

National Agricultural Higher Education Project (NAHEP)

[ICAR – WB Project]

Report on Achievements and Learnings under NAHEP (Vol - 2)

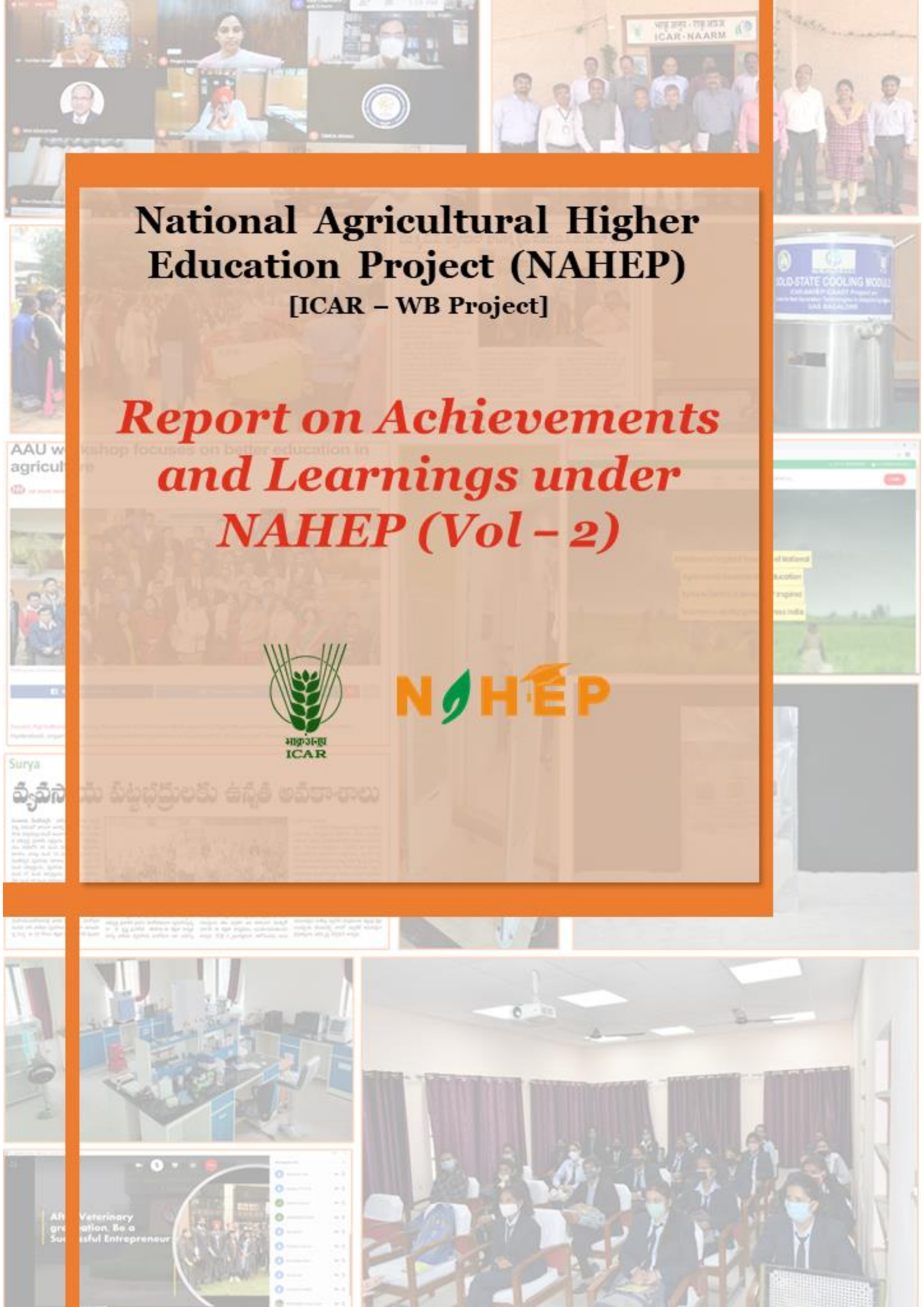













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Achievements of key milestones

Key achievements under ICAR-NAHEP till January 2021

	Students sent abroad for training/undergoing training in cutting edge technologies	377
	Faculties sent abroad for training in emerging areas of science & technologies	120
	Establishment of new facilitative units to enable academic / research infrastructure	168
	Industry seminars and professional workshops from experts to better prepare students for final placements	730
	Collaborations / MoUs signed with industry for knowledge exchange programs/ internships / short term training programs etc.	238
	Number of industry- sponsored projects and positions in cutting-edge areas of agri-science	165
	Implementation of AMS across participating AUs	53
	Development of mobile/ Web applications in various sectors of agriculture	32
	Establishment of Disaster Recovery Centre (DRC) at ICAR-NAARM, Hyderabad (11th Aug 2020)	1
	Number of technologies transferred to industry / private sector / national / international organizations	32
	Number of pilot courses added / upgraded on communication skills, entrepreneurial skills, etc.	54

Introduction

NAHEP is designed to strengthen the national agricultural education system in India with overall objective to provide more relevant and high-quality education to agricultural university students. This programme has been promoting efficiency and competitiveness through changes in working mechanism of agricultural universities, raising the teaching and research standards through improved research and teaching infrastructure and enhanced faculty competency and commitments, and making agricultural education more attractive to talented students. There are four key components under NAHEP, namely; **Institutional Development Plan (IDP), Centres for Advanced Agricultural Sciences and Technology (CAAST), ICAR to support excellence in agricultural universities (AUs), and ICAR Innovation Grants to AUs.** It is envisaged that improved AU performance through quality enhancement, better employment and entrepreneurship opportunities created for agriculture graduates, non-accredited AUs attaining ICAR accreditation, and institutional reforms implemented in education division of ICAR and AUs under these components together shall contribute to the achievement of the overall program objective.

The beneficiaries of NAHEP include **75 institutions** that form the ICAR-AU System, which encompasses **64 State-level AUs, 4 Deemed Universities, 4 Central Universities with Agricultural Faculty and 3 Central Agricultural Universities.** **Direct project beneficiaries of the project are those students and faculties, who directly derive benefits under IDPs, CAASTs, IGs and activities under Comp 2.**

Till January 2021, out of 75 participating AUs, 58 AUs were awarded under IDP, CAAST and IG component. Component 2 (Investment in ICAR Leadership in Agricultural Higher Education) was sanctioned in March'2019, which involves 2 institutions – ICAR IASRI and ICAR – NAARM.

IDP financed activities majorly focus on **teaching and research infrastructure development, faculty development and training, networking and industry collaboration, vocational training, students job placement, own revenue generation and support to twinning plan.** In addition to these priorities, emphasis is also being placed on **effective industry linkages to enhance employability of agriculture graduate as well as to help AUs to generate their own resources.**

CAAST aims to support interdisciplinary advanced centres for innovative approaches to teaching, research, extension and capacity building in the specialized area for holistic development. It encompasses a number of thematic areas such as Conservation Agriculture, Precision farming / Farm Mechanization, Secondary Agriculture, Specialty agriculture, Renewable Energy Sources, Integrated Farming System (IFS), Agriculture Market Intelligence, Good Agricultural Practices, Hitech/Protected Cultivation, Climate Resilient Agriculture, Food Safety, Big Data Analysis and Genomics-assisted Breeding. In this direction, the key activities undertaken are **Faculty upgradation through international and national training with mentor universities, Distinguished Lecture Series/ Special lectures to bring about much needed vibrancy in the academic atmosphere and inspire students and faculty to perform better, National and international trainings for students, faculty and research scholars, Collaboration with private sector related to the specialized areas to develop market-oriented programs etc.**

IG projects have been awarded to select participating AUs to attain accreditation. The key activities included under this component were **national trainings for faculty upgradation, master and Ph.D. sandwich programs, alumni linkages, industry seminars and professional workshops, e- enabled learning activities etc.**

Component 2 aims to support ICAR to carry out institutional reforms within ICAR and enhance effectiveness in coordinating, guiding and managing agricultural higher education in the country. During FY 18-19, activities undertaken **are e – enabled learning activities in AUs through demonstrations of virtual classrooms, Initiation of Software Designing for Customization of Academic Management System, Technical committee meeting to catalyze the participation of state government representatives in raising the quality and relevance of agricultural higher education etc.**

This report (Vol - 2) documents the key learnings and highlights the significant achievements made under different components of **NAHEP, majorly during Jan'20 to Jan'21**. These learnings and achievements have been captured under following categories:

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|--|
| • Success stories |
| • Media coverage of project activities and achievements |
| • Digital initiatives undertaken |
| • Establishment of facilitative Centres to strengthen academic and research infrastructure |
| • Innovations / Out of box initiatives undertaken |
| • Scientific Educational Material generated in Field / laboratory / classroom |
| • Collaborations / MoUs with Industry / Higher Educational Institutions |

Component wise and category wise details of achievements have been presented herewith.

NAHEP achievements and learnings

Success stories

Component 1a: Institutional Development Plan (IDP)

Documentation of success stories are useful for disseminating the focus of the innovative projects, outcomes and impacts on the beneficiaries. Through this dissemination methodology, the stakeholders of the project have been encouraged to share their experiences of implementation process that led to better or satisfactory results.

Name of the institute: Junagadh Agriculture University, Junagadh (Gujarat)

Success story

Establishment of an agri enterprise “Techno Chem”: Setting the entrepreneurial mindset through NAHEP

Mr. Bhavesh Solanki, graduated student from College of Agril. Engg. & Technology, JAU has established his own startup, Techno Chem at Vapi, Gujarat. Techno Chem is an agri based firm, which deals with laboratory Chemicals, laboratory instruments, lab glassware, Plastic ware, silica ware, lab metal ware, rubber ware, lab safety products, commercial grade chemicals, ETP Plant Materials, membrane filter paper, water testing kit etc.



During final year of UG, Bhavesh participated in various entrepreneurial promotion initiatives and training programs conducted by JAU, Junagadh. Distinguished guest lectures of innovators / new age agri startups organized by JAU motivated and helped Bhavesh in building the entrepreneurial capabilities in agriculture and allied sector. Prior starting his own firm, he gained hands- on experience with select reputed firms such as **Rankem, Merck, Thermo Fisher, Labline and Whatman**. Bhavesh expressed his sincere gratitude to the university and NAHEP-IDP for the opportunity to get associated and ultimately benefitted through the program.

Agricultural Equipment enterprise “Kisan Agritech”: Setting the entrepreneurial mindset through NAHEP

Mr. Nikunj Vegad, who graduated in 2019-20 from College of Agricultural Engineering and Technology, JAU, Junagadh has started his own agri enterprise, M/s. Kisan Agritech which deals majorly with agricultural equipment retailing. While pursuing UG at JAU, he attended various industry-oriented lecture series hosted by JAU under NAHEP. Constant interactions with experts from the industry and the industry-oriented training programs helped and motivated Nikunj to establish his own agri based enterprise, right after he completed his



Success story

UG degree.

Nikunj expressed his sincere gratitude to JAU and NAHEP - IDP for capacitating him while enhancing his inter-personal & professional skills, industry orientations, helping him to better understand market needs and augmenting his entrepreneurial capabilities.

Name of the institute: G. B. Pant University of Agriculture & Technology Pantnagar, Uttarakhand

Success story

Selection for postgraduation in Humboldt University, Berlin, Germany: Improved learning outcome through NAHEP

During last one year, GBPUA&T has conducted various training programs for Undergraduate students under NAHEP- IDP. Among these programs, Certification based foreign language classes were also being conducted on a regular basis to acquaint students on German and French language along with advance English communication classes. So far, a **total 400 hours** of language classes have been conducted for **~230 student beneficiaries**.

