

PROJECT INFORMATION DOCUMENT (PID) CONCEPT STAGE

Report No.: PIDC10068

Project Name	National Agricultural Higher Education Project (P151072)
Region	SOUTH ASIA
Country	India
Sector(s)	Agricultural extension and research (50%), Tertiary education (30%), Agro-industry, marketing, and trade (10%), Public administration- Education (5%), Information technology (5%)
Theme(s)	Education for the knowledge economy (35%), Managing for development results (5%), Rural services and infrastructure (30%), Improving labor markets (20%), Rural policies and institutions (10%)
Lending Instrument	Investment Project Financing
Project ID	P151072
Borrower(s)	Republic of India
Implementing Agency	Indian Council of Agricultural Research
Environmental Category	B-Partial Assessment
Date PID Prepared/ Updated	17-Mar-2015
Date PID Approved/ Disclosed	17-Mar-2015
Estimated Date of Appraisal Completion	07-Aug-2015
Estimated Date of Board Approval	27-Oct-2015
Concept Review Decision	Track II - The review did authorize the preparation to continue

I. Introduction and Context

Country Context

India is a lower middle-income country with per-capita GDP of US\$ 1,499 (2013). From 2001 to 2011, India's economy performed well, with sustained annual GDP growth of 8%. High rates of investment and savings contributed to this growth, as did strong exports. Yet more than 400 million people in India still subsist on less than US\$ 1.25/day. India faces challenges in reducing extreme poverty, curbing high malnutrition and achieving shared prosperity. The Government of India has emphasized increased farm productivity as fundamental to India's poverty reduction and growth strategy. Building relevant skills sets has been a persistent challenge across the economy. Educational institutions, particularly at the tertiary level, are critical to accelerate India's emergence

in global markets, yet teaching is poorly linked with labor market demand, research and development, thereby producing graduates with limited problem-solving skills.

Sectoral and Institutional Context

Agriculture in India employs 52% of the labor force and is the main source of livelihood for 80% of the rural poor, but contributes only 14% to GDP and 10% to total exports. Women constitute about 60% of the economically active population in agriculture and livestock. The Green Revolution in the late 1960s and 1970s, with investment in new seeds, production technologies, cultivation methods and irrigation practices, improved agricultural productivity and made India food-secure. Where the Green Revolution flourished – Haryana and Punjab – are today among the higher income states in the country. However, agricultural productivity growth declined in the 1990s, rebounded in the 2000s, and today still remains low. Moreover, this growth has been largely price driven and heavily reliant on inputs rather than efficiency gains.

At current Total Factor Productivity (TFP) growth, India's domestic agricultural output will meet 59% of the country's 2030 projected food demand (GAP Report 2014). Agricultural higher education can be the engine for increasing productivity through better skilled technicians, innovative research and extension linked to technologies and practices, common under the Land Grant model. A 2014 Bank agricultural sector study argues that while India doubled investment in agricultural research and extension (0.4% of AgGDP in 1981 to 0.96% in 2011), the quality of innovation has suffered along with institutional capacity to adapt and remain relevant. Reawakening the "research-education-extension nexus" intrinsic to the Land Grant model can propel India's agricultural innovation, farmers' technology adoption and agriculture's overall transformation. In Brazil, for example, the Coordination for the Improvement of Higher Education Personnel (CAPES) and the National Council for Scientific and Technological Development (CNPq) have worked together to build and maintain high-quality faculty in universities nationwide.

The National Agricultural Education System comprises 56 State Agricultural Universities (SAUs), one Central Agricultural University, and four Research Institutes with deemed-to-be university status. The first SAU – G. B. Pant University of Agriculture and Technology, Pantnagar – was established in 1960 based on the US Land Grant model emphasizing the integration of research, education and extension. Under the Indian Constitution, statutory control of agriculture (including agricultural education) lies with the respective State Governments while the Union Government coordinates and sets educational standards. In 1996, the Indian Council of Agricultural Research (ICAR) began voluntary SAU accreditation to establish norms and quality standards for agricultural higher education. ICAR continues its financial support to SAUs for accreditation; to date, ICAR has accredited 43 SAUs.

The face of Indian agriculture has changed. Women producers must participate in and benefit from agricultural research, education, and extension. There is also growing private sector demand for skilled labor in all aspects of agriculture, particularly high-value agro-industry, food processing, and specialized knowledge-intensive areas such as water efficiency, food safety, and trade. A 2014 assessment of human resource requirements shows an annual deficit of 14,000 in satisfying the demand for degree holders in agricultural and allied sciences. A 2010 National Academy of Agriculture Research Management study found a jobs deficit of 50% in agriculture and allied sciences relative to the anticipated demand in 2020. SAUs must adapt to the rapidly changing agricultural sector and its increasing knowledge intensity, and prepare the high-quality human resources essential for any technology and innovation system to succeed.

