



Strengthening National Agricultural Education System

– A Road Map

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Preamble

*A*gricultural education in India has a rich legacy, tracing its origin to the medieval era, with prominent institutions like Nalanda and Takshashila universities incorporating agriculture as part of their curricula. The evolution of agricultural education over the time led to the establishment of various agricultural colleges and universities across the country. Notable in this regard were the report of joint Indo-American Teams in 1955 and 1959 and the recommendations of the Cummings Committee in early 1960s which paved the way for the establishment of State Agricultural Universities (SAUs) across India based on the Land Grant System of USA on agricultural education and its integration with research and extension. GB Pant University of Agriculture and Technology (earlier Uttar Pradesh Agricultural University), Pantnagar, established in 1960, was the first Land Grant System University in the country. Presently, there are 76 State Agricultural Universities (including veterinary,

horticulture, fisheries universities), 4 ICAR Deemed Universities (DUs), 3 Central Agricultural Universities (CAUs), and 4 universities with agriculture faculty, and general universities imparting education in different disciplines of agriculture. These institutions played a key role in advancing agricultural research leading to Green, White, and Blue revolutions, transforming India from a food deficit to a food secure nation.

Over the years, however, need has been felt for reforms in the agricultural education system so that it continues to produce highly-skilled human resource capable of fulfilling the growing food and agricultural needs of the country. The Indian Council of Agricultural Research (ICAR), having the mandate of managing, coordinating and guiding agricultural education across the country, has been performing actively towards that end. The Council has so far come out with the Model Act (revised five times) for establishment of agricultural universities, course curricula revisions through Deans Committee reports, and

through special World Bank projects supported institutional development as well as systemic reforms. Still, there is a need for more comprehensive reforms. According to National Education Policy (NEP) 2020, while State Agricultural Universities constitute about 9 per cent of all universities in India, enrolment in agriculture and allied sciences is less than 1 per cent of all enrolments in higher education. The NEP-2020, calls for improvement in both the capacity and quality of agricultural education.

The World Economic Forum (WEF) has recently defined Education 4.0 in the context of four interventions that can make education in India more accessible and inclusive: (i) foundational literacy and numeracy (FLN), (ii) teachers' capacity building, (iii) school-to-work transition: promotion of vocational education, and (iv) connecting the unconnected. Emphasizing that learning outcomes among school children in India have significant scope for improvement, the Education 4.0 India Report commends a multi-stakeholders approach to bridge various gaps with a transformative framework. The approach supports development of curriculum, content, capacity, communication, and digitalization for improvement of education for skills.

The main issues currently affecting the performance of SAUs are: (i) proliferation

of universities, particularly private agricultural colleges/universities established with inadequate planning, infrastructure, teachers and meagre allocation of resources; (ii) *de novo* opening of single-faculty and bifurcation/trifurcation of existing multi-faculty into single-faculty universities like veterinary, fishery, and horticulture defies the well-accepted principle of integrated education; (iii) interference in administration compromises the autonomy of institutions; (iv) the governance systems are not taking advantage of the modern tools of good governance and social audit, etc.; (v) SAUs often face limitations in state funding and financial support from the central government– most of the funding goes in salaries alone, leaving a miniscule amount for operational expenses, thus adversely impacting the quality of education, research, and extension; (vi) disturbing dilution of integration between teaching, research, and extension within the agricultural university education system is adversely impacting the output of faculty and human resource development; (vii) non-alignment of the agricultural education system with evolving agricultural needs, technological advancements, and changing societal demands; (viii) lack of a robust review and assessment system that rewards merit and excellence in science and innovations; (ix) lack of a student-based teacher

evaluation system linked to incentives and rewards for excellence; and (x) serious gaps among targets, outputs, outcomes, and impacts attributed to non-availability of ground level quality data and poor implementation.

In addition, some recent cases in SAUs pertaining to dispute about the teaching responsibilities of research and extension staff have resulted in unnecessary confusion regarding staff service conditions. Also, the ICAR Model Act is not being followed by many states.

The Brainstorming Session

Considering the challenges, concerns, and the potential and opportunities of reforms, a **Brainstorming Session on Strengthening National Agricultural Education System** was organized by the Trust for Advancement of Agricultural Sciences (TAAS)—a Think Tank— jointly with the Indian Agricultural Universities Association (IAUA) at the NASC Complex, Pusa, New Delhi on 30 October 2023. The Brainstorming Session as per the Technical Program (*Annexure I*) was attended in person and virtually by 45 leading agricultural experts (*Annexure II*) from ICAR, SAUs and academies, and the needed reforms in the agricultural education system as well as developing

the future Road Map were deliberated in great details. Realizing the importance and urgency of needed action for agricultural educational reforms, the experts were unanimous in making the following recommendations for consideration and urgent action.