Among these students, Ms. Kritika Chauhan got selected for the Humboldt University to pursue her postgraduation in agriculture. It happened mainly due to her understanding of German language (which she learned during NAHEP- IDP certification programs), in addition to requisite academic and technical qualifications.



Name of the institute: Sher-e-Kashmir University of agriculture science and technology of Jammu (Jammu and Kashmir)

Success story

Success story

SKUAST-Kashmir bags prestigious ‘India Innovation Growth Programme IIGP-2019 award

SKUAST-K ranked amongst top 10 institutes along with the IITs and BITS Pilani in IIGP 2019. IIGP-2019 competition took place in two phases with the final presentation at IIT Bombay.

Dr. Hamadani, a faculty from university and one of the beneficiaries of NAHEP - IDP presented an innovative idea on “**Artificial Intelligence driven Farm Management Information System**” during the competition. The AI driven tool presented by Dr Hamadani has the potential to directly connect the farmers with the development agencies, R & D institutions and other key stakeholders for real-time data collection and service delivery to the farmers. The output provided through this application will help farmers for better management of the farms with customized support services. Over and above this, such AI driven tool could serve as an effective market research and e-governance tool for government to facilitate in decision making processes.



Component 1b: Centres for Advanced Agricultural Sciences and Technology

Name of the institute: Punjab Agricultural University, Ludhiana (Punjab)

Success story

PAU's Urea Guide Mobile Application: Has potential to achieve an estimated economic savings of INR 7.5 billion in Punjab annually

- Department of Soil Science, PAU has developed the PAU - Leaf Color Chart (LCC) in 2017. Going forward, the further research activities, field demonstrations and promotion of this innovative technique are now being undertaken through CAAST support.
- PAU-LCC chart application recommends the farmers on the usage of fertilizers and pesticides on the basis of leaf color combinations.
- Initially adoption of this LCC chart was at slower rate with specific villages like **Bassian in Ludhiana**.
- Post intensive field demonstrations and marketing campaign for PAU-LCC, the adoption rate has significantly improved.
- Now, most of the farmers from Bassian have been using these charts while application of fertilizers and pesticides, which has resulted into precise application of fertilizers and has reduced the excessive usage of fertilizer and overall input costs.
- The use of PAU - LCC has led to an equivalent grain yield with an average saving of **50-80 kg N per hectare in Rice and 50 kg N per hectare in wheat in comparison with the farmers' usual practice**.
- According to the estimates prepared by PAU scientists, the adoption of PAU - LCC in all the fields of rice, wheat, maize and cotton in Punjab alone has potential to save **INR 7.5 billion** costs of farmers annually. The savings on expenditure of insecticides / pesticides would help in doubling the farmers' income.



Name of the institute: Birsa Agricultural University, Ranchi, Jharkhand

Success story

Success story

Adoption of Integrated Farming System (IFS) has significantly improved the livelihood of Mr. Anuj Kumar, Gaya, Bihar

- NAHEP awarded sub-project at BAU, Ranchi has been working in one of the emerging areas of agriculture and allied sciences i.e. Integrated Farming System (IFS) since last two years. Scientists from BAU has been engaged in promoting IFS practices through various activities such as *awareness workshop, orientation workshops for farmers and other stakeholders at village level.*
- With the support from NAHEP – CAAST, one of the beneficiary farmers Mr. Anuj started integrated farming on a land area of **5.0 acres**. He was growing field crops like **Paddy, Wheat, Rapeseed, Pulses, Fodder crops and Vegetables in 4.5 acres in all the three seasons since last one and half years.**
- Whereas, on the remaining piece of land (**0.5 acre**), **he has been rearing and managing 543 ducks (Khaki Campbell & Indian Runner Breed), 250 poultry birds (Sonali Hen), 1500 quails, 3 cattle (cross-bred) and 10 goats (Black Bengal).** He has also established a vermicompost production unit with a capacity of 1 ton per month and a 4-layered fishpond with the production capacity of 1000 fishes of 90 days cycle.
- Post adoption of this IFS method of farming, Mr. Kumar is getting **more yield per unit area per unit time by virtue of high crop canopy, better crop rotation and additional income from allied enterprises while utilizing the on-farm inputs properly on an economic and sustainable basis.**
- It is also important to note that due to adoption of IFS, he is also **realizing the income at regular intervals as well as can afford the nutrition balance** for his family throughout the year.



Name of the institute: Navsari Agricultural University, Navsari

Success story

Success story

'Novel' Organic plant booster developed by NAU scientists' controls pests and diseases in a sustainable manner

- 'Novel': A banana pseudo stem based organic liquid nutrients has been introduced by scientists of NAU, Navsari. This product contains **N, P and K** as well as other micro-nutrients such as **Ca, Mg, S, Mn, Cu, Zn, Fe** etc. in required amount to crops. It also contains plant growth regulators such as **NAA, cytokinin and GA₃** as well as other beneficial soil conditioning and waste decomposing organisms. Scientists and research fellows from NAU are still working on this product for further enrichments.
- Scientists have tried this product with more than 500 different combinations of natural plant extracts to enhance the pesticidal and fungicidal properties and has conducted trials on various categories of the crops. Result data were scientifically analyzed and best combinations were tested again on demonstration plot as well as on the farmer's field on different crops.
- Studies were also carried out to analyse the results on particular insect-pests and diseases on different crops. Results depicts that '**Novel**' significantly works to control the aphid, jassid, borers, thrips and all kind of larvae for most of the field crops whereas '**Novel Prime**' works efficiently to control the fungal and bacterial diseases.
- NAU has also planned to commercialise this product through select agro-chemical companies across the state.

PRIME
NOVEL






Media coverage of project activities and achievements



Component 1a: Institutional Development Plan (IDP)




Media plays a critical role in disseminating the focus of the innovative projects, outcomes and impact on the beneficiaries. In order to create the ripple effect and improve the visibility of project, media coverages and advertisements are important tools. The media coverages of NAHEP are quite evident and act as testimony of the successful activities and achievements carried out by awarded AUs under NAHEP.



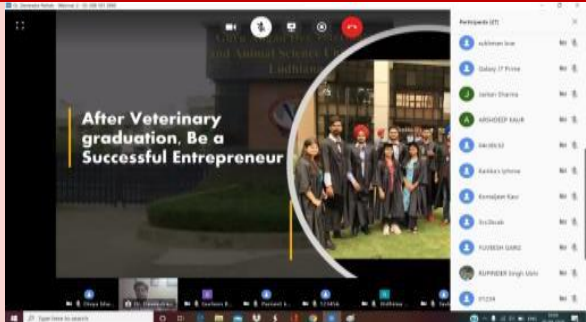
S. No	Name of the AU	Subject	Event photograph
1.	Junagadh Agricultural university, Junagadh, Gujarat	“New Age Skills under Changing Agricultural Scenario” from January 29, 2020 to February 2, 2020 at JAU, Junagadh	 <p>જૂનાગઢ કૃષિ યુનિવર્સિટીના 650 વિદ્યાર્થીઓ પર્યાવરણ જાગૃતિ અભિયાન રેલીમાં જોડાયા</p>
2.	Junagadh Agricultural university, Junagadh, Gujarat	“Vocational Training on New Approaches and OMICS Tools for Identification and Control of Ticks and Tick-Borne Disease” from November 18-22, 2019 of College of Veterinary Sci. and A.H.	 <p>દિવા ભાસ્કર</p> <p>જૂનાગઢ કૃષિ યુનિવર્સિટીમાં ઈતરડી નિયંત્રણ અને કેલાના રોગોના નિદાન અંગે 5 દિવસીય તાલીમ</p> <p>ઈતરડી વાળા પશુઓના લોહીના સંપર્કથી લોકોમાં પણ રોગ ફેલાય</p>
3.	Junagadh Agricultural university, Junagadh, Gujarat	“Honeybee Farming (Apiculture) for Entrepreneurship Development” during February 11-15, 2020	 <p>35 છાત્રોએ નિષ્ણાંતોના માર્ગદર્શન હેઠળ પ્રત્યાક્ષ તાલીમ મેળવી, પોતાનો વ્યવસાય શરૂ કરી શકશે</p> <p>જૂનાગઢ કૃષિ યુનિ.માં વિદ્યાર્થીઓને મધમાખી ઉછેરની પાંચ દિવસિય તાલીમ</p>


S. No	Name of the AU	Subject	Event photograph
4.	Junagadh Agricultural university, Junagadh, Gujarat	<p>“Vocational Training on Alternative Scientific Modalities to Improve the Learning Skills in Veterinary Anatomy” from January 21-25, 2020 at College of Veterinary Sci. and A.H., JAU, Junagadh</p>	
5.	Junagadh Agricultural university, Junagadh, Gujarat	<p>Skill Development Training Programme on Applied Mathematics for Agricultural decision-making during March 13-17, 2020 at College of Agriculture, JAU, Junagadh</p>	
6.	Junagadh Agricultural university, Junagadh, Gujarat	<p>Recent Advances for Sustainable Livestock Farming during October 5-9, 2020 at College of Agriculture, JAU, Junagadh</p>	
7.	Junagadh Agricultural university, Junagadh, Gujarat	<p>Next Generation Extension Tools and Techniques for Upcoming Agricultural Professions during October 19-23, 2020 at College of Agriculture, JAU, Junagadh</p>	

