



New research processes have been initiated under the National Agricultural Technology Project (NATP) through sponsored R & D projects in ICAR institutes and State Agricultural Universities (SAUs). They have been introduced to improve relevance, effectiveness, and efficiency of the system. The elements of new paradigm are participatory research planning and resource allocation mechanism, organization of research in system perspective, peer review and accountability, development of capacities in frontier areas of research, and decentralization of management functions and powers. The orientation of agricultural research and its management impinge on allocation and use of financial and other resources, level of scientific productivity, development and diffusion of technologies and institutional development in NARS. The impact assessment studies through use of different indicators should provide impacts of these new research processes (Boxes 1 & 2) for improved relevance, effectiveness and efficiency of the research system on the one hand, and enhanced socio-economic benefits to the farmers on the other hand.

Research Planning and Resource Allocation

The new mechanism of research planning and resource allocation is concerned with improving effectiveness and efficiency of the NARS through rationalization and use of resources with greater objectivity and transparency to address priority research themes. Improved methods of priority setting, monitoring and evaluation (PME) are advocated and being institutionalized through sensitization workshops, training, case studies and creation of PME Cells in selected ICAR institutes and SAUs. As expected, the early and mid-term impacts of the process of institutionalization of PME mechanisms have created greater awareness and change of mindset among scientists and research managers about the need of PME in changed research and economic environment. There are visible and perceptible changes in allocation of research resources and utilization of funds across agro-ecosystems, production systems, and research themes, to address issues and concerns

of poverty, marginal areas, gender issues and institutional developments. Our study shows that marginal areas such as rainfed, arid and hill & mountain regions now account for two-thirds of public funding for agricultural research. Project-based planning and competitive funding under the Competitive Grant Program (CGP) of NATP have made useful contributions not only in terms of resource mobilization but also improved capacity for writing winning research proposals. The performance of these processes could further be improved through decentralization of management functions combined with greater financial flexibility at the institute level.

Research in Systems Perspective

The new thrust of research planning under the production system research (PSR) envisages multidisciplinary and multiinstitutional mode in an eco-regional setting. Researchable issues are identified in the systems perspective through systematic delineation of agro-ecoregions, identification of production constraints, and participation of stakeholders. The impact of the new approach to research is breaking the institutional rigidities and strengthening new kinds of research-extension linkages. For example, a case study of the Irrigated agro-ecosystem showed that the strategic research and extension planning (SREP) is making useful contributions in identifying researchable issues and existing technological gaps which if properly communicated can be addressed by the research systems. It is expected that the better electronic connectivity and development of communication infrastructure along with progress in decentralization of powers would further improve the inter-disciplinary and inter-institutional collaborations in PSR

Peer Review

The elements of objectivity, transparency and ability to make impacts are built into NATP sponsored research projects through PME processes and mechanisms. Resources are being

Box 1: Impact of NATP processes on NARS

Process	Impact	Suggestions
PME, including project-based planning	Change in mind set, shift in resources to marginal regions; resource allocations close the normative one	Should be integral part of research management cycle, need for financial reform
Competitive funding	Objective criteria for evaluation; timely processing, quality research proposals in successive rounds	Need for realization of specific objective of competitive funding
Collaborative research	Breaking institutional and disciplinary rigidities	Decentralization and effective communication
Peer review	Sharpening of research focus	Streamline the process
HRD	Improvement in skills, publications, teaching	Streamline international training
Decentralization	Better in ICAR; slow in SAUs	Lack of clarity of new procedures; problems of dual command

Source: NCAP survey of ICAR institutes and SAUs

* National Centre for Agricultural Economics and Policy Research, New Delhi. Thanks are due to all at the Project Implementation Unit (NATP), Agro-ecosystem Directors, Principal Production System Scientists, and scientists associated with various research projects sponsored under NATP for providing valuable information.

