



## **Synthesis of regional survey responses on transforming higher education in agriculture**

### **Introduction**

A survey was conducted in the context of the Collective Action (CA) of the Global Forum on Agricultural Research and Innovation (GFAR) on Transforming Higher Education in Agriculture, in collaboration with international partners. It assisted the CA in harvesting and documenting the ongoing efforts to support the transformation of higher education for improved agrifood system transformation.

The survey took place in four regions, namely: Africa, Asia, Europe and Latin America. It particularly assessed universities' vision for change, and the status of their change process in terms of integration of experiential learning, ethical leadership, participatory curricula development, and co-research/co-innovation, with multi-actor participation, particularly of farmers and their organizations. It also examined their student–community engagement, the roles of non-academic actors and transformational leadership, availability of resources, and alignment with the Sustainable Development Goals (SDGs).

The survey will feed into other CA outputs that aim to inspire and guide different higher educational institutions around the world in equipping their students with the knowledge, skills and attitudes required to better facilitate sustainable agrifood transformation. This is through their improved professional, entrepreneurial, ethical and social capacities needed to engage in the collaborative management of innovation with farmers, rural communities and other stakeholders.

The partners of this CA include the Global Forum on Agricultural Research and Innovation (GFAR), Asia–Pacific Association of Agricultural Research Institutions (APAARI), European Forum on Agricultural Research for Development (EFARD), Global Confederation of Higher Education Associations for Agricultural and Life Sciences (GCHERA), Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), Global Forum for Rural Advisory Services (GFRAS), and Promoting local innovation in ecologically oriented agriculture and natural resource management (PROLINNOVA)

## Regional survey results

### Africa

- **28 persons/institutions responded** to the survey from Africa, 23 men and 5 women.
- The respondents represented universities (22), NARS (5) and the private sector (1).
- Of the 28 respondents, 16 were university professors/deans, 7 scientists/researchers, 1 university administrator, 1 manager of public extension.
- 24% respondents were from South Africa, 32% were from East Africa, 16% from Central Africa, and 28% from Western Africa.
- The respondents came from the following countries: Kenya (10), Zambia (3), Uganda (3), D.R. Congo (2), South Africa (2), Nigeria (2), Ghana (2), and one each from Botswana, Mozambique, and Tanzania.

### Vision for change (Questions 1–4)

About 28% respondents did not know how their institution’s vision informs everyday actions to improve higher education, 65% conformed to the vision, and 4% did not conform. Thus, a majority of the institutions are using their vision to inform everyday activities to improve higher education.

The respondents were further asked how their educational institution motivates youth and women to increase the number of students in agriculture-related subjects. About 72% respondents reported that this is done through mentorship at targeted secondary school level, secondary school students allowed to visit the university, open days, and university research weeks. 20% claimed that their university is not doing enough, and 8% did not know.

Offering targeted scholarships is preferred in attracting more women and youths. Gender-based affirmative action favours women through admission criteria. Internships, job placement and graduate training in STEM is highly preferred and favours women. In terms of what the institutions could do differently to motivate more youth, and particularly women, to take part in agriculture-related subjects, 44% reported that this could be done through scholarships, 32% suggested internships and job placement, and 24% did not know.

### The change process (Questions 5–14)

The innovative educational approaches practised in the respondents’ universities include: experiential learning (40%), farm-based learning (16%), hybrid/online/virtual learning (8%), while 36% were not aware. Farm-based learning entails students being attached to farms to learn and are left with the farmer while institutional presence is tightly limited to a one-time visit.

Experiential learning is supported by universities whose lecturers periodically guide on field experiences. To enhance transformational changes in education, 72% of institutions prioritize curriculum modification, and 20% prioritize the integration of innovative pedagogical approaches, interaction with communities, farmers and their organizations, integration of experiential learning and entrepreneurial learning as key steps. Three respondents did not know.

A majority of the responding institutions preferred curriculum review as the best mode of implementing transformational changes in their universities. In terms of the successes that their institution had in the transformation of educational models, this success was reported to be in the following areas:

- institutional reform (24%)
- external linkages (24%)
- curriculum change (12%)
- student-centred learning (4%)
- 36% of respondents did not know.

Under their institutional reforms, some institutions highlighted that first- and second-year students live in model smallholder farms/hostels and carry out production activities in their space, separate from regular classroom activities. Most of the students (many of them from non-agricultural backgrounds) become grounded in farming within the first year.

The key factors underlying successful introduction of changes to the universities' educational model include:

- favourable policy framework (36%)
- market demand for specific skills (32%)
- finance/targeted scholarship (8%)
- 24% did not know.

Similarly, while some of these areas are a strength for some organizations' transformation efforts, for others, they present obstacles. For example, 40% of respondents reported that funding is a challenge, policy framework is an obstacle for 28% of respondents, staff attitude/mindset is a problem for 20% of respondents, while 12% did not know. Staff attitude and mindset is a major constraint coupled with concurrent increase in staff workload because the model calls for a higher student–staff ratio.

In addition, most universities are dealing with very large numbers, thus it is not practical to implement the attachment of students to institutional farms. In terms of overcoming the obstacles experienced in the implementation of transformational changes, the respondents suggested the following:

- policy reforms to improve the enabling environment (28%)
- resource mobilization (16%)
- retooling of staff (28%)
- 16% did not know.

The reasons behind the introduction of these transformational efforts include institutional reforms (56%), student demand (16%), inspiration (16%), work pressure (4%), educational policy change (4%) and earning (4%).

A majority of the institutions had institutional processes supporting curriculum review and/or change. According to the respondents the institutions support the changes for over a year (60%), a few months (20%), about a year (16%), three respondents did not know. The reasons for such a support were due to policy (32%), finance (16%), and lobbying (12%). 40% did not know. Finance is a key pillar since consultations and mounting a new programme with the envisaged new requirements require funding.

Regarding institutional reward systems for staff, the responding institutions reported that their institutions base it on the processes that lead to change, the number of publications, the number of graduates, community engagement, research funds, and performed work in all areas of university operations.

### **Community engagement and experiential learning as part of university transformation (Questions 15–17)**

In terms of the responding educational institution having a systematic community engagement programme involving farmers (particularly youth and women), agricultural businesses, community members, faculty and students in experiential learning, co-innovation and co-research, the majority of the institutions responded yes (58%) with no at 42%. The type of engagement with the community was focused on open days and research weeks (29%), extension (21%), internship (14%), and strategic partnerships (7%). 29% of respondents did not know.

A majority of the institutions (53%) had engagements as an extra-curricular activity, while 47% had the engagement integrated in the curricula. In terms of experiential and action-based learning enhancing the development of the soft skills of students in the responding institutions, 44% of this innovative pedagogy was integrated, 32% had it as a separate practice and 24% respondents did not know.