S. No	Name of the AU	Subject	Event photograph
11.	Assam Agricultural University, Jorhat (Assam)	Organized two day workshop on digital e-learning in AAU	 <p>Two-day workshop on digital e-learning in AAU</p> <p>A CORRESPONDENT JORHAT, Oct 27: A two-day workshop was organized recently by the AAU, Jorhat campus under National Agricultural Higher Education Project (NAHEP) Component 2A activities and implementation of Academic Management System (AMS), jointly by Indian Council of Agricultural Research-Indian Agricultural Statistics Research Institute (ICAR-IAGSI), New Delhi and AAU, informed Dr. Rajni Kumar Saini, the Faculty Officer of AAU.</p> <p>Dr. Saini said that the objective of the workshop was to train the academic staff, IT professionals and staff from the university on the use of digital platform. Altogether 188 participants from nine constituent colleges of AAU attended the workshop.</p> <p>Dr. Ananta Saha, Professor in the Department of Horticulture, during the inaugurated session of the workshop as the nodal officer of NAHEP-Component 2A, elaborated the importance of digital management of academic system and highlighted other aspects of e-learning, content creation, input creation for a mobile app with artificial intelligence for identification of pests and diseases of important crop establishments of virtual classroom and use of virtual reality in development of teaching aids.</p> <p>Dr. Ashok Bhattacharyya, the Director of Research (Agri) and Vice-Chancellor in-charge of AAU, formally inaugurated the workshop and highlighted the significance of automation and digitalization with the example of Blackboard Academy Suite used by universities of developed countries. The AAU-VC also expressed his satisfaction over AAU being part of the revolution of agricultural higher studies in India and requested NAHEP to select AAU as one of the beneficiary of a virtual classroom.</p>
12.	University of Agricultural Sciences, Dharwad (Karnataka)	Organized national webinar on “Agri-preneurship opportunities & Support System” at the college of Agriculture	 <p>DHARWAD, DHNS: University of Agricultural Sciences, Dharwad Vice-Chancellor M B Chetani has stated that branding and packaging is vital for the success of agri-preneurship.</p> <p>He noted this while speaking after inaugurating a national webinar on 'Agri-preneurship Opportunities & Support System', organized at the College of Agriculture, Dharwad.</p> <p>The World Bank assisted UAS, Dharwad is implementing the Development Plan (DP) project.</p> <p>He further highlighted the importance of development of agriculture and agri-based industries, and discussed agri-preneurship opportunities in various areas.</p> <p>Centre for Agri-preneurship, Development, MANAGE, National Institute of Agricultural Extension Management, Hyderabad, Dharwad, has given a comprehensive overview of the agri-preneurship status and various support systems in place from government and other institutions.</p> <p>His elaboration on the regulatory support for contract farming, one nation one market, and redefining of the micro, small and medium enterprises. Stressing on social local initiatives, he gave a brief note on the support to micro food enterprises in rural areas.</p> <p>Dr. Dhanu Prakash Sahu gave an detailed lecture on opportunities for agri-preneurship along with challenges. He said, though Indian farmers have been skills there is a need to leverage these by up-skilling, re-skilling, and skill re-orientation programmes.</p> <p>An alumina of UAS, Dharwad, Manjunath H, shared his journey of establishing his own enterprise 'Future Bio-tech Ltd' and suggested students to work on their development competency in the field.</p> <p>THE TIMES OF INDIA UAS, Dharwad selected for premier project, to get Rs 25 crore from World Bank</p> <p>DHARWAD: Taking cognizance of the increasing number of graduates in agriculture sector going to jobs in non-farm sector, the Vice-Chancellor of Agriculture Research Institute, Dharwad has decided to start the UAS, Dharwad for the University of Agricultural Sciences (UAS), Dharwad to provide a better support system to agri-preneurship.</p> <p>The Vice-Chancellor (Research) of UAS, Dharwad, Manjunath H, said that the success rate will be very high, as the UAS, Dharwad will be able to leverage the existing, as well as new, initiatives. These initiatives include, one nation one market, one agri-preneurship, one nation one market, one agri-preneurship, one nation one market, one agri-preneurship, one nation one market.</p> <p>UAS, Dharwad has selected Manjunath H, Dharwad, as the nodal officer for the project. The deadline for the selection is March 2021.</p> <p>UAS, Dharwad is an eligible entity for the project. The deadline for the selection is March 2021.</p> <p>UAS, Dharwad has selected Manjunath H, Dharwad, as the nodal officer for the project. The deadline for the selection is March 2021.</p>
13.	Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (Punjab)	Career in Veterinary Science webinar held on 16 April, 2020	 <p>Beyond Graduation in Veterinary Science : Career Options in India & abroad with special emphasis on Entrepreneurship Development</p> <p>Reorienting yourselves</p>

S. No	Name of the AU	Subject	Event photograph
14.	Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (Punjab)	Organized industry-farmer-academia webinar on “Covid-19 crises: mitigation strategies for shrimp farmers in Punjab”	 <p>The screenshot shows a news article from the Luchiana Tribune dated 17/10/2020. The headline is "Academia webinar on shrimp farming held". The article reports on a webinar organized by the Punjab Veterinary and Animal Sciences University (PVAU) in Ludhiana. It mentions that the webinar was held on October 16, 2020, and was attended by industry experts, farmers, and academicians. The article discusses the challenges faced by shrimp farmers during the COVID-19 pandemic and the strategies being implemented to mitigate these challenges. It also mentions that the webinar was organized by the Punjab Veterinary and Animal Sciences University (PVAU) in Ludhiana.</p>
15.	University of Agricultural Sciences, Dharwad (Karnataka)	Guest lecture on Accounts procedures on 16. 10.2020	 <p>The photograph shows a classroom setting where a guest lecture is taking place. A speaker is standing at the front of the room, addressing a group of students seated at desks. The room is well-lit and has a whiteboard in the background.</p>
16.	University of Agricultural Sciences, Dharwad (Karnataka)	Workshop on Mentorship towards Start-ups on 14.09.2020	 <p>The screenshot shows a news article from Kannada Prabha dated 14 September 2020. The headline is "ತಾಂತ್ರಿಕತೆಯಲ್ಲೂ ಚೀನಾವನು ಸೋಲಿಸಲು ಭಾರತ ಸಿದ್ಧವಾಗಲಿ" (India is ready to defeat China even in technology). The article discusses the challenges faced by India in the technology sector and the government's efforts to support start-ups and innovation. It mentions that the government is providing financial support and mentorship to start-ups to help them grow and compete in the global market. The article also mentions that the government is providing financial support and mentorship to start-ups to help them grow and compete in the global market.</p>

S. No	Name of the AU	Subject	Event photograph
20	University of Agricultural Sciences, Dharwad (Karnataka)	Chandana news channel broadcasted on 15 April 2020	
21.	University of Agricultural Sciences, Dharwad (Karnataka)	Social media coverage	
22	Sri Karan Narendra Agriculture University, Jobner, Jaipur, Rajasthan	Online launching of IDP-NAHEP by Shri Kalraj Mishra, Hon'ble Chancellor and Governor of Rajasthan	



S. No	Name of the AU	Subject	Event photograph
23	Sri Karan Narendra Agriculture University, Jobner, Jaipur, Rajasthan	Offline Skill Development Training on Microsoft Tools for UG Students	
24	Sri Karan Narendra Agriculture University, Jobner, Jaipur, Rajasthan	Offline Personality Development & Motivation Workshop for UG Students	
25	Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (Punjab)	Successful Entrepreneur program held on 30 April, 2020	

S. No	Name of the AU	Subject	Event photograph
26	Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (Punjab)	Agri-Entrepreneurs webinar held on 3 November, 2020	 <p>The photograph shows a screenshot of a webinar slide. The slide has a background image of a cornfield. At the top, the title reads "Silage- A hidden treasure for Agri-entrepreneurs". Below the title, the speaker's name and credentials are listed: "DR J S BHATTI, MANAGING DIRECTOR, DAINTECH GROUP, FORMER HEAD, DEPT. OF VAHEE, GADVASU, LUDHIANA". The slide is displayed within a video player interface.</p>

Component 1b: Centres for Advanced Agricultural Sciences and Technology

S. No	Name of the AU	Subject	Event photograph
1.	Vasantrao Naik Marathwada Agriculture University, Parbhani (Maharashtra)	Inaugurated webinar on Agribots, Agri drones, & Agri AGV's application in Digital farming for Productivity Enhancement Solutions in NAHEP Centre, VNMKV Parbhani	
2.	Vasantrao Naik Marathwada Agriculture University, Parbhani (Maharashtra)	Faculty upgradation program organised at AU	
3.	Vasantrao Naik Marathwada Agriculture University, Parbhani (Maharashtra)	Organized online international training programme on 'Recent physio molecular digital tools in abiotic stress management for crop modeling'	

S. No	Name of the AU	Subject	Event photograph
4.	Punjab Agricultural University, Ludhiana (Punjab)	Organized two days' workshop on 'academia-industry-government linkages for quality agricultural education' in PAU	

S. No	Name of the AU	Subject	Event photograph
5.	Mahatma Phule Krishi Vidyapeeth, (Maharashtra) Rahuri	Organized five weeks online training programme on competitive examination: AIEEA (PG) JRF, AICE-JRF/SRF (Ph.D.) and ICAR-NET/ARS	
6.	Mahatma Phule Krishi Vidyapeeth, (Maharashtra) Rahuri	Organized National Online Webinar on 'Bioenergy, a Climate Smart Renewable Energy: Present status and future Prospects'.	

S. No	Name of the AU	Subject	Event photograph
7.	Chandra Shekhar Azad University of Agriculture & Technology, Kanpur	Brain storming session on “Enhancing Nutritional and Economic value of Agri- produce”	
8.	Chandra Shekhar Azad University of Agriculture & Technology, Kanpur	Brain storming session on “Organic Cultivation of Vegetable Crops under Protected Conditions”	

S. No	Name of the AU	Subject	Event photograph
9.	Chandra Shekhar Azad University of Agriculture & Technology, Kanpur	Brain storming session on “ Hi-Tech Nursery Raising Technology for Vegetables ”	
10.	Chandra Shekhar Azad University of Agriculture & Technology, Kanpur	National Webinar on “ Protected cultivation of vegetable crops: challenges and opportunities ” held on June 23, 2020”	
11.	Chandra Shekhar Azad University of Agriculture & Technology, Kanpur	Brain storming session on “ Enforcement of food safety in Indian food Industries ”	

S. No	Name of the AU	Subject	Event photograph
12.	Chandra Shekhar Azad University of Agriculture & Technology, Kanpur	Brain storming session on “Entrepreneurship development for quality seed production of nutritional crops”	
13.	Chandra Shekhar Azad University of Agriculture & Technology, Kanpur	National Webinar on “Genome editing & marker-Assistant selection for precision plant breeding” held on May 30, 2020	
14.	Chandra Shekhar Azad University of Agriculture & Technology, Kanpur	National Webinar on “Climate change and Agro-forestry impact implication & strategies” held on June 05, 2020	

S. No	Name of the AU	Subject	Event photograph
15.	Chandra Shekhar Azad University of Agriculture & Technology, Kanpur	National webinar on “changing the future with communication skills” on June 16, 2020	
16.	Chandra Shekhar Azad University of Agriculture & Technology, Kanpur	National training on “Recent technological interventions for seed production and seed quality enhancement on nutritional crops” held on June 22-23, 2020	
17.	Chandra Shekhar Azad University of Agriculture & Technology, Kanpur	National Webinar on “Communication skills development for seed entrepreneurship” held on September 25-26, 2020	

S. No	Name of the AU	Subject	Event photograph
18.	Chandra Shekhar Azad University of Agriculture & Technology, Kanpur	National webinar on “National education policy” held on October 7, 2020	 <p>The clipping is from the newspaper 'Dainik Bhaskar'. The main headline reads: 'विश्वविद्यालय के संसाधनों से जैव संवर्धित फसलों के बीज उत्पादन के विषयक'. A sub-headline says 'आसार आरंभ'. The text discusses the use of university resources for producing bio-enriched crop seeds. It mentions that the university has started a project to produce bio-enriched seeds for various crops. The project is being implemented in collaboration with the state government. The text also mentions that the university has received a grant from the state government for this purpose. The project is expected to benefit the farmers by providing them with high-quality seeds.</p>
19.	Chandra Shekhar Azad University of Agriculture & Technology, Kanpur	International training on “Neglected and Underutilized Crop Species (NUS) for nutritional and food security during time of Uncertainties”. held on October 16-29, 2020	 <p>The clipping is from the newspaper 'Jyoti'. The main headline reads: 'पर्यावरण संरक्षण के साथ प्लास्टिक मुक्त राष्ट्र का निर्माण हो'. A sub-headline says 'अत्याधुनिक प्लास्टिक दोहन सिंता का विषय, इको टूरिज्म को बढ़ावा देना'. The text discusses the construction of a plastic-free country along with environmental protection. It mentions that the government has launched a campaign to reduce plastic waste. The campaign is being implemented in collaboration with the private sector. The text also mentions that the government has launched a campaign to promote eco-tourism. The campaign is expected to benefit the environment and the economy.</p>
20.	Chandra Shekhar Azad University of Agriculture & Technology, Kanpur	National Webinar on “Research ethics and thesis / Research Paper Writing Skills Development” Held on November 24-28, 2020	 <p>The clipping is from the newspaper 'Saraswat Daily'. The main headline reads: 'शोध नैतिकता और थीसिस/शोध पत्र लेखन में कौशल विकास विषय पर पाँच दिवसीय राष्ट्रीय ई-प्रशिक्षण संपन्न'. A sub-headline says 'कानपुर समाचार'. The text discusses the completion of a five-day national e-training on skill development in research ethics and thesis/research paper writing. The training was held online and was attended by students from various universities. The text also mentions that the training was organized by the state government. The training is expected to benefit the students by providing them with the necessary skills for research and writing.</p>

