



NAHEP



Proceeding and Recommendations of
National Conference on
Policy Development and Implementation Strategies for
Academia-Industry Government Linkages in Agricultural
Higher Education in India

March 12-13, 2023

भाकृअनुप-राष्ट्रीय कृषि अनुसंधान प्रबंध अकादमी, हैदराबाद
ICAR-National Academy of Agricultural Research Management
Rajendranagar, Hyderabad-500 030, Telangana, India



NAHEP
Component 2



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National Conference on
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Academia-Industry Government Linkages in Agricultural
Higher Education in India**

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Convenor-Cum-Organizing Secretary

Dr S.K. Soam

CCPI-NAHEP Component 2, ICAR-NAARM, Hyderabad

Organizing Secretaries

Coordination, Logistics, Technical Sessions

Dr. Alok Kumar, Dr. M. Balakrishnan, Dr. D. Thammi Raju

**भाकृअनुप-राष्ट्रीय कृषि अनुसंधान प्रबंध अकादमी, हैदराबाद
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Department of Agricultural Research and Education (DARE)

कृषि और किसान कल्याण मंत्रालय, भारत सरकार

Ministry of Agriculture and Farmers Welfare, Government of India



डॉ. राकेश चंद्र अग्रवाल

उप महानिदेशक (कृषि शिक्षा) एवं
राष्ट्रीय निदेशक, राष्ट्रीय कृषि उच्चतर शिक्षा परियोजना

Dr Rakesh Chandra Agrawal

Deputy Director General (Agril. Edn.) &
National Director, NAHEP

Date: September 06, 2023

MESSAGE

Agriculture has always been a crucial sector, not just in terms of providing food security but also in contributing significantly to the economy of our country. The challenges agriculture faces today, such as climate change, water scarcity, and soil degradation, require innovative and sustainable solutions that skilled professionals can provide. Agricultural higher education plays a critical role in producing these skilled professionals. According to a World Bank (2014) study, though India has doubled its investment in agricultural research and extension from 0.4% of Agriculture GDP in 1981 to 0.96% in 2011, the research quality remained poor due to low institutional capacity of agricultural higher education to adapt and remain relevant. However, innovation-led growth of agriculture in our country would be possible only if it involves the participation of all stakeholders in the agricultural value chain and ensures their positive contribution. Therefore, the academia-industry-government linkages in agriculture higher education are also essential for the overall growth and development of the sector.

The Indian agricultural higher education system is complex, crucial, and dynamic. Universities specializing in agriculture make up 5 per cent of the total number of universities in the country. This is higher than the universities offering higher specializations such as law (2.4 per cent) and management (2.1 per cent). There is a need for creating more awareness among the students towards entrepreneurship skills. The Government of India, under the ministry of skill development and entrepreneurship, focusses on enhancing the employability of youth through skill development which makes them more employable and more productive in their work environment. Several other initiatives like Start-ups India under the Department for Promotion of Industry and Internal Trade to transform Indian Youth to "Job providers" rather than "Job seekers" are also taken by the government.

The National Conference on "Policy Development and Implementation Strategies for Academia-Industry Government Linkages in Agricultural Higher Education in India" organized by the ICAR-National Academy of Agricultural Research Management (NAARM), Hyderabad under National Agricultural Higher Education Project (NAHEP) Component 2 and after several discussions, deliberations, generated recommendations that are briefly documented in this Proceedings. I am glad that the team at ICAR-NAARM, Hyderabad (led by Dr Ch. Srinivasa Rao, Director and Dr S.K. Soam, CCPI), could successfully organize the national conference and bring out the present proceedings. I am very much confident that the proceedings of the national conferences will guide the policy makers in strengthening the Academia-Industry-Government linkage in agricultural education.

(R.C. Agrawal)





भाकृअनुप - राष्ठीय कृषि अनुसंधान प्रबंध अकादमी
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डॉ. सी.एच. श्रीनिवास राव
निदेशक

Dr. CH. SRINIVASA RAO, FNASc, FNAAS, FISSS, FISPRD
DIRECTOR

Message

Academia-industry-government linkages in higher education are crucial for all the stakeholders, be it academia where students will get access to prevalent practices and technologies with the industry or industry who will get experts who can play a role in solving industry specific problems. Collaboration among these three stakeholders promotes innovative research and facilitates the transfer of knowledge and technology from academia to industry and government. The academia-industry-government linkages in agricultural higher education also enable them to align their research goals with the needs of the agro-industry and society. This collaboration facilitates the development of practical and sustainable solutions to address the challenges which are faced by the society and the agrarian economy. In addition, agro-industry leaders and policymakers can provide guidance and input for the curriculum and training programmes offered by universities and research institutions.

In recent years, there has been a significant transformation in agriculture, which has further emphasized the need for AIG linkages. This conference was held as a result of seven national-level consultative workshops that were held at seven state agricultural universities in India. These workshops involved participants from state agricultural universities, industries, and state governments. Many policymakers advocate for improved exchange of knowledge and sharing of resources between them.

NAARM, a collaborating centre of the National Higher Education Project (NAHEP) component 2 is continuously working to bring quality changes for promoting linkages between academia, industry and government for the benefit of agricultural higher education. I congratulate Dr S.K. Soam, CCPI and his team for bringing out these proceedings and recommendations, which would serve as a yardstick for the policy development and implementation in the context of Academia-industry-government (AIG) linkages in the upcoming days.

(Ch. Srinivasa Rao)





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National Agricultural Higher Education Project (NAHEP)
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Dr Anuradha Agrawal

राष्ट्रीय समन्वयक (रा.कृ.उ.शि.प.)

National Coordinator (CAAST & Component 2), ICAR-NAHEP

Date: September 06, 2023

Foreword

ICAR launched World Bank-aided National Agricultural Higher Education Project (NAHEP) in 2017 to improve the quality of higher agricultural education in agriculture. Through NAHEP, a fundamental change in approach, financial sustainability, and accountability were envisaged to improve the quality and relevance of higher agricultural education. In addition, NAHEP is addressing the policies, quality assurance, as well as promoting entrepreneurship. The project provides funding for faculty development programs, research projects, and the development of modern infrastructure and facilities in agricultural universities and colleges. It also supports the establishment of incubation centres and agribusiness centres, which provide students with the skills and resources necessary to start their businesses in the agriculture and allied sector.

Moreover, NAHEP promotes collaboration between Academia and Industry through partnerships and joint research projects. The project encourages universities and research institutions to work with industry partners to develop innovative solutions to the challenges faced by the agricultural sector. The project is also envisaged to contribute towards achieving Sustainable Development Goals (SDGs) related to quality education, industry linkage, innovation and infrastructure.

The National Conference on "Policy Development and Implementation Strategies for Academia-Industry-Government Linkages in Agricultural Higher Education in India" organized by the ICAR-National Academy of Agricultural Research Management (NAARM), Hyderabad, under the National Agricultural Higher Education Project (NAHEP) Component 2, sent a clear message about the importance of academia-industry-government linkages in our agricultural education system.

The conference brought together stakeholders from academia, industry, and government to discuss ways to strengthen these linkages. The discussions highlighted the need for better coordination and collaboration among these three sectors in order to address the challenges facing the agricultural sector. I congratulate the entire NAHEP team & Dr Ch. Srinivasa Rao, Director, ICAR-NAARM, for their commendable efforts in conducting the national conference. The proceedings and recommendations generated from this document will be valuable in paving the way forward and strengthening the much-needed academia-industry-government linkage in agricultural higher education.

