POLICY PAPER 15

Prioritization of Agricultural Research

NAAS

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Prioritisation of Agricultural Research

Background

The organisational structure and functional role of India's agricultural research system has evolved over a period of time to match the emerging demands. However, it is now being increasingly felt that there is need to bring about changes that will enhance our ability and capacity to deal with emerging challenges in a more efficient and effective manner. It is obvious that optimal use of available human, infrastructure and financial resources will become increasingly important. Amongst other steps, better priority setting and sharper targeting of research will be needed to make the system efficient. It is in this context that the National Academy of Agricultural Sciences sponsored a workshop on 'Prioritisation in Agricultural Research'.1

The workshop had the following objectives:

- Sensitise key research managers on the need to prioritise research as an integral part of research management process.
- Identify key issues that should be resolved to initiate and take the process further at different levels within the system.
- Suggest steps that will assist in internalising priority-setting mechanisms within the system at different levels.

Rationale

Priority setting is the process of defining a research portfolio that is consistent with country's agricultural policy, the research organisations' mission and the research programme's objectives. In the past, India's agricultural research institutions have been arriving at their research portfolios informally and without an explicit activity aimed at arriving at a set of prioritised research agenda.

Over time, the demands on India's agricultural research and education system have been fast changing. The system is now faced with the task of not only increasing the productivity of selected crops but also to address issues such as increasing disparity in agricultural growth, maintaining and enhancing the quality of natural resource base and reducing environmental degradation, poverty alleviation, emerging trade regimes, etc. These developments are rendering our research agenda highly complex. The need to be competitive worldwide would call for the research systems to pay greater attention to quality, cost-effectiveness and sustainability issues. The number and nature of stakeholders, which now includes farmers' organisations, private sector sponsored research, NGOs, etc. in addition to the farmers has also changed. These developments call for rationalisation of allocation of current and future resources for enhanced research efficiency. Institutionalising a systematic analysis of agricultural research priorities and integrating it with an effective monitoring and evaluation system, therefore, holds a key to making the system efficient and effective.

The thoughts and recommendations emerging from discussions on component issues are summarised below.

Operationalising Research Priority Setting

- In defining research priorities, it is necessary to involve both policy makers and the community of scientists working in the field and laboratories. Priority setting exercise has to be carried out at different levels. Three levels are usually distinguished: the national level, the programme level and the level of individual research institutions. At the national level, the relative importance of major research areas/sectors is determined. In the programme levels exercise, decisions are made on relative importance of different programmes within a sector and programmes that might cut across different sectors. At the level of research institutions, decisions are needed on the relative place of different research programmes/themes in the portfolio and formulation of projects.

- In India, agriculture is a state subject and it is necessary that prioritisation exercise is done simultaneously at the level of each state within the overall national policy and priorities. As at national level, this exercise has to be done at three levels: sectoral, programme, and theme/project.

- Research prioritisation and associated resource allocation at the national level should be the responsibility of Director General of the Indian Council of Agricultural Research, the team of specialists representing different sectors and the planning unit consisting of professionals with specialisation in economic and statistical analysis and in computer support services. In recent years an array of methodologies and models of research priority setting have been developed—which take into consideration factors like efficiency, equity and sustainability. Additional criteria will have to be added considering the fact that 60 per cent of the people of India are dependent on agriculture for employment and sustenance. The exercise must also take into consideration the major opportunities that exist for India to increase its agricultural production through productivity enhancement to emerge as a major exporter of agricultural commodities and value added products and to remain food secure in the coming decades as population continues to multiply.

- In this exercise the leadership of ICAR will be guided by policy of the Government of India as defined by the Planning Commission and by the inputs of the Governing Body of the Council and members of the ICAR Society which reflect the views of the farming community, the states and other stakeholders.