S. No	Name of the AU	Subject	Event photograph
21.	Chandra Shekhar Azad University of Agriculture & Technology, Kanpur	International training on “Farmer organization Need, Opportunity, challenges and execution” , held on 23 December 2020	
22.	University of Agricultural Sciences, Bangalore	The University has created “UAS Bangalore Agri-War Room” to address the agricultural sector issues at Head Quarter (GKVK Bengaluru).	
23.	Navsari Agricultural University, Navsari	Farmer's session of National Conference on “Utilization and Conservation of Non-Timber Forest Genetic Resources”	

S. No	Name of the AU	Subject	Event photograph
24.	Navsari Agricultural University, Navsari	Women Farmers participated in the Agripreneurship Meet	
25.	Navsari Agricultural University, Navsari	Skill development organized to understand agriculture sector from the perspective of IIMs, other management institutions	
26.	Navsari Agricultural University, Navsari	Exposure of Students to scientists / academicians of IIMs, IIT, IRMA, other private Organizations	

S. No	Name of the AU	Subject	Event photograph
27.	Navsari Agricultural University, Navsari	Women Farmers participated in the National Seminar on “Secondary Agriculture”	
28.	Navsari Agricultural University, Navsari	Glimpses of Farmers involvement in the National Seminar on “Secondary Agriculture”	
29.	Birsra Agricultural University, Ranchi, Jharkhand	Activities of NAHEP CAAST-IFS Project at BAU, Ranchi, Jharkhand and lectures delivered under NAHEP-CAAST-IFS Project for the enhancement of scientific knowledge of Students and faculties of BAU, Ranchi	

S. No	Name of the AU	Subject	Event photograph
30.	Kerala Agricultural University, Kerala	National webinars have been organised by KAU in coordination with NAHEP-CAAST on “ Secondary agriculture: opportunities and challenges ”	<p>WEBINAR series Resurgence- Life raising above the COVID19 Secondary Agriculture : Opportunities and Challenges 11th June 2020 Thursday 03:00 PM (IST) CLICK HERE TO REGISTER</p>
31.	Kerala Agricultural University, Kerala	National webinars have been organised by KAU in coordination with NAHEP-CAAST on “ Company Registration Protocols and Taxes for Startups ”	<p>WEBINAR SERIES Resurgence- Life rising above COVID19 Company Registration Protocols and Taxes for Startups 25th June 2020 Thursday 03:00 PM (IST) REGISTER TO SUBMIT</p>
32.	Kerala Agricultural University, Kerala	Webinars have been organised by KAU in coordination with NAHEP-CAAST on “ Recent Trends in Food Packaging ”	<p>KERALA AGRICULTURAL UNIVERSITY Webinar on Recent Trends in Food Packaging Agri Business Incubator Translating ideas into reality FACEBOOK/NAHEP TWITTER/NAHEP YOUTUBE-NAHEP LINKEDIN/COMPANY/KAU-NAHEP Dept. of Agricultural Engineering & Directorate of Extension, KAU, Thrissur, 680656 Contact us: @caast.kau.in rabi.kau.in rabi@kau.in</p>

S. No	Name of the AU	Subject	Event photograph
33.	Kerala Agricultural University, Kerala	KAU organized webinars in coordination with NAHEP-CAAST on “Technologies for Agriculture 4.0”	<p>The banner for the webinar 'Technologies for Agriculture 4.0' is organized by Agri Business Incubator. It features six speakers: Dr. R. S. Sankar, Dr. R. S. Sankar, Dr. R. S. Sankar, Dr. R. S. Sankar, Dr. R. S. Sankar, and Dr. R. S. Sankar. The event is scheduled for 21st October 2020, Wednesday, from 12:00 PM to 05:00 PM (IST). The contact information is caast.kau.in and rabi.kau.in.</p>
34.	Kerala Agricultural University, Kerala	KAU organized webinar on “Building Up IP Portfolios – GI & Patent Mining” in co-ordination with NAHEP CAAST	<p>The screenshot shows a webinar titled 'Building IP Portfolios for Startups' featuring R. Kalperna Sastry, Ex-Joint Director-CAR-NAARM and currently Director, Centre of Innovation and Agri-Entrepreneurship, PUTSAU. The event is organized by KAU-ABI on October 9, 2020.</p>
35.	Kerala Agricultural University, Kerala	Online lectures on socio economic series and career series conducted under the NAHEP-CAAST-EAP	<p>The banner for the 'National Webinar Series on Broadening horizons: Unconventional Career Opportunities' (EAP - Student-corporate innovation program) is held from 08 - 11 September, 2020, 15.00-16.30 hrs. It features five guest speakers: Dr. R. S. Sankar, Dr. R. S. Sankar, Dr. R. S. Sankar, Dr. R. S. Sankar, and Dr. R. S. Sankar. The contact information is caast.kau.in and rabi.kau.in.</p>

Component 1c: Innovation Grants



S. No	Name of the AU	Subject	Event photograph
1.	Kerala Veterinary and Animal Sciences University, Wayanad, Kerala	International webinar on “ Role of Poultry Sector in boosting the Post-COVID Indian Economy ”	
2.	Dr. PDKV, Akola	NEWS of Brain storming workshop “ Role of Agriculture Graduate in 21st Century for sustaining Indian Economy ” held on - 23 July., 2019 at NAHEP (IG), Dr. PDKV, Akola	

S. No	Name of the AU	Subject	Event photograph
3.	Dr. PDKV, Akola	News of National Training “Issues of Entrepreneurship in Agriculture and Technology” held on - 05 -14 November 2019 at NAHEP (IG), Dr. PDKV, Akola	
4.	Dr. PDKV, Akola	NEWS of Alumni Meet of Dr. PDKV, Akola “PDKV Alumni Meet -2020” held on 06 February 2020	

S. No	Name of the AU	Subject	Event photograph
5.	Kamdhen University, Gujarat	3 faculties of Kamdhen University, College of Dairy Science, Amreli has attended short term dairy course at Kold College, Denmark under NAHEP Project	
6.	Kamdhen University, Gujarat	College of Dairy Science, Kamdhen University, Amreli has organized workshop on Soft Skill Business Communication	
7.	Kamdhen University, Gujarat	College of Dairy Science, Kamdhen University, Amreli has organized a seminar on "Opportunities of Dairy Education in Denmark" by 2 faculties of Kold College, Denmark	

S. No	Name of the AU	Subject	Event photograph
8.	Kamdhenu University, Gujarat	A webinar has been organized by College of Dairy Science, Kamdhenu University, Amreli on “Overseas Dairy Education & Guidance for IELTS Exam” in the presence of Dr. R. B. Sharma, National Coordinator (IG), NAHEP, ICAR, New Delhi.	<p>કોલેજ ઓફ ડેરી સાયન્સ અમરેલી ખાતે ડિજિટલ વેબિનારનું આયોજન કરાયું</p> <p>આંતરરાષ્ટ્રિય તંજાની હાજરી : વિદ્યાર્થીઓએ ઉપયોગી માગદર્શન મેળવ્યું</p> <p>અમરેલી, તા. ૧૩</p> <p>કામધેનુ યુનિ.ની અંતર્ગત કોલેજ ઓફ ડેરી સાયન્સ અમરેલી દ્વારા ડિજિટલ વેબિનારના આયોજનમાં આયોજનના અધ્યક્ષ તરીકે ડૉ. રી.બી. શર્મા, નેશનલ કોર્ડિનેટર (ઇજી), નેએપ, ઇકાર, ન્યૂ દેલ્હી હાજરી રહ્યાં હતાં. તેમણે ડેરી સાયન્સ અને ઇલ્ટીસ એક્સામના અંગ્રેજીમાં વિચારણા કરવાની સલાહ આપી હતી અને ડેરી સાયન્સના વિષયમાં ઇલ્ટીસ એક્સામની તૈયારી અંગેની સલાહ આપી હતી.</p>
9.	Kamdhenu University, Gujarat	A webinar has been organized by College of Dairy Science, Kamdhenu University, Amreli on “Breaking myth of Science Communication” in the presence of Dr. R.C. Agrawal, National Director, NAHEP & DDG (Education), ICAR, New Delhi	<p>અમરેલી કોલેજ ઓફ ડેરી સાયન્સ ખાતે 'બ્રેકીંગ મીથ ઓફ સાયન્સ કોમ્યુનિકેશન' વિષય પર વેબિનાર</p> <p>અમરેલી, તા. ૦૯</p> <p>હાલ કોરોના વાયરસની પરિસ્થિતિને કારણે શિક્ષણ અધ્યયનની પ્રક્રિયાને અસર કરી છે. ત્યારે ડિજિટલ પ્લેટફોર્મના માધ્યમથી તા.જના રોજ કામધેનુ યુનિ.ની અંતર્ગત કોલેજ ઓફ ડેરી સાયન્સ 'અમરેલી' દ્વારા 'બ્રેકીંગ મીથ ઓફ સાયન્સ કોમ્યુનિકેશન'ના અંતિમ સત્કર્મના આયોજન કરવામાં આવ્યું હતું. જેમાં સંશોધન પ્રવૃત્તિઓ સારા રીતે ચલાવવા અને વિદ્યાર્થીઓ દ્વારા વ્યાજબી અને અસરકારક રીતે સાયન્સ કોમ્યુનિકેશન કરવાની સલાહ આપવામાં આવી હતી.</p>
10.	Kamdhenu University, Gujarat	A national training has been organized by College of Dairy Science, Kamdhenu University, Amreli on “Developing Winning Research Proposal” by faculties of NAARM, Hyderabad under NAHEP project	<p>અમરેલી કોલેજ ઓફ ડેરી સાયન્સ દ્વારા ફેકલ્ટીઝ ડેવલપમેન્ટ ત્રી દિવસીય નેશનલ ટ્રેનિંગ યોજાઈ</p> <p>નેશનલ ટ્રેનિંગ યોજાઈ</p> <p>અમરેલી, તા. ૦૯</p> <p>કોલેજ ઓફ ડેરી સાયન્સ અમરેલી દ્વારા નેશનલ ટ્રેનિંગ યોજાઈ હતી. જેમાં ડેરી સાયન્સના ક્ષેત્રના અભ્યાસક્રમો, નોંધણી અને પ્રજ્ઞાપનના અંગ્રેજીમાં વિષયોને લઈને ટ્રેનિંગ આપવામાં આવી હતી. આ ટ્રેનિંગમાં કોલેજના અધ્યાપકો અને અધ્યાપિકાઓની ઉપસ્થિતિમાં ટ્રેનિંગ આપવામાં આવી હતી.</p>