(Anuradha Agrawal)

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LIST OF ABBREVIATIONS

AIG	:	Academia-Industry-Government
AICTE	:	All India Council for Technical Education
ADG	:	Assistant Director General
AIEE	:	All India Entrance Examination
ASSOCHAM	:	Associated Chambers of Commerce and Industry of India
ANGRAU	:	Acharya N.G. Ranga Agricultural University
BEST	:	Bharatiya Engineering Science and Technology
BITS	:	Birla Institute of Technology & Science
BoM	:	Board of Management
BoS	:	Board of Studies
CAFT	:	Centre for Advanced Faculty Training
CAO	:	Chief Administrative Officer
CRIDA	:	Central Research Institute for Dryland Agriculture
CTO	:	Chief Technical Officer
CERA	:	Consortium for e-Resources in Agriculture
DDG	:	Deputy Director General
Dr YSRHU	:	Dr YSR Horticultural University
GBPUAT	:	G. B. Pant University of Agriculture and Technology
GB	:	General Body
GDP	:	Gross Domestic Product
et al.	:	and others
HRD	:	Human Resources Development
IASRI	:	Indian Agricultural Statistics Research Institute
IAS	:	Indian Administrative Service
ICAR	:	Indian Council of Agricultural Research
IFS	:	Indian Forest Service
IIM	:	Indian Institute of Management
IIT	:	Indian Institute of Technology
IRC	:	Institute Research Committee
IPR	:	Intellectual Property Rights
IPTM	:	Intellectual Property & Technology Management

LUVAS	:	Lala Lajpat Rai University of Veterinary & Animal Sciences
MPUAT	:	Maharana Pratap University of Agriculture and Technology
MOUs	:	Memorandum of Understandings
OUAT	:	Odisha University of Agriculture & Technology
NAARM	:	National Academy of Agricultural Research Management
NAHEP	:	National Agricultural Higher Education Project
NARES	:	National Agricultural Research Education System
NAU	:	Navsari Agricultural University
NBA	:	National Board for Accreditation
NDRI	:	National Dairy Research Institute
NEP	:	National Education Policy
PAU	:	Punjab Agricultural University
PJTSAU	:	Professor Jayashankar Telangana State Agricultural University
PVNRTVU	:	P.V. Narsimha Rao Telangana Veterinary University
PPVFRA	:	Protection of Plant Varieties and Farmers' Rights Authority
PPP	:	Public Private Partnership
R&D	:	Research and Development
RAC	:	Research Advisory Committee
RBK	:	Rythu Bharosa Kendra
SAO	:	Senior Administrative Officer
SAUs	:	State Agricultural Universities
SKLTSHU	:	Sri Konda Laxman Telangana State Horticultural University
SKNAU	:	Sri Karan Narendra Agriculture University
SoP	:	Standard Operating Procedures
TNAU	:	Tamil Nadu Agricultural University
TNJFU	:	Tamil Nadu Dr J. Jayalalithaa Fisheries University
UGC	:	University Grants Commission
UIAH	:	University Institute of Agriculture & Horticulture
VC	:	Vice Chancellor
VNMKV	:	Vasantryao Naik Marathwada Krishi Vidyapeeth

Table of Contents

Sl. No.	Title	Page No.
1.	Executive Summary	01
2.	Background & Genesis	04
3.	Pre-conference Regional Consultative Workshops on A-I-G Linkages in SAUs	06
4.	Objectives and Scope	10
5.	Session Proceedings and Recommendations	11
6.	Inaugural Session	12
7.	Technical Session-I	15
8.	Technical Session-II	18
9.	Technical Session-III	21
10.	Technical Session-IV	24
11.	Plenary and Valedictory Session	27
12.	Critical and Important Interventions	28
Annexure-I	Programme Schedule	29
Annexure-II	List of Delegates	34
	National Conference Organizational Structure	42
	Photo Gallery	46
	Press and Media Coverage	49



Preface

I am pleased to present the proceedings of the National Conference on Policy Development and Implementation Strategies for Academia-Industry-Government Linkages for Agricultural Higher Education in India organized by the Indian Council of Agricultural Research (ICAR) - National Academy of Agricultural Research Management (NAARM), Hyderabad.

The conference brought together experts, policymakers, academics, industry professionals, and government officials to discuss the challenges and opportunities in developing and implementing strategies for strengthening linkages between Academia, Industry, and Government in agricultural higher education in India. The objectives of the conference were:

- To ascertain the perspectives of stakeholders on Academia-Industry-Government Collaboration
- To determine the challenges of the Academia-Industry-Government Collaboration
- To demonstrate the significance of advancing Academia-Industry-Government collaboration
- To develop the strategies for bridging the gap between industrial needs, academic research and Government aimed to enhance Higher Agricultural Education in India

The conference featured panel discussions and presentations on various topics related to policy development and implementation strategies, including industry-academia collaborations, technology transfer, entrepreneurship, capacity building, and policy frameworks. In addition, the conference provided an excellent platform for participants to exchange ideas, share experiences, and learn from one another.

The discussions in this proceedings document offer valuable insights and perspectives on the challenges and opportunities in developing and implementing policies to strengthen linkages between Academia, Industry, and Government in agricultural higher education. This document will serve as a valuable resource for policymakers, academics, industry professionals, and government officials working towards fostering collaboration and innovation in the agricultural sector in India.

I would like to express my sincere gratitude to all the participants who contributed their time and expertise to make this event successful. The outcomes of this conference will pave the way for future collaborations and partnerships in the agricultural sector in India.



(S.K. Soam)

Collaborating Centre Principal Investigator
ICAR-NAARM, Hyderabad



Executive Summary

The National Agricultural Higher Education Project, a flagship project of the Indian Council of Agricultural Research, envisages the improvement of the quality and relevance of agricultural education in the country through a multi-pronged approach with the support of the World Bank. Nurturing partnerships among the stakeholders is one such strategy for the overall development of agriculture in the country through reforms in the existing procedures/ processes/ policies. In this direction, a National Conference on “Policy Development and Implementation Strategies for Academia Industry-Government Linkages for Agricultural Higher Education in India” was organized under Component 2 of NAHEP at ICAR-National Academy of Agricultural Research Management, Hyderabad during March 12-13, 2023.

This conference is the result of previously conducted seven regional workshops. During Financial Year 2019-20, NAARM, under NAHEP Component 2, in collaboration with various SAUs, conducted seven regional workshops titled “Consultative Workshop on Academia-Industry-Government Linkages for Quality Agricultural Higher Education”. These workshops’ primary purpose was to determine the status and requirements of Academia-Industry-Government (AIG) linkages. As a result, 425 academicians, Industry and government representatives participated in these regional consultative workshops. Except Goa, all other states were represented through participants from 42 SAUs. In addition, about 80 persons from Industry and about 50 persons from agricultural and allied departments of state governments also participated in these regional consultative workshops.

Significant issues were identified through ‘Regional Consultative Workshops’; now, to address these issues, policy-level interventions are required. Therefore a two-day National Conference on “Policy Development and Implementation Strategies for Academia-Industry-Government Linkages for Agricultural Higher Education in India” was organized. The luminaries of academia, industry and government sectors deliberated on the critical issues for effective AIG linkages focusing on policy development and implementation strategies under the leadership of Dr R.C Agrawal, National Director, NAHEP & DDG (Agricultural Education), ICAR. Sixty-five eminent personalities attended this conference. The list includes the members of the External Advisory Panel of NAHEP, viz. Dr P. L. Gautam (Former Chairman of PPVFRA, NBA, and Former DDG Crop Sciences, ICAR, Vice-Chancellor of GBPUAT, Pantnagar), Dr B. Venkateswarlu (Former Vice Chancellor of VNMKV, Parbhani). Dr N.S Rathore, Former DDG (Agricultural Education), ICAR, Dr Ch. Srinivasa Rao, Director, ICAR-NAARM, and Dr Rajender Parsad, Director, IASRI, New Delhi, also shared their views. In addition, Vice Chancellors of 12 State Agricultural Universities from various states and the nominees of VC from 15 SAUs also participated in the conference. The representation from other sectors was also significant- Shri. Chiranjiv Choudhary, Principal Secretary, Marketing & Cooperative, Govt of AP, Shri. BL. Meena,


Former Additional Chief Secretary, Higher Education, Govt of Karnataka, Dr Rupa Vasudevan, Chancellor, BEST Innovation University, Bangalore. Dr Anuradha Agrawal, National Coordinator, Component-2, was also present. Around 20 senior representatives from Industry and bureaucrats of different state governments also participated. In addition, a Professor of Practice from IIT Delhi, Vice Presidents and Senior Executives from private companies and start-ups also participated. The discussions happened in four technical sessions. The significant recommendations from these sessions are presented below:

Technical Session 1: Stakeholder's Perspectives on Nurturing Academia-Industry-Government Collaboration

- To provide the right kind of ecosystem /policy guidelines to enable research and innovations in the Universities / Institutions by the involvement of different stakeholders to exchange /share knowledge, resources and infrastructure between AIG partners like faculty exchange, the concept of practice schools, guidelines for PPP, alumni support, revenue generation model & its share, Infrastructure sharing, Co-Guide from the Industry, start-up ecosystem, functional MoU, review of curriculum periodically, IPR policy, open source product licensing system, capacity building, a centre of excellence etc.
- Faculty contributions may be aligned with the development of Technologies/patents/ others. For example, instead of concentrating on publications, University may emphasize its research project based on the requirements of the Industry and other stakeholders, and business cases need to be developed by the faculty of AUs.
- Multi-entry and Multi exit systems are to implement in line with NEP 2020; student evaluation SoPs may be developed based on product/process development.

