



## **Webinar with Universities on Capacity Development for Agricultural Innovation:**

### **Bringing System-wide Change in Asia-Pacific**

**16 November 2017**

### **Synthesis Report**

#### **Background**

The Webinar with Universities on Capacity Development for Agricultural Innovation - Bringing System-wide Change in Asia-Pacific took place on 16 November 2017, 13:00hrs (CET) under the Tropical Agriculture Platform (TAP) hosted by the Food and Agriculture Organization of the United Nations (FAO). The Asia-Pacific Association of Agricultural Research Institutions (APAARI) organized and moderated the webinar, with support from FAO, the Global Confederation of Higher Education Associations for Agricultural and Life Sciences (GCHERA) and Global Forum for Agricultural Research (GFAR).

The Webinar addressed the need to equip agricultural graduates and university staff with soft skills (“functional capacities”) enabling them to facilitate innovation processes to better tackle the complex challenges agriculture is facing today and will face in the future. The Webinar aimed to:

1. Improve understanding of the Common Framework designed under the Capacity Development for Agricultural Innovation Systems (CDAIS) project – the different dimensions of capacity development consisting of individuals, organizations and enabling environment, as well as the relationship between these dimensions.
2. Raise interest in integrating the Common Framework principles, approaches and tools in higher education curricula by universities to improve system-wide capacity for change and thereby realize the potential of innovation.
3. Raise awareness of the importance of developing soft skills (“functional capacities”) to unlock the potential for agricultural innovation and the role of higher education in developing the respective capacities.
4. Initiate reflection towards a mindset shift in culture of higher education organizations in the Asia-Pacific region from: (i) considering knowledge generation as a final objective, to using it as a means to achieve change; (ii) understanding of the system components to systematic understanding of the relationships between the components; (iii) consulting beneficiaries to facilitating engagement for interactive learning between innovation actors; (iv) teaching to learning; and (v) focus on individual merit and competition, to promoting teamwork and collaboration between and within organization

#### **Introduction by Dr. Ravi Khetarpal, Executive Secretary, APAARI**

The Asia-Pacific Association of Agricultural Research Institutions (APAARI) is a voluntary, membership-based, apolitical and multi-stakeholder regional organization. As such, it is bridging national, regional and global stakeholders to bring about collective change in agri-food systems of Asia and the Pacific. The close links and collaboration with these stakeholders are instrumental in strengthening agri-food research and innovation systems towards more sustainable development in

Asia and the Pacific region. Higher education institutions are important stakeholders of APAARI, with 19 such institutions as current members.

Capacity development is one of APAARI's key programmes to enhance agri-food research and innovation in the region. Since 2015, APAARI has partnered with FAO on the promotion of the Tropical Agriculture Platform (TAP) – and its CDAIS project. These joint efforts have been contributing to strengthening organizational and institutional capacities of public and private institutions, organizations and networks to support innovation and the transition towards more sustainable agricultural production systems.

Given the complexity of agricultural development, innovation is critical to address key development issues. However, to make a difference on the agri-food system, innovation needs to be based on multi-stakeholder interactions, learning, and addressing not only technical capacities but also functional (soft skills) to facilitate positive change.

The webinar targeted the higher education institutions because: (i) They are playing an important role in transformation of societies, through education of youth (and themselves) which brings fundamental changes in institutions, policy and economy; (ii) their role in social and economic change has been underestimated; (iii) yet, they are important facilitators of new cultural values, training, and social and economic development. This important role needs to be recognized and capacity of the higher education sector strengthened through changing the mindsets about capacity development for strengthening agricultural innovation systems.

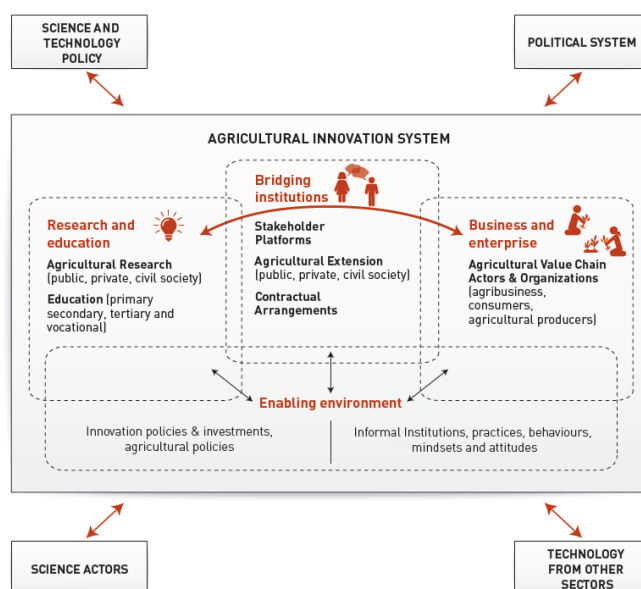
#### **The Tropical Agriculture Platform (TAP) and Common Framework on Capacity Development (CD) for Agricultural Innovation Systems (AIS) by Ms. Manuela Bucciarelli, CD-AIS Consultant, FAO**

Low and lower-middle income countries, which are mainly located in the tropics, often lack capacities in support of agricultural innovation. To address this gap, the G20 launched the Tropical Agriculture Platform (TAP) in 2012. The Platform functions as a multilateral facilitation mechanism to promote greater coherence and impact of Capacity Development (CD) for Agricultural Innovation System (AIS). TAP currently has 45 partners that are involved in the development of the 2018-2021 TAP Action Plan. Since 2015, the Plan is supported by the EU-funded Capacity Development for Agricultural Innovation Systems (CDAIS) project, which is jointly implemented by Agrinatura and FAO.