For the universities to further strengthen engagement and the development of students' communication skills in the technical courses, respondents prioritized the training being non-examinable (44%), with 24% examinable; 32% of respondents did not suggest any actions.

### **The role of non-academic institutions in the transformation process (Questions 20–21)**

The respondents highlighted the role of non-academic institutions and actors in education transformation in their institution to be focused on engagement in curriculum reforms (41%), internships and attachments to farms (41%), and mentorship/seminars (18%). The linkages between academic and non-academic institutions can be further strengthened through collaboration/MoUs (80%) and funding (4%).

### **The role of non-credit-bearing training programmes and Massive Open Online Courses (MOOCs) as supplementary resources towards the broader transformation of education (Question 22)**

The role of non-credit-bearing training programmes and Massive Open Online Courses (MOOCs) as supplementary resources towards the broader transformation of education were positive/acceptable by 80% learners, and not acceptable by 4% of learners/institutions. If not examined, learners do not put much emphasis on these MOOCs.

Higher education can be systematically more connected to extension and advisory services and to farmers through the co-creation of knowledge and technologies, giving them more voice to set priorities for agricultural education through the following suggested changes: curriculum review (52%), and policy framework (28%). 20% did not know.

## **Transformational leadership (Questions 23–26)**

The extent to which education transformation is supported by the current leadership in the respondents' institutions, including senior administrators was reported as very high (56%), moderate to little (24%), high (16%), and not at all (4%).

When asked for the top three characteristics of the leaders that are contributing to the transformation of their educational institution, respondents chose to describe them as visionary, pragmatic, innovative, motivational, innovative and ethical (by 36% respondents).

The current level of leadership commitment to transform education practices in the responding institutions to improve and equip graduates with the skills needed by future employees in the agrifood sector or the market/agribusinesses were felt to be in the following areas: human resources (44%), policy (16%), finance (12%) and others (28%).

In terms of the farmers and their organizations, being invited to participate in the leadership in the respondents' institutions, 54% indicated "no", and 46% indicated "yes". The farmer engagements entailed curriculum reform (55%), programme/project implementation (27%), and internship and experiential learning (9%).

## **Resource availability**

The way the respondents' institutions are mobilizing resources (human and financial) to successfully implement transformational efforts were reported as through funding in partnership (52%), and tuition fees (24%). Human resources were somewhat ignored by the respondents, yet remain critical in this process. The major sources of university funding were government, and other partners.

## **Alignment with the SDGs**

About 60% of responding institutions have aligned their educational strategies with the SDGs, while 40% were not aligned. About 64% of respondents also monitor and assess their contribution to the SDGs through reports (64%), while 28% do not produce any monitoring reports.

## **Asia and the Pacific**

### **Profile of the respondents**

- **Twelve persons responded** to the survey from Asia–Pacific, six men and six women
- all respondents were from universities
- Of the twelve respondents, six were university professors/deans, three scientists/researchers, one research manager, one university administrator and one student
- Five of the respondents were from India, two from Nepal, two from the Philippines, and one each from Australia, Fiji and Thailand.

## **Vision for change (Questions 1–4)**

In terms of how their education institution envisions and articulates its vision for the future, half of the respondents provided similar visions of graduates at the forefront of solving the world's most pressing food security and environmental challenges; and highly skilled and globally competent human resources in agriculture, forestry and allied fields to meet the needs of farmers, as well as the national and international needs for sustainable development through practical agricultural education. About 42% of respondents emphasised a sustainability-focused vision of strong and responsive research and agri-entrepreneurship that is relevant in a rapidly changing, demanding and competitive world. One respondent's university envisions science-based agriculture that is allied to help farmers and agribased industries to compete successfully in national and international markets through its education, research and outreach programmes.

The respondents indicated how this vision informs everyday actions to improve higher education in their institution. For example, the vision statement of the Tamil Nadu Agricultural University (TNAU), India, forms the basis for its strategic planning, providing a clear direction for the university's future development, aligning every action taken by the university with this long-term vision. The vision statement also influences curriculum development to ensure that students are equipped with the skills and knowledge to meet the goals set out in the vision. TNAU's vision typically includes a commitment to research and innovation, which informs decisions about research priorities, funding allocation, and partnerships with industries and other institutions. Faculty and staff, as well as the staff professional development, are geared toward the vision's objectives. Moreover, the vision informs how TNAU engages with students, which includes extracurricular activities, student-led projects, and internship opportunities that support the vision's goals and values. Most importantly, the vision includes a commitment benefiting the broader community, especially the farmers, which leads to community engagement initiatives, agricultural extension services, and outreach programmes designed to share knowledge and technologies with farmers and the public.

Other respondents, such as, the Agriculture and Forestry University (AFU) of Nepal, indicated that it is constantly developing new and innovative courses and programmes that reflect the latest trends and technologies in agriculture and forestry aligned with its vision. They are trying to improve and update the teaching process/methods and to create appropriate experiences for students through encouraging collaboration with other stakeholders.

To motivate youth and women to increase the number of students in agriculture-related subjects, most respondents indicated that their universities **conduct outreach and awareness programmes to schools and communities to promote agriculture as a viable and rewarding career path**. Such awareness programmes educate youth about the importance of agriculture in modern society and highlight the potential career opportunities in agriculture and related fields. Other motivation activities include:

- offering a variety of scholarships and fellowships to students from under-represented groups, and to those who excel academically to help attract more students to agricultural education (2)
- highlighting case studies and success stories as examples, e.g. inviting experts in various related fields to give talks that inspire students and initiate field work through engagement with the local community and small farmers, or inviting university alumni who have excelled in agriculture and related fields to be an inspiration for current and prospective students (2)
- facilitating women-led research projects and initiatives to provide opportunities to learn from and collaborate with successful women in agriculture
- organizing interactive sessions with farmers, agricultural businessmen and motivational talks with success stories

- focusing on multidisciplinary aspects of agriculture connecting with gender and youth roles in agriculture and other fields, e.g. climate change, food security, women's health and food
- interacting and regionally engaging
- participating in radio/TV shows
- offering specialized programmes and courses that cater to the interests of youth and women, e.g. biotechnology, nanotechnology, remote sensing, energy and environmental engineering, food processing, and organic farming
- providing career counselling services that guide students towards agriculture-related careers, which helps to demystify misconceptions and stereotypes associated with the field
- encouraging youth and women to explore entrepreneurship in agriculture by providing training and resources for starting their own agricultural businesses
- arranging different seminars, "open house" activities, and guest lectures for students in agriculture and making capstone projects with interdisciplinary students.