Technical Session 2: AIG-Linkage Strategy for Simplifying Procedures, Building Trust and Enhancing Participation

- Industry and Government may nominate their members to different decision-making bodies (RAC/IRC/GB/BoM/BoS/ Syndicate) of the Universities/Institutions and representations from Industry and Academia in many state bodies/departments concerned with regulations, certifications, testing, and capacity building. This partnership will improve the ecosystem for promoting agriculture and agribusiness in the State.
- Develop a consortium of Indian agro-based industries to attract around 2% of the 2% CSR funds for quality education and research.
- Pooling of resources and knowledge to be taken up and made available to all stakeholders of AIG.
- The Industry may support fellowship to the meritorious students and state-of-the-art labs on their campus, exchange of germplasm & technology between Academia and



Industry may be encouraged through simplified procedures and mutual trust, industrial exposure and upgradation of faculty may be encouraged to match the pace of future requirements, joint IP may be encouraged in case of contract/ collaborative / sponsored research, and Industry may support universities /institutions in sales and marketing strategies for technology and products.

Technical Session 3: Policy Advocacy to State Governments for Effective Convergence among Stakeholders

- The regulatory mechanism of state government is to be simplified; recruitment and budget provisions for the state university may be streamlined in light of the state government directives.
- Promotion of advanced technology like drones through AIG partnership- providing subsidy (govt.), technology (Academia) and commercialization (Pvt).
- Development of short courses, MOOCs, certificate courses, customized courses, etc., by AIG jointly for the benefit of different stakeholders
- Policies should curb inbreeding or at least ensure that the students can work with other institutions or companies through live projects, summer internships or project work.

Technical Session 4: Implementation Processes for Identified Interventions

- The course curriculum may be framed in consultation with industry experts to incorporate the most recent advancements in the curriculum; guidelines for collaborative technology development and commercialization between Academia and Industry need to be developed.
- The Industry may sponsor student research studies if the research area focuses on a specific industry problem, and universities should encourage students to undertake industry-sponsored research problems for mutual benefit.
- Universities should adopt standard procedures for providing lab testing, lab reports, certification and other facilities so that the Industry can avail of these facilities hassle-free.
- Academia may develop competency and offer training/certificate courses to Industry and government personnel and vice-versa.

Background

Our country's natural resources and geographical position have been very congenial to agricultural activities. With India's emergence as a major world economy, the "quality, as well as relevance" of agricultural higher education has become more crucial. It has been observed that the agricultural higher education institutions in India need to catch up in terms of quality and relevance as compared to global standards. According to a World Bank (2014) study, though India has doubled its investment in agricultural research and extension from 0.4% of agriculture GDP in 1981 to 0.96% in 2011, the research quality remained poor due to the low institutional capacity of agricultural higher education to adapt and remain relevant. Much of our agricultural growth evolves by applying new technologies (innovations). Technology will change how agriculture is done in our country and ensure future growth without compromising the Academia-Industry-Government linkages. However, such innovation-led growth of agriculture in our country would be possible only if it involves the participation of all stakeholders in the agricultural value chain and ensures their positive contribution. Agriculture students, faculties and researchers, *i.e.* "Agricultural Education" has contributed to this. Innovations and technological advancement have been more dependent on "Agricultural Higher Education"; hence, its role in agricultural growth in the current scenario needs more impetus.

The World Bank and Indian Council of Agricultural Research (ICAR), through a National level-funded project, have been striding forward to improve 'Agricultural Higher Education' in India in order to make it more responsive to societal needs. As one of the objectives of this project is to strengthen 'Academia-Industry' and 'Academia-Government' collaboration through effective linkages, the present conference is taken up as a result of seven National-level consultative workshops held at seven State Agricultural Universities in various parts of India and involving participants from State Agricultural Universities, Industries and the State Governments. Many policymakers advocate for improved exchange of knowledge and sharing of resources between them. Students belonging to the universities will be immensely benefitted from such linkages via exposure to industries. At the same time, agriculture is a state subject, and it should work together with the state government to improve our Agri-graduates in terms of syllabus updates and job expectations by the state governments for the various posts related to agriculture. Thus, it becomes imperative to study the need for such collaborations as perceived by the stakeholders in universities, firms and the state government.

Nevertheless, such linkages between Academia-Industry and Academia-Government are perceived to help improve higher education and, in turn, benefit students concerning their employability, entrepreneurial skills, and financial support. It would be a win-win situation as industries and state governments would benefit from novel technologies and influencing academic curricula. Moreover, a collaboration between Academia-Industry-Government helps sustain a long-term structural plan for continuous development, which would benefit the industrial sector, academic research, and the different state governments.

Genesis

The geographic location of Bharat and its natural resources have made agricultural endeavours exceedingly feasible. With India becoming a significant global player, agricultural higher education's "quality and relevance" have grown increasingly important in the current economic climate. However, it has been noted that Indian agricultural higher education institutions fall short of international norms in both quality and relevance. Even though India increased its investment in agricultural research and extension, according to a World Bank study (2014), the research quality remained stagnant because agricultural higher education institutions lacked the institutional capacity to adapt and remain relevant. Our agricultural growth is vastly evolving due to the use of new technologies. Technology will transform how agriculture is practised in our nation and secure future prosperity without undermining the connections between Academia, Industry, and Government. However, such innovation-driven agricultural growth in our nation would only be achievable if it involved the participation of all agricultural value chain players and ensured their positive contribution. Agriculture students, faculties and researchers, i.e. "Agricultural Education" at large, has contributed to this.

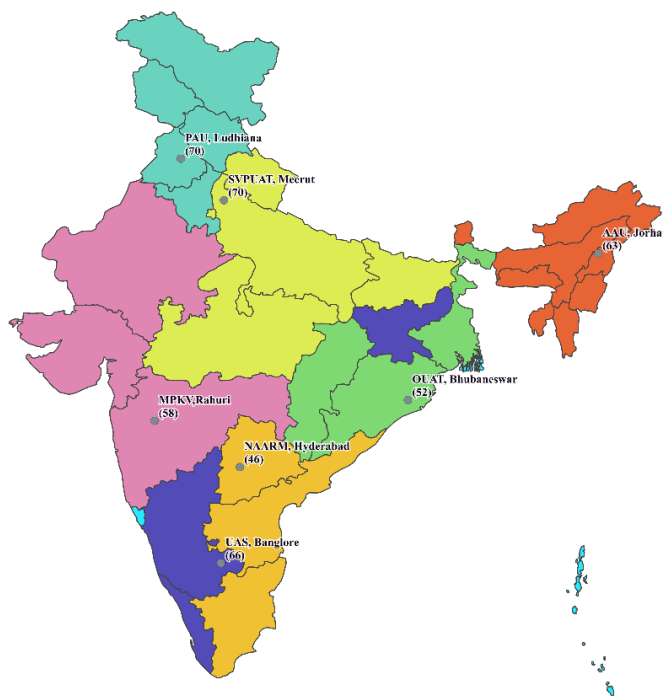
Since innovations and technical development rely more on "Agricultural Higher Education," this sector's contribution to agricultural growth in the current environment needs additional encouragement. Under a national-level-funded project, the World Bank and Indian Council of Agricultural Research (ICAR) have made progress towards improving "Agricultural Higher Education" in India so that it is more responsive to societal requirements. The present conference held as a result of seven "National Level Consultative Workshops" at State Agricultural Universities in various parts of India and involving participants from State Agricultural Universities, Industries, and State Governments. One of the objectives of this project is to strengthen "Academia-Industry" and "Academia-Government" collaboration through effective linkages. Many policymakers support increased knowledge sharing and resource sharing among themselves. These connections will significantly help university students by exposing them to business. Agriculture, a state subject, should cooperate with the state government to improve Agri graduates regarding syllabus updates and job expectations by the state governments for various agriculture-related positions. So, it becomes essential to research the perceived demand for such partnerships among stakeholders in universities, businesses, and state government. However, these connections between Academia, Industry, and the Government are believed to contribute to improvement. Higher education students gain financial stability, employment, and entrepreneurial abilities. As new technology would assist Industry and the state government while impacting academic curricula, it would be a win-win situation. Cooperation between Academia, Industry, and Government aids in maintaining long-term structural plans for continuing development that is advantageous to all parties involved, including the industrial sector, academic research and various state governments.

Pre-conference Regional Consultative Workshops on A-I-G Linkages in SAUs

During Financial Year 2019-20, NAARM, under NAHEP Component 2, in collaboration with SAUs, conducted seven regional workshops titled “Consultative Workshop on Academia-Industry-Government Linkages for Quality Agricultural Higher Education”. The primary purpose of these workshops was to find out the status and requirements of Academia-Industry-Government (AIG) linkages with the aim of growth in sharing new knowledge and the challenge of rising costs and funding problems, which have exerted enormous resource burdens on universities to seek relationships with firms to enable them to remain at the leading edge in all subject areas. During these workshops, representatives from State Agriculture Universities, agriculture-related industries and a few government officials participated and provided their insights. Except Goa, all the states in India through 42 SAUs represented in these workshops.

