



## Convergence of the Macro- and Micro-Level Priorities for Agricultural Research

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May 2003

### Context

Macro-level agricultural research priority setting deals with research resource allocation across regions (states, agro-ecosystems, production systems and commodities), whereas micro-level priority setting deals with resource allocation across research programs and projects for a region, commodity, or research institution. The research prioritization, as a systematic, scientific and objective exercise, is undertaken by a multi-disciplinary team in close interaction with all stakeholders like farmers, extension and development workers, industry, NGOs etc. Ideally, the macro priorities should be based on the micro priorities. But it is generally felt that the micro priorities are not systematically and transparently integrated into the macro-level priorities (which are largely commodity and discipline oriented), and thus a disconnect exists between the two. Therefore, there is a need for convergence between the micro and macro priorities to have a proper alignment and continuous linkage from strategic to applied research.

### The Model

ICAR is the central co-ordinating body for agricultural research in India. It lays out broad national priorities taking into account national needs, development objectives and also perceived scientific opportunities. It identifies the priorities of production systems, commodities, ecoregions to achieve national objectives based on the considerations like efficiency, sustainability, equity, and exports. Once the broad priorities are identified, decisions are taken regarding major strategies to be adopted for various commodities/locations. The strategies may depend upon technological opportunities and resource availability. An essential activity at this level should be scientific analysis of various constraints, opportunities, gaps and judgment regarding priorities. If we move one level down, there are ICAR institutes, All India Coordinated Research Projects (AICRPs), State Agricultural Universities (SAUs), Zonal Research Stations (ZRSs), and *Krishi Vigyan Kendras* (KVKs). While SAUs have research and education mandates for their respective state, ICAR institutes, including AICRPs though located in a state, have the national mandate for research (also education in some cases). All these institutions have to follow a similar scientific approach mentioned above to set their research priorities. ZRSs, KVKs and ICAR institutes/AICRPs working with Agricultural Technology Management Agency (ATMA) at the district level can be the most suitable agencies for identification of production constraints, growth possibilities, research and extension gaps and convey them to the research managers and policy makers at AICRPs, SAUs and ICAR institutes. The final decision on research gaps will be pursued as research projects in these institutions are developed, depending upon their mandate and availability of resources. For the macro-level priority setting, ICAR will form a continuum with the SAUs, ICAR institutes and AICRPs.

### Practice

Till the recent past, owing to absence of adequate data on location-specific priorities and lack of quantitative knowledge of field-level constraints and opportunities, research prioritization has been done

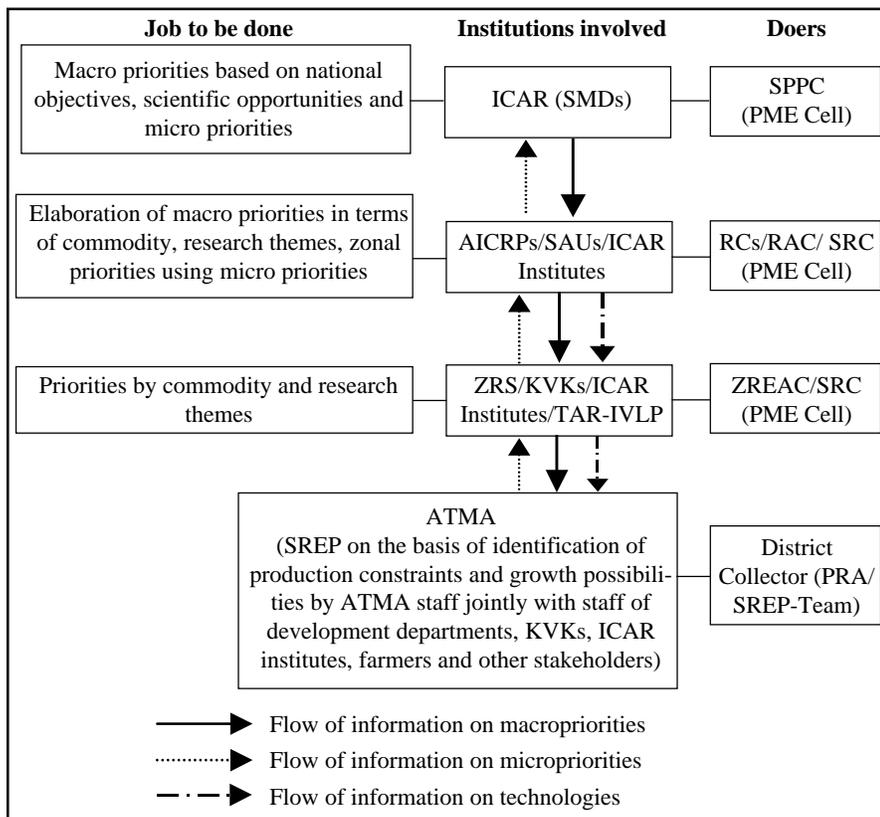
by harmonizing the micro and macro priorities on the basis of experience, perceptions and collective wisdom. The approach is basically commodity/discipline oriented. However, with change of time, the emphasis is shifting towards location-specific farming system research based on priorities of farmers. With this shift, research prioritization should follow the “bottom-up” approach with the micro-level and macro-level priorities forming a circular continuum. We need to have a mechanism to ensure this continuum to avoid the disconnect between the micro and macro priorities.

