

**PROJECT INFORMATION DOCUMENT (PID)  
APPRAISAL STAGE**

Report No.: AB2017

<b>Project Name</b>	National Agricultural Innovation Project (NAIP)
<b>Region</b>	SOUTH ASIA
<b>Sector</b>	Agricultural extension and research (100%)
<b>Project ID</b>	P092735
<b>Borrower(s)</b>	Government of India Department of Economic Affairs, Ministry of Finance Delhi, India, 110001 Tel: 91-11-23092500
<b>Implementing Agency</b>	Department of Agricultural Research and Education, Ministry of Agriculture Krishi Anusandhan Bhawan, Delhi, India, 110012
<b>Environment Category</b>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> FI <input type="checkbox"/> TBD (to be determined)
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**1. Country and Sector Background**

In the last ten years agriculture in India has undergone considerable change. National food self-sufficiency was achieved although many poor households are still at risk. The demand for income elastic products, such as fruits, vegetables, meat, eggs, fish, milk, sugar and edible oils has increased and is encouraging diversification of production. The Government of India (GOI) has begun to reduce domestic and international trade restrictions to meet World Trade Organization (WTO) obligations. While agricultural development has long been production based, its future will be more market driven.

About 80% of the 260m total poor in India live in rural areas and depend upon agriculture for their livelihood. Most are small farmers exploiting a fragile resource base and landless people seeking to sell their labor. Market driven agricultural development affects their poverty through effects on producer incomes, consumer prices, employment and wages, and through multiplier effects throughout the economy. It may also reduce rural to urban migration.

In order to generate additional income and employment for the poor, the role of agricultural research and development (R&D) is critical. Given the limited scope for area expansion, enhanced productivity, profitability and competitiveness would be the main source of the agricultural growth in future and this should be triggered by advances, innovations and applications of science in agriculture. In other words, Indian agriculture will shift from resource or input based growth to knowledge or science based growth. In this paradigm shift, the flow of knowledge and innovations plays a critical role. R&D assumes more importance because it is a cost-effective method for promoting sustainability and attaining competitiveness. Harnessing advances in frontier sciences in selected priority areas to attain global competitiveness with larger spin-off benefits to India has to be given focused attention. Similarly, in the context of development of marginal and disadvantaged areas where possibility of irrigation expansion is very limited, productivity can only be enhanced by technological advancements complemented with institutional and policy support.

The challenges for the national agricultural research system led by the Indian Council of Agricultural Research (ICAR) are threefold: coming to grips with the growing importance of the market and agri-business; addressing the problems of the many poor farm families living in disadvantaged areas; and strengthening its position at the frontiers of agricultural science. The system has considerable technological capacity in place, and has gradually strengthened its focus on non-staple foods, its interaction with the private sector and its farmer focus. To strengthen the role of agricultural research for poverty alleviation and income growth in a market context, however, deeper changes are required.

## **2. Objectives**

The objective of the project is to contribute to the sustainable transformation of Indian agricultural sector from food self-sufficiency to one in which a market orientation is equally important for poverty alleviation and income generation. The specific objective is to accelerate the collaborative development and application of agricultural innovations between public research organizations, farmers, private sector and other stakeholders.

Key indicators of success are the increased availability of knowledge products and public awareness messages of the National Agricultural Research System (NARS), increased collaboration with farmer, Non-Governmental Organizations (NGOs) and private sector organizations, increased availability and use of technologies that have been jointly developed between consortia partners in support of strengthened production to consumption systems and enhanced rural livelihoods, and a strengthened capacity for basic and strategic research.

## **3. Rationale for Bank Involvement**

The proposed project contributes to the Bank's objectives, as expressed in the Country Assistance Strategy (CAS) 2004, to increase its lending in support of rural livelihoods and accelerating rural growth. It responds to the intentions that are expressed on pages 52-53 of the CAS: "Increasing agricultural productivity and diversification to higher value products, including crops, livestock, and fisheries, will be instrumental to re-energizing the agricultural sector to achieve higher growth. To achieve these goals it will be essential to foster broad-based availability and adoption of improved agricultural technologies and practices by farmers and closer integration of farmers with input and output markets. The Bank will assist in strengthening the agricultural research and extension system, with efforts to promote demand-driven, decentralized public agricultural research and extension systems, greater public-private partnerships, and closer linkages with various domestic and international sources of technologies and knowledge."