To motivate more youth, and particularly women, to take part in agriculture-related subjects most respondents suggested that their universities should be **working and interacting more closely with the private sector to develop internship and job placement opportunities for graduates to also demonstrate to potential students that there is a strong demand for their skills and knowledge in the workplace.** They also suggested that universities could offer more flexible learning options to accommodate students with other commitments, such as family or work; develop more courses and programmes that are specifically tailored to the interests of youth and women; constantly seek new and innovative ways to motivate and support students from under-represented groups; give more attention to youth and women through strong guardianship and mentorship by university professors, providing gender-specific scholarships and grants; and promote role models by showcasing successful female alumni, who have made significant contributions to agriculture, highlighting their achievements and career paths to inspire current and prospective female students.

Furthermore, universities should create programmes and initiatives that specifically promote and support the participation of women in agriculture, including mentorship, networking events, and career development workshops. Offering flexible learning options, such as online courses or part-time programmes, would help accommodate students with family or work commitments. This can be particularly appealing to women seeking to balance education with other responsibilities. Moreover, they should develop programmes and allocate resources to encourage: (i) entrepreneurial endeavours in agriculture, which can appeal to youth looking for innovative and business-oriented opportunities; (ii) research initiatives related to gender in agriculture, highlighting the contributions of women to the field and the specific challenges they face; (iii) review and update the curriculum to ensure it addresses gender-specific issues and opportunities in agriculture; and (iv) more opportunities for international exposure, such as exchange programmes or partnerships with foreign universities, to broaden students' horizons and expose them to global agricultural practices. Student support services also need to be strengthened, including career counselling, ward counselling, giving extra attention to backward students, and mental health resources, to assist students in their educational journey.

### **The change process (Questions 5–14)**

The respondents were asked to share any innovative educational approaches that their university practices (or has been previously introduced). They indicated the following:

- Change of curricula: AFU regularly reviews and updates its curricula to reflect the latest trends and technologies in agriculture and forestry, e.g. a recently introduced course on precision agriculture.
- Integration of innovative pedagogical approaches: AFU faculty members use a variety of innovative pedagogical approaches in their teaching, such as flipped classrooms, problem-based learning, and simulation-based learning. The aim is to provide holistic education that prepares students for success in the workplace and in life. To this end, the university offers a variety of extracurricular activities and leadership development opportunities.
- Interaction with communities, farmers, and their organizations: AFU students are encouraged to interact with communities, farmers, and their organizations through a variety of initiatives, such as field trips, internships and research projects. This helps students to gain real-world experience and to better understand the needs of the agricultural community.
- Integration of experiential learning: AFU offers a variety of experiential learning opportunities to its students, such as hands-on labs, field projects, and service learning projects. This helps students to develop the skills and knowledge they need to succeed in the workplace.
- Integration of entrepreneurial learning: AFU encourages its students to develop entrepreneurial skills and consider starting their own businesses in agriculture and forestry. The university offers a number of courses and programmes on entrepreneurship, and also provides support to students, who are interested in starting their own businesses.
- Borderless education (AgRoLEx or Recoletos Online Learning Extension) using Moodle or a portal, where students enrol and interact with academic writers, industry practitioners or experts in various disciplines.
- Village stay programmes.
- Six-month experience in a research centre during undergraduate studies.
- Alignments with higher academy (UK Professional Standards Framework for teaching and learning support in higher education).
- Community engagement/community-based learning.
- Blending classroom and hands-on practical learning designed to give students a head start in their field, e.g. laboratory or industry internships within and outside their countries.
- Enriching undergraduate education by Student READY programme in the final year during which students will undergo Rural Agricultural Work Experience programme (RAWEx), in addition to industrial visits, institutional–industrial interface and project work.
- Introduction of experiential learning modules to promote entrepreneurship skills and build confidence among undergraduate students, e.g. digital marketing, agri-export management, digital media tools, drones in agriculture, and data analytical skills for market research.
- Students are motivated to register SWAYAM/MOOC courses of their interest.
- Lectures of undergraduate programme are video captured and converted into digital form that is hosted on university website for 24x7 students' access.
- Students' registration and other student-related activities are done using Student Management Systems Software Programme.
- Skill development training programmes to promote students' entrepreneurship skills (e.g. academia–industry connect programmes).

A specific example is of TNAU which shifts to remote teaching for all its postgraduate programmes. Remote teaching is catalyzing a pedagogical shift in how we teach and learn. There is a shift away from top-down lecturing and passive students to a more interactive, collaborative approach in which students and instructor co-create the learning process. The instructor's role is changing from the "sage on the



stage" to "the guide on the side." This point of view maintains that people actively construct new knowledge as they interact with their environment. This is a student-centred approach in which students co-create their learning experience. This approach empowers students as active learners instead of just passive recipients absorbing information and reproducing it for standardized tests.

The TNAU has also instituted so called "Post Graduate Dean's Endowment of TNAU", utilizing the endowment fund. Every year, distinguished scholars and scientists from different fields are invited to deliver lectures on selected topics for the benefit of students and faculty members of TNAU. Circumventing the crisis of COVID-19 pandemic, the endowment lecture in this series was conducted through "Microsoft Teams" platform. Interestingly, a total number of 367 postgraduate students and faculty members of TNAU listened to the first online lecture from someone, who spoke from Dubai through online media.

The respondents defined these transformational efforts as follows:

- **interaction with communities, farmers and their organizations (10)**
- **integration of experiential learning (10)**
- **integration of innovative pedagogical approaches (9)**
- integration of entrepreneurial learning (8)
- change of curricula (7)
- integration of ethical leadership (7)
- strategic change programme (4).

### **Success in education transformation**

**Australia.** Introduction of "Foundations of Academic Teaching" course.

**Fiji.** The College established the first aquaponics system in Fiji and created the only veterinary programme in the South Pacific islands. Collaboration involved the Ministry of Agriculture, Ministry of Forestry and Ministry of Fisheries, and signed MoUs with local and international partners, such as Spices of Fiji, Australian Centre for International Agricultural Research (ACIAR), Society for the Protection and Care for Animals and Fiji Dairy Cooperative Limited. The university is also collaborating with other institutions in Australia and China, and other countries.

**India (to be used for a case study).** As the pioneer and innovative thought leader of Paperless Digital Examination, the TNAU has taken initiative to conduct online assessment for students. TNAU coordinated with the IT service provider, devised a system for facilitating the Master's and Doctoral students to undertake online assessment. Initially mock tests were conducted for the students to familiarize themselves with the online systems and software. A webinar for teachers was also conducted for evaluation of answer-sheets and compilation of marks. This exercise supported the Controllerate of Examinations in issuing the Statement of Marks at the earliest opportunity. Further necessary arrangements have been made to support the Master's and Doctoral students, who have registered/re-registered their final block of research credits, completed the experiments and are currently writing their theses. The TNAU is also a pioneer in implementing ICARs' Blending Learning Ecosystem for higher education in agriculture and implementation of Academic Management System (AMS) for digitalization of academic activities developed under ICAR's NAHEP. TNAU has successfully implemented four undergraduate courses under the Blended Learning Ecosystem using the Microsoft Teams platform across 14 TNAU constituent colleges and deployed all the course contents, video lectures, MCQs to the ICAR-

NAHEP Blended Learning Platform. The Examination Management System (EMS) is being used for the postgraduate courses registration, management of exams, marks, student registration cards and report cards; it is maintained by the Controller of Examinations.