### Strategy

- There is a need for participatory and bottom up approach for research priority assessment involving various stakeholders like farmers, extension workers, private sector and other agencies, and its implementation across the regions. At present, ATMAS as a model under National Agricultural Technology Project (NATP), have taken up such assessment and are engaged in determination of the micro priorities in various districts through Strategic Research and Extension Plan (SREP) in collaboration with National Academy of Agricultural Research Management (NAARM), National Institute of Agricultural Extension Management (MANAGE) and SAUs. Twenty eight districts have been selected for pilot implementation of this model. The linkages among ATMAS, ICAR institutes, KVKs and SAUs become very important at this stage in undertaking the identified research priority areas. The priorities decided through SREP can be delineated into strategic and applied research. The strategic research priorities in general can be addressed by ICAR institutions, whereas SAUs can deal with regional applied research.
- Research priorities (micro) are to be based on location and system-specific constraints and opportunities identified using objective scientific methods. Participatory Rural Appraisal and other suitable techniques can be used for identifying the production constraints. These constraints after prioritization should be matched with the research agenda of the institutions for the region to find out the research gaps. A constant and periodic evaluation and mid-course correction have to be made in the research agenda and activities of the institutions to see whether the identified research gaps are addressed or not.
- To promote the researcher and stakeholder linkages, particularly in applied research, reward system for the scientists should also consider the success in establishing interaction with farmers and other clientele, besides publication and technology development.
- Various institutions like ICAR (HQ), ICAR Regional Committees (RCs), ICAR institutes, KVKs, ATMAS and AICRPs, have to promote the linkages between the micro and macro priorities. There is a need to look into the roles and functions performed by these institutions. Inter-institutional linkages among ICAR (HQ), ICAR institutes, SAUs, ZRSs, KVKs, ATMA, farmers' interest groups (FIGs) and private sector will have to be taken up in a planned manner to forge the convergence.

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**Fig 1. Schematic representation of convergence between the micro- and macro-level priority setting**



- A schematic diagram showing information flow on research priorities, and mechanisms to converge the macro and micro priorities at various levels in the system is shown in Figure 1. An illustration is also shown in the box.

## Action

### Level 1: ICAR/SMDs

There shall be PME (interdisciplinary professional) group at the ICAR (HQ) to provide quantitative assessment on constraints, gaps, priorities, impacts etc. to the Strategic Policy and Planning Committee (SPPC) to decide research priorities. The PME group will assess the priorities based on the national objectives, scientific opportunities as well as feedback on the micro priorities received from the lower levels, particularly SAUs, AICRPs and ICAR institutes (Refer to Fig 1). PME Cell at the ICAR (HQ) should have linkage with PME Cells in SAUs and ICAR institutes.

### Level 2: AICRPs/SAUs/ICAR institutes

At the regional level, the designated Deputy Director General of ICAR will co-ordinate this activity through one of the identified ICAR institutes which will be convening the Regional Committee meetings. There will be a PME group located in the identified institute and will provide quantitative assessment on constraints, gaps and priorities to the respective Regional Committee on the basis of information on the macro priorities (Level 1) as well as the micro priorities (Level 3). On the basis of the priorities decided after discussion in the RCs, the SAUs/ICAR institutes/AICRPs will further study the constraints at their level through their own PME Cells and set the priorities through their Research Councils/ Research Advisory Committees (RACs). At this point, there would be an attempt to share the research agenda among the institutions.

In general, the basic/strategic research issues will be addressed by ICAR institutes and applied research by SAUs/AICRPs.

### Level 3: ZRS Level

At the ZRS level, the Associate Director of Research will co-ordinate the PME activity and will be assisted by professional feedback from his own PME group. The proposals on constraints, gaps and opportunities will be discussed and priorities decided at Zonal Research and Extension Advisory Committee (ZREAC) and shared by SAUs and ICAR institutes as per their mandate.

SREP will be prepared by PRA - team consisting staff of ATMA, development departments, KVKs, ICAR institutes, farmers and other stakeholders. The SREPs at the zonal level will be made use of by the PME group at level 3 to make proposals on constraints, gaps and priorities.

### Policy Changes Needed

- Constitution of PME Cell at the ICAR headquarters, and strengthening of PME Cells at all SAUs and ICAR institutes.
- Empowerment and well-defined accountability of the ICAR Regional Committees in terms of administrative and financial powers with respect to PME mechanisms. Some resources, e.g. from AP Cess Fund, may be provided to the Convenor of RC to undertake PME work and also support research to fill critical gaps. The details however will have to be worked out.
- Revision of mandate of RACs and SRCs of ICAR institutes for their active role in PME. ICAR has already decided to assign PME role to RACs.
- Federating ATMA/SREP and FIGs at the zonal level and making resources available to ATMAs and FIGs also for supporting location- specific research.
- Strengthening of socio-economics research capacity in ICAR/SAU system to plan and guide PME

### Illustration

The national objective for oilseeds is the import substitution by increasing domestic production and gaining competitiveness in the world market. This could be achieved by raising productivity of the traditional crops (groundnut, rapeseed & mustard) and expansion of the new crops (sunflower). This requires translation of these options into commodity and regional priorities, an issue of the macro priority setting to be addressed by PME Cell at ICAR headquarters. This information generated here flows down the line. In the micro priorities, major production constraints are identified under SREP/ATMA. For instance, SREP may indicate that tikka is a dominant disease of groundnut in Gujarat, while Spodoptera (causing stem rot) is a major pest in south India. For rapeseed and mustard in northern India, major constraints are aphid and pod shattering. Sunflower may be focused in Karnataka, Maharashtra and Andhra Pradesh with a view to minimize yield loss due to birds, rodents and helioverpa. These production constraints and the macro priorities should be considered at the meso level (AICRP/SAU/ICAR institutes) along with scientific opportunities like application of molecular biology and probability of research success to arrive at research programs. Priorities thus arrived should flow upward for adjustment in resource allocations, and downward for their implementation.