The CD for AIS framework is based on the following three pillars: (i) advocacy and policy dialogue; (ii) Common Framework; and (iii) TAPipedia Knowledge Hub ([www.tapipedia.org](http://www.tapipedia.org)). The Common Framework promotes a shift of mind-set and attitudes, and provides concepts, principles, approaches and tools to better understand the AIS architecture, assess CD needs, plan and implement CD interventions, and monitor and evaluate CD interventions. It also places focus on facilitation, learning, documentation and knowledge management for enabling innovation. The following key publications on the Common Framework are currently available: (i) Review Report: Review of existing resources on CD for AIS; (ii) [Conceptual Background](#): Theory, concepts, principles, definitions; (iii) [Guidance Note on Operationalization](#): Approach and tools; and [Synthesis Document](#): Summary.

As agriculture increasingly involves complex interactions among stakeholders at multiple levels, agricultural innovation needs a system perspective as shown in the figure on the right.

The Common Framework identifies **4 + 1 key functional capacities** for AIS to perform effectively: (i) capacity to navigate complexity; (ii) capacity to collaborate; (iii) capacity to reflect and learn; and (iv) capacity to engage in strategic and political processes. The four capacities lead to the fifth capacity – capacity to adapt and respond in order to realize the potential of innovation. These capacities apply to all three dimensions of CD – individual, organizational and enabling environment.



The Common Framework proposes a dual pathway conceptual approach to CD for AIS. It includes two aggregated processes: **at system level and at innovation niche level**. At the **system level**, the focus is on the functionalities and performance of the system as a whole. At the innovation niche level, CD takes place around specific innovation agendas, in which actors of all types allocate time and resources to achieve change. The concepts of the Common Framework are presented in an interactive way on [www.tapipedia.org](http://www.tapipedia.org).

The Framework also proposes a CD cycle in **5 stages** for the operationalization of CD interventions in AIS as shown on the picture on the right. Eight **8 tools** have been developed to help facilitate the implementation of the various stages of the cycle.



The CDAIS project applies the Common Framework in eight countries: Angola, Bangladesh, Burkina Faso, Ethiopia, Guatemala, Honduras, Lao People's Democratic Republic (PDR) and Rwanda. This is done through innovation niche partnerships and national platforms to support capacities to innovate. These countries are also designing, adapting and using the global methodologies and tools developed through the project, (e.g. participatory capacity needs assessments (CNA) at niche & organizational levels, marketplaces, scheduled reflection and refinement events, and policy dialogue processes. The project supports national innovation facilitators, who accompany capacity development intervention design and implementation at niche and organization levels. Integrated Monitoring, Evaluation and Learning Framework (MEL) is also being applied to measure changes at individual, organization and systems levels.

The project works at local level innovation partnerships involving farmers and other rural actors, as well as the system level with national innovation system organizations. Globally, the TAP will use the lessons learned in those countries to further develop the global TAP mechanism to promote, coordinate and evaluate capacity development with a view to strengthen demand-driven agricultural innovation as a catalyst of sustainable agricultural growth.

Higher education institutions could play a critical role in TAP by using the Common Framework methodologies and tools in teaching to develop capacities for innovation systems. In the project countries and beyond, the higher education sector can help institutionalize the framework,

methodologies, and lessons learned into training curricula. In some countries, university staff have already been trained as facilitators and more could be added,. Alternatively, academic staff could be contracted to assist in CD, for example act as trainers of innovation facilitators.

**Contribution of the Global Confederation of Higher Education Associations for Agricultural and Life Sciences (GCHERA) to Human Capacity Development by Dr. John Kennelly, Special Advisor to the Provost and VP Academic University of Alberta International, and President, GCHERA**

The Global Confederation of Higher Education Associations for Agricultural and Life Sciences (GCHERA) was established in 1998. Initially, its membership was made up of individual agriculture/life sciences universities. In 2011, GCHERA membership structure changed to national or regional associations membership. Through its member associations, GCHERA represents over 900 agriculture and life science universities/faculties across six continents. Its mission is to: (i) encourage mutual understanding and global co-operation among higher education associations and their constituent member universities; (ii) provide leadership in education, research innovation and outreach in agricultural and life sciences; and (iii) be a catalyst for the sharing and adoption of best practices across its membership. GCHERA's current members from the Asia-Pacific region include:

- Asian Association of Agricultural Colleges and Universities (AAACU)
- Central Asia and South Caucasus Consortium of Agricultural Universities for Development (CASCADE)
- Education Professional Committee (EPC), of the Chinese Association of Agricultural Science Societies (CAASS)
- Indian Agricultural Universities Association (IAUA)
- Society Arab Colleges of Agriculture (SACA)

GCHERA is bringing regional issues to global attention with a single voice, partnering with international organizations, while providing single voice for advocacy and local execution of global challenges. It has a seat on a number of global bodies in the agriculture and life sciences area, including membership of the Steering Committee of GFAR and TAP. The GCHERA World Agriculture Prize aims to encourage the global development of the mission of higher education institutions in education, research and innovation in the agricultural and life sciences by recognizing the distinguished contribution of an individual to this mission. The prize comes with an award of US\$ 50,000 plus a specially commissioned trophy.