- Following the broad allocation of resources for different sectors (e.g. crop science, horticultural science, animal science, fisheries science, natural resource management science and socioeconomic research) the team of senior management scientists led by the Director General should translate these broad national priorities into research programmes with clear objectives and goals to be achieved. In defining and refining research programmes, ICAR leadership should seek inputs from best of the available expertise by organising expert consultations and by drawing upon deliberations of important national and international conferences and above all, on the basis of the economic analysis carried out by the planning unit.

Decision to arrive at research programmes must also reflect interconnectedness of different sectoral problems and a recognition of the need of promoting involvement of multidisciplinary teams of scientists drawn from its network of research institutes. In the present set up of ICAR where sectoral research is organised division wise, there is a particular need to organise research in a programme mode. This is necessary to address sustainability concerns and to deal with scientific problems in a holistic manner.

- Following broad allocation of resources for different programmes, scientists in different research institutes should be called upon to translate these programmes into priority research themes, research projects and experiments to fulfil the mission and mandate of respective institutions. In formulating research themes and projects strong inputs are required from the grassroots organisation including farmers' groups, NGOs, industry, etc. The scientists will be required to formulate research projects taking into consideration the existing state of scientific knowledge and technologies, the progress already made and the feedback received from the farmers.

- To achieve programme objectives, it may frequently be necessary to involve more than one research institution (a research institute or an agricultural university under the ICAR systems or within the sister research systems e.g. Council of Scientific and Industrial Research or Indian Council of Medical Research etc.). The coordination of activities within research programmes must be entrusted to a senior scientist (as far as possible, Director of Institute) who will have overall responsibility of executing the programme in its entirety. It is clear that:

    - It is the responsibility of the programme convener (or the leader) to ensure complementation and coordination of programme components/themes) within different organisations.

    - It is the responsibility of the Director of the Institute to ensure complementation and coordination in the research projects of different disciplinary/departmental units within the Institute.

- Prioritisation exercises, similar to those stated above, must also be taken up at the state level where the Vice-Chancellor and his senior colleagues undertake to define the major research priority areas and programmes and allocated resources to them. Scientists at the regional research stations and headquarters together will define research themes and formulate research projects and experiments, etc.

- In addition to the publicly funded research setup, there are a large number of professional societies and academies, which work towards promoting the advancement of science in their respective scientific disciplines or solving regional problems. These societies can play an effective role of providing inputs to decision makers for deciding directions and selecting priority research areas. There is need to sensitise these professional bodies to increasingly assume a role in defining and prioritising research agenda. In this task National Academy of Agricultural Sciences can take a lead role.

- Many organisations the world over have evolved a system whereby scientists source research funds through a competitive grant system. In this system, scientists in research institutes and universities are called upon to formulate projects in response to the priorities defined by professional peers. Only those projects, which respond to these priorities and have the right technical content, receive funding support. At present neither ICAR nor the state agricultural universities operate such a system. Recently a Competitive Grant Programme (CGP) has been initiated under the NATP project of ICAR. However, the grant programme is not specific to any identified research priorities and is somewhat open ended. It is recommended that CGP be initiated in relation to identified priorities on a few major themes of importance.

Manpower Needs

- Institutionalising priority setting in any system requires professional expertise. At present there is extreme paucity of adequately trained manpower in the areas of systems analysis, project monitoring and evaluation and requirement specific social sciences—areas that are important for undertaking prioritisation tasks. Priority setting and targeting of research require a wider use of social and economic criteria in deciding allocation of resources. There is, therefore, need of early review of the present status and future needs of social scientists as a whole (which includes personnel with specialised knowledge in areas of economics, sociology, statistics, management science, etc.) and take the follow-up action.

- Social scientists have a large role in defining opportunities in relation to gap analysis at the macro-level and undertake constraint analysis at the micro-level. In the past, weak social science component within the system has resulted in weak scientist-farming community interface. This has greatly reduced the efficiency and effectiveness of the technology generation and adoption process. There is need to take careful view of the system-wide manpower requirements in the area of social science both in short-term and over longer term periods.