Component 2: Investments in ICAR leadership in Agricultural Higher Education

S. No	Name of the AU	Subject	Event photograph
1.	ICAR - National Academy of Agricultural Research Management	Sixth Consultative Workshop on Academia – Industry – Government Linkages for Quality Agricultural Education	 <p>The photograph shows a group of approximately 50 people, including men and women in professional attire, gathered for a group photo. They are standing in several rows in front of a building. The background features a banner with text in Hindi. Below the photo is a social media sharing bar with icons for Facebook, Twitter, LinkedIn, and WhatsApp. At the bottom, there is a caption in Hindi: 'आसाम कृषि विश्वविद्यालय (AAU) और ICAR-राष्ट्रीय कृषि अनुसंधान प्रबंधन अकादमी (NAARM), हयडराबाद, ने मंगलवार और बुधवार को गुवाहाटी में एक-दिवसीय परामर्श बैठक आयोजित की।'</p>
2.	ICAR - National Academy of Agricultural Research Management	Seventh Consultative Workshop on Academia – Industry – Government Linkages for Quality Agricultural Education	 <p>The photograph shows a newspaper clipping with a headline in Hindi: 'इंडस्ट्री संग मिलकर शोध करने की आवश्यकता'. The article discusses the importance of industry-academia linkages in agricultural research. It mentions a workshop organized by AAU and NAARM. The text is in Hindi and includes sub-headings like 'कृषि विवि' and 'मोदीजी ने कृषि विवि का उद्घाटन किया'. The article highlights the need for research that addresses the needs of the agricultural sector and the role of industry in this process.</p>

S. No	Name of the AU	Subject	Event photograph
3.	ICAR - National Academy of Agricultural Research Management	Virtual Signing of Tripartite MoUs Ceremony for Establishment of Career Development Centers and Faculty Development Centre on 02 nd July 2020 at NAARM Hyderabad	 <p>Bright prospects in Agricultural Education</p> <p>Reportage: ICAR National Academy of Agricultural Research Management (NAARM) organized a workshop on 'Prospects of Agricultural Education: Awareness among Higher Secondary School Administrators' on Monday under the aegis of NAHEP (National Agricultural Higher Education Project).</p> <p>According to organizers, the workshop aimed to impress principals, vice-principals, faculty on the prospects of agricultural education and the need for quality manpower so that the 12th standard students participate in the national level entrance examination - AIEEA - 2023 (All Indian Entrance Examination for Admission) organized by ICAR Indian Council of Agricultural Research) on June 1, 2023.</p> <p>Around 18 participants including principals, vice-principals, faculty in person from eight higher secondary schools of Hyderabad and faculty of NAARM participated in the programme. The programme was inaugurated by Ansa Prasad Reddy, DCEO, Hyderabad and National Joint Director who stressed that there is immense opportunity available for the students to pursue higher education in agriculture.</p> <p>Programme on Agricultural Education</p> <p>ICAR National Academy of Agricultural Research Management (NAARM) is an organization that helps students to think beyond engineering and medical streams, i.e. agriculture and allied sciences. On this occasion, she released a flyer of ICAR AIEEA 2023 and a booklet on 'Career Opportunities in Agriculture and Allied Sectors'.</p> <p>Dr. S.R. Sreeni, CFI NAHEP Project from ICAR NAARM in his presidential address briefly described the objectives and activities of project i.e. NAHEP and its contribution to quality and relevance of agricultural education. He also talked about the necessity of guidance for school students at appropriate time to help them choose right career. Dr. D. Tharun Reddy, principal scientist stressed the importance of diversity in career options and the requirement of quality manpower to meet the challenges of current agricultural sector.</p>
4.	ICAR - National Academy of Agricultural Research Management	Disaster Recovery Centre (DRC) Inauguration on 11 th August 2020 at NAARM Hyderabad	 <p>Disaster Recovery Centre</p> <p>వనీవీఆర్ డిఆర్ సెంటర్ ప్రారంభం</p> <p>వనీవీఆర్ డిఆర్ సెంటర్ ప్రారంభం. వనీవీఆర్ డిఆర్ సెంటర్ ప్రారంభం. వనీవీఆర్ డిఆర్ సెంటర్ ప్రారంభం.</p>

S. No	Name of the AU	Subject	Event photograph
5.	ICAR - National Academy of Agricultural Research Management	Training cum Workshop on “Developing Winning Research Proposals on Digital Solutions in Agriculture” from 27-28 December 2019 at Sharda University, NOIDA	
6.	ICAR - National Academy of Agricultural Research Management	6 th Consultative on workshop on “Academia - Industry - Government Linkages for Quality Agricultural Education” at Khanapara, Guwahati during 27-28 January, 2020	
7.	ICAR - National Academy of Agricultural Research Management	7 th Consultative on workshop on “Academia - Industry - Government Linkages for Quality Agricultural Education” at PAU, Ludhiana, Punjab during 28-29, January 2020	

S. No	Name of the AU	Subject	Event photograph
8.	ICAR - National Academy of Agricultural Research Management	1st National workshop on Career Development Centre at KAU, Thrissur on 7th Feb,2020	
9.	ICAR - National Academy of Agricultural Research Management	2nd National Workshop on Career Development Centre at SKNAU, Jobner on 12 Feb 2020	
10	ICAR - National Academy of Agricultural Research Management	3rd National Workshop on Career Development Centre at IGKV, Raipur on 14 Feb, 2020	


S. No	Name of the AU	Subject	Event photograph
11.	ICAR - National Academy of Agricultural Research Management	Focused Group Discussion on Development of guidelines for collaborative research projects on digital solutions in Agriculture at ICAR-NAARM on 19.02.2020	
12.	ICAR - National Academy of Agricultural Research Management	Prospects of Agricultural Education: Awareness among Higher Secondary School Administrators on 24.02.2020 at ICAR-NAARM, Hyderabad	

Digital initiatives undertaken


Component 1a: Institutional Development Plan (IDP)

Awarded AUs have taken several digital initiatives such as development of mobile or web-based applications in order to improve the operational efficiencies, academic & teaching purposes, enhance connects with alumni etc. The ultimate aim to undertake such initiatives is to widen the horizon of the teaching scope and provide global level learnings to the students. This not only helps ICAR- AU system to readily adapt to meet the needs of new age industries while staying relevant, but also to improve the overall quality of agricultural higher education in country.

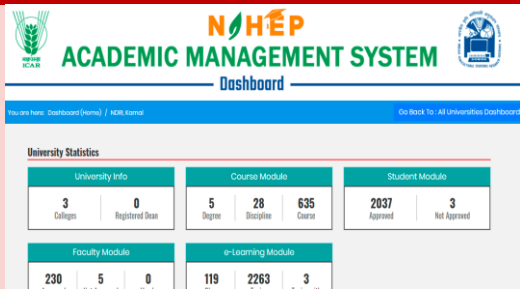
Name of the institute: Acharya N. G. Ranga Agricultural University, Lam, Guntur (Andhra Pradesh)

S. No	Initiative	Brief	Photograph
1	Alumni management portal https://www.angr.aualumni.com	Alumni management portal has been developed for establishing linkage between alumni and institute	

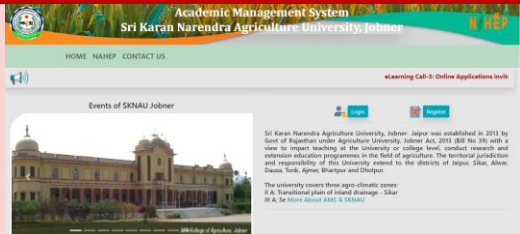

Name of the institute: Junagadh Agriculture University, Junagadh (Gujarat)

S. No	Initiative	Brief	Photograph
1	University alumni portal (https://aims.jau.in)	University Alumni Portal has been developed for the establishment of linkage between alumni and institute	

Name of the institute: ICAR-National Dairy Research Institute, Karnal, Haryana

S. No	Initiative	Brief	Event Photograph
1	Alumni portal (https://alumni.ndri.res.in/)	As of now, 1,911 alumni have enrolled till date on AMS. University has now activated the alumni portal and has initiated leveraging the alumni connects and network.	

Name of the institute: Sri Karan Narendra Agriculture University, Jobner, Jaipur, Rajasthan


S. No	Initiative	Photograph
1	AMS (Academic Management System)	
2	Digitization of library	

Component 1b: Centres for Advanced Agricultural Sciences and Technology




Name of the institute: Chandra Shekhar Azad University of Agriculture & Technology, Kanpur


Sl. No	Innovation	Photograph
1	<p>Application Name: Crossing Data Book URL: https://play.google.com/store/apps/details?id=com.db.crossingdata</p> <p>This app has the following focus areas:</p> <ol style="list-style-type: none"> 1. Creating the Hybridization program 2. Emasculation 3. Pollination 4. Seed Setting 	

Name of the institute: University of Agricultural Sciences, Bangalore


Sl. No	Innovation	Photograph
1	<p>Deployment of Web portal for NGT forewarning Pest and diseases:</p> <p>NGT forewarning pest and diseases platform has been created to disseminate the pest and disease advisory to farming community in advance.</p>	

Name of the institute: Mahatma Phule Krishi Vidyapeeth, Rahuri (Maharashtra)

Sl. No	Innovation	Photograph
1	Digital farm mapping based on development of the DSS system for real time monitoring data at each plot of MPKV, Rahuri	
2	Web based and Mobile based Spatial Evapotranspiration calculator	
3	Phule Pest and Disease Management Application	 <p>PHULE PEST AND DISEASES MANAGEMENT</p> <p>World Bank aided ICAR-NAHEP Programme "Centre for Advanced Agricultural Science and Technology for Climate Smart Agriculture and Water Management (CAAST-CSAWM)" Mahatma Phule Krishi Vidyapeeth</p>


Sl. No	Innovation	Photograph
4	Phule SANMAN : An online custom hiring centre mobile application	

Name of the institute: [Punjab Agricultural University, Ludhiana \(Punjab\)](#)


Sl. No	Innovation	Photograph
1	<p>PAU-Urea Guide App:</p> <p>The adoption of the PAU - Urea Guide App based N management practices will substantially reduce the fertilizer N use, increase farmers' income, reduce insecticide and pesticide consumption and also address the challenges related to air and water pollution.</p>	

Name of the institute: [Birsa Agricultural University, Ranchi, Jharkhand](#)

Sl. No	Innovation	Photograph
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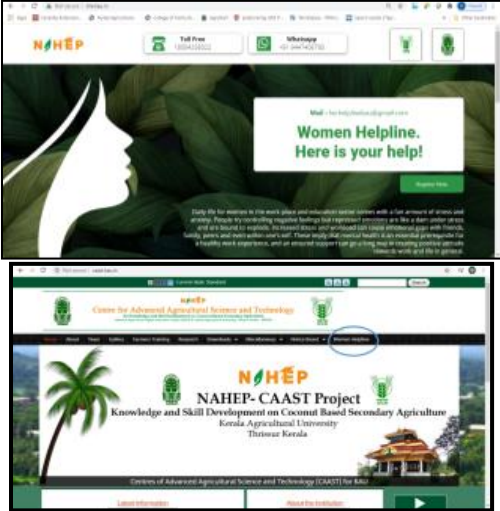
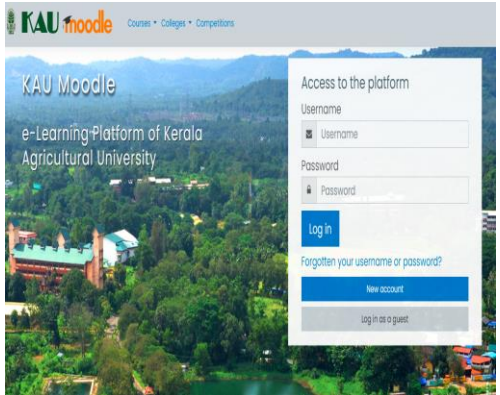
Sl. No	Innovation	Photograph
1	<p>Initiation and Functioning of Academic Management System: Academic Management System (AMS-BAU) is a web enabled application for management of various academic activities of the Agricultural College, BAU, Ranchi.</p>	