GCHERA's Action Plan focuses on education. The institution serves as a catalyst for the adoption of best practices in undergraduate education with particular emphasis on soft skills. Its 900 member universities provide a rich source of best practices in curricula and pedagogy. GCHERA emphasizes the three-pronged approach to transformative change – discipline, pedagogy, management and administration. The desired outcome of GCHERA's efforts include graduates having the ethical foundation, knowledge, skills – especially leadership, entrepreneurship and creativity - to succeed in their future careers as agents of positive change in addressing global challenges in agriculture and life sciences.

GCHERA's focus on human capacity development is aligned with the TAP goal of "facilitating capacity development for agricultural innovation". Young people are central to capacity development, so it is essential that education systems equip graduates with the tools to be leaders in catalysing innovation. For the past three decades, EARTH University in Costa Rica has become an international model for preparing ethical leaders, who are agents of positive change in addressing social, economic and environmental challenges of the most vulnerable regions of the world.

The Earth University goes beyond simply generating knowledge. Its mission is to prepare leaders with ethical values to contribute to sustainable development and to construct a just and prosperous society. Its actions are mission-driven to alleviate poverty, promote social justice and build a future where communities achieve sustainable and shared prosperity. The model is founded on the following four pillars: (i) technical and scientific knowledge; (ii) ethical entrepreneurship; (iii) personal development, attitude, and values; and (iv) social and environmental awareness and commitment. The teaching and learning process is based on experiential learning and student-centred learning.

Some of the most significant alumni impact of the Earth University as demonstrated by a survey is that 90 per cent of respondents work in their countries of origin; 75 per cent have a positive and direct impact on the agricultural sector, mainly by increasing the efficiency of agricultural production; 87 per cent have a direct and positive impact on environmental issues; 84 per cent report having a direct and positive impact on social issues; and 20 per cent have their own company.

With the support of a Foundation, GCHERA is embarking on a Pilot Project, focused on curricula reform and pedagogy, to better prepare graduates to be leaders in tackling global challenges, such as poverty reduction, food and nutritional security and environmental sustainability. Under the broad umbrella of soft skills, the Pilot Project will help participating universities incorporate the key elements of the EARTH model in their undergraduate programmes including: experiential (participatory) learning, entrepreneurship, community engagement and ethical and value-based leadership

GCHERA is the only body with a global representation of agricultural and life science universities/faculties. It supports the collective action of TAP and APAARI in facilitating capacity development for agricultural innovation and human capacity development. As such, expanding the GCHERA Pilot Project to interested institutions in Asia-Pacific is an option to be further explored with these partners and their constituencies.

### **Putting the Common Framework into practice at country level by Dr. Nasreen Sultana, CDAIS Country Project Manager, FAO Bangladesh**

The objectives of the work of TAP's CDAIS project in Bangladesh are to: (i) develop a national vision for strengthening the agricultural innovation system; (ii) strengthen a national platform for agricultural innovation; and (iii) develop an action plan based on capacity needs assessments. The focus is on developing innovation capacities (soft or functional skills) in five areas (niches).

The project has applied four stages of the cycle, particularly the scoping study, inception workshop, workshop on capacity needs assessments, marketplaces and a policy dialogue. It is now moving to the implementation stage.

The scoping study mapped and characterized key stakeholders, projects, programmes, policies, and existing coordination mechanisms related to agricultural innovation systems at national or sub-national level. It also helped review relevant documents to assess the institutional and policy context. Finally, it identified potential organizations with which the CDAIS project could work during project implementation in Bangladesh. The study found that the AIS concept is emerging in Bangladesh and there is a huge innovation potential in agriculture. Actual benefit from these innovations is limited due to lack of proper coordination and coherence in this sector. It was also found that there is no defined AIS coordination mechanism in the country as yet, while system thinking is somewhat limited in many institutions. Little emphasis is given to enhancing the functional capacities.

The Inception Workshop aimed to consult relevant stakeholders of the agricultural innovation system, agree on criteria for the selection of innovation niches, as well as to rate these innovation



niches. A total of 31 niches were proposed and scored by the participants using the following criteria: (i) alignment with national priorities; (ii) multi-stakeholder involvement, preferably including private sector; (iii) sufficient confidence for impact at farmer or SME level with big potential for livelihood improvement; (iv) potential to influence decision making at the national level; (v) opportunities for learning; (vi) inclusiveness of women, youth and poor people; (vii) demand-driven evidence of 'pull' from farmers and other value chain actors; (viii) clearly visible roles of facilitators (formal or informal) which could create changes among the AIS actors or systems if capacities are developed; (ix) not overly distorting market - not excessively subsidised, nor leading to unfair competition; (x) sustainability – taking into account the three dimensions; (xi) opportunities for accessing national, regional and international markets; (xii) opportunities for learning from past failures. The with final five niches were approved by the Steering Committee as follows:

- Strengthening value chain for commercialization of mango (Shibganj Upazila, Chapainawabganj)
- Establishment of pineapple value chain for Year-round production and branding Bandarban pineapple (Bandarban Sadar Upazila)
- Enhancement of summer tomato production through establishing value chain (Bagherpara Upazila, Jessore)
- Strengthening value chain for commercialization of farmed fish (tilapia and cat fish) (Trishal Upazila Mymensingh)
- Strengthening commercial poultry production by establishing value chain (Trishal Upazila, Gazipur)

Education is one of the core components of the AIS system. In Bangladesh, universities have been engaged as activity facilitators during the scoping study, inception workshop, capacity needs assessment and marketplace, as well as participants and advisory committee members.

### Questions to the speakers from participants

#### *Enhancing entrepreneurship skills*

It is fundamental to think about the challenges we face in a way that the solutions need to be provided by human beings. So, are we doing a good job of preparing the young people to be problem solvers to deal with these challenges? In the last twenty years, universities have changed, but this process has often been criticized as being slow or limited. Instead of preparing university graduates to take government jobs, which have been decreasing, there is a need to equip students with different skill sets to face the current and future challenges. The curricula in many institutions have not changed, as they are not taking into consideration changes in communication. The fact is that many institutions can do a lot better than right now. GCHERA and partners, such as APAARI and FAO, are willing to work with those universities that are willing to and able to make these changes and transform. Though this transformation does not happen over night, some educational models already show the impact of preparing graduates to deal with these challenges, such as the EARTH University in Costa Rica. There is a lot to learn from these success stories, adapt these models in different contexts, and scale up the success.

### ***Promotion of a shift of mind set and attitude***

Change in habits and attitudes require time, but it is important to start somewhere. Through the application of the Common Framework, the shift in behaviour is being promoted systematically. For example, the understanding of the importance of functional capacities, the role of facilitation, and needs assessment, all contribute to this shift in attitude.

### ***Application of the Common Framework countries and regions with varying knowledge and capacity***

The Common Framework is now being tested in eight pilot countries. It is part of the efforts to understand whether this theoretical concept can be applied successfully. By the end of the CDAIS project, lessons learned will be available on whether the Framework is suitable for different contexts. This will be the basis for its adaptation to different countries. One of the challenges with TAP is that it is complex, even for those working with it for a few years. It is challenging how to implement it, align with own goals, and think what is best to the country level. Terminology can also be off-putting. Therefore, working together is required for the simplification of the language, so that users are not discouraged to step away from it.

### ***Possibilities to extend CDAIS to India and Pakistan***

TAP works closely with its partners, such as APAAR, that is helping to promote this concept in new countries of the region and also scoping for new projects involving other countries. India and Pakistan will be explored for possible involvement.

### ***TAP and smallholder farmers***

Smallholder farmer engagement is facilitated through TAP country partners. They are involving farmers at the community level that are part of this multi-stakeholder partnership. The project itself does not directly target farmers but it is improving their livelihoods through the work with these partners. The principle and concept of the Common Framework can lead to bringing impact to farmers, but direct impact is beyond the timeframe of the project. Through the CDAIS experiment and a transversal analysis foreseen at the end of the project, it is possible to capture lessons and assess whether this approach is valid and leads to wider impact.

### ***GCHERA and university membership***

Three universities, namely: Bangladesh Agricultural University, Eternal University, and Tamil Nadu Agricultural University, expressed their interest to join GCHERA as members. The current membership structure is made of associations. The criteria is that respective associations have to have at least five university members. It is also possible to be an associate member as an individual university. GCHERA is interested to expand its network and interested universities should contact Dr. John Kennelly.

### ***GCHERA and impact assessments***

Despite the introduction of many innovations, impact studies have not been conducted for all of them. To analyse impact, GCHERA participates in workshops that gather various institutions to share experiences. This is an important part of the analysis – to provide opportunities to share experiences, the impact they are making, and how the students perform after the graduation e.g. whether they

returned to their home country, the kind of job they started, and whether they are successful in their careers.

### ***Integration of agribusiness skills and market-oriented strategies of TAP and GCHERA***

The model offered by the Common Framework is not the only model applied by universities. However, learning by doing is a critical factor in this education model, which has been lacking in many universities. The business skills are fundamental to what graduates do. As such, every student has to start a small business as a challenge, but that business does not need to be successful. The most important thing is to go through the process, to enable them to gain experience and confidence to establish real businesses in the future.

### ***Planned capacity development activities in Bangladesh***

During the recent inception workshop, FAO requested the participants to suggest niches to work with the CDAIS project. Five niches have been selected, awareness on the Common Framework has been made, and country needs have been collected. As activities now move to the implementation stage, actual capacity development interventions are planned for the niche partners.

### ***Examples of soft skills used in CDAIS***

During the capacity needs assessment in Bangladesh, several capacity needs of niche partners were identified. This includes partnership and collaboration, and business development. The project is now in the planning stage of different training that will be organized.