## **4. Description**

The project pursues the further evolution of the Indian agricultural research system as supported in the past by National Agricultural Research Project I-II and by the National Agricultural Technology Project (NATP). NAIP is designed to strengthen ICAR's role as a catalyst of change in the national agricultural innovation system, and to fund partnerships in value chains and livelihood research consortia which will strengthen the research and development networks in these areas, benefiting all players involved and contributing to some of the higher level objectives mentioned above. For this purpose NAIP has four components.

**Component 1: ICAR as the catalyzing agent for management of change in Indian NARS(US\$ 46 million)**

With the fast evolving globalization of agriculture and importance of markets increasing on the one hand and the need for sustainable productivity increases and livelihood support to many farmers on the other, the role and expectations on the agricultural research system have become quite complex. ICAR has to provide leadership and empower the NARS and the expanding group of other research providers (including private sector, other public sector entities, and NGOs) to adapt to the demands of this new setting. The Indian agricultural innovation system needs to be flexible, motivated, creative and in close correspondence with a fast changing world. This will require a dynamic system with flexible modes of operation and decision making.

To put in place the key features of this system, Component 1 will support the following activities:

- Strengthening information, communication and dissemination systems for greater dialogue and interaction within the system and among the stakeholders
- Enhancing public awareness capacity and improved knowledge sharing
- Establishing business development models for technology commercialization and incubation
- Assessing and adapting the current Learning and Capacity Building and Human Resource Development initiatives; introducing models like e-learning, distance learning and developing training materials to prepare scientists and support staff with newly required skills and knowledge.
- Developing agricultural and research policy capacity including the gender aspects and visioning skills, and strengthening impact assessment capacity; and
- Remodeling and advancing financial management and procurement for the ICAR system.

Innovative approaches to reform and capacity building will initially be taken up in a relatively small number of organizations so that they can be thoroughly validated before further dissemination through the system.

### **Component 2: Research on production to consumption systems (US\$ 75 million).**

The specific objective of this component is to establish market-oriented collaborative research alliances for sustainable improvement of selected agricultural production to consumption systems (PCS). This will be achieved by encouraging different organizations (public, private, NGOs, farmers groups, international organizations, etc.), which are involved in producing, harvesting, processing and marketing of a particular product, to join forces in a consortium framework and compete for funding aimed at improving the profitability and the sustainability of the product's PCS. The system includes the technologies used to grow and process the material, as well as the social, institutional and economic environment in which these processes operate. Partner organizations will be jointly responsible for the governance, design and implementation of research programs, and the application of resulting innovations through out the PCS.

About 15 consortia will be selected from across sub-sectors of Indian agriculture. The concept is that a few but well financed consortia will be able to galvanize greater interest from different PCS partners, and enhance collaboration and openness which is key to capturing integration and economies of scale benefits. PCSs around which research consortia will be formed, will be selected from those sub-sectors that show good productivity levels with potential for growth, value addition, competitiveness advantage export potential, and opportunities for backward and forward linkages; Further these chains should help in sustaining food security, augmenting incomes and generating new employment prospects.

### **Component 3: Research on sustainable rural livelihood security (US\$ 73 million).**

The core objective of this component is the sustained improvement in the incomes and wellbeing of farm families in mainly rain-fed, hill and mountain, dryland and coastal areas which have so far been left

behind in development. This would be achieved by encouraging different organizations, both in the public and private sector, with capacity to address specific issues in the concerned agricultural production systems to collaborate through forming consortia, and make these compete for funding aimed at enhancing productivity, profitability and sustainability. These consortia will bring together farmers and other client groups, agricultural service providers in research and extension, private sector companies involved in input provision, processing and marketing, NGOs, ongoing agricultural development projects, etc. Through NAIP they will be provided with the incremental capacity to address urgent R&D issues in a holistic and integrated fashion. For the NAIP support under this component to be well-focused, objective criteria will be developed in order to define a subset for the NAIP funded consortia within the 150 districts identified by the Planning Commission as backward.