There were 424 participants, majority (>70%) were from SAUs. The participation from Government representatives was weak (11%). Looking to existing number of industries in agricultural inputs and services, the participation around 19% is encouraging and motivative.

It was assumed that in continuation to these workshops, it is worthy of organizing a policy workshop involving government officers in devising appropriate guidelines and policy decisions which shall benefit all the stakeholders, viz., Academia, Industry, Government, Students, Farmers and others for better prospects. Certainly “National Conference” will bring out relevant perspectives, requirements, strategies, experiences, supports, decision makings, in the light of Academia-Industry-Government linkages which have direct and indirect implications for quality agricultural education in India. These workshops identified the critical areas and need for collaboration between academia-industry and academia-government and broadly categorized them as technical or financial areas. There already exists some kind of alliance between some parts of Academia and Industry in the form of MoUs in identified areas, but many need more appropriate linkage models. It was observed that comprehensive policy interventions are required to facilitate Academia-Industry-Government synergism and complementation. For specific requirements of the Industry, universities should design diploma courses with financial support from the state government. Upscaling existing training facilities and research labs in the institutions is required with the help of state government and industries. Every institution should have a separate cell for liaison with the Industry to exchange ideas, facilities, and services. Universities should also generate their resources to meet specific requirements. There should be a functional interface amongst all the stakeholders to understand the problems better, develop complete solutions, and provide necessary inputs to policymakers for formulating implementation strategies.



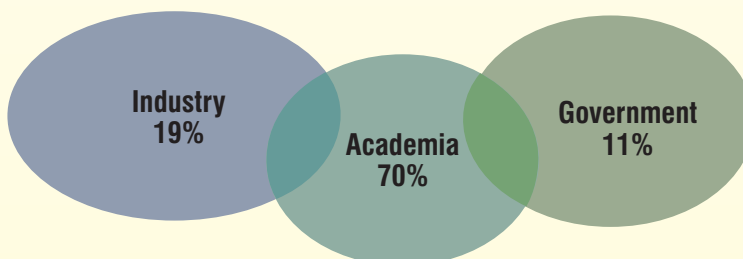
Consultative Workshops Summary

Workshop Venue & Date	Participation			NAARM Coordinator	University Coordinator
	Academia	Industry	Government		
ICAR-NAARM, Hyderabad 23-24 August 2019	32	12	1	Dr S Senthil Vinayagam Dr Surya Rathore	...
OUAT, Bhubaneswar 21-22 September 2019	40	8	4	Dr Sanjiv Kumar Dr V.V. Sumath Kumar	Dr S.K. Dash, Dr Meenakshi Mohanty
MPKV, Rahuri 23-24 September 2019	38	15	5	Dr V.V. Sumanth Kumar Dr Surya Rathore	Dr Milind C Ahire

Workshop Venue & Date	Participation			NAARM Coordinator	University Coordinator
	Academia	Industry	Government		
UAS, Bengaluru 06-07 November 2019	50	10	6	Dr V.V. Sumanth Kumar Dr S Senthil Vinayagam	Prof. Chinna Swamy, K.P
SVPUAT, Meerut 27-28 November 2019	47	14	9	Dr Surya Rathore Dr Sanjiv Kumar	Prof. Samsher, Dr Deepak Sisodia Dr Lokesh Gangwar
AAU, Guwahati 27-28 January 2020	42	6	15	Dr Sanjiv Kumar	Dr Atul Borgohain
PAU, Ludhiana 28-29 January 2020	49	14	7	Dr S Senthil Vinayagam	Dr (Mrs.) Gurinder Kaur Sangha, Dr Vishal Bector

Recommendations from regional consultative workshops:

The key recommendations from the series of regional consultative workshops were synthesized and compiled for setting the context of the final policy workshop. In addition, the recommendations may provide direction in the policy workshop sessions the panellists took up. The primary objective of these workshops was to explore ways to strengthen the linkage between Academia & Industry and Academia & Government so that quality agricultural education can be imparted in agricultural universities.



Curriculum Development

It is found that Industry plays a crucial role in employing the majority of Agri and allied graduates. Hence, the students must be trained as per the industry requirement. In order to make them Industry ready, the programme may have provisions for internships with Industry so that students can learn practical aspects during the programme itself. In addition, project-based learning can be adopted. The course curriculum may be framed in consultation with industry experts to incorporate the latest developments into the curriculum.

University Offering

The University may develop competency and offer training/certificate courses for industry personnel. The University should adopt standard procedures for providing lab testing, lab reports, certification, or other facilities so that the Industry can avail of these facilities hassle-free. University technology commercialization can help the Industry expand into newer avenues, eventually generating more employment. Universities may create “Next generation lab infrastructure/centre of excellence” in identified areas depending on their strength and expertise to enhance their credibility.

Industry Offering

The Industry may come forward and create university Chairs so that Academia can take up industry-specific research problems. The Industry may sponsor PhD research, too, if the research area focuses on a specific industry problem. The universities may collaborate with related Industries, international institutions, and government departments for research projects. It will create a good bonding among all the stakeholders. Industry experts can be invited to offer courses and teach in academic programmes. There may be “**active MoUs**” between University and corporate partners for collaboration.

Fervent Academia and Government Relation

There is a requirement for regular engagement and dialogue between government departments and universities. The University should offer capacity-building programmes to government officials after regular intervals. It may be mandatory for government department officials for future progression. There should be the intervention of the Government in curriculum development at the Undergraduate level as per the need and requirement of the state agricultural scenario.

Objectives and Scope of the National Conference

Objectives

The connection between any components of the higher education system and Industry to promote knowledge and technology exchange is referred to as the linkage between Agricultural Universities and Industry. As there is a significant gap among these elements, it is necessary to work towards filling this gap to strengthen the linkage between them, ensure inclusive and equitable quality education, and promote lifelong learning opportunities for all. Furthermore, as per the industry requirement, thrust is a rapid technological change, shorter product life cycles and intense global competition that have radically transformed the current competitive environment for most of the firms. This increase has been attributed to a combination of pressures on both Industry and universities. Envisaging these conditions, the national conference has been planned with the following objectives:

- To ascertain the perspectives of stakeholders on Academia-Industry-Government Collaboration.
- To determine the challenges of the Academia Industry-Government Collaboration.
- To demonstrate the significance of advancing Academia-Industry-Government collaboration.
- To develop the strategies for bridging the gap between industrial needs, academic research and Government aimed to enhance Higher Agricultural Education in India.

Scope

The Academy has already organized seven regional consultative workshops involving around 450 stakeholders from SAUs, Industry and state government departments. Devising appropriate guidelines and policy decisions shall benefit all the stakeholders, *viz.*, Academia, Industry, Government, Students, Farmers and others, for better prospects. This National Conference focused on the following:

- It is bringing out relevant perspectives, requirements, strategies, experiences, supports, and decision makings in the light of Academia Industry-Government linkages that directly and indirectly affect quality agricultural education in India.
- Identifying the essential areas needs collaboration between academia-industry and academia-government and broadly categorizing them as technical or financial areas.
- Upscaling existing training facilities and research labs in the institutions is required with the help of state government and industries.
- Bring up a functional interface amongst all the stakeholders to better understand the problems, develop complete solutions, and provide necessary inputs to policymakers for formulating implementation strategies.

Session Proceedings

The policy workshop “Policy Development and Implementation Strategies for Academia-Industry Government (AIG) Linkages in Agricultural Higher Education in India” was organized on March 12-13, 2023, involving government officers in devising appropriate guidelines and policy decisions which shall benefit all the stakeholders *viz.*, Academia, Industry, Government, Students, Farmers and others for better prospects. The technical sessions were designed on the following themes:

- Stakeholder’s Perspectives on Nurturing Academia-Industry-Government (AIG) Collaboration.
- AIG-Linkage Strategy for Simplifying Procedures, Building Trust and Enhancing Participation.
- Policy Advocacy to State Governments for Effective Convergence Among Stakeholders
- Implementation Processes for Identified Interventions.

Inaugural Session

Dr Sudhir Kumar Soam, CCPI of NAHEP component 2, welcomed the delegates and explained the conference's purpose. Then, Dr D. Thammi Raju, Co-PI, invited learned delegates from Academia, Industry and Government for their expert opinion about the conference outputs. Further, Dr Senthil Vinayagam, Co-PI, NAHEP, briefly presented the initiatives of ICAR-NAARM in the context of AIG linkages at various agricultural Universities in India.