### ***External restrictions on curricula change***

University degree programmes, such as those of the Anand Agricultural University, are driven by the mandatory syllabus prescribed by the National Regulatory Body in India. This kind of external restriction is certainly a challenge but it is still possible to introduce some elements based on the Common Framework. This includes experiential learning and approaches that help students get directly involved in development activities and acquire soft skills. Even without changing the curricula, any university can achieve impact by introducing more effective ways of teaching. Furthermore, universities can organize themselves and collectively approach governments in an attempt to change those external restrictions. This can convince decision makers that to prepare students with the skills they really need, such changes are necessary to bring benefits to students and society. It needs to be recognized that this is a long-term process.

### ***Dissemination of experiences***

The Webinar participants showed interest in sharing their experiences on CD for AIS through TAPipedia. Anyone can register on [TAPipedia](#) by clicking on the green button "Register to the Network". [Guidance](#) is available and further information or clarification can be provided by [Manuela Bucciarelli](#). Once logged in, any resources related to CD for AIS can be uploaded and tagged using some of the 54 terms of the TAPipedia taxonomy. Some of the experiences and models to be disseminated have been proposed by the participants are as follows:

- TNAU's model on innovation, entrepreneurship and outreach programme in stored grain insect management
- TNAU's experience with its Centre of Excellence for innovation



- TNAU's digital portal for agriculture – TNAU AgriTech Portal – in both English and Tamil
- Methodology for documentation of AIS processes
- Experience of strengthening the PPP model
- Involve children of farmers in agricultural education to enhance innovation

### **Participants' inputs into the discussion**

#### **1. What capacities are needed from graduates to facilitate agricultural innovation processes?**

- **Creativity**
- **Interpersonal (communication) skills**
- **Risk taking ability**
- **Positive attitude towards AIS**
- **Problem solving skills**
- Strong technical skills
- Entrepreneurship mindset
- Collaboration skills
- Conflict management
- Team building
- Desire and drive for achievement
- Development of interest
- Motivation to take initiatives
- Flexibility
- High self-esteem
- Knowledge of commercial aspects of innovation
- Risk taking ability (MURALIDHARAN C)
- Inquiry skills
- Negotiation skills
- Adaptation skills to changes in the environment
- Understanding of the innovation process and of agricultural science
- Human behavior and learning science
- Project management cycle
- Decision-making

*Note: The top five bullets have been highlighted since more than one participants provided this input.*

#### **2. How does your university assess capacity needs for improving the agricultural innovation system towards a transformation of the agricultural sector?**

##### **SEARCA, Philippines**

- Institutional and individual surveys
- Review of available/accessible capacity development programme

#### **TNAU, India**

- Focused group discussions with farmers, getting their feedback, conducting constraint analysis and studying farmers practices
- Using tools, such as Rapid Appraisal of Agricultural Innovation Systems (RAAIS)
- Interaction
- Counselling and mentoring
- Brainstorming
- Seminars and workshops
- Participatory approaches
- Research on trends in agriculture, specific varieties and technologies used in the region, and farmers organizations
- Stakeholders meetings
- Scientist-farmers interaction meetings
- Field days and exposure visits
- Scientific workers conference
- Regional Research Council
- Student entrepreneurship
- Rural agricultural work experience
- Internship/Industrial training
- Practical classes
- Guest lecturers – motivational speeches
- Assignments and projects
- Case studies
- Structured syllabus and classroom training

### **3. What is the current capacity of your higher education institutions to strengthen CD for AIS, e.g. functional capacities (soft skills) thereby better serve farmers, rural communities and sustainable agriculture?**

#### **SEARCA, Philippines**

- Providing academic programmes and expertise in development communication, human ecology, community development, extension education and social forestry

#### **TNAU, India**

- Using training modules for different crops
- Providing seed funding support for student innovators and start-ups for product development and innovative idea
- Conducting open and distance learning programmes
- Providing training-of-trainers facilities and programmes for technology dissemination to benefit farmers
- Using communication tools, such as agri-portals and video conferencing

**4. What regional education programmes that focus on developing functional capacities are available in the Asia-Pacific region?**

- Rural work experience
- Cafeteria programme for skill development
- Students' internship programme
- Innovative projects
- 4-method demonstrations
- Vocational training programmes
- Skill development courses
- Social media and ICT tools that are effectively used for facilitating soft skills

**5. What are the gaps in developing innovation capacities in your country/region?**

**India**

- Policy gaps in education
- Gaps from the production to consumption system (to be identified before taking the value chain model)
- Poor documentation
- Poor connectivity
- Financial support for promoting AIS
- Small number of CD programmes on AIS
- Lack of practical exposure from the primary school level
- Dependency on text books
- Lack of skill-oriented education
- Low number of scientists per capita
- Low intangible capital – knowledge
- Good will and intellectual property rights
- Low spending on R&D
- Gap between capabilities and results
- Lack of capacity to handle modern innovative communication gadgets
- Capacity to collaborate
- Capacity to adapt to changes in the environment and capacity to inquire

**Southeast Asia**

- Lack of/poor access to skilled facilitators

**Next steps following the webinar**

The webinar was the first step to engage higher education institutions in Asia-Pacific in discussions on the importance of functional capacities to speed up agricultural innovation, as emphasized through the CDAIS project. It was also an opportunity to learn about the concepts of the Common Framework that universities can apply in their work, and finally to reflect what the participating institutions could do to bring about positive change in agricultural innovation systems. The following are the next steps following the webinar:

1. Participation in the regional conference on "Greening Agri-food Systems, Ensuring Rural Sustainability and Promoting Healthy Socioeconomic Transformation in Southeast Asia" from 23-25 January 2017 in Bangkok, Thailand. APAARI will be organizing a panel discussion (possibly with contribution of FAO, GCHERA and GFAR) to contribute to the third objective of the conference - to "discuss new methods, tools, resources, networking approaches and policy options to improve agriculture and food system teaching, learning and research especially among public sector universities, colleges, and institutes as well as for basic education, while strengthening institutional capacities and multi-disciplinary agriculture curricula that better include a wide range of social and sustainability sciences".
2. Identification of one (or more) pilot university(ies) in the region to be involved in a pilot project focused on transformational learning and curricula reform to better prepare graduates to tackle global challenges. The project would be designed and implemented in Asia-Pacific possibly with collaboration of FAO, GCHERA and GFAR. It would be aligned with the Common Framework of the CDAIS project and based on the EARTH University model.
3. Organization of a similar but specialized webinar with APAARI stakeholders in Pacific Island countries where a regional group webinar is difficult to organize due to their time zone and different level of agricultural education system.
4. Efforts to apprise all senior official of NARS and other national educational bodies of the importance of learning about CDAIS through such a webinar during APAARI-supported events to ensure a buy in from the systems in Asia Pacific region.
5. Partnering with GFAR and GCHERA more aggressively to scope for funding for organization of more learning activities through webinars more intensively.

# Annex 1: List of participants:

| No.               | Name                        | Title   | Institution  | Contact  |
|-------------------|-----------------------------|---|--|--|
| <b>Bangladesh</b> |                             |   |  |  |
| 1                 | Dr. Muhammad Shahidul Haque | Professor of Biotechnology  | Bangladesh Agricultural University   | <a href="mailto:haquems@bau.edu.bd">haquems@bau.edu.bd</a>                   |
| 2                 | Mohammad Farhad             | Research Fellow   | Bangladesh Foreign Trade Institute (PhD Candidate in Economics at the University of Western Australia) | <a href="mailto:farhad_bfti@yahoo.com">farhad_bfti@yahoo.com</a>             |
| <b>Bhutan</b>     |                             |   |  |  |
| 3                 | B. B. Rai                   | National Coordinator for Agriculture Education on Nutrition (school children) | Ministry of Agriculture and Forests  | <a href="mailto:raibb@yahoo.com">raibb@yahoo.com</a>                         |
| <b>Cameroon</b>   |                             |   |  |  |
| 4                 | Fai Collins Dzernyuy        | Regional Communications Officer   | Centre for International Forestry Research (CIFOR)   | <a href="mailto:F.Collins@cgiar.org">F.Collins@cgiar.org</a>                 |
| <b>India</b>      |                             |   |  |  |
| 5                 | Dr. K. B. Kathiriya         | Director of Research and Dean PG Studies                                      | Anand Agricultural University Gujarat INDIA  | <a href="mailto:DR@AAU.IN">DR@AAU.IN</a>                                     |
| 6                 | Dr. M.K. Jhala              | Associate Director of Research  | Anand Agricultural University Gujarat INDIA  | <a href="mailto:ADR1@AAU.IN">ADR1@AAU.IN</a>                                 |
| 7                 | Dr. D.R. Kathiriya          | Director IT   | Anand Agricultural University Gujarat INDIA  | <a href="mailto:DIT@AAU.IN">DIT@AAU.IN</a>                                   |
| 8                 | Dr. Manoj N Brahmbhatt      | Registrar   | Anand Agricultural University Gujarat INDIA  | <a href="mailto:REGISTRAR@AAU.IN">REGISTRAR@AAU.IN</a>                       |
| 9                 | Dr. Virendra Kamalvanshi    | Assistant Professor, Agricultural Economics                                   | Banaras Hindu University   | <a href="mailto:vkamalvanshi@gmail.com">vkamalvanshi@gmail.com</a>           |
| 10                | Dr. Krishan Kumar           | Associate Professor   | Department of Food Technology, Akal College of Agriculture, Eternal University, Baru Sahib             | <a href="mailto:krishankumar02007@gmail.com">krishankumar02007@gmail.com</a> |
| 11                | Dr Ramesh Arora             | Professor of Entomology   | Eternal University, Baru Sahib   | <a href="mailto:arorarames@gmail.com">arorarames@gmail.com</a>               |
| 12                | Dr. S. Sudheer Kumar        | Registrar   | Professor Jayashankar Telangana State Agricultural University (PJTSAU) Hyderabad                       | <a href="mailto:regrpjtsau@gmail.com">regrpjtsau@gmail.com</a>               |
| 13                | Dr. N. Sreedhar             | Director (International   | Professor Jayashankar Telangana State Agricultural   | <a href="mailto:pjtsau.ip@gmail.com">pjtsau.ip@gmail.com</a>                 |