The SMART classrooms and infrastructures created by the constituent college campuses can very well be utilized for this BLP without much additional expenditure. Initially, the BLP can be taken as a pilot project programme involving many undergraduate teachers, with each teacher given an opportunity to exhibit their teaching skills and their responsibility in preparing their subjects for effective presentation. Since it is a new initiative, teething problems may arise, which by experience and skill can be overcome in due course. In this BLP system, as the lectures and course contents are already available as recorded versions, students can collect first-hand information before attending the lectures. It should be ensured that good audio/video quality with required bandwidth has been made available in each and every smart classroom for effective presentation by the teachers. Teachers have to develop their teaching skills by their clarity in speech, expression, voice modulation and attitude towards good teaching. Every teacher has an opportunity to show his/her innate talents in teaching through this BLP System.

After switching the education online, teachers and students focus on new technological advances in education and learn the new skills and competencies needed. There is a swift transition from physical learning to the digital sphere of learning. Both teachers and students start to adopt E-learning systems in India through the new tools and effective teaching–learning process. Massive Open Online Courses (MOOCs) are a relatively new approach for providing high-quality education by internet. This allows PG students to access high-quality educational resources at any time and from any location. Now, the PG students will have the option of taking courses from the ICAR's BLP rather than from other sources. Through this BLP, enrolment on courses by the students across SAU/Central Universities will happen and ICAR's vision of replacement of 10% of courses by online courses could be achieved. A very successful Practical Crop Production Programme has also started in TNAU.

**Nepal** AFU has successfully implemented a number of innovative educational approaches, including problem-based learning, simulation-based learning, and experiential learning. The university has also developed new courses and programmes that reflect the latest trends and technologies in agriculture and forestry, while strengthening its partnerships with communities, farmers, and their organizations. This has helped students to gain real-world experience and to better understand the needs of the agricultural community.

**Philippines** Business models or entrepreneurial application of all courses has been pursued and funded, which can leverage students' approach to real life or living or livelihood.

**The key factors underlying successful introduction of changes** in the respondents' educational model have been identified as the following:

- university leadership that is committed to transforming the university's educational model
- students' motivation and demand for a more innovative, entrepreneurial, and ethical education driving the university
- inspiring innovative practices of individual professors/champions, who developed and implemented new courses and programmes, and then have mentored other faculty members on how to transform their teaching practices

- a collaborative approach to transforming the educational model involving faculty members, students, staff members, and community partners working together to develop and implement new educational approaches
- entrepreneurship, MSMEs incubation and development of new farm models that can be used as an extension of new technologies in the communities or locations where the students or graduates may be stationed
- practical exposure to different cultures and environments
- OECD recommendations
- Dedication and devotion of university professors
- Introduction of Advanced Curriculum and paperless examinations.

**Key obstacles to be confronted** in transforming existing educational models include:

- **lack of resources for implementing transformation efforts, e.g. investment in new technologies and training for faculty members (3)**
- resistance to change of some faculty and staff members (2)
- meeting accreditation requirements to maintain university accreditation
- hierarchy to management
- reducing number of students interested in agriculture
- pandemics
- outdated learning facilities like labs and equipment, including precision agriculture and drones
- lack of awareness about technology use.

The respondents also indicated how they overcome these obstacles. For example, developing a change management plan to address the resistance to change, which includes communication and training programmes to help faculty members and other staff understand and embrace the university's new educational approaches. Universities are also seeking grants and collaboration with partners, including industry and international agricultural research institutions, to share resources. It is important to work with the accrediting agency to ensure that its new educational approaches meet all accreditation requirements.

The **key reasons behind the introduction of transformational education efforts** have been indicated as:

- **university leadership (9)**
- **students' demand (7)**
- **recognition of the dynamics of agrifood systems (7)**
- inspiring innovative practices of individual professors/champions (6)
- educational policy change (5)
- pressure for smarter investments (4)
- reduced budget (4)
- pressure to work with the private sector (3)
- increased budget (3)
- pandemic impact.

The **effectiveness of the institutional process support for curriculum review and/or change:**

- **it is very fast and effective and takes a few months (5)**

- it takes more than a year (3)
- it takes about a year (2)

Most participants indicated that their **reward system** is based on the number of research outputs/publications (4). Some also indicated that it is based on the years of experience (2), process that leads to change, the number of patents, and students' evaluation.

### **Community engagement and experiential learning as part of university transformation (Questions 15–17)**

Regarding whether their educational institutions have a **systematic community engagement programme** involving farmers (particularly youth and women), agricultural businesses, community members, faculty and students in experiential learning, co-innovation and co-research, ten respondents commented “yes”, while two replied “no”. For example, AFU developed some mechanisms to work with a farmers' group for seed production. Other universities mentioned evening tuition for nearby children nearby; the Learning, Education and Experience Programme; “Special Research Project” courses that include agriculture and horticulture with integrated community engagement; scientist–farmers interaction and farmers' fairs; university learning centres in the rural area, where students can have practice, engage with actual small farmers and run their community projects; fisheries rural exploration work e.g. mangrove planting in coastal communities or outreach to women/youth in village communities; student “READY” programme for credit load of 0+20 hrs facilitated by a professor; and capacity building programmes for Farmer Producer Organizations (FPOs) to establish market linkages, regulatory compliance, team building, develop business plans, financial analysis, book keeping and record maintenance.

About 83% of the respondents said that this **community engagement programme is integrated** in the curricula, and two mentioned that it is considered an extra-curricular activity. Regarding **how experiential and action-based learning enhance the development of soft skills** by students in their institutions, the respondents mentioned various results, as follows:

- Learning by Entrepreneurship experiences (LEE) is a type of learning that involves students actively participating in entrepreneurial activities and then reflecting on those experiences to learn from them, e.g. entrepreneurship competitions and collaborative projects. It helps develop problem solving, reflection and critical thinking skills to make informed decisions.
- LEE has been shown to be an effective way to develop soft skills, such as communication, teamwork, problem-solving and critical thinking. For example, students, who participate in LEE activities learn to communicate effectively with a variety of audiences, including potential customers, investors and other entrepreneurs. They also learn to write and speak effectively about their business ideas and experiences.
- LEE provides students with opportunities to practice skills in a real-world setting, helps them learn from their mistakes to develop resilience, and helps them see the relevance of their studies to the real world.
- Better understanding of the system of operation behind any activity, as well as the problems of farmers.
- Better interpersonal, persuasion and relationships skills help convey ideas, influence farmers and build trust.