Under NAIP, the preference would be for competitive Consortium selection. There are, however conditions, especially in disadvantaged areas where considerations of urgency or institutional weaknesses would favor inviting a specific (public or private sector) institution to submit a proposal for a consortium without competition. If approved, a binding contract for implementation would be signed with the Lead Institution and afterwards sponsored consortia would operate under the same terms as the competitive ones. Invited consortium development will be assigned, where possible to State Agricultural Universities.

NAIP would finance research and some development activities necessary for the uptake of research results. These would likely focus on improvement of production systems, enhancing natural resource management (with special emphasis on water), empowerment of local communities, institutional development within the focus regions, creation of rural employment opportunities, enhanced household nutrition and food security and alleviating rural poverty. Funding will typically cover activities undertaken by research, academic and private institutions which are working in partnership with farmers and input and output agencies. Up to a maximum of 20% of consortium funding will be provided for conducting (i) feasibility studies, (ii) designing pilot projects that would lead to the adoption and upscaling of improved technologies, and (iii) implementing pilot projects. Financing could also be applied to activities to create awareness or mobilizing local communities and where technology adoption would entail significant risk, as long as sustainability is assured. About 20 livelihood-oriented R&D Consortia would be financed and no more than half of funding would be assigned in a sponsored manner.

#### **Component 4: Basic and strategic research in the frontier areas of agricultural science (US\$ 56 million)**

The Indian NARS not only has to find solutions to the immediate problems of farming but also has to keep its scientific competency in the forefront, to meet all continuously emerging anticipated and unanticipated problems. With globalization and the ever expanding frontiers of science the NARS not only has to remain globally competitive in its agricultural science base but also will have to take the lead in the world in areas of its demonstrated advantage. This apart, the best of scientific capabilities will be required to solve a number of specific but critical bottleneck technological problems of agriculture, which have been preventing or are likely to prevent Indian agriculture from competing globally. Solutions to these problems will require focused and highly innovative basic and strategic research and its application.

Component 4 will support focused research in well-defined areas of frontier science, with strong bearings on Indian agriculture. Possible areas of research have been identified by an intensive process of consultations among scientists from India and abroad. Collaboration of foreign scientific institutions or individual scientists with global leadership in the relevant areas of science will be encouraged. Management of component 4 will be along the same lines as the management of components 2 and 3.

NAIP will finance principally research and capacity building activities. Funding would typically cover activities undertaken by research, academic and private institutions which are working in partnership.

This will include investment and operational costs and a limited portion of the personnel costs (especially short-term contractual staff in institutions with insufficient capacity in essential areas of expertise). While component 4 will have a less explicit development dimension, a major emphasis will be on obtaining Intellectual Property (one of the central indicators for this component). In Component 4 a higher share of resources will be spent on training in advanced laboratories and on procurement of the equipment for frontier research. About 15 consortia will be funded.

## 5. Financing

Source:	(\$m.)
BORROWER	50
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT	200
Total	250

## 6. Implementation

### Partnership arrangements

NAIP will reach out to stakeholders in the Indian agricultural innovation system in a significant and substantial manner. Therefore, partnership arrangements will ensure proper and substantial representation of the different stakeholder groups. The main stakeholders will include public research organizations (like ICAR, SAUs), other research departments and organizations, the private sector, NGOs, farmers organizations etc. The partnerships for the research components will be in the form of consortia with well defined terms of reference, M&E framework, clear rules for sharing resources and costs and a well established governance structure.

### Governance arrangements

A “*National Steering Committee*” (NSC) of key stakeholders in the NARS will be established by the ICAR to serve as the national apex body responsible for all aspects of NAIP. The NSC will be the custodian of NAIP, setting overall policy and providing guidance in order to ensure the timely achievement of the main goals of the project. The NSC will be supported by the Project Implementation Unit (PIU).

A “*Project Management Committee*” (PMC) will have direct executive responsibilities for sanctioning the proposed NAIP-financed activities and for the overall management of NAIP, involving oversight of the effective and efficient implementation of the entire project, resource management and use, and for monitoring and evaluation (M&E) of all NAIP-supported activities. The PMC will also serve as the link with the Subject matter-related Divisions of ICAR - for technical liaison, and for resolving any management problems.