Yet the once-impressive SAUs established during the Green Revolution have become less effective and less relevant in stimulating transformative change in Indian agriculture. The research-education-extension synergy — strong in earlier years — has waned substantially and academic inbreeding has stunted teaching curricula, eroded faculty quality and weakened research and extension outcomes. As a result, the SAU system is not attracting high-quality students to equip the next generation of talent to lead India's agricultural growth, principally in the private sector.

ICAR has taken the lead in analyzing the challenges facing agricultural higher education in India. This has led to an ambitious reform agenda for SAUs, spelled out in the 2013 Bhubaneswar Declaration, emphasizing: (a) transparent governance; (b) financial and academic autonomy; (c) adequate and consistent funding; (d) standards and accreditation; (e) public-private partnerships; (f) revamped teaching curricula and methodologies; and (g) international cooperation. Several challenges confront SAUs, among these:

- **Poor governance:** Vice-chancellors tend to be political appointees and often have little role in setting budget priorities or allocations. Overall accountability is weak and not linked to desired academic outcomes.
- **High faculty vacancy rates and pervasive academic inbreeding:** Some 56% of SAU faculty positions are vacant, with minimal recent recruitment, leading to heavy workloads, poor teaching performance and scarce time available for research or extension. Limited contacts with national or international centers of excellence and weak linkages with industry, farms and the private sector have led to academic stagnation, at a time when competitiveness requires more such interaction. There are few incentives to spur faculty productivity in teaching, research or extension.
- **Disconnect between agricultural education and employment:** The private sector generates nearly one-half of agricultural employment, yet curricula remain focused on the shrinking opportunities in the public sector. Importantly, curricula lack a problem-solving orientation. SAUs must strengthen job-driven programs, including entrepreneurship-focused courses, to build avenues for off-farm work and facilitate technology transfer from lab-to-land.
- **Capital development and financial management:** Salaries comprise up to 90% of SAUs' budgets, funding is almost entirely sourced from the public sector and has not kept pace with increasing student admissions. In contrast, Michigan State University, a model for Indian SAUs, sources 10% of its annual budget from public funds. SAUs must begin to raise their own resources through fee-based/market-oriented programs, sales of proprietary seed/planting material, consultancies and capital development initiatives.
- **Meeting globalization:** Greater infusion of frontier science subjects (e.g., biotechnology, nanotechnology, precision and climate-resilient agriculture, information and communication technology), good trade practices, ethics of intellectual property rights and genetically modified crops, and market intelligence have become critical to promote efficiency, awareness, equity, and competitiveness in agriculture as India strives to cement its role as a global player in agriculture.
- **Forging service market development:** Staffing of Agricultural Technology Management Agencies (ATMAs) and Krishi Vigyan Kendras-KVKs (Agriculture Science Centers) and other professional private and public agricultural service providers will require business and technical skills to meet the knowledge demanded by farmers, particularly women.

The World Bank and ICAR have a long and fruitful collaboration, most recently through the National Agricultural Innovation Project (NAIP), National Agricultural Technology Project (NATP) and sector work. The current ICAR reform priorities require further refinement and focus, and ICAR has requested World Bank support as a knowledge adjunct to the proposed project.

The challenges faced by SAUs mirror those faced in general by higher education in India. The needs of the agricultural sector resonate with other sectors, i.e., highly trained workforce and relevant cutting-edge research. The Bank's Agriculture and Education Global Practices are collaborating on the proposed project to ensure that the SAU reform process benefits from innovations in both sectors across India and internationally. Through strategic priority interventions at the Central and State levels, the proposed project would have far-reaching and long-term impacts on agricultural higher education in India. The project would also incorporate disbursement-linked Indicators (DLIs) to build time-bound financial incentives for SAUs and ICAR in pursuit of the proposed reform agenda.

Relationship to CAS

The proposed project supports the Country Partnership Strategy (CPS) 2013-17 and addresses the three engagement areas of integration, transformation and inclusion. These engagement areas foresee increased agricultural productivity and also support quality improvements of higher education to create a more skilled workforce that continuously improves the productivity of key sectors, including agriculture. Further, by working with SAUs in low-income states, the proposed project supports the CPS strategy of improving their economic performance.

The proposed project is a multi-Global Practice collaboration (Agriculture and Education) and is expected to support activities and results directly related to cross-cutting strategic areas of climate change, jobs, gender and public-private partnerships.

II. Proposed Development Objective(s)

Proposed Development Objective(s) (From PCN)

The project development objective is to increase educational relevance and quality in selected State Agricultural Universities.

Equity, especially gender and caste-based equity, is a cross-cutting theme of the proposed project and would be tracked through the key performance indicators.

Key Results (From PCN)

The following key performance indicators are proposed:

1. Percentage change in SAU faculty scientific effectiveness as measured by h-index [quality];
2. Percentage change in level and source(s) of SAU revenue [quality];
3. Increased awareness and uptake of locally-relevant agricultural research [relevance];
4. Increased student retention rates, disaggregated by gender and SC/ST [quality, relevance and equity]; and
5. Increased satisfaction rates of students, farmers and agribusinesses with SAU curricula and service provision [quality and relevance].