- There is immediate need to organise short duration management oriented training courses and awareness workshops aimed at bringing about change in the mindset of research managers so that they appreciate the need and urgency of shifting towards greater systems perspective and participatory approaches for the developing and executing research agenda. The National Academy of Agricultural Research Management (NAARM) has the overall mandate in this regard and should take upon the task preferably in collaboration with expertise drawn from ISNAR or a similar reputed international centre. The target of these training programmes should be research managers at the ICAR headquarters and its institutes and the SAU system including the zonal research stations. These efforts will need to be persistent and result oriented.

  In the past few years the National Centre for Agricultural Economics and Policy Research (NCAP) has developed expertise for tackling methodological issues of research priority setting. This should be further strengthened through appropriate collaborative links internationally. NCAP should also consider coordinating a research network involving groups engaged in priority setting within the ICAR Institute—SAU systems.

Database Requirements

- Availability of reliable, accurate and easily accessible database is a basic requirement for objective, transparent and participatory approach to formulation of research priorities at different levels. At present our system lacks such information base and poses serious impediment in making progress towards greater objectivity in research planning. It is recommended that ICAR considers initiating a system-wide programme on 'database creation and management' cutting across all the subject matter divisions at the ICAR headquarters, institutes and the SAUs. Indian Agricultural Statistics Research Institute (IASRI) should take a lead in developing, implementing and monitoring progress through a consultative mechanism. Towards this, IASRI should initially hold a series of workshops involving potential partners to define the basis and methodology for database generation and management, role of partners and an operational framework. IASRI's role should be both in providing research leadership (methodological issues) and coordination of otherwise decentralised activities. Director of IASRI should be designated programme leader/convener. He should be assisted by a programme advisory committee consisting of professionals drawn from a range of specialisation whose inputs will be critical to programme success.

- A fundamental requirement for rational decisionmaking is the availability of adequate and reliable information. Amongst others, availability of agroecological data is a primary need for developing a comprehensive framework for priority setting and evaluation of research at regional and national levels. This will call for agroecological zonation and integration of spatial biophysical and socioeconomic factors into regional/national framework for assisting priority setting. The objective is to assess the likely economic benefits of research programmes targeted to specific geographic areas, commodities and social groups to provide policy makers with an assessment of patterns of benefits that will accrue under alternate targeting options. These approaches will also require developments of databases and evaluation models.

- It is recommended that small units should be established in each ICAR institute and in the SAUs (including at each of the zonal research stations) as nodal point for networking.

Methodological Issues

- In recent years considerable progress has been made in developing and employing methodologies for formal priority setting of research based on social, economic and other parameters. The approaches used included benefit-cost analysis, congruence, scoring methods, etc. Efforts are now needed to improve priority setting methodologies by systematically integrating the social and economic parameters and by involving non-social scientists in establishing links between socioeconomic data, technical information about costs, the probability of research success and the overall objectives of research programmes.

- It is important to realise that some commonly adopted approaches based purely on economic considerations have serious limitations. In particular, there are difficulties

in prioritising natural resource management related research because the usual economic models are inadequate to capture the real value of research in this area.

This is also true for socioeconomic research. Research to evolve appropriate methodologies for prioritising research in these areas, therefore, needs to be strengthened. In the absence of such methodology, informed judgement would be made at the policy making level.

Conclusion

The new and changing environment for agricultural research calls for urgent reforms in the way research is managed. Institutionalising priority setting mechanisms is a part of this bigger agenda which encompasses several issues. While the overall reform process has to be necessarily gradual, priority setting should take precedence and must be taken up in the first instance. This calls for commitment on the part of research manager at every level. To begin with, a series of internal discussions can help in orientation of managers by bringing about clarity on issues such as the different levels at which priority setting exercise should be undertaken, who should be involved in this exercise, etc. This should be followed by assigning roles and responsibility at different levels to achieve the objectives.