In terms of how their university could further **strengthen engagement and the development of students' communication skills** in their technical courses, the respondents indicated the following:

- **with further interactions with faculties and students (3)**
- making agriculture communication subject more practical and effective
- through competitions, personality development programmes and extra-curricular activities
- more soft skill programmes
- stronger bonds with key stakeholders, like Ministry of Agriculture, Ministry of Fisheries and Ministry of Forests
- introduction of dedicated communication courses that runs parallel to technical courses (written, verbal, visual, and digital communication)
- establishment of partnerships with industries related to technical fields inviting industry professionals to campus for lectures, panel discussions, and collaborative projects; this exposure not only enhances students' technical knowledge but also helps them understand the communication demands of the industry
- implementation of online learning platforms that support communication skill development
- promotion of multidisciplinary projects where students from different technical backgrounds collaborate
- creation of collaborative learning spaces equipped with relevant technologies where students can work on projects, presentations, and group assignments
- training on cultural sensitivity and global communication
- group discussion and smart classes.

### **The roles of non-academic actors in the transformation of your university (Questions 20-21)**

Most respondents indicated that non-academic institutions are playing an important role in the transformation of their universities. For example, AFU, Nepal, has partnerships with a number of non-profit organizations, government agencies, and private companies that helped the university develop new courses and programmes that reflect the needs of the agricultural and forestry sectors, provide students with opportunities to learn from and collaborate with industry professionals, access funding for educational and research initiatives, conduct research on real-world problems and develop solutions, and provide extension and advisory services to farmers and other stakeholders. The Nepal Agricultural Research Council (NARC) provides AFU, Nepal, with funding for agricultural research projects, while the Federation of Nepalese Chambers of Commerce and Industry (FNCCI) works with AFU to develop and implement entrepreneurship programmes for students. The Ministry of Agriculture and Forestry (MOAF) collaborates with AFU to provide extension and advisory services to farmers.

The most common area of support is financial, but also sharing of facilities, engaging students in internships, fellowships, co-research and work placements, and shaping university decisions through university management boards. For example, the State Bank of India (SBI), Mumbai, facilitated the SBI e-payment gateway to TNAU, Coimbatore with 0% service charges for the students' fees transactions. Such non-academic institutions are major motivators of students for agriculture.

In terms of how these **linkages between academic and non-academic institutions could be further strengthened**, the respondents proposed the following:

- developing formal partnerships between academic and non-academic institutions, e.g. through MOUs (2)
- continuous collaboration and communication (3)
- creating joint interactive programmes, initiatives, new courses, and research projects
- sharing resources (e.g. facilities, equipment, and data) and expertise (e.g. through guest lectures, workshops, and other events)
- promoting student and faculty exchanges to allow students and faculty to learn from and collaborate with each other
- financial support and participatory research
- partnership and community engagement
- development of linkages with the industry, e.g. Academia Connect Industry Programme, to help university research scholars/faculty to connect directly with industries and attract more research funding from industrial partners; the strategies may involve training for students, student research visits/stays within the industry that is funding such programmes, and new project design with students.

### **The role of non-credit-bearing training programmes and Massive Open Online Courses (MOOCs) as supplementary resources towards the broader transformation of education (Question 22)**

According to the respondents, non-credit-bearing training programmes and MOOCs can play an important role as supplementary resources towards the broader transformation of education. These resources can provide students with access to high-quality education at a lower cost and on a more flexible schedule. For example, AFU Nepal offers a number of non-credit-bearing training programmes on topics, such as agricultural entrepreneurship, sustainable agriculture, and climate-smart agriculture, open to students and professionals from all backgrounds. Other free MOOC topics include agricultural economics, crop science, and animal science. Such programmes can:

- increase access to education for students in underserved communities
- provide students with the opportunity to learn new skills and knowledge at their own pace
- help students develop lifelong learning skills
- enhance the employability of students by providing soft skills
- enable students to get aligned with future requirements of the industry.

When asked how higher education can be systematically more connected to **extension and advisory services** and to farmers through the co-creation of knowledge and technologies, giving them more voice to set priorities for agricultural education, the responses varied. There are a number of ways to systematically connect higher education to extension and advisory services and to farmers through the co-creation of knowledge and technologies. For example, by:

- establishing joint extension and advisory services units to provide services to farmers
- involving farmers in research and development projects to ensure that the research is relevant to the needs of farmers
- developing farmer field schools to provide farmers with the knowledge and skills they need to improve their agricultural practices
- using information and communication technologies (ICTs) to connect with farmers and provide them with information and advice

- giving farmers a voice in setting priorities for agricultural education to ensure that the education meets the needs of farmers and the agricultural sector
- establishing farmer advisory boards to provide inputs on the development of agricultural education programmes
- conducting surveys and interviews with farmers to learn about their needs and priorities
- holding regular meetings with farmers to discuss their needs and priorities.

By taking these steps, HEIs can become more connected to extension and advisory services and to farmers through continuous interaction, field visits and village linkage programmes. This will help to ensure that agricultural education is relevant to the needs of farmers and the agricultural sector. Furthermore, university community outreach would also provide the connection that is needed.

### **Transformational leadership (Questions 23–26)**

Regarding the extent to which education transformation is supported by the current leadership in the respondents' institution, including senior administrators, most participants (6) responded very large, 4 responded moderate, and 2 as large.

When asked for the top three characteristics of the leaders that are contributing to the transformation of their educational institution respondents suggested:

- collaborative (leaders committed to interacting and working collaboratively with faculty, staff, students, and other stakeholders to achieve the university's vision) (5)
- visionary (having a clear vision for the future of the university and for the role that it can play in transforming agricultural education and research) (2)
- keeping abreast of innovations (2)
- networker and communicator (2)
- intellectual stimulation (2)
- inspiration and motivation (2)
- entrepreneurial (leaders to demonstrate entrepreneurial and innovative mindset in their approach to develop and implement new programmes and initiatives)
- mentor
- change-maker
- diligent
- receptive to new ideas
- responsive to feedback, reflective and sensitive to the needs of the region
- decisive
- recognizing success
- strategic and critical thinking
- understanding the importance of change.

