The QRT recommends for the separation of annual planning function from the evaluation function to restore the needed healthy atmosphere and improve the academic efficiency of the faculty. Decentralization and empowerment of faculty should go with accountability, but the whole process is still evolving. Current experimentation in this direction are innovative but need restructuring as suggested in the text earlier.

Staffing Pattern

With five principal theme areas, the strength of the Centre may be gradually increased to 25-core faculty. The additions, which are immediately needed, are an economic modeller and two full time technical assistants to help him.

Looking to the nature of the activities of the Centre, in future recruitment, preference should be given to scholars with proven merit and rich experience in the selected theme areas. We consider it very critical to actively involve the Director and senior faculty in deciding the nature as well as number of positions to be filled up at any point of time.

Fullest use should be made of the provisions of visiting scientists scheme in the Centre.

The administrative staff may be strengthened to manage the support services efficiently.

Infrastructure

Library. For a policy research institution, library and information support should be excellent in nature. Duplication at institutional and even at individual scientist level in this area should in fact be encouraged. Scientists with externally aided projects should have the freedom to subscribe to print and electronic media publications of their choice needed for their project work.

Internet access is a serious limitation with only a token presence now. The NCAP must invest on a priority basis in acquiring dedicated lines to successfully and effectively implement its responsibilities.

Ready availability and automatic updating of data base in a readily usable electronic format is essential for the faculty to provide quick and timely response on emerging and future research issues.

Housing. The NCAP does not have staff quarters at present. Provision for this facility is essential to attract good faculty, permanent or temporary, in a city like Delhi. With absolutely no progress yet in the construction of quarters (which is with CPWD), and with one more sister institution associated with this housing project, the construction of NCAP quarters is expected to be delayed by a few years. To redress the inconvenience to the staff due to this, the team, strongly recommends that -

The ICAR should earmark at least a few quarters from its pool of residences and from its sister organisations for NCAP scientists depending upon their eligibility. These quarters should be surrendered once NCAP quarters are ready.

For making use of the visiting faculty programme, NCAP should at least have a few transit houses for this purpose to overcome the housing problem. Administrative obstacles for acquiring transit houses will have to be immediately addressed.

Human Resource Development

HRD for the scientists should be of paramount importance particularly for a policy research centre like NCAP. Maintaining the core faculty's competence for achieving excellence in academics and policy research through HRD at international institutions is considered essential. Intellectual competence and international standard cannot be reached and maintained until HRD support is available not notionally but in reality. Presently, HRD budget provided in IX Plan for the Centre is not available for supporting international travel. This has to be addressed immediately.

Special efforts should be made to provide learning opportunities to the faculty in the policy sciences and in information technology

Consultancy

Academic staff should be encouraged to take up consultancy projects which have learning value. The NCAP is best suited for using consultancy as a vehicle for targeting research as well as HRD besides generating resource for the Centre and the staff. Current guidelines need to be simplified as evidenced during the team's interaction with the scientists. We would like to make some recommendations based on NCAP experience for ICAR's consideration:

- Proposals which are meant for foreign agencies, multinational companies, or multi-institutional consultancies, and not exceeding Rs. 25 lakhs, can be approved by the Director of the Centre. Consultancy projects with national institutions should be handled only at the institute level and the Director should be the exclusive authority to approve, implement and complete the projects.

- The Directors of the Centre should be empowered to receive all the consultancy project money, maintain project-wise accounts, and send ICAR's share periodically giving relevant documentary details. This process will improve efficiency of fund allocation for project implementation.
- Long duration consultancy projects should be sanctioned for the entire duration of the project, and not on an yearly basis which not only results in more paper work and processing delays but also puts the valued scientist at the mercy of the clerical bureaucracy. Of course, the Council should receive annual progress report in a prescribed proforma.
- A common meeting of the heads of Consultancy Processing Cell (CPC) should be held once a year at the Council headquarters to sort out procedural problems.

8.3 Epilogue

In a relatively short period of time, the National Centre for Agricultural Economics and Policy Research has fulfilled the expectations of its sponsors to a large extent. Strong foundations have been laid for future growth. It is hoped that the observations and recommendations made by this QRT will further strengthen the Centre.

Dated: October 4, 2000
(Signed)

V. S. Vyas
(Chairman)

C. Ramasamy (Member) | S.N. Mishra (Member) | S.K. Goyal (Member) | P.M. Shingi (Member) | J.P. Bhati (Member)

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