III. Preliminary Description

Concept Description

The proposed project addresses strategic reforms in agricultural higher education at the state level (targeting SAUs) and the central level (focused on ICAR). Selected SAUs would pilot a range of innovations in education, research and extension under diverse settings. In so doing, these SAUs

will test options to create 21st century educational institutions to successfully meet the current and future challenges facing India's agricultural sector. These institutions will attract a diverse cadre of high-quality students, train them with labor-market relevant skills, nurture research talent and ensure knowledge flows between lab and land. The second set of reforms will empower ICAR by strengthening its capacity to provide strategic support to SAUs nationwide.

The project would likely consist of three components:

Component 1 – Support to State Agricultural Universities – addresses the need to raise educational quality and relevance in SAUs and create knowledge and technology hubs for priority themes in support of agricultural transformation. The component, which would absorb most of project finance, would have two sub-components:

Sub-component 1a – Investments toward 21st Century State Agricultural Universities – would target reform-ready SAUs and States (applying verifiable criteria) and support Institutional Development Plans (IDPs), developed through multi-stakeholder processes, that undertake key governance reforms, finance new and refurbished research and teaching facilities, curricula and faculty development, training for administrators, strengthening locally relevant research, student placement and technical assistance. Supported IDPs would also emphasize universities' exploring of alternative income streams, such as: tuition; alumni contributions; competitively-selected research projects; patents; joint ventures; extension services; consultancy services; and special courses for mid-career professionals. These diverse activities would not only generate own financial resources for SAUs, but also link them to the national and global knowledge economy, thereby further enhancing their relevance. By focusing on income-earning capacity, SAUs would also create openings for sustained private sector participation. Suitable twinning arrangements with foreign universities would also be explored, as would innovative pilots for research dissemination and mechanisms for internal revenue generation.

Sub-component 1b – Investments in Centers for Advanced Agricultural Science and Technology – would support SAUs in establishing interdisciplinary centers for teaching, research and extension on critical agriculture and rural development topics (e.g., agricultural adaptation to climate change; land and water use efficiency, scalable technology and mechanization, agro-industry, agro-entrepreneurship). Multi-stakeholder consultations would inform the selection of geographic locations and core themes under the sub-component. The sub-component would finance research and teaching equipment, faculty and scientist development fellowships, scholarships, and costs associated with twinning arrangements with similar centers outside and within India.

Component 2 – Investments in ICAR for Leadership in Agricultural Higher Education – would: (a) empower ICAR by financing its own internal reforms to enhance its effectiveness in coordinating, guiding and managing agricultural research and education nationwide; and (b) support ICAR in its interactions with SAUs and key stakeholders nationwide through interventions that increase the quality and relevance of agricultural education. The component would have two sub-components:

Sub-component 2a – Investments in ICAR to support excellence in SAUs – would leverage ICAR's comparative advantage in assessing systemic challenges across all SAUs and incubating solutions. Among the interventions financed would be: (a) digital information systems for SAU data collection and analysis to improve quality metrics in agricultural higher education; (b) an improved curricula review process to tighten its relevance in today's dynamic job market; (c) enhanced methods to

consolidate and disseminate global best-practices (e.g., benchmarking) in agricultural higher education; and (d) institutionalization of stakeholder and advisory inputs to better inform research, education and extension across the SAU system.

Subcomponent 2b – ICAR innovation grants to SAUs – would be open to all SAUs nationwide and support interventions that would include: (a) quality assurance (e.g., accreditation); (b) next-generation management information and financial management systems to increase transparency and administrative efficiency; (c) campus student placement offices to facilitate stronger linkages between academics and future employment opportunities; (d) theme-based competitive grants to students, faculty and academic departments to promote inter-state and international collaboration, including matching funds from the private sector; and (e) needs-based equipment, training and technical assistance.

Component 3 – Project Management and Learning – would support ICAR’s project management, primarily through its Education Division, to administer, supervise, monitor and evaluate overall project implementation. The component would also support the formation of an external advisory board to guide ICAR throughout project implementation.

IV. Safeguard Policies that might apply

Safeguard Policies Triggered by the Project	Yes	No	TBD
Environmental Assessment OP/BP 4.01	x		
Natural Habitats OP/BP 4.04		x	
Forests OP/BP 4.36		x	
Pest Management OP 4.09	x		
Physical Cultural Resources OP/BP 4.11		x	
Indigenous Peoples OP/BP 4.10			x
Involuntary Resettlement OP/BP 4.12		x	
Safety of Dams OP/BP 4.37		x	
Projects on International Waterways OP/BP 7.50		x	
Projects in Disputed Areas OP/BP 7.60		x	

V. Financing (in USD Million)

Total Project Cost:	165.00	Total Bank Financing:	82.50
Financing Gap:	0.00		
Financing Source			Amount
BORROWER/RECIPIENT			82.50
International Development Association (IDA)			82.50
Total			165.00

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