Recommendations

Enabling Policy Support

1. The agricultural higher education institutions of the country, comprising State Agricultural Universities (SAUs), Central Agricultural Universities (CAUs), ICAR-Deemed Universities (DUs), and General Universities with agriculture faculty, affiliated colleges, private universities and colleges are currently operating under diverse regulatory and management systems. Hence, there is need to ensure an acceptable minimum level of inter-institutional compatibility in governance and management, faculty development and, curriculum setting. Towards this, it is recommended to set-up urgently a “National Commission on Agricultural Education” at par with those constituted earlier like ‘National Agriculture Commission’ and ‘National Farmers’ Commissions’ to recommend needed reforms and an implementation strategy that is aligned to NEP-2020 and can address

- specific concerns and emerging threats for the needed human resource development.
2. To implement the recommendations of the National Commission and to maintain required quality of agricultural education, an “Agricultural Education Council” (on par with Veterinary Council of India) needs to be established urgently under the Department of Agricultural Research and Education (DARE), through a Bill or an Act of Parliament. This will help in creating a single-window regulatory system of agricultural education at the national level. It would also require delegation of responsibility and allocation of business to ICAR/DARE under Higher Education Council of India (HECI), as was done earlier with cabinet approval on behalf of the University Grant Commission (UGC).
 3. Considering both national and state level relevance and for generating new agricultural technologies and products, the agricultural education, like general education, needs to be included in the Concurrent List under the Constitution. This will ensure integration and inter-institutional coordination for quality education and generation of national public good so critical for accelerating agricultural growth.
 4. ICAR/DARE has to be empowered by the Government to ensure effective implementation of the Model Act by the State Governments and Agricultural Universities both in action and spirit to ensure parity of staff and strengthen existing ICAR-SAUs linkages. Also, a soft as well as tough regime to regulate SAUs needs to be contemplated. This may need expert consultation by the ICAR, given the constitutional provision respecting agricultural education.
 5. There is an urgent need to revitalize the Indian agricultural education system to build competent human resource for undertaking teaching, research and extension activities aimed at diversified, ecologically sustainable and economically viable agricultural and allied enterprises. For this, the agricultural education institutions need to improve their quality of education and consequently improve their ranking. Towards this, accreditation by ICAR/DARE needs to be made compulsory for all the agricultural education institutions including all public/private colleges under SAUs/CAUs/DUs/GUs. The focus areas of assessment and composition of committees in each case be broad-based also including finance and management experts.

6. A comprehensive 'White Paper' on human resource needs in agriculture, both at central and state level, be brought out urgently by the ICAR keeping in view the existing strength (infrastructure/human capacity) and expected requirements to fulfil the mandate under NEP-2020. It is critical that the ICAR, in collaboration with the agricultural universities continue meeting the human resource needs, both through formal and informal education, of our national agricultural research, education, and extension system.

Institutional Reforms and Excellence

7. There is a need to develop specific guidelines for the establishment of new agricultural education institutions. Keeping in view the spirit of NEP-2020, the future institutions should offer only the integrated education covering all agriculture and allied disciplines as well as basic sciences, medicine, Ayurveda, engineering and humanities, including the vocational short-term diploma courses. The focus should be to elevate in phased manner some selected SAUs/AUs/DUs/GUs as Multidisciplinary Educational and Research Universities (MERUs), at par with IITs and IIMs, etc. Also, as already

emphasized, the approval of ICAR/ DARE for opening a new agriculture college /university must be made mandatory. This is urgently needed to stop mushrooming of institutions without adhering to required standards.

8. Efforts should be made both by the States and the ICAR to prevent and reverse the discipline-based fragmentation of agricultural universities that has taken place over the years. The existing universities/ institutions should be encouraged to have multi-faculty system for better utilization of human resources and infrastructure pertaining to agricultural research and education. Gross Enrolment Ratio (GER) needs further discussion, and it should be based on data concerning requirements of human resource both at the state and national level, which should be worked out rationally by an expert committee constituted by the Agricultural Education Division of ICAR.
9. Provision needs to be made for recognition of 'Institutions of Eminence' and 'Institutions of National Importance' in agricultural education like other disciplines. Such institutions should be given greater functional autonomy and encouraged to build collaboration for education with

renowned institutions/universities abroad as well as within the country. Also, ICAR Deemed Universities, namely, IARI, New Delhi; NDRI, Karnal; IVRI, Izatnagar; and CIFE, Mumbai need to be declared as 'Institutions of National Importance' and be given special status so as to have required autonomy and achieve fast the global standards of academic and scientific excellence.