The following are suggestions of the respondents on how the current leadership commitment to transform education practices in their institutions could improve so as to equip graduates with the skills needed by future employees in the agrifood sector or the market/agribusiness:

- Increase investment in professional development opportunities for faculty and staff to develop the skills and knowledge they need to implement new and innovative teaching and learning methods.
- Provide more opportunities for students to gain hands-on experience in the agrifood sector, e.g. through internships, apprenticeships, and other experiential learning opportunities.
- Develop closer partnerships with businesses and other stakeholders in the agrifood sector to ensure that university programmes are aligned with the needs of the sector and that graduates have the skills that employers are seeking. This could involve businesses in the development of new courses and programmes, as well as providing students with opportunities for internships and other experiential learning experiences.
- Set clear goals and expectations for faculty and staff members with regard to transforming education practices, e.g. developing a strategic plan for the transformation of education.
- Provide faculty and staff members with the resources and support they need to implement new and innovative teaching and learning methods, e.g. providing funding for professional development opportunities, as well as access to new technologies and other resources.
- Create a culture of innovation and experimentation by encouraging faculty and staff members to try new things and to learn from their mistakes.
- Support international student exchange to enable students to learn the global-level trends in agricultural developments.

By taking these steps, university leaders can further improve their commitment to transforming education practices and equip graduates with the skills needed by future employees in the agrifood sector.

Half of the respondents reported that farmers and their organizations are invited to participate in the leadership of their institution. The way farmers are involved is usually through their participation in the university advisory group, as resource speakers, contributing to farmer talks, or as an honorary farmer professor in the university. In TNAU, farmers are actively engaged in the implementation of various university schemes, e.g. extension policy-making as a member of TNAU Extension Education Council. They are also serving as members of the Scientific Advisory Committee Meeting of the Krishi Vigyan Kendras (farm science centres), involved in providing advisory support and steering extension activities.

### **Resource availability (Questions 27–28)**

In terms of resource mobilization, respondents indicated that their institutions are mostly mobilizing (human and financial) resources to successfully implement transformational efforts through:

- partnering with non-academic institutions and organizations, such as government agencies, private sector companies, and non-profit organizations to help access funding and resources for university transformational efforts
- seeking grants and donations from a variety of sources, including international donors, foundations, corporations, and externally funded projects
- reallocating existing resources to support transformational efforts, e.g. creating new positions for faculty and staff members who focus on transforming education practices
- encouraging faculty and staff members to contribute their time and expertise to the university's transformational efforts, e.g. creation of faculty development and mentorship programmes to help faculty members develop the skills and knowledge they need to implement new and innovative teaching and learning methods



- utilizing the available manpower within the universities.

For example, AFU, Nepal, has partnered with the Nepal Agricultural Research Council (NARC) to develop a new course on climate-smart agriculture. The NARC is providing funding for the development of the course and for training faculty members on how to teach the course. AFU also received a grant from the United States Department of Agriculture (USDA) to develop a new programme on agricultural entrepreneurship. Part of the grant is USDA's scholarships for students who enrol in the programme. AFU has also reallocated resources to create a new position for a Director of Transformational Education responsible for leading the university's efforts. Furthermore, AFU has encouraged faculty and staff members to develop and implement new and innovative teaching and learning methods, e.g. creating a faculty development programme on blended learning.

The main source of funding for the respondents' organizations is government (10). Other sources have been indicated as private sector (6), donors (3), farmers and their organizations (3), and self-generation (8).

### **Alignment with the SDGs**

Universities have aligned their educational strategies with the SDGs in various ways, e.g. as follow.

- Developing courses and programmes that focus on the SDGs, such as AFU's course on climate-smart agriculture and a programme on sustainable agriculture that teaches students about the principles of climate-smart agriculture and sustainability, and how to apply these principles to real-world problems.
- Integrating the SDGs into existing courses and programmes; thus AFU's faculty members are encouraged to discuss the SDGs in their classes and set assignments that require students to apply the SDGs to real-world problems. AFU has also integrated the SDGs into its existing agricultural engineering programme where students learn about the role of agricultural engineering in addressing SDGs, such as SDG 2 (Zero Hunger) and SDG 13 (Climate Action).
- Partnering with organizations that are working on the SDGs to help university develop new courses and programmes, as well as to provide students with opportunities for internships and other experiential learning experiences related to the SDGs. For example, AFU has partnered with the Food and Agriculture Organization of the United Nations (FAO) to develop the new programme on sustainable agriculture.
- Reforming the syllabus, e.g. the Fiji National University (FNU) has committed to achieving the United Nations' Sustainable Development Goals through its learning, teaching and research. In particular, SDG 4, which highlights the need for quality education, also aligns with the institution's aim to be the premier national University providing quality and relevant higher education, technical and vocational education and training, research and development in Fiji. The education and research programmes of the university are designed keeping in mind the SDGs' focus on principles of inclusion when tailoring the educational strategies to be followed.

**Monitoring and assessing university contributions towards the SDGs** is mostly done through the following:

- Tracking the number of students, who enrol in courses and programmes that focus on the SDGs (e.g. the climate-smart agriculture course) to get a sense of the level of student interest in these topics.
- Collecting feedback from students and faculty members on how the university is integrating the SDGs into its educational programmes, which helps improve the university's SDG integration efforts.
- Conducting research on the impact of the university's SDG integration efforts on students' learning and on their career readiness. AFU's research has shown that students who enrol in courses and programmes that focus on the SDGs are more likely to have a strong understanding of the SDGs and be able to apply the SDGs to real-world problems.
- Regularly analysing production systems and income status of farmers.
- Through the Academic Support Unit and Centre for Support and Advancement of Learning and Teaching (CSALT) or other monitoring committees.
- FNU has an officer that monitors SDG through regular monitoring, follow-up and evaluation for all education, research and extension activities that are taken up periodically by the administrators in the university and hence the contribution towards the SDGs goals is ensured.

## Europe

### Profile of the respondents

- **Nine persons responded** to the survey from Europe, six men and three women
- Eight respondents were from universities, one from another organization type
- Of the nine respondents, three were university professors, two scientists/researchers and two were heads of their organizations, and two with other professions
- Two of the respondents were from the UK (England and Scotland), one each from Czech Republic, Belgium, Germany, Italy, Netherlands, Portugal and Sweden.

### Vision for change (Questions 1-4)

In terms of how their education institution envisions and articulates its vision for the future, visions included entrepreneurial universities at the heart of the rural economy, meaningful transfer of knowledge and experience in both teaching and research through close cooperation with industry, universities playing a key role in development for sustainable life, based on science and education, working together for a better world and for a university enabling communities locally, nationally and across the world to thrive in harmony with nature.

The participants were asked how does this vision inform everyday actions to improve higher education in your institution. Several respondents mentioned the use of quality management and quality assurance processes to continuously improve programmes and approaches including students' evaluation of courses and regular updating and (re-)accreditation of study programmes. Other actions mentioned by respondents included: fostering interdisciplinarity, promoting collaboration, open-mindedness, resourcefulness, accountability and inclusiveness, delivering a curriculum to ensure enterprise awareness and industry contacts within rural communities throughout courses, and work experience/placements to keep courses relevant and enhance employability.