In his remarks, Dr Rajender Parsad, Director, IASRI-New Delhi, urged the importance of quality human resources in agricultural education for catering for stakeholders' needs and stressed the need to inculcate entrepreneurship thinking among agri graduates. In his remarks, he highlighted the words of Swami Vivekananda, "Arise awake and stop not till the goal is reached," for taking forward the initiatives of ICAR-NAARM for successfully implementing the AIG policy workshop recommendations in the coming days.

Dr N.S. Rathore, former Deputy Director General (Agricultural Education) and Deputy Director General (Agrl Engg), ICAR-New Delhi and Former Vice Chancellor, MPUAT, Udaipur, in his remarks, briefly presented the genesis of the NAHEP project in the country. In his address, he stressed the importance of Industry readiness among agricultural graduates compared to technical education under the regulatory control of AICTE, with a broad theme of "Rising excellence and attending the desired yardstick of Industries". He further urged extracting demographic dividends from all existing agricultural graduates. In his address, he also explained the role of vocational education, which is the need of the hour in agriculture education. At last, in his remarks, he advocated the importance of the 4 Cs, i.e., C= convergence of Manpower, C=collective action, C=collaboration & coordination and C= capacity building to strengthen AIG collaboration in agricultural education.

Dr P.L. Gautam, former Vice-Chancellor, GBPUAT, former Chairman, PPVFRA and former Chairman of NBA, in his opening remarks, welcomed all the dignitaries and stakeholders in the event. In his address, he discussed the importance of partnership with the private sector in research. Further, he stressed the importance of technology commercialization and various issues related to Intellectual Property Rights Management (IPRs). At last, he emphasized the importance of networking for successfully implementing AIG policy recommendations that will arise in this two-day discussion.

In his remarks Dr Ch., Srinivasa Rao, Director of ICAR-NAARM, highlighted the Academy's efforts in strengthening the AIG linkage in agricultural education. He also urged the importance of stakeholder's perspective, strategy development, policy development and implementation pathways of AIG linkages in agriculture education. At last, he thanked all the participants for their active participation in this important cause.

Dr R.C. Agrawal, National Director, NAHEP and Deputy Director General (Agricultural Education) ICAR-New Delhi, in his opening remarks, highlighted various initiatives of

NAHEP and the education division of ICAR for AIG linkages. He emphasized the pressing need for industry linkages with academic institutions in the country. In his address, he highlighted the importance of agricultural curriculum at the school level in the coming days. Further, he urged the importance of developing recommendations for industries with Academia with the support of the Government. Finally, he stressed the need for collaboration of Industry to promote student entrepreneurship and internship and to cater to the needs of the professionally driven agriculture industry.



Dr R.C. Agrawal, Director NAHEP delivering his remarks



Group photo of the participants who attended the National Conference



Glimpses of inaugural session during the conference

Technical Session-I

Stakeholder's Perspectives on Nurturing Academia-Industry-Government (AIG) Collaboration

Chairman:

- Dr P. L. Gautam, Former Vice-Chancellor, GBPUAT, Former Chairman PPVFRA and former Chairman of NBA & Member, ICAR-NAHEP External Advisory Panel

Co-Chair:

- Shri Chiranjiv Choudhary IFS, Principal Secretary (Marketing and Cooperatives), Govt. of Andhra Pradesh
- Dr S. Ganesh Ram, Managing Director, Applied Genomics Pvt Ltd, Coimbatore

Panellists:

- Dr Narayan Purushottam Dakshinkar, Vice Chancellor, Dau Shri Vasudev Chandrakar Kamdhenu Vishwavidyalaya, Chhattisgarh
- Prof. Rajeshwar Singh Chandel, Vice Chancellor, Dr Y S Parmar University of Horticulture and Forestry Nauni, Solan (HP)
- Dr V.K. Kirsur, Director of Education, UAS, Dharwad
- Shri. Krishna Sirohi, Entrepreneur & Professor of Practice, IIT Delhi
- Shri. Y. Venkateswara Rao, Founder Rythu Nestham, Hyderabad
- Dr A. Raja Reddy, Dean, Mallareddy University, Hyderabad
- Dr S. Suresh Kumar, Director, Centre for Agriculture and Rural Development Studies, TNAU, Coimbatore

Rapporteurs:

- Dr V. V. Sumanth Kumar, Principal Scientist, ICAR-NAARM, Hyderabad
- Dr M. Ramesh Naik, Scientist, ICAR-NAARM, Hyderabad

The Major Recommendations are as follows:

- Every University shall have its own IPR Policy with clear-cut terms and conditions to be a win-win situation for Academia and Industries.

- Options for having ‘Open Source Product Licensing’ may be explored as most private industries are MSMEs, and 51% are from rural areas.
- Faculty promotions in Academia shall be based on accurate contributions by developing Technologies/patents/other contributions instead of concentrating primarily on publications.
- Faculty capacity building from Industry/Government experts and vice versa may be done.
- Academic research shall be prioritized based on the requirements of Industry, Government and other Stakeholders.
- Multi-entry and Multi exit systems are to implement in line with NEP 2020; Student evaluation SoPs may be developed based on product/process development.
- The MoU process with Industry and foreign agencies shall be simplified, and a Model MoU may be developed. It is also suggested that universities should be given full autonomy in an absolute sense.
- For PG Programmes, options may include one co-guide from the Industry based on the nature of the problems.
- Business cases need to be developed by the faculty of AUs to make Industry on the board. If the risk factor is high, then Government may facilitate by providing guidelines /circulars.
- Centre of Excellence needs to be replicated along the lines of IISc and IITs by giving autonomy status to some of the well-performed Institutions.
- A mechanism for sharing revenue generated by the technology with the faculty/ Researchers involved may be developed at universities. It was also suggested that PG researchers may be given the option of starting a Start-up under the guidance of his/ her Guide.
- Liberal faculty exchange between A-I-G and land allocation to private companies in the universities (Ex: University in Israel) may be explored.
- Academia needs to provide various services to Entrepreneurs, like the preparation of DPR.
- The curriculum should be reviewed periodically by involving industries and Government, and flexibility may be given to SAUs for their adoption and implementation.
- Implementing the concept of “Practice Schools” in lines of BITS, Pilani was also suggested that Faculty/Students need to spend the required period with Industry.
- Guidelines for PPP shall be developed.
- Restructuring of the university ecosystem as a whole to integrate Industry & Government to be part of it.

Questions explored

- What is the need for Academia-Industry-Government (AIG) Collaboration in the era of Make in India?
- Whether our current curriculum addresses the needs of the industry stakeholders?
- How to sustain networks through developing guidelines of resource sharing between academia-industry

TECHNICAL SESSION - I

Dr P. L. Gautam
Chairman

Shri Chiranjiv Choudhary
Co-Chairman

Dr S. Ganesh Ram
Co-Chairman

Dr V. V. S. Kumar
Rapporteurs

Dr M. Ramesh Naik
Rapporteurs

Prof. R S Chandel
Panellist

Dr N P Dakshinkar
Panellist

Dr V.K. Kirsur
Panellist

Shri. Krishna Sirohi
Panellist

Shri. Y. V. Rao
Panellist

Dr A. Raja Reddy
Panellist

Dr S. Suresh Kumar
Panellist

Delegates sharing their views during the conference

Technical Session – II

AIG-Linkage Strategy for Simplifying Procedures, Building Trust and Enhancing Participation

Chairperson:

- Dr B. Venkateswarlu, Member, ICAR-NAHEP External Advisory Panel, Former Vice Chancellor, VNMKV, Parbhani

Co-Chair:

- Dr Rupa Vasudevan, Chancellor, BESTI University, Ananthapur
- Dr Pitam Chandra, Professor Emeritus, Sharda University, Greater Noida
- Dr Anuradha Agrawal, National Coordinator, NAHEP Component 2, New Delhi

Panellists:

- Dr Z.P.Patel, Vice Chancellor, NAU, Navsari
- Shri. Rahul Sinha, OSD Govt of Bihar
- Dr Balraj Singh, Vice-Chancellor, SKNAU, Jobner
- Dr R P Singh, RAC Member, ICAR-NAARM, Hyderabad
- Dr Vishal Bector, Associate Director (Institution Relations), PAU-Ludhiana
- Dr T Ramesh Babu, Dean, Vignan University, Guntur
- Dr Shiv Datt Sharma, Principal Scientist, IPTM Unit, ICAR, New Delhi
- Shri. K Vijayaraghavan, CEO, Sathguru Consultants, Hyderabad

Rapporteurs:

- Dr Alok Kumar, Principal Scientist, ICAR-NAARM
- Dr Umesh Hudedamani, Scientist, ICAR-NAARM

The Major Recommendations are as follows:

- An institutional mechanism to be developed to exchange /share knowledge, resources and infrastructure between AIG Partners.