Revisiting Land Grant System

10. In view of expanding operational domain of agriculture as envisaged under NEP-2020 and considering emerging scientific technologies and tools, there is an urgent need to revisit the existing Land Grant System, adopted almost 60 years ago. For this, a high-level expert committee is required to be constituted urgently to suggest needed reforms in our agricultural education system. This expert committee be mandated to review the existing course curricula to make them relevant, flexible and comprehensive covering basic sciences and humanity so as to produce well-trained agricultural graduates capable to address social, economic and agro-ecological challenges while capturing new opportunities. It is high time that we transform science, technology, engineering

and mathematics (STEM) system into science, technology, engineering, agriculture and mathematics (STEAM) system of education. Such an integration shall enhance capacities in entrepreneurship, business management, vocational activities and promote start-ups.

11. Also, in view of fast-changing scenario of agriculture, work places and decreasing life of knowledge products, the curriculum needs to be revised every five years, making it dynamic and responding to the changing needs. Hence, a mechanism of continuous curriculum upgradation shall be desirable.
12. Greater thrust be now laid on technology integration to make the 'Teaching-Learning and Evaluation' process more effective. To take full advantage of emerging digital technologies, the agricultural universities need to benefit from the National Educational Technology Forum (NETF), set-up as an autonomous body under the Ministry of Education.
13. To be more relevant and better trained, the graduate students be acquainted more effectively with the farmers and other stakeholders' working conditions right from the beginning of course work. Hence, ICAR support for field exposure

through Rural Agricultural Work Experience (RAWEX), changed now to Student Ready Program, be re-visited to make it yet more practical and useful.

Human Resource Development

14. State Agricultural Universities, being professional institutions, the career progression system be brought in synchrony with other national agricultural institutions, giving due weightage to contributions made in research, teaching, and extension. Selection of faculty positions starting from the top (Vice-Chancellor) to down needs to be made merit based, broad country based and fully transparent, and not politically involved.
 15. Institutional inbreeding, which is wide spread and affecting adversely the quality of research and education, needs to be minimized through measures such as: (i) promotion of MSc and PhD Sandwich Programs with IITs/NITs and world-class multidisciplinary universities; (ii) undertaking focused fundamental and strategic research in collaboration with national/international institutions of excellence; and, (iii) provision of Adjunct Professors of proven eminence, and creation of national/international Academic Chairs.
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16. The increase in public funding of agricultural education is urgently needed since most of SAUs are short of funds for operational activities and proper maintenance of infrastructure. Furthermore, the universities be allowed to raise funds in a competitive mode from other sources including government departments, private sector, joint ventures with industry, philanthropic/endowment funds, designing market oriented self-financing courses, etc. Also, to revitalize the education system and bring in needed organizational and management reforms, a one-time catch-up grant of Rs 1,000 crore be considered by GoI through ICAR/DARE.
 17. In order to ensure needed improvement in agricultural education, both formal and informal, the World Bank be approached to continue funding the second phase of the National Agricultural Higher Education Project (NAHEP) with an aim to bring in most needed organizational and management reforms to impart quality education in all SAUs.
 18. The ICAR may consider revisiting its resource generation policy and ensure provision of incentives

under the existing 'Revolving Fund' schemes. SAUs be empowered to undertake consultancy services involving renowned experts from India and abroad and establish 'Centres of Excellence' in emerging areas of science and technology. Also, appropriate policies and guidelines to encourage enrollment of international students in SAUs for higher studies would help in resource generation. This would require positioning of SAUs and ICAR institutions on par with the best abroad through effective collaboration and joint programs.

Resolving the Issue of Staff Designation and Responsibilities

19. The ICAR must make it mandatory for the SAUs and State Governments to adhere, both in letter and spirit, to the agreed terms under MoUs concerning ICAR funded projects including AICRPs and KVKs. The project sanctions should be withdrawn in cases of non-compliance by the SAUs, and kept in abeyance till full compliance.
20. As ICAR is a party in some court cases on account of disparity created by the executive orders issued by some state governments, the Council needs to soon reiterate its position clarifying that: (i) as per existing MoUs, the AICRP/KVK/NARP project staff belong to the University concerned, and (ii) their retirement and other benefits have to be on par with other staff including class teachers in equivalent posts. The ICAR needs to consider catalyzing a process of one-time settlement of the matter pertaining to ongoing projects in consultation with the concerned Universities and State Governments. In the past, there had been no distinction between teachers, and research and extension scientists' functioning as envisaged under the Land Grant System in which these had been inter-transferable. The ICAR needs to also revisit the funding rules/guidelines for long-term schemes such as: AICRP/KVK, etc. especially with regard to sanctioning manpower only when the States take full responsibilities without any discrimination.
21. In future, the compliance of guidelines/instructions of ICAR concerning implementation of AICRPs/KVKs projects be kept a standing agenda item for discussion in the VCs conferences and ICAR Regional Committee meetings. Furthermore, high level meetings of the senior functionaries of the ICAR, Universities, and State Governments

be held to resolve contentious issues, when they emerge.