PME is a major theme of the NATP. PME Notes are meant to disseminate concepts and information regarding this activity. Please address comments, questions and contributions to Director, NCAP.

allocated to a well prioritized and targeted research agenda. All NATP projects are peer reviewed by Scientific Advisory Panels (SAPs) for PSR, and by Research Program Committee (RPC) for the Competitive Grant, Teams of Excellence and Mission Mode programs. During various stages of screening, approval and monitoring of projects, peer review teams provided suggestions which have served as quality control mechanisms and improved the technical programs of the projects in terms of targeting research, better use of research facilities, critical infrastructure required and meeting training needs. The process is found very promising and therefore, needs to be further streamlined and made cost effective in future.

Capacity in Frontier Research Areas

Under NATP, it is proposed to strengthen capacity in the frontier sciences, e.g. biotechnology, GIS, natural resource management, PME, information technologies, etc. These are relatively new areas of research for scientists in the NARS and, therefore, training of new skills and development and up-gradation of research infrastructure are critically needed. Realizing training needs of NARS and requirement of new research facilities, NATP has devoted a sizeable amount of resources for these activities. And, special attention has been given to the modernization of library and other information system with the aim to provide scientists greater access to scientific information, and to facilitate exchange of information and research partnership with the other national and international research organizations through improved connectivity. These are expected to improve effectiveness of the system through accelerated technology development and reduced R&D lags. Constraints relating to working and reliability of the electronic connectivity are, however, encountered by the scientists.

The NATP training programs, particularly overseas, have made valuable contributions in the form of acquiring new skills, initiation of new research programs, development of training manuals, improvements of post-graduate teaching and improved research publications. The effectiveness and relevance of these training programs require further in-depth study in terms of flow of quality and quantity of information during training, use of new ideas and skills acquired by trainees,

and their performance in work place. However, the process of screening and clearance of even the approved overseas proposals is very slow, cumbersome with all uncertainties of final outcome. This has demoralized the system and if this is not taken care of, it will definitely be a missed opportunity for the NARS.

Decentralization

NATP has made conscious efforts to increase the availability of operational expenditures and improve the flow of funds more evenly distributed over the financial year. Also, efforts are being made to make funds available with the researchers, and also link funding with performance. A system of decentralized decision making through delegation of administrative and financial powers is being implemented for efficient utilization of funds and successful implementation of research projects. The utilization of funds at project level is, however, very poor and ranged from Rs. 12-14 lakhs in 2000-01, which was 21 to 31 percent of the sanctioned amount or 42 to 62 percent of funds released. It is felt that an effective financial management would require further simplification of the rules and procedures and fast progress in the financial reforms. The major reasons for partial and non-delegation of powers are lack of clarity about the new procedures and dual command observed with implementation of NATP in the system.

Socio-economic Impacts

As per the mission of PSR, it is expected that the technologies generated would yield productivity gains and promote sustainability of production systems. Also, the economic benefits will be shared by all social and economic groups. It would, however, be rather premature to expect that such impacts would be possible fully during the period of NATP. But, study of promising technologies developed/ sharpened under NATP and their early impacts could easily be made. The information obtained from PIs of different projects in this regard indicated trends towards sharpening of a number of technologies with significant expected benefits (Box 2). These technologies would, however, be continuously monitored for obtaining needed information for quantitative analyses of socio-economic and other impacts.

Box 2: Expected impact of promising technologies

Agro-ecosystem	Technology	Expected yield gain (%)	Expected adoption rate (%)	Target groups
Arid	Livestock feed machine	25-50	40-50	Women, animal farmers
	Backyard poultry production	25	90-95	Small & marginal farmers, landless labourers
	Integrated pest/ nutrient management	23-96	10-15	Small farmers
Irrigated	Conservation (zero) tillage	10	60	–
	Inter-cropping in sugarcane	57	85	Small farmers, women
	Wheat seeder-sugarcane planter	38	35	–
Rainfed	Rainwater harvesting	49	47-63	Tribal farmers
	Inter-cropping system	10-41	57-65	Small farmers
	Integrated nutrient management	145-226	80	–

Source: Based on information provided by AED Directorate.

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