Name of the institute: Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur

Sl. No	Innovation	Photograph
1	<ul style="list-style-type: none"> E-Learning Programme: E-Learning modules were prepared & delivered to create the awareness in application of Remote Sensing & GIS in agriculture. Introductory lectures and orientation workshops are being organised for students & staff 	

Name of the institute: Kerala Agricultural University, Kerala



Sl. No	Innovation	Photograph
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Sl. No	Innovation	Photograph
1	<ul style="list-style-type: none"> A women helpline website (www.she.kau.in) has been created for girl students, women labours and faculties in the university. Idea behind this website development is to encourage the women / girls to submit their grievances without any hassles or discriminations. Women helpline website link has also been placed at menu tab in the main page of KAU-NAHEP-CAAST website for easy access. 	
2	<p>MIS (Management Information System) and e-learning / modules: Recently added modules under the National Skills Qualifications Framework (NSQF)</p> <ul style="list-style-type: none"> Agripreneurship development program (200 hours - Level 3) Food Processing and Management (200 hours - Level 2) 	

Component 1c: Innovation Grants

Following are the digital initiatives undertaken in CAAST component:


Name of the institute: Professor Jayashankar Telangana State Agricultural University, Hyderabad (Telangana)

Sl. No	Innovation	Photograph
1	<p>Application developed (Mobile/Web based)</p> <ul style="list-style-type: none"> • Designed and Developed Mobile App for Library and Knowledge Management • Through this application, students can search a particular Book in the Library while using keywords like Title, Author, Subject. 	
2	<p>MIS (Management Information System) / FMS (Financial Management System)</p>	

Sl. No	Innovation	Photograph
3	<p>Digitization of library</p> <p>Implementation of Koha Integrated Library Management Software (ILMS) and Customization of Online Public Access Catalogue (OPAC) in 06 SAUs and 01 ICAR Institution.</p>	
4	<p>e-learning / modules developed</p> <ul style="list-style-type: none"> • Developed an e-learning platform for launching of MOOCs on “Information Handling Skills for Teaching, Learning and Research”. URL: http://mooc.nkmcaer.pjtsau.edu.in. • Developed 15 Digital Video Contents on various topics of Information Handling Skills for Teaching, Learning and Research. • Established centralized platform for providing cloud service to NARES libraries & to enable them to use Koha for their library operations and local user services at ICAR-IARI. 	

Name of the institute: [Kerala Veterinary and Animal Sciences University, Wayanad, Kerala](#)

Sl. No	Innovation	Photograph
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Sl. No	Innovation	Photograph
1	<p>Digitization of library</p> <p>For the smooth functioning of the library, Radio Frequency Identification (RFID) integrated self-check in/ check out and desktop have been installed. This will help for the checking in and out of the students and will also facilitate the issue of books without manual effort.</p>	

Name of the institute: Rajasthan University of Veterinary and Animal Sciences (RAJUVAS), Bikaner

Sl. No	Innovation	Photograph
1	<p>Digitization of library</p> <p>Under the digitization initiative by RAJUVAS, Radio Frequency Identity (RFID) system is installed at Library of College of Veterinary and Animal Science, Udaipur and Post Graduate Institute of Veterinary Education and Research (PGIVER), Jaipur with following features;</p> <ul style="list-style-type: none"> • Security Gates with antenna, • Staff Station • RFID reader • RFID tags for the books • Smart card for both student and faculty 	

Component 2: Investments in ICAR leadership in Agricultural Higher Education

Name of the institute: ICAR- National Academy of Agricultural Research Management



Sl. No	Innovation	Photograph
1	NAHEP Inspired Teacher portal on NAARM Website	

Establishment of facilitative Centres to strengthen academic and research infrastructure

Component 1a: Institutional Development Plan (IDP)


Under ICAR - NAHEP, awarded AUs have established fully equipped facilitative centers to strengthen the academic, research and teaching infrastructure of AUs and to ultimately improve the students' learning outcomes. The key outcomes envisaged through establishment of these facilitative units are increased student placement rates, increased on time graduation rates, improved research effectiveness of faculty etc.



Name of the institute: University of Agricultural Sciences, Dharwad

S. No	Initiative	Brief	Photograph
1	e-learning/ modules developed	<p>Artificial Learning and Machine Learning This specialized course enabled students to build intelligent models or applications with a cutting-edge combination of machine learning, analytics and visualization technologies in the field of Agriculture. The program allowed students to explore the possibilities of incorporating AI based systems in potential areas of agriculture and to provide a platform for students to deliberate on AI and its applications in agriculture. The entire course was divided into 4 different sections / levels:</p> <ul style="list-style-type: none"> Level 0: Mastering Python from zero to hero Level 1: Build Applications using Django Framework Level 2: Machine Learning and Deep Learning with case studies Level 3: Natural Language Processing with case studies <p>Strengthening of E-Resources A series of meetings and capacity building activities were conducted at UAS Dharwad to identify and strengthen the e-resources, which further helped in accentuating and adopting the best e- governance practices in AU.</p>	 

S. No	Initiative	Brief	Photograph
			

Name of the institute: G. B. Pant University of Agriculture & Technology Pantnagar, Uttarakhand


S. No	Type of facilitative centre	Brief	Photograph
1	Industry Innovation and Incubation Centre (IIC)	In order to build a strong entrepreneurial culture in the University, it is necessary to inculcate an entrepreneurial mindset among students right from the beginning. With an aim to develop an innovation-based ecosystem and to build entrepreneurial capabilities of students of GBPUAT, IIC was established with the help of NAHEP- IDP.	

S. No	Type of facilitative centre	Brief	Photograph
2	Virtual Laboratory and 30 Digital Classrooms	With the help of NAHEP – IDP, the regular classrooms of GBPUAT have been upgraded to digital classrooms. Through the renovation process, the basic infrastructure of the classrooms has been augmented and refurbished with changed color themes, motivational classroom design, and technology upgrade in terms of internet availability, digital podiums and digital boards. An interactive display board has also been installed in each classroom.	
3	University Centre-NAHEP Building	The three storied building of University Centre, GBPUAT has been established under NAHEP – IDP equipped with the state- of- art technology infrastructure. The centre was formally inaugurated on March 14th, 2020 by Dr. R.C. Agrawal, National Director, NAHEP and Dr. P. Ramasundaram, National Coordinator, IDP in presence of Dr. Tej Pratap, Vice-Chancellor, GBPUAT, Pantnagar and Shri Sudhir Chadha, Member, Board of Management, GBPUAT, Pantnagar.	



Name of the institute: Junagadh Agriculture University, Junagadh (Gujarat)


S. No	Type of facilitative centre	Brief	Photograph
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S. No	Type of facilitative centre	Brief	Photograph
1	Artificial intelligence (AI) lab / Centre	<ul style="list-style-type: none"> • The objective behind development of Artificial Intelligence laboratory is to get students acquainted with advanced technologies such as robotics, drones, agricultural sensors, CAD designing & simulation and precision agriculture. • This laboratory is useful for students and researchers to gain practical knowledge while understanding various advanced techniques of smart farming. • Advanced equipment such as high-end servers, workstation, spraying drone, surveying drone, welding robot, color sorting machine, self-learning robot kit, robotic arm trainer, 3D printer, IoT boards, DDS function generator, Digital Storage Oscilloscope (DSO) etc. were purchased to equip laboratories. These cutting-edge technologies would help students to familiarize them with the modern technologies, to understand the practical applications and to conduct the research activities. • Providing such modern facilities at undergraduate level would also benefit the students to better prepare for the industry and market needs. 	

S. No	Type of facilitative centre	Brief	Photograph
		<p>Different Laboratories under Artificial Intelligence Lab</p> <ul style="list-style-type: none"> a. Artificial Intelligence Laboratory b. CAD and Simulation Laboratory c. Precision Agriculture Laboratory d. Robotics and Automation Laboratory 	

Name of the institute: University of Agricultural Sciences, Dharwad

S. No	Type of facilitative centre	Brief	Event photograph
1	AI lab/ Center	<ul style="list-style-type: none"> UAS, Dharwad in association with HAEGL Technologies Pvt. Ltd has organized three training programmes during January to August 2020 for third year UG students to impart the hands-on-training on AI and Machine Learning. AU has hosted these programs in presence of Er. Gautam Shigaonkar, CEO (HAEGL) 	
2	Industry Institution Interaction Cell (IIIC)	<ul style="list-style-type: none"> IIIC has been established at university's administrative building. The cell is well equipped with modern electronic fixtures (<i>lecterns, digital podium, 80-inch interactive screen & wi-fi network</i>). This facility will be used for the future guest lectures and industry interactions. 	

S. No	Type of facilitative centre	Brief	Event photograph
3	Tissue Culture Unit	<ul style="list-style-type: none"> A tissue culture lab for imparting hands-on training to UG students has been established with state of art equipment including Deep freezers (-86o), Bio-safety cabinets etc. 	
4	Language lab	<ul style="list-style-type: none"> Mr. B. C. Patil, Hon'ble Agriculture Minister, Govt. of Karnataka inaugurated Language Laboratory at UAS, Dharwad in November 2020. Each system in the lab has been equipped with the 8 English language modules. Each module has the detailed content followed by assessment. To improve the academic performance and enhance the participation of students in extracurricular activities, remedial courses in English Language have also been commenced under NAHEP-IDP. So far, 5 batches of the course have been completed and 120 students have benefitted through language lab. Currently, lab has a capacity of 20 users per batch. 	

S. No	Type of facilitative centre	Brief	Event photograph
5	Collaboration with Association for Startups and Technology Refinement in Agriculture (ASTRA)	<ul style="list-style-type: none"> To understand the current and future market needs, AU has collaborated with ASTRA in Sept 2020 under IDP. In association with ASTRA - an incubator, AU has taken an initiative to engage the students in various entrepreneurial activities and provide them an opportunity to engage with the industry and private sector players including agri startups. 	

Component 1b: Centres for Advanced Agricultural Sciences and Technology

Name of the institute: Kerala Agricultural University, Kerala, Tamilnadu

S. No	Type of facilitative centre	Brief	Event photograph
1	Start-up incubation cell	Mr. Jishnu V.G., a B Sc Forestry graduate who underwent the ELU course in the Dept. of Forest Products & Utilization was selected for a Rs 5 Lakhs grant under RAISE (Realizing And Augmenting Innovations for Start-up Enterprises) for his ideation to establishment of an agri start up around COCONUT FIBRE CEMENT BOARD (CFCB), a low cost housing panel.	
2	Infrastructure	<ul style="list-style-type: none"> Established an advanced research lab for PG students and faculty research in biotechnology; Coconut inflorescence sap (neera) processing unit, Coconut Food Pro Mall, Coconut wood workshop as demonstration centres for training entrepreneurs and FPOs in commercialization of food products from coconut; Advanced facilities in KAU - Agri Business Incubator for training and handholding of entrepreneurs 	

Innovations / Out of box initiatives

Component 1a: Institutional Development Plan (IDP)

Following are the innovations / out of box initiatives undertaken within IDP component till date:


Name of the institute: Sher-e-Kashmir University of agriculture science and technology of Jammu (Jammu and Kashmir)

S. No	Initiative	Brief	Photograph
1	Low cost Pyrolyzer	Low cost Pyrolyzer is used for orchard residue and weed management purposes.	
2	Low Cost Integrated Mulch Laying Machine	Tractor drawn plastic mulch laying machine with covering and dibbling device	

S. No	Initiative	Brief	Photograph
3	Remotely controlled self-propelled boom sprayer	<p>Student Innovation: Ahmer Bashir, Agri Engineering</p> <ul style="list-style-type: none"> •360 degrees turning ability •Semi-automatic machine •Radio systems work in the range up to 500 m. 	