An “*O&M Program Committee*” (O&MPC) will be a multi-disciplinary panel responsible for selecting and awarding activities proposed under NAIP Component 1. O&MPC will also guide the effective and efficient implementation of these activities through inputs at critical stages such as the Annual NAIP Workshops and Mid-term reviews (MTRs).

A “*Research Program Committee*” (RPC) is responsible for objective and transparent assessment and selection of grant funding for Consortia under Components 2, 3 and 4. The RPC will also be involved at

the time of the NAIP Annual Workshop and Consortia MTRs and in case there is a need for substantial modifications and/or cancellation of ongoing consortium activities.

“*Consortium Advisory Committees*” (CACs) will be responsible for setting priorities and local level oversight, monitoring implementation of approved NAIP consortia, and for approving any required modifications during implementation under Component 2, 3 and 4.

### **Management arrangements**

A “*Project Implementation Unit*” (PIU), headed by the National Director (ND) will be responsible for the coordination and facilitation of implementation of the entire NAIP. The PIU includes 4 National Coordinators (NCs), one for each component. The PIU also comprises expertise in administration, finance, procurement, M&E, and social/environmental aspects.

The “*O&M Advisory Group*” (O&MAG) will be a multi-disciplinary advisory panel responsible for organizing the screening and evaluation of activities proposed under NAIP Component 1 before final consideration by O&MPC. O&MAG may appoint consultants for in-depth review and assessment of proposed component 1 activities.

Three “*Technical Advisory Groups*” (TAG2, TAG3, and TAG4) will be responsible for facilitating and synthesizing “peer reviews” involving scientific and technical assessment for final consideration by RPC of proposals under NAIP Component 2, 3 and 4, respectively. TAG members will participate in annual workshops; they will also assist in monitoring progress and quality of implementation especially during MTRs and in case substantial modifications (or cancellation) are required. The TAGs will frequently call on referees to assess consortium proposals to be supported under Component 2, 3 and 4.

“*Consortium Implementation Committees*” (CICs). Most if not all Consortia will establish a committee which is responsible for day to day coordination and management of the preparation and implementation of each consortium under NAIP Component 2, 3 and 4.

### **Monitoring and evaluation of outcomes/results**

NAIP will develop a results-based M&E system that will monitor project processes using the following methods and tools:

- A well defined Results Framework that is derived from clearly defined goals, objectives, outputs and activities with corresponding indicators, means of verification and key assumptions;
- A well defined M&E strategy regarding information requirements, tools and methodologies for data collection, analysis and reporting;
- A comprehensive M&E plan with clear roles and responsibilities with respect to data gathering and reporting;and
- Internal and External periodic assessment and evaluations which include baseline studies, beneficiary assessments, two mid-term evaluations, ex-post evaluations and impact assessment.

An M&E consultant at the national level will be will be responsible for guiding the overall M&E effort within the project and vis-à-vis partners, plus providing timely and relevant information to the NAIP management team and stakeholders. The consultant will operate in close coordination with the people in charge of M&E in the consortia, the National Steering Committee and the National Director, external consultants and field staff where appropriate, as well as members of external M&E missions.

Each consortium will be required to establish its own M&E capacity and to design its own M&E plan. This will be laid out in the Guidelines for consortium development. Issues that will be addressed by all

consortium M&E groups are: Consortium formation and management; research preparation and implementation; knowledge management activities; capacity building activities; product development and technology transfer activities; financial management; procurement; impact evaluation. In addition consortia can add further indicators as required by their own unique nature. The M&E unit of each Consortium will report to both the Consortium Leader and the Consortium Advisory Committee.

NAIP will commission external evaluation studies and impact assessments to complement the internal monitoring arrangements. NAIP will promote participatory monitoring to ensure that project implementation processes are executed in a satisfactory manner and that benefits are sustainable.

## **7. Sustainability**

NAIP is envisaged as an integral part of the agricultural R&D system of the country. It will not build a parallel system but rely on the existing institutions and organizations in and around the sector. Hence, sustainability of most of the outcomes of the activities of NAIP is ensured. Furthermore, at the level of each component and consortium plans will be drafted on how results will be internalized and sustained once the project closes. The activities planned in the Component 1 form a continuum in the ongoing overall reform process of the Govt. of India in general and ICAR in particular. Therefore these activities & outcomes by their very nature will be sustainable.