| No. | Name                           | Title   | Institution  | Contact  |
|-----|--------------------------------|---|--|--|
|     |                                | Programmes)   | University (PJ TSAU)<br>Hyderabad  |  |
| 14  | Dr. Joseph Bolla               | Professor and<br>Head   | Department of Agronomy,<br>College of Agriculture,<br>Professor Jayashankar<br>Telangana State Agricultural<br>University (PJ TSAU)<br>Hyderabad |  |
| 15  | Dr. Kuldeep Singh<br>Dangi     | Dean of<br>Agriculture  | Professor Jayashankar<br>Telangana State Agricultural<br>University (PJ TSAU)<br>Hyderabad   | <a href="mailto:deanagri@hotmail.com">deanagri@hotmail.com</a>   |
| 16  | Dr. Ravikesavan                | Professor<br>Research,<br>Education and<br>Extension            | Tamil Nadu Agricultural<br>University (TNAU) Coimbatore  | <a href="mailto:chithuragul@gmail.com">chithuragul@gmail.com</a>   |
| 17  | Dr. Murali<br>Krishnasamy      | Professor   | Tamil Nadu Agricultural<br>University (TNAU) Coimbatore  | <a href="mailto:directorplanning@tnau.ac.in">directorplanning@tnau.ac.in</a>   |
| 18  | Dr. C.<br>Muralidharan         | Assistant<br>Professor  | Tamil Nadu Agricultural<br>University (TNAU) Coimbatore  | <a href="mailto:muraliarm@tnau.ac.in">muraliarm@tnau.ac.in</a>   |
| 19  | Dr. R. Murugesan               | Director  | Directorate of Agri-business<br>Development, Tamil Nadu<br>Agricultural University (TNAU)<br>Coimbatore  | <a href="mailto:business@tnau.ac.in">business@tnau.ac.in</a>   |
| 20  | Dr. Paramasiwam<br>Jeyaprakash | Professor and<br>Head of Teaching,<br>Research and<br>Extension | Department of Rice, Centre<br>for Plant Breeding and<br>Genetics, Tamil Nadu<br>Agricultural University (TNAU)<br>Coimbatore                     | <a href="mailto:rice@tnau.ac.in">rice@tnau.ac.in</a>   |
| 21  | Dr. R. Krishnan                | Professor of<br>Agriculture                                     | Tamil Nadu Agricultural<br>University (TNAU) Coimbatore  |  |
| 22  | Dr. H. Philip                  | Director of<br>Extension<br>Education                           | Tamil Nadu Agricultural<br>University (TNAU) Coimbatore  | <a href="mailto:philip.tnau@gmail.com">philip.tnau@gmail.com</a>   |
| 23  | Dr. A.<br>Vijayakumar          | Director, Students<br>Welfare                                   | Tamil Nadu Agricultural<br>University (TNAU) Coimbatore  | <a href="mailto:vijayakumar.a@tnau.ac.in">vijayakumar.a@tnau.ac.in</a> ,<br><a href="mailto:directorsw@tnau.ac.in">directorsw@tnau.ac.in</a> |
| 24  | Dr. M.<br>Maheswaran           | Director of<br>Research and<br>Professor                        | Tamil Nadu Agricultural<br>University (TNAU) Coimbatore  | <a href="mailto:drres@tnau.ac.in">drres@tnau.ac.in</a>   |
| 25  | Dr. R. Gnanam                  | Director  | Centre for Plant Molecular<br>Biology and Biotechnology,<br>Tamil Nadu Agricultural<br>University (TNAU) Coimbatore                              | <a href="mailto:directorcpmb@tnau.ac.in">directorcpmb@tnau.ac.in</a>   |
| 26  | Dr. P.Selvaraju                | Special Officer<br>(seeds)                                      | Tamil Nadu Agricultural<br>University (TNAU) Coimbatore  | <a href="mailto:kpselva@yahoo.com">kpselva@yahoo.com</a>   |