Name of the institute: [University of Agricultural Sciences, Dharwad](#)



S. No	Initiative	Brief	Photograph
1	Classroom Innovation: Flipped classes in English Language	<ul style="list-style-type: none"> • Flipped classes in English language have been developed to provide opportunity to students to improve their skill in English language. • A total of 40 video modules on English language grammar and writing skills have been prepared including content presentations followed by assessment in each module. 	
2	Green initiatives Paper recycling	<ul style="list-style-type: none"> • Based on feasibility and desirable properties, 200 kg of waste has been recycled into 440 GSM paper sheets. • These paper sheets are being used to make the office files, folders, bags etc. 	



S. No	Initiative	Brief	Photograph
3	Miyawaki Forest at Hi- tech Horticulture Unit at UAS, Dharwad's main campus	<ul style="list-style-type: none"> • Miyawaki forest is a technique invented by Japanese botanist Akira Miyawaki which helps build and reconstitute indigenous forests. • Use of this technique result into 10 times more production outputs with 30 times denser plantation than usual forestation techniques. • AU has used indigenous varieties for plantation where this technique has been promoted, which involves comparatively less maintenance for next three years. • Through use of this technique, a protective forest will be ready in 20 to 30 years whereas through natural succession technique, it would take 200 years in temperate and 300 to 500 years in the tropics condition. • Adoption of this technique would provide the sunlight to saplings from the top which would help tree to grow upwards than horizontal. • This method is being practiced across 40 countries and over 40 million trees have been planted so far. 	

Component 1b: Centres for Advanced Agricultural Sciences and Technology

Following are the innovations / out of box initiatives undertaken within CAAST component till date:

Name of the institute: Mahatma Phule Krishi Vidyapeeth, Rahuri (Maharashtra)

S. No	Initiative	Brief	Photograph
1.	Automatic ring infiltrometer	<ul style="list-style-type: none"> To overcome the challenges related to a conventional double-ring infiltrometer, an automatic ring infiltrometer has been designed, developed and tested in the field for infiltration rate measurement by AU. This instrument provides more precise measurement as compared to existing infiltrometers. It can be used to measure the rate of water infiltration into the soil and other porous media. 	
2.	Indigenous Traditional Knowledge	<ul style="list-style-type: none"> AU has identified 42 Indigenous Traditional Knowledge (ITK) from Tribal Farmers of Akole block (Ahmednagar district) in crop production, livestock management and rainfall prediction. Adoption of these ITK practices are cost effective and has potential to improve the economic condition of the farmers. These practices are eco-friendly and has adaptive capacity against climate change. 	

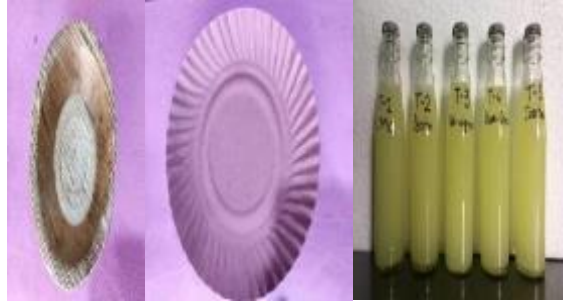



S. No	Initiative	Brief	Photograph
3.	Village level Contingency Crop Plan	<ul style="list-style-type: none"> Developed “Village level Contingency Crop Plan” for cluster of seven villages in Akole block (Ahmednagar district) with joint efforts of NABARD, State Agriculture Department, KVKs, Farmers, NGOs and Experts from respective departments including RIDA and ATARI. 	
4.	Field Innovation: Development of Climate Smart Agriculture Blocks	<ul style="list-style-type: none"> Climate Smart Agriculture Blocks were developed with climate smart agriculture and water management research experiments. Technology demonstrations are implemented with Automatic Weather Station (AWS) and Microclimate Monitoring Station (MMS). Lysimeter was installed to record micrometeorological studies, weather parameters, and measure the amount of actual evapotranspiration with climate smart agriculture and water management techniques at the Experimental Farm of Mahatma Phule Krishi Vidyapeeth, Rahuri. 	



Name of the institute: ICAR - Central Institute of Fisheries Education, Mumbai (Maharashtra)

S.No.	Innovation	Photograph
1.	<p>Development of skewered shrimp using ISW reared Penaeus vannamei</p> <ul style="list-style-type: none"> Spiral skewered products locally known as Tornado are a popular street food in South Korea, it is generally made up of potatoes. Efforts were made for the first time to develop a similar product from ISW reared P. vannamei. Quality shrimp of 35-40 count were dressed and wooden barbecue sticks were inserted in individual shrimp with cut in a spiral shape, battered and deep fried at 180°C. The procedure of preparation was standardized after trials and sensory evaluation. Because of spiral cuts, the shrimp gets elongated and battering makes it appear bigger in size. 	


Name of the institute: Navsari Agricultural University, Navsari (Gujarat)



S.No.	Innovation Product	Photograph
1.	Essential oil extracted from 18 Eucalyptus clones	

S.No.	Innovation Product	Photograph
2.	<ul style="list-style-type: none"> Herbal Whey Beverage Banana Paper Plate Palm Donas 	
3.	<p>Development of Fortified tricolour Semolina with whole wheat pasta by using food extruder:</p> <ul style="list-style-type: none"> Bio / Naturally Fortified Pasta with beet juice was prepared under this NAHEP-CAAST sub-project. It is very rich in β-Carotene. Spinach and Drumstick leaves are good source of Calcium and Iron content used in this product. This product is priced at Rs. 30 per 200g pack and Rs. 140 per 1 kg pack. 	
4.	Semolina with whole wheat Palak pasta	
5.	Semolina with whole wheat turmeric pasta	


S.No.	Innovation Product	Photograph
6.	<p>Wooden Candles Description: Wooden Candles are being prepared by collecting the waste wood and bamboo internodes coated with eco-friendly varnish and paint. Raw material used: China clay / chalk powder, wooden block, sandpaper, adhesive, varnish, bamboo internodes. Product cost: Rs. 30/-</p>	
7.	<p>Rakhi Description: This Eco-friendly Rakhi has been prepared by using wooden pieces, few NTFPs and varnish. Raw material used: Wooden pieces, seeds, thread, bamboo pieces, coconut holder, sandpaper & varnish Product cost: Rs. 20 to 30/-</p>	

Name of the institute: [University of Agricultural Sciences, Bangalore \(Karnataka\)](#)

Innovation Product	Brief	Photograph
1. Solid State Refrigeration Module	The module was displayed during the 108 th Indian science congress held at UAS, GKVK, Bengaluru where 3 private entrepreneurs expressed their interest to collaborate in developing a similar module of smaller capacity with lighter materials to commercialise the same.	

2. Value added products	Khakhra, idli, dosa, pulav and upma using Kodo millet	
3. Solar operated power sprayer	<ul style="list-style-type: none"> The demonstration of solar operated power sprayer developed by NAHEP-CAAST-VNMKV, Parbhani was held during international workshop. This solar operated power sprayer is innovative and is being operated on green energy. 	




Name of the institute: Chandra Shekhar Azad University of Agriculture & Technology, Kanpur



S.No.	Innovation Product	Photograph
1	<ul style="list-style-type: none"> Millets based Cowpea fortified Murukku, Pasta & Biscuit Millets based Moringa oleifera fortified products Murukku, Pasta & Biscuits 	

S.No.	Innovation Product	Photograph
2	<ul style="list-style-type: none"> Wheat based Moong Cookies Wheat based Cowpea Cookies 	
3	<ul style="list-style-type: none"> Ginger Candy Karonda jam 	

Name of the institute: Kerala Agricultural University, Kerala


S.No.	Innovation Product	Photograph
1	<p>Coconut fiber enhanced Cement Board:</p> <ul style="list-style-type: none"> Mr. Jishnu V G, BSc Forestry graduate developed Coconut fibre enhanced Cement Board (CFCB). These boards are used in ceiling, corrugated or straight roof tops, hollow bricks, furniture/Box components. Ensures economic returns for coconut farmers without creating any negative ecological impact 	

S.No.	Innovation Product	Photograph
2	<p>Coco cubes:</p> <ul style="list-style-type: none"> • Unique and innovative health drink developed by Mr. Jerome, which is being promoted as India's first one-digit energy drink from coconut. • Natural, healthy, nutritional and low-calorie alternative to carbonated health drinks available in multi-flavours. 	
3	<p>Coconut wood carvings:</p> <ul style="list-style-type: none"> • Mr. Praveen K P developed coconut palm wood-based carvings, Fixtures & furniture. • Commercial processing of coconut wood and export-quality finished products serve as eco-friendly and effective waste to wealth product. • The product is highly reliable, cost effective and generates employment opportunities for Coconut farmers. 	
4	<p>Adrics products:</p> <p>Mrs Chithra, a passionate Agripreneur started her Start-up, M/s Adrics Agro Products at Palakkad in 2016.</p> <p>The flavoured whey coconut milk drink & coconut milk cubes are purely vegetarian, healthy, highly nutritious and delicious. The product is great source of protein and minerals.</p>	

S.No.	Innovation Product	Photograph
5	<p>Fabrication of machineries in coconut value chain:</p> <ul style="list-style-type: none"> • Coconut Dehusker • Tender coconut trimming cum punching machine • Rotary oven • FDM 3d printer • Coconut desheller 	
7	<p>Palmwood Pillars through advanced boring and peeling technology: Mr. Hariharan, an entrepreneur from Calicut got himself engaged in the production of coconut stem wood-based furniture, fixtures and handicrafts in collaboration with KAU - CAAST project.</p>	


Name of the institute: Vasant Rao Naik Marathwada Agriculture University, Parbhani

S.No.	Innovation Product	Photograph
1	<p>Cotton Picker Machine</p>	 <p>Fabrication, Field trial of cotton boll picking machine. Labour Measurement of temperature and blood pressure</p>

S.No.	Innovation Product	Photograph
2	<p>Multi-Functional Solar Sprayer Robot:</p> <ul style="list-style-type: none"> The robot is designed to move in both the directions with the help of 4 wheels - 2 small and 2 big wheels. The combination of small and big wheels provides the stability to the robots on the field. The IoT based camera is mounted for monitoring and addressing, both voice and video signals are continuously being transmitted on the 4G communication network for remote visualization. V380 is an android application which is used for live field monitoring. Necessary energy requirement of the robot is fulfilled by the battery mounted on the robot. The battery can be charged through the solar panel mounted on the robot or electrical supply. 	