- Industry and Government may nominate their members to different decision-making bodies (RAC/IRC/GB/BoM/BoS/ Syndicate) of the Universities / Institutions and vice-versa.
- Develop a consortium of Indian agro-based industries to attract a 2% of 2% CSR fund for quality education and research.
- ICAR may revisit the simplifying procedures of MoUs like Online applications, etc.
- ICAR may lead in preparing a status report of the existing active MoUs.
- To explore the possibilities of alumni support in a similar pattern of IIMs and IITs.
- To provide the proper ecosystem /policy guidelines to enable research and innovations in the Universities / Institutions.
- The regulatory mechanism of state government is to be simplified.
- Exposure visits may be encouraged between private and public Universities.
- Short-term certificate courses / Internship programmes/exposure visits may be incorporated in consultation with the Industry.
- The Industry may support fellowship to the meritorious students and State of the art lab on their campus.
- The curriculum may be revised in light of industry and market requirements.
- Agriculture subjects may be started as a vocational course in the school curriculum.
- Recruitment and budget provisions for the state university may be streamlined in light of the state government directives.
- The exchange of germplasm & technology between Academia and Industry may be encouraged through simplified procedures and mutual trust.
- The Industry may support universities /institutions in sales and marketing strategies for technology and products.
- Industrial exposure and upgradation of faculty may be encouraged to match the pace of future requirements.
- Joint Intellectual Property (IP) may be encouraged in case of contract/ collaborative / sponsored research.
- Awareness may be created for members of the IP Cell of the University.
- Sponsored research to be led by Faculty/researchers of the universities /Institutions.

Questions explored:

- How to measure the level of coherence between Academia-Industry-Government linkage?

- What are the significant components of building trust, and how to apply them?
- What are the needs for capacity building of the faculty by industrial perspective/exposure?

TECHNICAL SESSION - II

Dr B. Venkateswarlu
Chairman

Dr Anuradha Agrawal
Co-Chair

Dr Rupa Vasudevan
Co-Chair

Dr Pitam Chandra
Co-Chair

Dr Alok Kumar
Rapporteur

Dr Umesh H.
Rapporteur

Dr Z.P. Patel
Panellist

Shri. Rahul Sinha
Panellist

Dr Balraj Singh
Panellist

Dr R P Singh
Panellist

Dr Vishal Bector
Panellist

Dr T Ramesh Babu
Panellist

Dr Shiv Datt Sharma
Panellist

Shri. K Vijayaraghavan
Panellist

Delegates sharing their views during the conference

Technical Session – III

Policy Advocacy to State Governments for Effective Convergence Among Stakeholders

Chairperson:

- Dr N. S. Rathore, Former DDG (Education), ICAR

Co-Chair:

- Dr Rajender Parsad, Director, IASRI, New Delhi
- Dr G. Venkateshwarlu, Joint Director, ICAR-NAARM

Panellists:

- Dr A. Vishnuvardhan Reddy, Vice Chancellor, ANGRAU, Guntur
- Prof. Pravat Kumar Roul, Vice Chancellor, OUAT, Bhubhaneshwar
- Dr Indra Mani, Vice Chancellor, VNMKVV, Parbhani
- Shri. S. Haribabu, Entrepreneur & Farmer
- Dr Sarvpreet Singh Ghuman, Dean, CoVSc, Ludhiana, GADVASU, Ludhiana
- Shri. Pramod Tomar, Vice President, Qualcomm India, Hyderabad
- Dr Seema, Dean of Agriculture, PJTSAU, Rajendranagar, Hyderabad, Telangana

Rapporteurs:

- Dr N. Sivaramane, Principal Scientist, NAARM
- Dr B. S. Yashavanth, Scientist, NAARM

The Major Recommendations are as follows:

- Policies should curb inbreeding or at least ensure that the students get the opportunity to work with other institutions or companies in the form of live projects, summer internships or project work.
- Bringing industry officials on board of Academia and in Government Bodies to ensure better collaboration
- Setting up promotional bodies/stores like *Rhytu Barosa Kendra* (selling seeds/ inputs) or *Krishi Udyog Kendra*, where AIG collaborate

- Promotion of advanced technology like drones through AIG partnership- providing subsidy (govt.), technology (Academia), and commercialization (Pvt.).
- Academia brings publications like agribusiness industry director, promising technology, case studies, etc., for better collaboration among stakeholders
- The current curriculum needs to be changed to provide quality human resources to Industry.
- Promoting entrepreneurship in agriculture through AIG (students and farmers should be trained on entrepreneurship by Academia and facilitated by govt.- free training and capital subsidy)
- Academia should develop technology more relevant to the Industry and superior technology to command a higher share of the pie for a win-win situation.
- Cost-saving technology is the need of the hour, which benefits all the stakeholders.
- AIG partnership will work in areas with mutual benefits; hence, it is essential to identify the potential areas of collaboration.
- Development of short courses, MOOCs, certificate courses, customized courses, etc., by AIG jointly for the benefit of different stakeholders
- The representations from Industry and Academia in many state bodies/departments are required, concerned with regulations, certifications, testing, partnership and capacity building in improving the ecosystem for promoting agriculture and agribusiness in the State.

Questions explored:

- What is the need for government policy changes to establish effective convergence among academia-industry and government stakeholders?
- What are the ways and means to develop the policy framework?
- How to develop an entrepreneurial mind-set among the students?

TECHNICAL SESSION - III



Dr N. S. Rathore
Chairman



Dr Rajender Parsad
Co-Chair



Dr G. Venkateshwarlu
Co-Chair



Dr N. Sivaramane
Rapporteur



Dr B. S. Yashvanth
Rapporteur



Dr A. Vishnuvardhan Reddy
Panellist



Prof. P. K. Roul
Panellist



Dr Indra Mani
Panellist



Shri. S. Haribabu
Panellist



Dr S. S. Ghuman
Panellist



Shri. Pramod Tomar
Panellist



Dr Seema
Panellist

Delegates sharing their views during the conference

Technical Session – IV

Implementation Processes for Identified Interventions

Chairman:

- Dr Dheer Singh, Director & Vice Chancellor, ICAR-NDRI, Karnal, Haryana

Co-Chair:

- Shri. Bharat Lal Meena, Former Additional Chief Secretary (Higher Education), Govt. of Karnataka,
- Dr Sudeep Marwaha, PI, NAHEP Component 2, IASRI, New Delhi

Panellists:

- Prof V.Ravinder Reddy, Vice Chancellor, PVNRTVU, Hyderabad
- Dr Baldev Raj Kamboj, Vice Chancellor, CCSHAU, Hisar
- Dr G Sugumar, Vice Chancellor, TNJFU, Nagapattinam
- Dr Tolety Janakiram, Vice-Chancellor, Dr YSRHU, Andhra Pradesh
- Dr GV Ramana Rao, Chief Technology Officer, Ganga Kaveri Seeds, Hyderabad
- Dr N. Seenivasan, Controller of Examinations, SKLTSHU, Mulugu, Siddipet (District), Telangana
- Ms Hiresha Verma, Founder & CEO - Han AgroCare, Dehradun
- Mr Macha Dinesh Babu, Additional Director & Head – Andhra Pradesh & Telangana, The Associated Chambers of Commerce and Industry of India, Hyderabad
- Dr Gauri Shankar Rao, Dean, Mohan Babu University, Tirupati

Rapporteurs:

- Dr M. Balakrishnan, Principal Scientist, NAARM
- Dr P. Supriya, Scientist, NAARM

The Major Recommendations are as follows:

- The course curriculum may be framed in consultation with Industry and Government to incorporate the most recent advancements
- Universities should adopt standard procedures for providing lab testing, lab reports, certification and other facilities so that the Industry can avail of these facilities hassle-free.
- Guidelines for collaborative technology development and commercialization between Academia and Industry must be developed.
- The Industry may sponsor student research studies if the research area focuses on a specific industry problem. Universities should encourage students to accept industry-sponsored research problems for mutual benefit.
- Academia may develop competency and offer training/certificate courses to Industry and government personnel and vice-versa.
- Guest lectures and specialized skill sets from industry experts need to be facilitated in the universities.
- All stakeholders should have access to documentation of successful interventions and success stories of AIG collaborations.
- Detailed job descriptions and skill sets needed by industries must be listed in order to transfer this knowledge into the course content.
- Pooling of resources and knowledge to be taken up and made available to all stakeholders of AIG.
- Academia and Industry may explore the possibilities of active MOUs as much as possible.