| No.             | Name                  | Title  | Institution  | Contact  |
|-----------------|-----------------------|--|--|--|
| 27              | Dr. D. Jawahar        | Special Officer (NRM)  | Tamil Nadu Agricultural University (TNAU) Coimbatore   | <a href="mailto:jawahartnau@gmail.com">jawahartnau@gmail.com</a>           |
| 28              | S. V. Kottiswaran     | Dear (Engineering)   | Tamil Nadu Agricultural University (TNAU) Coimbatore   | <a href="mailto:kotti.1958@gmail.com">kotti.1958@gmail.com</a>             |
| 29              | Dr. B. J. Pandian     | Director (Administration)  | Tamil Nadu Agricultural University (TNAU) Coimbatore   | <a href="mailto:directorwtc@tnau.ac.in">directorwtc@tnau.ac.in</a>         |
| 30              | Dr. C. Jayanthi,      | Director Crop Management   | Tamil Nadu Agricultural University (TNAU) Coimbatore   | <a href="mailto:Jayanthichins@hotmail.com">Jayanthichins@hotmail.com</a>   |
| 31              | Sebastian Shibi       | Placement Officer  | Tamil Nadu Agricultural University, Coimbatore, India  | <a href="mailto:shibijoseprakash@gmail.com">shibijoseprakash@gmail.com</a> |
| 32              | Dr. S. Meena          | Professor, Soil fertility  | Tamil Nadu Agricultural University (TNAU) Coimbatore   | <a href="mailto:Smeenash@gmail.com">Smeenash@gmail.com</a>                 |
| 33              | Dr. P. Santhi         | Director, Directorate of Open and Distance Learning  | Tamil Nadu Agricultural University (TNAU) Coimbatore   | <a href="mailto:odl@tnau.ac.in">odl@tnau.ac.in</a>                         |
| 34              | Dr. K. Ganesamurthy   | Professor Genetics and Plant Breeding  | Tamil Nadu Agricultural University (TNAU) Coimbatore   | <a href="mailto:kganesamurthy@yahoo.co.in">kganesamurthy@yahoo.co.in</a>   |
| 35              | Dr. Keisar Lourdusamy | Associate Professor (Horticulture)   | Tamil Nadu Agricultural University (TNAU) Horticultural College, Periyakulam                     | <a href="mailto:keisar@tnau.ac.in">keisar@tnau.ac.in</a>                   |
| 36              | Dr. K. Ilamurugu      | Controller of examinations   | Tamil Nadu Agricultural University (TNAU) Horticultural College, Periyakulam                     | <a href="mailto:coe@tnau.ac.in">coe@tnau.ac.in</a>                         |
| 37              | Dr. D. Saraladevi     | Professor  | Tamil Nadu Agricultural University (TNAU) Horticultural College and Research institute for Women | <a href="mailto:deanhorttry@tnau.ac.in">deanhorttry@tnau.ac.in</a>         |
| 38              | Dr. M. Jawaharlal     | Dean (Horticulture)  | Tamil Nadu Agricultural University (TNAU) Horticultural College and Research Institute           | <a href="mailto:deanhortcbe@tnau.ac.in">deanhortcbe@tnau.ac.in</a>         |
| <b>Pakistan</b> |                       |  |  |  |
| 39              | Dr. Khalid Farooq     | Director, Agriculture Poly-technique Institute (API), National Agricultural Research Centre (NARC) | Pakistan Agricultural Research Council (PARC)  | <a href="mailto:khalidfarooq6676@gmail.com">khalidfarooq6676@gmail.com</a> |

| No.   | Name                   | Title   | Institution   | Contact  |
|---|------------------------|---|---|--|
| 40  | Dr. Anjum Munir        | Director PSO  | Pakistan Agricultural Research Council (PARC)   | <a href="mailto:anjums41@yahoo.com">anjums41@yahoo.com</a>                   |
| <b>Philippines</b>  |                        |   |   |  |
| 41  | Mary Jean Bulatao      | Faculty-Assistant Professor   | University of the Philippines Los Banos   | <a href="mailto:mgbulatao@up.edu.ph">mgbulatao@up.edu.ph</a>                 |
| 42  | Marl Inno Aruta        | Student   | University of the Philippines   | <a href="mailto:innoaruta@gmail.com">innoaruta@gmail.com</a>                 |
| 43  | Maria Celeste H. Cadiz | Program Head, Knowledge Management Department   | Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA), College, Los Banos, Laguna 4031, Philippines | <a href="mailto:mchc@searca.org">mchc@searca.org</a>                         |
| <b>Coordination and facilitation</b>  |                        |   |   |  |
| Asia-Pacific Association of Agricultural Research Institutions (APAARI)                           |                        |   |   |  |
| 44  | Dr. Ravi Khetarpal     | Executive Secretary   | Speaker   | <a href="mailto:ravi.khetarpal@apaari.org">ravi.khetarpal@apaari.org</a>     |
| 45  | Martina Spisiakova     | Knowledge Management Consultant   | Moderator   | <a href="mailto:m.spisiakova@apaari.org">m.spisiakova@apaari.org</a>         |
| 46  | Celilu Bitong          | Knowledge Management Officer  | Participant   | <a href="mailto:c.bitong@apaari.org">c.bitong@apaari.org</a>                 |
| Food and Agriculture Organization of the United Nations (FAO)                                     |                        |   |   |  |
| 47  | Manuela Bucciarelli    | Consultant for the Capacity Development for Agricultural Innovation Systems Project (CDAIS) | Speaker   | <a href="mailto:Manuela.Bucciarelli@fao.org">Manuela.Bucciarelli@fao.org</a> |
| 48  | Dr. Nasreen Sultana    | Country Project Manager for CDAIS, FAO Bangladesh   | Speaker   | <a href="mailto:Nasreen.Sultana@fao.org">Nasreen.Sultana@fao.org</a>         |
| 49  | Ilka Gomez             | TAP Secretariat   | Participant   | <a href="mailto:Ilka.Gomez@fao.org">Ilka.Gomez@fao.org</a>                   |
| Global Confederation of Higher Education Associations for Agricultural and Life Sciences (GCHERA) |                        |   |   |  |
| 50  | Dr. John Kennelly      | Special Advisor in University of Alberta International, and President of GCHERA             | Speaker   | <a href="mailto:John.Kennelly@ualberta.ca">John.Kennelly@ualberta.ca</a>     |
| Global Forum for Agricultural Research (GFAR)   |                        |   |   |  |
| 51  | Peter Casier           | Consultant  | Technical facilitator   | <a href="mailto:Peter.Casier@fao.org">Peter.Casier@fao.org</a>               |