Responses varied related to 'How does your educational institution motivate youth and women to increase the number of students in agriculture-related subjects' from some universities doing no specific

activities as this is part of and aligned with a generic action to attract students and broaden diversity in future student groups. Others listed a variety of methods to motivate youth and women such as specific recruitment materials, role models and case studies to inspire women into the industry, the use of student ambassadors, Open Science Days, Open-door days, seminars/lectures open for the public, hackathons, and competitions for youth.

Regarding what the university could do differently to motivate more youth and particularly women to take part in agriculture-related subjects, several respondents indicated outreach programmes at high-school level and closer liaison with secondary education and vocational training would be useful. Furthermore, more target-group-oriented PR and marketing work, including videos and infographics specifically to show youth/women involved in agri-activities in the field, could show successes and present role models

### **The change process (Questions 5–14)**

***Innovative educational approaches*** A variety of innovative education approaches were mentioned including active learning, simulation learning, blended learning, experiential learning, challenge-based learning, project-based learning, outdoor education, experiential learning on farms, agribusiness incubators, interdisciplinary programmes, working together with the agricomunity and internship opportunities. One respondents noted that since the beginning of the university, bachelor students had in their sixth semester been required to do an internship of 20 weeks duration with a private-sector entity, an NGO or a public service institution. These internships are sometimes paid. They are usually quite effective in equipping students with important real-world insights, professional networks and practical experiences related to the subject of their studies. Furthermore another respondent indicated that they work with students to develop an entrepreneurial mindset, whatever their course, through an Enterprise and Entrepreneurship Programme (EEP) that is partly funded through its own social enterprise.

***Definition of transformational education efforts*** In terms of what the respondents would define as transformational efforts, eight out of nine respondents defined the integration of innovative pedagogical approaches as a transformational effort. Other approaches defined as transformational included interaction with communities, farmers and their organizations and integration of experiential learning. The responses were as follows:

- integration of innovative pedagogical approaches: 8
- interaction with communities, farmers and their organizations: 6
- integration of experiential learning: 6
- strategic change programme: 4
- integration of ethical leadership: 3
- change of curricula: 2
- integration of entrepreneurial learning: 2.

***Success in education transformation*** One respondent mentioned a next-generation Higher National Qualification (from the Scottish Qualification Authority) within agriculture with less assessment, more integration of learning, and meta skill development incorporated throughout, together with learning for sustainability and digital by design. Another indicated that since the start of the enterprise programme at the RAU in 2013 they had 148 applications and funded 97 students to develop their business concept further, and 69 innovators have launched their businesses after leaving the university. The RAU's student business planning competition "The Grand Idea" has had 13 entrepreneurial winners to date (eight women and five men), ten of whom are heading businesses today. As an institution the RAU has been the "Winner of Enterprise Learning Provider of the Year" at the Institute of Enterprise and Entrepreneurs

Awards 2019, and has received several other awards in recognition of this programme. Further responses included students obtaining job offers after their internship, "Blended learning" is now the standard model in the institution, the use of AI/Chat-GPT which seems to have big potential for all educational/learning endeavours and inter-university educational teaching and curriculum models.

**Key drivers of successful transformation** Three respondents mentioned strong leadership as the key factor, combined with staff dedicated to make it work, plus the flexibility and funding (internal or external) to be able to make the change possible. Furthermore, contact with and interest from local private-sector entities, NGOs, public-service organizations etc., is also seen as a key factor. One respondent mentioned in particular the need for learning by doing and seeing all in the field, and not just on the screen. Also, having a programme that is cross-cutting across courses and year of study was listed as a key factor for its success.

**Challenges** The key obstacles that the responding universities confronted in transforming their educational model were mentioned as: resource management to allow timely development to take place; staff members' attitude and behaviours, e.g. unwillingness to change, and administrative and bureaucratic inertia. One interesting point mentioned related to language barriers as many international students did not speak the local language (in this case German), and the industry and practice partners preferred to speak German. The respondents indicated that these obstacles were overcome through effective teamwork and leadership, encouraging people and by leading by example and providing some funds. For the language challenges mentioned above, German courses were offered as electives for international students (although not all of them take this opportunity).

**Reasons behind the introduction of these transformational efforts** University leadership (six out of nine responses) was perceived as the main reason behind the introduction of these transformational efforts; other more frequently mentioned reasons were recognition of the dynamics of agrifood systems, student demand and the inspiring innovative practices of individual professors/champions. Interestingly reduced budget was only mentioned by one respondent. Specific responses are below:

- University leadership: 6
- Recognition of the dynamics of agrifood systems: 4
- Inspiring innovative practices of individual professors/champions: 3
- Student demand: 3
- Educational policy change: 2
- Pressure to work with the private sector 2
- Reduced budget 1
- Pressure for smarter investments 1
- Never ending improvement!

**The length of the curricula change process** All respondents indicated that it takes more than a year to effectively support curriculum review and/or change. New curriculum development takes time especially when there are high teaching workloads. However, one person indicated that while the process takes more than a year, it tends to be quite flexible and adaptive. Universities need some guidance on how to effectively transform their curriculum.

**Reward systems** Four respondents indicated there was some form of performance management system in place, based on goals, staff development and promotion ("salary talks"). Three respondents reported that the reward system was based on the number of publications, whilst one respondent indicated the reward system was based on a combination of research, teaching and self-administration-related

activities. Another respondent indicated that although they were not a university, there is also no reward initiatives that lead to change.

### **Community engagement and experiential learning as part of university transformation (Questions 15–17)**

Respondents were asked whether their educational institution had a systematic community engagement programme involving farmers (particularly youth and women), agricultural businesses, community members, faculty and students in experiential learning, co-innovation and co-research. Out of nine respondents, seven indicated that their educational institution had a systematic community engagement programme involving farmers, while two indicated there was no such programme.

A variety of community engagement programmes were mentioned, such as industry liaison, student liaison, collaboration and support for farm advisory services (funded by Government), work-based learning and mandatory student internship programmes. One comment pointed out that the mandatory student internships were not specific to the agriculture sector/study programmes and do not always translate into real research/co-innovation efforts. Another respondent indicated that their community engagement was driven by societal needs and focused on collaborating expertly with government, industry, civil society and other academic institutions and involving the students in real-world learning. Another response observed that these programmes depend significantly on the initiative of individual staff members and are not standard in the range of educational models being adopted at university level, hence some were also partly extracurricular. Three out of seven responses stated that the community engagement programme was integrated into the curriculum (i.e. was not considered as an extracurricular activity), whilst four out of seven indicated that it was an extracurricular activity.