Sample work of Collaboration of AIG

The following are a few of the effective collaborations of AIG cited by a few panellists.

- TTD and Dr YSR Horticultural University signed an MoU to use the used flowers of TTD-run temples and provide dry flower technology.
- Dr YSRHU launched a district cluster strategy in partnership with the AP State Council for Higher Education to create prototypes for specific issues like the Design of a Hydraulic Harvester for Oil Palm, Mushroom Cultivation on Banana pseudo stem, etc., with the aid of Industry.
- Industries offer internships to SKLTSHU and TNJFU students, who are hired after completing their internships at their institutions.

Questions explored:

- How can we ensure continuous updating and implementation of reforms in AIG linkages?
- How could we strengthen the pipeline of linkages of Industry with Academia?
- Need for attracting support to students financially from Industry.

TECHNICAL SESSION - IV

Dr Dheer Singh
Chairman

Shri. Bharat Lal Meena
Co-Chair

Dr M. Balakrishnan
Rapporteur

Dr Sudeep Marwaha
Co-Chair

Dr P. Supriya
Rapporteur

Prof V. Ravinder Reddy
Panellist

Dr Tolety Janakiram
Panellist

Ms Hiresha Verma
Panellist

Dr Baldev Raj kamboj
Panellist

Dr GV Ramana Rao
Panellist

Mr M Dinesh Babu
Panellist

Dr G Sugumar
Panellist

Dr N. Seenivasan
Panellist

Dr Gauri Shankar Rao
Panellist

Delegates sharing their views during the conference

Plenary & Valedictory

The concluding session included the proceedings of panel discussions based on the reports of four technical sessions. It was chaired by Dr R.C. Agrawal, National Director, NAHEP and Deputy Director General (Agricultural Education), ICAR-New Delhi, Co-Chaired by Dr Ch. Srinivasa Rao, Director, ICAR-NAARM and Dr Anuradha Agrawal, National coordinator, NAHEP component 2. It was generally agreed that discussion captured during technical sessions captured many learnings that could be collected to illustrate how Academia, Industry and government linkages could be implemented further. It was agreed that the present policy workshop would act as a catalyst to achieve the AIG linkages in agricultural education. All dignitaries and stalwarts at the event concluded that it had been an intensive and collaborative endeavour to make the vision of AIG come true in agricultural education. The outcome of the policy workshop would encourage a new way for curriculum development in the era of collaboration and dialogue and eventually pave new paths in Academia, Industry and Government linkage.

Critical and Important Interventions

- Every University shall have its own IPR Policy with clear-cut terms and conditions to be a win-win situation for Academia and Industries.
- Academic research shall be prioritized based on the requirements of Industry, Government and other Stakeholders.
- The MoU process with Industry and foreign agencies shall be simplified, and a Model MoU may be developed. It is also suggested that universities should be given full autonomy in an absolute sense.
- For PG Programmes, options may include one co-guide from the Industry based on the nature of the problems.
- A mechanism for sharing revenue generated by the technology with the faculty/ Researchers involved may be developed at universities. It was also suggested that PG researchers may be given the option of starting a Start-up under the guidance of his/ her Guide.
- Liberal faculty exchange between A-I-G and land allocation to private companies in the universities (Ex: University in Israel) may be explored.
- Develop a consortium of Indian agro-based industries to attract a 2% of 2% CSR fund for quality education and research.
- Short-term certificate courses / Internship programmes/exposure visits may be incorporated in consultation with the Industry.
- The curriculum may be revised in light of industry and market requirements.
- Joint Intellectual Property(IP) may be encouraged in case of contract/ collaborative / sponsored research.
- Policies should curb inbreeding or at least ensure that the students get the opportunity to work with other institutions or companies in the form of live projects, summer internships or project work.
- Setting up promotional bodies/stores like RhytuBarosa Kendra (selling seeds/ inputs) or KrishiUdyog Kendra, where AIG collaborate.
- Promotion of advanced technology like drones through AIG partnership-

providing subsidy (govt.), technology (Academia), and commercialization (Pvt.).

- Promoting entrepreneurship in agriculture through AIG (students and farmers should be trained on entrepreneurship by Academia and facilitated by govt.- free training and capital subsidy).
- Development of short courses, MOOCs, certificate courses, customized courses, etc., by AIG jointly for the benefit of different stakeholders.
- Universities should adopt standard procedures for providing lab testing, lab reports, certification and other facilities so that the Industry can avail of these facilities hassle-free.
- The Industry may sponsor student research studies if the research area focuses on a specific industry problem. Universities should encourage students to accept industry-sponsored research problems for mutual benefit.
- Detailed job descriptions and skill sets needed by industries must be listed in order to transfer this knowledge into the course content.

Programme Schedule

INAUGURAL PROGRAMME

Date: 12 March 2023

Time: 10.00 AM to 11.15 AM

10.00 am to 10.02	Invocation	ICAR <i>Geet</i>
10.02 to 10.05 am	Welcome Address	Dr S K Soam, CCPI, NAHEP Component 2 and Convener-cum- Organizing Secretary
10.05 to 10.15 am	Genesis for the workshop	Dr S Senthil Vinayagam, Principal Scientist and Co-PI, NAHEP
10.15 to 10.25 am	Address by Guest of Honour	Dr Rajender Parsad, Director, IASRI, New Delhi
10.25 to 10.35 am	Address by Guest of Honour	Dr B Venkateswarlu, Member of External Advisory Panel, NAHEP
10.35 to 10.45 am	Address by Guest of Honour	Dr P L Gautam, Member of External Advisory Panel, NAHEP
10.45 to 10.55 am	Address by the President	Dr Ch Srinivasa Rao, Director, ICAR-NAARM
10.55 to 11.15 am	Release of a publication on “Curriculum Development Framework” and Inaugural Address by Chief Guest	Dr R C Agrawal, National Director, NAHEP & DDG (Agricultural Education), ICAR, New Delhi
11.15 to 11.20 am	Vote of Thanks	Dr D. Thammi Raju, Principal Scientist and Co-PI, NAHEP

TECHNICAL SESSIONS

Technical Session – 1

**Stakeholder’s Perspectives on Nurturing Academia-Industry-Government (AIG)
Collaboration Date: 12 March 2023 and Time: 11.45 to 13.15**

Chairman	<ul style="list-style-type: none">● Dr P L Gautam, Member, ICAR-NAHEP External Advisory Panel
Co-Chair	<ul style="list-style-type: none">● Shri Chiranjiv Choudhary, IFS, Principal Secretary, Govt of AP.● Dr S. Ganesh Ram, Managing Director, Applied Genomics Pvt Ltd, Coimbatore
Panellists	<ol style="list-style-type: none">1. Prof. B R Kamboj, Vice Chancellor, CCS HAU, Hisar2. Dr Narayan Purushottam Dakshinkar, Vice Chancellor, Dau Shri Vasudev Chandrakar Kamdhenu Vishwavidyalaya, Chhattisgarh3. Prof. Rajeshwar Singh Chandel, Vice Chancellor, Dr Y S Parmar University of Horticulture and Forestry Nauni, Solan (HP)4. Dr V.K. Kirsur, Director of Education, UAS, Dharwad5. Shri. Krishna Sirohi, Entrepreneur & Professor of Practice, IIT Delhi6. Shri. Y Venkateswara Rao, Founder Rythu Nestham, Hyderabad7. Dr A Raja Reddy, Dean, Mallareddy University, Hyderabad8. Dr S. Suresh Kumar, Director, Centre for Agriculture and Rural Development Studies, TNAU, Coimbatore
Rapporteurs	Dr V V Sumanth Kumar, Principal Scientist, NAARM Dr Ramesh Naik, Scientist, NAARM

Technical Session – 2

**AIG-Linkage Strategy for Simplifying Procedures, Building Trust and Enhancing
Participation Date: 12 March 2023 and Time: 14.30 to 16.00**

Chairman	<ul style="list-style-type: none">● Dr B. Venkateswarlu, Member, ICAR-NAHEP External Advisory Panel
Co-Chair	<ul style="list-style-type: none">● Dr Rupa Vasudevan, Chancellor, BESTI University, Ananthapur● Dr Pitam Chandra, Professor Emeritus, Sharda University, Greater Noida● Dr Anuradha Agrawal, National Coordinator, NAHEP Component 2, New Delhi