The approach of working through consortia in components 2, 3 and 4 of the project is relatively new though the system has large experience with other forms of collaboration such as the All India Coordinated Trials. The sustainability and mainstreaming of this approach can be judged partly on the basis of the number of consortia established outside NAIP by ICAR or other agencies by the end of the project period and partly by how consortium partners continue to work together beyond the project period. As the major opinion makers and decision makers from both private and public sectors will be involved in the implementation structure of the NAIP, it is highly likely that successful consortia will be sustained and that the approach, if proven successful, will be mainstreamed. To put this into practice the project will have two interim evaluations, after 18 and 36 months. If these evaluations are positive, ICAR and Bank will discuss the possibility that ICAR starts establishing consortia outside of the NAIP project..

## **8. Lessons Learned from Past Operations in the Country/Sector**

The following lessons pertaining to project planning, management and implementation were drawn from NATP and other projects in India.

- Organizational and management changes, when not accompanied by clear communication strategies, become stand alone elements and do not necessarily increase the learning ability of the organization. NAIP therefore focuses in component 1 on the process of dialogue, interaction and communication in addition to the achievement of concrete outputs like content provision in knowledge management , business development and technology incubator units.
- NATP undertook an enormous number of activities across many fields. While most were concluded successfully, the bigger picture of what was achieved was not always clear. A more focused project might be easier to manage in terms of corrective action and enhancement and dissemination of outstanding results. While NATP funded over 800 research projects NAIP will fund a much smaller number much bigger projects.
- The large number of small projects in NATP made it difficult to obtain and observe on the ground progress. The critical mass, the partners and the momentum required for such change was often not there. This is another reason to plan large grants in the order of USD 3 to 10 million in NAIP.

- In NATP some public-private partnerships were established, but the number was small. The missing elements were a lack of investment in partnership building and inadequate attention to the dissemination of potential benefits. NAIP provides strong incentives for public and private partners to work together and will invest in facilitation and match making activities.
- Engaging stakeholder groups in the design of activities improves participation, ownership, effectiveness and sustainability of project interventions. In NAIP consortia will be designed with stakeholder participation from the first moment onwards, and in the consortium selection process the quality of stakeholder engagement will be an important criterion.
- The emerging partnerships with the private sector and NGOs in NATP have raised issues relating to IPR, contractual arrangements and benefits sharing. These will be addressed in the working modalities of the consortia in component 2, 3 and 4 and in the business development units of component 1.
- In NATP a direct flow of funds from PIU to the spending unit with the approval of the appropriate authority would have led to an efficient fund flow and financial management reporting structure. NAIP aims to achieve this by linking direct disbursement with the establishment of a computerized on-line financial management system at the PIU that is accessible to all consortium leaders and partners.
- NATP showed that flexibility in procurement arrangements can speed up disbursement and project implementation. Centralized procurement is not always the most appropriate method of procurement, certainly not where engagement of stakeholder organizations is pursued. Procurement in the NAIP-funded consortia will be largely based on principles of decentralization.

## 9. Safeguard Policies (including public consultation)

Safeguard Policies Triggered by the Project	Yes	No
<a href="#">Environmental Assessment (OP/BP/GP 4.01)</a>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Natural Habitats ( <a href="#">OP/BP 4.04</a> )	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pest Management ( <a href="#">OP 4.09</a> )	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cultural Property ( <a href="#">OPN 11.03</a> , being revised as OP 4.11)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Involuntary Resettlement ( <a href="#">OP/BP 4.12</a> )	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Indigenous Peoples ( <a href="#">OD 4.20</a> , being revised as OP 4.10)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Forests ( <a href="#">OP/BP 4.36</a> )	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Safety of Dams ( <a href="#">OP/BP 4.37</a> )	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Projects in Disputed Areas ( <a href="#">OP/BP/GP 7.60</a> )	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Projects on International Waterways ( <a href="#">OP/BP/GP 7.50</a> )	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## 10. List of Factual Technical Documents

### 11. Contact point

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