22. To highlight the role, impact, and financial gains of AICRPs and KVKs, since their inception, a comprehensive impact analysis be undertaken on priority by ICAR-NIAP or by any other competent agency. The SAUs should also periodically carry out such an analysis in respect of specific benefit accrued from the ICAR AICRPs and KVK projects.
23. There is an urgent need to impress upon the Ministry of Education (MoE), Government of India to have clarity regarding definition of the new term 'classroom teachers', so as to avoid confusion regarding the faculty that also devotes relatively more time for research and extension beyond the function of class room teaching. This is necessary to remove the existing misinterpretation, as at present, and to ensure that three integrated functions of Land Grant System i.e., teaching, research and extension remain intact and not disintegrated.
24. Think Tanks like TAAS, NAAS, IAUA may continue deliberating matters concerning agricultural education and hold joint consultations as needed in the best interest of agricultural growth and development in India and strive to ensure

that its science-informed road map recommendations are duly implemented.

General

25. In general, many Agricultural Universities find it difficult to enter into MoUs on academic matters with foreign universities of standing as it requires prior approval of the Central Government which takes long time. As per NEP-2020, the State Universities are expected to go for internationalization. Hence, there is an obvious need for required relaxation in getting the approval of the Central Government
26. In view of the diversified agricultural issues and new challenges of not only increasing production but improving profitability, employment, sustainability, environmental security, livelihood, safe and nutritious food production and linking to market, the generation of technology alone will not serve the purpose. Therefore, SAUs need to reorient their curriculum and programs, besides technology and production based approaches, to also include post-production value addition and management, commerce, entrepreneurship, and market linkages to serve the stakeholders better.

Technical Program

Moderator : Dr RS Paroda, Chairman, TAAS

Venue :

NAAS Committee Room I, NASC Complex, New Delhi

Monday, 30 October 2023

10.00 – 10.55 Inaugural Session

09.30 – 10.00	Registration	
10.00 – 10.05	Welcome	Bhag Mal , Secretary, TAAS
10.05 – 10.15	Address	RC Agrawal , DDG (Edu), ICAR
10.15 – 10.25	Address	Rameshwar Singh , President, IAUA
10.25 – 10.35	Address	RS Paroda , Chairman, TAAS
10.35 – 10.50	Address by Chief Guest	RB Singh , Former President, NAAS
10.50 – 10.55	<i>Vote of Thanks</i>	Dinesh Kumar , Executive Secretary, IAUA

10.55 – 11.20 Group Photo and Tea Break

11.20 – 13.00

Technical Session I: Needed Reforms in Agricultural Education System

11.20 – 11.40	Implementing the Recommendations of NAAS Conference on Agricultural Education (2013)	RB Singh , Former President, NAAS
11.40 – 12.00	Aligning Agricultural Education with National Education Policy	Tej Partap , Former VC, GBPUA&T
12.00 – 12.20	Challenges and Concerns of our Education System	PL Gautam , Resource Person, TAAS
12.20 – 13.00	Discussion	

13.00 – 14.00 Lunch

14.00 – 16.00

**Technical Session II:
Future Road Map**

14.00 – 14.10	Ensuring Integration of Research, Education & Extension	Anupama Singh , Jt Director (Education), ICAR-IARI
14.10 – 14.30	Discussion- specific suggestions	
14.30 – 14.40	Process of Accreditation and Monitoring	Arvind Kumar , Former VC, RLBCAU
14.40 – 15.00	Discussion-specific suggestions	
15.00 – 15.10	Challenges of Resource Generation	AK Singh , Vice-President, NAAS
15.10 – 15.30	Discussion- specific suggestions	
15.30 – 15.40	Ensuring Functional Autonomy	V Praveen Rao , Former VC, PJTSAU
15.40 – 16.00	Discussion-specific suggestions	

16.00 – 16.20 Tea Break

16.20 – 17.00

Concluding Session

16.20 – 16.55	Concluding Remarks	Rameshwar Singh , President, IAUA PL Gautam , Resource Person, TAAS T Mohapatra , Former Secretary, DARE & DG, ICAR RS Paroda , Chairman, TAAS
16.55 – 17.00	<i>Vote of Thanks</i>	JL Karihaloo , TAAS

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Progress Through Science

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