Panellists	<ol style="list-style-type: none"> 1. Dr Z.P.Patel, Vice Chancellor, NAU, Navsari 2. Shri Rahul Sinha, OSD Govt of Bihar. 3. Dr V. Praveen Rao, Former Vice Chancellor, PJTSAU, Hyderabad 4. Shri K Vijayaraghavan, CEO, Sathguru Consultants, Hyderabad 5. Dr R. P. Singh, RAC Member, ICAR-NAARM, Hyderabad 6. Dr Vishal Bector, Associate Director (Institution Relations), PAU-Ludhiana 7. Dr T Ramesh Babu, Dean, Vignan University, Guntur 8. Dr Shiv Datt Sharma, Principal Scientist, IPTM Unit, ICAR, New Delhi
Rapporteur	Dr Alok Kumar, Principal Scientist, NAARM Dr Umesh Hudedamani, Scientist, NAARM

Technical Session – 3

Policy Advocacy to State Governments for Effective Convergence Among Stakeholders Date: 12 March 2023 and Time: 4:15 to 5.45 pm

Chairman	<ul style="list-style-type: none"> ● Dr N S Rathore, Former DDG (Education), ICAR
Co-Chair	<ul style="list-style-type: none"> ● Dr Rajender Parsad, Director, IASRI, New Delhi ● Dr G. Venkateshwarlu, Joint Director, ICAR-NAARM, Hyderabad
Panellists	<ol style="list-style-type: none"> 1. Dr A. Vishnuvardhan Reddy, Vice Chancellor, ANGRAU, Guntur 2. Prof. Pravat Kumar Roul, Vice Chancellor, OUAT, Bhubhaneshwar 3. Dr Indra Mani, Vice Chancellor, VNMKV, Parbhani 4. Shri. S. Haribabu, Entrepreneur & Farmer 5. Dr Sarvpreet Singh Ghuman, Dean, CoVSc, Ludhiana, GADVASU, Ludhiana 6. Shri. Pramod Tomar, Vice President, Qualcomm India, Hyderabad 7. Dr Seema, Dean of Agriculture, PJTSAU, Rajendranagar, Hyderabad, Telangana
<i>Discussion: Participants</i>	
Rapporteur	Dr N Sivaramane, Principal Scientist, NAARM Dr B S Yashavant, Scientist, NAARM

Technical Session – 4

Implementation processes for identified interventions

Date: 13 March 2023 and Time: 9:30 to 11:00 am

Chairman	<ul style="list-style-type: none">● Dr Dheer Singh, Director and Vice-Chancellor, ICAR-NDRI, Karnal
Co-Chair	<ul style="list-style-type: none">● Shri. Bharat Lal Meena, IAS (Rtd), Former Additional Chief Secretary Higher Education, Govt of Karnataka, Bengaluru.● Dr Sudeep Marwaha, PI, NAHEP Project, New Delhi
Panellists	<ol style="list-style-type: none">1. Prof. V.Ravinder Reddy, Vice Chancellor, PVNRTVU, Hyderabad2. Dr Balraj Singh, Vice Chancellor, SKNAU, Jobner3. Dr G Sugumar, Vice Chancellor, TNJFU, Nagapptinam4. Dr Tolety Janakiram, Vice-Chancellor, Dr YSRHU, Andhra Pradesh5. Dr GV Ramana Rao, Chief Technology Officer, Ganga Kaveri Seeds, Hyderabad6. Dr N. Seenivasan, Controller of Examinations, SKLTSHU, Mulugu, Siddipet (District), Telangana7. Ms Hiresha Verma, Founder & CEO - Han AgroCare, Dehradun8. Mr Macha Dinesh Babu, Additional Director & Head – Andhra Pradesh & Telangana, The Associated Chambers of Commerce and Industry of India, Hyderabad9. Dr Gauri Shankar Rao, Dean, Mohan Babu University, Tirupati
Rapporteur	Dr M. Balakrishnan, Principal Scientist, NAARM Dr P Supriya, Scientist, NAARM

Plenary Session and Valediction

Date: 13 March 2023 and Time: 11.30 am to 1.00 pm

Welcome	Dr S K Soam, CCPI, NAHEP Component 2, and Convener-cum-Organizing Secretary
Rapporteur Reports	Session I: Dr V V Sumanth Kumar / Dr Ramesh Naik Session II: Dr Alok Kumar / Dr Umesh Hudedamani Session III: Dr N Sivaramane / Dr B S Yashavant Session IV: Dr M. Balakrishnan / Dr P. Supriya
Co-Chairman – Remarks	Dr Ch Srinivasa Rao, Director, NAARM Dr Anuradha Agrawal, National Coordinator, NAHEP Component 2, New Delhi
Chairman Remarks	Dr R C Agrawal, National Director, NAHEP & DDG (Agricultural Education), ICAR, New Delhi
Vote of Thanks	Dr Alok Kumar, Co-PI, NAHEP Component 2
Rapporteur	Dr Surya Rathore, Principal Scientist, Co-PI, NAHEP Component 2

List of Delegates

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Technical Sessions

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ACADEMIA-INDUSTRY-GOVERNMENT LINKAGES FOR HIGHER EDUCATION: NATIONAL CONFERENCE CONCLUDED AT ICAR-NAARM

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Academia-Industry-Government Linkages for Higher Education: National Conference Concluded at ICAR-NAARM

13th March 2023 Hyderabad

The National Conference on "Policy Development and Implementation Strategies for Academia-Industry-Government Linkages for Agricultural Higher Education in India" (12-13 March 2023) was inaugurated today at ICAR-National Academy of Agricultural Research Management, Hyderabad.



The Chief Guest, Dr. R C Agrawal, National Director, NAHEP & DDG (Agril. Educatioin) highlighted the oelient achievements of the project during the preceding years. He also shared the importance of the project in building the institutional mechanism for knowledge sharing, executing the actionable MoUs, and restructuring of agricultural curriculum.

Dr. Ch. Srinivasa Rao, Director, NAARM expressed his happiness for the active involvement of stakeholders from diverse areas and departments and assured them to bring out the actionable quality policy document.

Dr. P L Geutani, Member, External Advisory Panel, NAHEP flagged the issues relating to MoUs, agreements, and reciprocal oebbetial leave to pursue higher education.

Dr. N S Rathore, Former DDG (Educatioin) also spoke on the occasion.

Dr. Rajendra Prasad, Director, IASRI, New Delhi highlighted the role of his team in executing the project objectives.

A policy paper on the 'Curriculum Development Framework' was also released during the conference.

More than 65 delegates including 15 serving and retired VCs from Agricultural Universities and 19 senior representatives from industry and different state governments participated in this conference.

(Source: ICAR-National Academy of Agricultural Research Management, Hyderabad)

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National Conference on Academia-Industry-Government Linkages for Agricultural Higher Education in India held at ICAR-NAARM

The National Conference on "Policy Development and Implementation Strategies for Academia-Industry-Government Linkages for Agricultural Higher Education in India" was held during March 12-13, 2023 at ICAR National Academy of Agricultural Research Management, Hyderabad. Dr. K C Agrawal, National Director, NAHEP & DDG (Agril. Education) inaugurated the conference and highlighted the salient achievements of the project during the preceding years. He also shared the importance of the project in building the institutional mechanism for knowledge sharing, creating the



actionable MoUs and restructuring of agricultural curriculum. Dr. Ch. Venkateswara Rao, Director, NAARM expressed his happiness for the active involvement of stakeholders from diverse areas and departments and assured them to bring out the

actionable quality policy document. Dr. P. L. Goutam, Member of External Advisory panel, NAHEP flagged the issues relating to MoUs, agreements and reciprocal additional leaves to pursue higher education. He assured his support in

refining the recommendations of the conference to suit to all three stakeholders. Dr. N S Rathore, Former DDG (Education) recalled his efforts in drafting the project during his tenure as DDG (Education), while, Dr Rajendra Prasad, Director, IASRI, New Delhi highlighted the role of his team in executing the project objectives. The panel discussion was held among the invited delegates under four technical sessions on: Stakeholder's Perspectives on Nurturing Academia-Industry-Government Collaboration; AIG-Linkage Strategy for Simplifying Procedures, Building Trust and

Enhancing Participation; Policy advocacy to state governments for effective convergence among stakeholders and Implementation processes for identified interventions. A policy paper on 'Curriculum Development Framework' was also released during the conference. More than 60 delegates including 12 serving and retired VOs from Agricultural Universities and Thematic representatives from industry and different state governments participated in this conference providing food for thought for the most sought subject of strengthening linkages of academia with industry and government.



Rupa Vasudevan • 2nd
Chancellor and Founder Bharatiya Engineering Sci...
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Honoured to participate as Co chair in a panel on "AIG-Linkage Strategy for Simplifying Procedures, Building Trust and Enhancing Participation " in the National Conference on Policy Development and Implementatic ...see more