Name of the institute: Bidhan Chandra Krishi Vishwavidyalaya, Haringhata (West Bengal)

Sl.	Initiative undertaken	Activity
1	<ul style="list-style-type: none"> Established a demonstration unit at university farm 	

Sl.	Initiative undertaken	Activity
2	<ul style="list-style-type: none"> Installation of solar energy driven micro irrigation system and operation of 10 HP pump using solar energy 	

Component 1c: Innovation Grants

Following are the innovations and out of box initiatives undertaken in IG component:

Name of the institute: Kamdhenu University, Gujarat



S. No	Initiative	Brief
1	Nanotechnology based dipstick for the instant detection of milk adulterants	<ul style="list-style-type: none"> College of Dairy Science, Kamdhenu University, Amreli has developed “Nanotechnology based dipstick for the instant detection of milk adulterants”. IPR has also been filed for this innovative technology Technology transfer process has already been initiated

Scientific Educational Material installed or generated in Field / Laboratory / Classroom

Component 1a: Institutional Development Plan (IDP)

Scientific educational materials for field operations, laboratories and classrooms were made available to improve the practical understanding and learning outcomes of the students.

Name of the institute: Acharya N. G. Ranga Agricultural University, Lam, Guntur (Andhra Pradesh)

S. No	Type of material	Photograph
1	Installed RFID technology enabled library management system	
2	Non-Conventional Energy - Solar Energy generated 8,15,388.8 kwh/ year	

Name of the institute: G.B. Pantnagar University of Agriculture and Technology, Pantnagar (Uttarakhand)

S. No	Type of material	Photograph
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S. No	Type of material	Photograph
1	An Annual Report of year 2019-20 has been prepared containing the details of all the key activities, achievements and their intermediate outcomes on all relevant stakeholders.	The image shows the cover of the 'ANNUAL REPORT OF IDP-NAHEP, Pantnagar (2019-20)'. The cover is primarily black with a yellow and orange curved design at the top. The NAHEP logo is visible in the top left corner.
2	A research based & experience based futuristic document has been prepared on the adoption and practice of digital teaching - learning in Pantnagar	The image shows the cover of a document titled 'Taking A Giant Leap Pantnagar Towards Adoption of Digital Teaching-Learning A FUTURISTIC PROPOSITION'. The cover features a central circular image of a building, likely the Pantnagar campus, and the NAHEP logo at the top. The year '2020' is also visible.
3	Monthly newsletter called IDP-NAHEP Pantnagar Updates is being published since October 2019	The image shows the cover of the 'IDP-NAHEP Pantnagar Updates' newsletter. The cover is white with a green header and footer. It includes the NAHEP logo and the title 'IDP-NAHEP Pantnagar Updates'. There is a small portrait of a man on the right side of the cover.

Name of the institute: CCS, Haryana Agricultural University (Hisar)

S. No	Type of material	Photograph
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S. No	Type of material	Photograph
1	IDP-NAHEP CCSHAU Newsletter	

Name of the institute: [University of Agricultural Sciences, Dharwad](#)

S.No	Type of material	Photograph
1	Publication: Compendium of 50 successful Alumni working in the field of Agribusiness has been showcased with Newsletters, Proceedings, Manuals, Reports and Success stories	

Component 1b: Centres for Advanced Agricultural Sciences and Technology

Following are the scientific educational materials generated in field, laboratory or classroom under CAAST component:

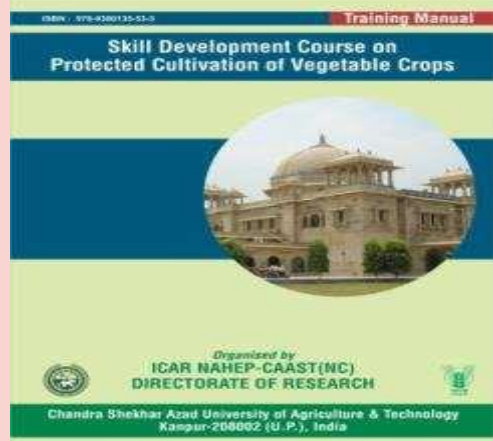
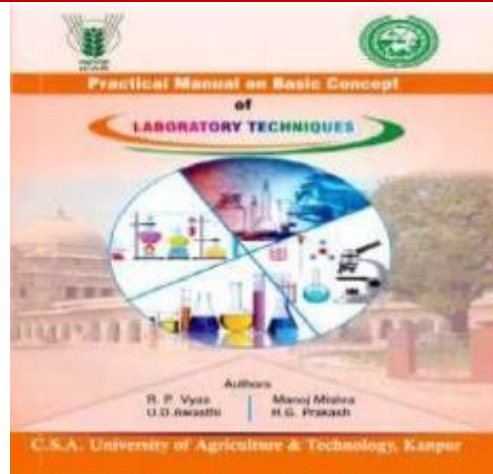
Name of the institute: ICAR-Indian Veterinary Research Institute, Izatnagar (Uttar Pradesh)

S.No	Type of material	Photograph
1.	Pamphlets: Leaflets for farmers for livestock disease management	
2.	NAHEP CAAST Annual Progress Report 2018-19 of ICAR-IVRI Izatnagar	

S.No	Type of material	Photograph
3.	Mobile Apps and Educational videos	
4.	Memoir - Students Sandwich Programme at International Universities / Institutes	


Name of the institute: Chandra Shekhar Azad University of Agriculture and Technology, Kanpur (Uttar Pradesh)

S.No	Type of material	Photograph
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S.No	Type of material	Photograph
1	Training manual on Skill Development Course on Protected Cultivation of vegetable crops	
2	Practical Manual on Basic Concept of Laboratory techniques	

Name of the institute: Mahatma Phule Krishi Vidyapeeth, Rahuri (Maharashtra)

S.No	Type of material	Purpose	Event photograph
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S.No	Type of material	Purpose	Event photograph
1	Scientific Publication, online training course manual etc		

Name of the institute: Indian Agricultural Research Institute, New Delhi

S.No	Type of material	Purpose	Event photograph
1	<p>Training manuals were developed and published</p> <ol style="list-style-type: none"> 1. Genomics of Plant Pathogen and agriculturally important microbes 2. Genomics of Agriculturally important insects 3. Plant Genetic Resource Management and Utilization 4. Genomics Assisted Breeding for Crop Improvement 5. Genome Assisted Diagnosis of Plant Viruses, Viroid and Phytoplasmas 6. High Dimensional Genome Data Analysis by R and Open Source Tools 7. Genome Editing of Crops: Methods and Applications 8. Omics Tools and Techniques for Nutritional Evaluation and Enhancement 9. Path phenotyping and Genome guided Characterization of Rust fungi Infecting Wheat and other Cereals 10. Genomics for Improvement of Horticultural Crops 		

S.No	Type of material
2	Rao GP, Behera TK, Gaikwad AB, Munshi AD, Jat GS, Boopalakrishnan G. 2018. Mapping and QTL analysis of gynoecy and earliness in bitter gourd (<i>Momordica charantia</i> L.) using genotyping-by-sequencing (GBS) technology. <i>Frontiers in Plant Science</i> 1555. Doi10.3389/fpls.2018.01555.
3	Jagadhesan B, Sathee L, Meena HS, Jha SK, Chinnusamy V, Kumar A, Kumar S. 2020. Genome wide analysis of NLP transcription factors reveals their role in nitrogen stress tolerance of rice. <i>Scientific Reports</i> . (Accepted)
4	Singh S, Dey SS, Bhatia R, Kumar R, Sharma K, Behera TK. 2019. Heterosis and combining ability in cytoplasmic male sterile and doubled haploid based <i>Brassica oleracea</i> progenies and prediction of heterosis using microsatellites. <i>PLoS ONE</i> 14(8): e0210772. https://doi.org/10.1371/journal.pone.0210772
5	Elangovan A, Dalal M, Krishna GK, Devika S, Kumar RR, Lekshmy S, Chinnusamy V. 2020. Characterization of atypical protein tyrosine kinase (PTK) genes and their role in abiotic stress response in rice. <i>Plants</i> . (Accepted)
6	Ramya N, Meshram NM. 2019. New record of the genus <i>Bambusiphaga</i> (Hemiptera: Delphacidae: Tropidocephalini) from India with description of a new species. <i>Zootaxa</i> 4658(1):zootaxa.4658.1.13. doi: 10.11646/zootaxa.4658.1.13.
7	Ramya N, Meshram NM. 2019. New record of small brown planthopper <i>Laodelphax striatellus</i> from Delhi. <i>Indian Journal of Entomology</i> 81: 532-535

Name of the institute: Punjab Agricultural University, Ludhiana (Punjab)


S.No	Type of material
1	Research Publication: Singh K, Choudhary OP, Singh, HP, Singh A, Mishra, SK (2019) Sub soiling improves productivity and economic returns of cotton wheat cropping system. <i>Soil Tillage Res</i> 189:131 136.
2	Singh R, Mavi MS, and Choudhary OP (2019) Saline soils can be ameliorated by adding biochar generated from rice residue waste. <i>CLEAN Soil, Air, Water</i> 47: 1700656 (1 9) doi:10.1002/clen.21700656.
3	Choudhary OP, Bhalla M, Sharma S, Sharda R and Mavi MS (2019), Long term Impact of Cyclic Use of Sodic and Canal Water for Irrigation on Soil Quality and Wheat Yield in Cotton Wheat Cropping System. <i>J Indian Soc Soil Sci</i> 67: 34 43.
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S.No	Type of material
	247: 107544.
7	Gupta J, Dubey RK, Kaur N and Choudhary OP (2020) Evaluation of ten sub-tropical ornamental trees for reclaiming salinity affected lands. J Forestry Res 31: 807 817.
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13	Blummel M, Upadhyay SR, Gautam N, Barma NCD, Hakim MA, Hussain M, Mujahid MY, Chatrath R, Sohu VS, Mavi G, Mishra VK, Kalappanavar IK, Naik R, Biradar S, Prasad SVS, Singh RP and Joshi AK (2019). Comparative assessment of food fodder traits in a wide range of wheat germplasm for diverse biophysical target domains in South Asia. Field Crops Res 236:68 74.
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Name of the institute: University of Agricultural Sciences (Bangalore)

S.No	Type of material	Photograph
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S.No	Type of material	Photograph
1	Original Research paper (National and International Journals)	 <p>The photograph shows four distinct research outputs. Top-left: 'Fungal Diversity' journal cover with a yellow background and images of fungi. Top-right: 'PLANT PHYSIOLOGY REPORTS' journal cover with a green background and plant images. Bottom-left: A poster titled 'Next Generation Plant Breeding' with various charts and diagrams. Bottom-right: A poster titled 'Plant Growth Regulators' with a circular diagram and text.</p>
2	Symposium and Conference Abstracts	 <p>The photograph shows two conference abstract books. Left: 'BEISP' (Bioscience Education International Symposium) abstract book with a landscape background. Right: 'Conference Handbook' with a cityscape background.</p>


S.No	Type of material	Photograph
3	Folders and training Manuals	

Name of the institute: Navsari Agricultural University, Gujarat

S.No	Type of material	Photograph
1	Publication of manuals	
2	Abstracts	

Component 1c: Innovation Grants

Name of the institute: Kerala Veterinary and Animal Sciences University, Wayanad, Kerala

S.No	Type of establishment	Activity	Photographs
1	Strengthening of Avian Disease Diagnostic Laboratory	<ul style="list-style-type: none"> For strengthening of the Avian Disease Diagnostic Laboratory, equipment like Gel Documentation System and deep freezer have been installed in the laboratory. The installation of blood analyzer and post-mortem kit for avian species are under progress. 	

In addition to learnings and achievements made and documented so far, it is envisaged that the other opportunities for sharing and dissemination would further evolve, once the implementation of project progresses. Exposure visits among AUs, Experience sharing workshops, documentation of case studies, documentaries, newsletters, brochures, project website, external reviews and project evaluation and impact studies will be the major sources of documentation and dissemination methodologies of NAHEP learnings.

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