When considering how experiential and action-based learning in the respondents' institution enhance the development of soft skills by students, respondents indicated that these approaches are very important to allow meta skill development including critical thinking, creating an understanding of the situation in the field and enhancing employability. Furthermore, students typically acquire very important professional and practical skills during their internship period through learning by doing and via project-based instructional strategies.

Respondents indicated how their university could further strengthen engagement and the development of students' communication skills in technical courses, for example by:

- incorporating units on communication skills in the agricultural curriculum, including oral presentation, group work assignments and opportunities to practice these
- creating further (and systematic/structured) opportunities to prepare and present professional presentations in front of non-academic audiences (e.g., internship enterprises etc.)
- better linking to the agricultural sector and involving farmers/communities
- redesigning courses to be interdisciplinary project-based courses with a direct link with stakeholders.

### **The roles of non-academic actors in the transformation of your university (Questions 20–21)**

Regarding the involvement of non-academic institutions and actors in the educational transformation at the respondents' institutions, a variety of roles for non-academic institutions/actors were listed:

- representation on the university board and/or regular contact e.g. with the executive board of the university
- membership of consultative bodies that meet curriculum designers of the respective faculties
- partners involved in joint research activities or guest lecturing

- actors performing the role of mentor to students
- providers of internship opportunities for Master's/Bachelor's thesis work.

To strengthen the linkages between academic and non-academic institutions, the respondents suggested:

- formal cooperation agreements (e.g., a paid internship programme)
- regular excursions and guest lecturing
- formal advisory role in (re-)accreditation and co-creation of curriculum/curriculum reviews
- more opportunities for collective actions in the form of industry-led or farmer-led research projects
- government-funded programmes aiming to connect non-academic institutions with the academic sector.

Regarding the role of non-credit-bearing training programmes and Massive Open Online Courses (MOOCs) as supplementary resources in the broader transformation of education, one respondent indicated that there was great potential in these types of programmes which may be critical in reaching out to multiple universities at reduced cost. However, respondents also indicated that non-credit-bearing training programmes have limited appeal to regular students (who typically need to optimize their efforts spent vis-a-vis credits earned) and it is not easy to motivate learners to use them. One respondent indicated that they may prove significant in the continuing education of professional staff.

When trying to systematically connect higher education to extension/advisory services and to farmers through the co-creation of knowledge and technologies, e.g. giving them more voice in setting priorities for agricultural education, respondents indicated a variety of possible routes:

- the involvement of advisory services and farmers' representatives in formal curriculum boards
- co-creation and implementation of research projects and outreach in collaboration with extension and advisory services and farmers
- governmental support for public and private sectors working together
- increasing mainstream research funding for participatory farmer-led research
- collaborative workshops and training programmes; technology transfer and demonstration farms; online consultations
- establishment of specific units within universities that support staff to develop such activities.

### **Transformational leadership (Questions 23–26)**

When considering the extent to which education transformation is supported by the current leadership in the respondents' institution, including senior administrators, seven out of nine respondents indicated that the current leadership in their institution only moderately supported education transformation; two indicated support being to a large extent and just one respondent judged support as being to a very large extent. This is highly interesting as the results of this survey show that academic leadership is essential for effective educational transformation.

When asked for the top two characteristics of the leaders that are contributing to the transformation of the respondents' educational institutions, innovativeness and curiosity were mentioned most often. Other characteristics suggested are as follows:

- progressive

- inspiring
- inclusivity
- approachable
- flexibility
- highly educated (former researchers)
- open-minded
- supporting equality and the rights of everyone
- thinking out of the system/box
- commitment to change
- understanding the need for change
- drive for excellence
- sensitive to outcomes of quality assurance cycles
- aligning between education and research endeavours
- emphasizing structural linkages with society partners.

When asked how the current level of leadership commitment could improve to transform education practices in their institution so as to equip graduates with the skills needed by future employees in the agrifood sector or the market/agribusinesses, the respondents identified four main pathways for improvement:

- redefining upfront the competency frameworks of educational programmes to incorporate the necessary skills, which depends heavily on the willingness, interest and research of staff
- expanding the transformational education practices more widely across the university and not only related to agriculture department
- providing more resources to allow staff time to develop industry partnerships
- linking to the agrifood sector or the market/agribusinesses from the outset, and in addition giving students the tools to become employers.

Four respondents indicated that farmers and their organizations are invited to participate in the leadership of their institutions, while five respondents indicated that they do not have such a process in place. Respondents indicated that the Board of Governors of their university contains individuals from the farming Industry/organizations.

### **Resource availability (Questions 27–28)**

In terms of mobilizing resources (human and financial) to successfully implement transformational efforts, respondents reported that it is challenging. The university depends on public funding, and the use of human resources is significantly constrained and regulated by labour law/civil service regulations. With high teaching workloads and limited reward systems for the use of alternative approaches, the motivation of staff is low. Currently a lot of activities are entirely volunteer work. Furthermore, financial resources are gained through external funding from local or EU-level funders, and local, UK and previously EU funding requires drafting and submitting project proposals and following up with potential funders on a regular basis. The universities' sources of funding as reported by the respondents were:

- government (7 responses)
- private sector (4)
- self-generated (4)

- donors (3)
- farmers and their organizations (2)
- philanthropy (1).

### **Alignment with the SDGs**

Respondents indicated that the institutional alignment of their educational strategies with the SDGs occurs through:

- the strategic vision of the university being (partly) aligned with the SDGs, which are explicitly referred to in a number of university policies/strategies (e.g., for research, internationalization)
- teaching units and courses being aligned with (at least one) of the SDGs
- indicators to monitor alignment with the SDGs are included in teaching and research quality assessment frameworks.

In terms of monitoring and assessing the university contribution to the SDGs, four out of seven respondents indicated there were no systems in place to monitor and assess its contribution to the SDGs. The other three respondents indicated that there is or will be a system in place to assess its contribution. One respondent indicated that the SDGs are aligned with the strategic vision, which is monitored through actions that collect information for an institutional quality assurance portfolio.

### **Latin America**

#### **Profile of the respondents**

- **Twelve persons responded** to the survey from Latin America, eleven men and one woman
- Ten respondents were from universities, one came from a non-governmental organization (NGO), and one was the Director of Extension from his country; the latter was unable to respond to many of the questions as they were specific to universities
- Of the twelve respondents, six were university professors, two project leaders, two scientists/researchers and two were heads of their organizations
- Ten of the respondents were from Mexico, one was from Peru and one from Costa Rica.

#### **Vision for change (Questions 1–4)**

The majority (75%) of the respondents envision the change at their universities as transformational as they expect to be recognized for the quality of their graduates as ethical leaders and agents of change with the knowledge, skills and capacities that enable them to respond to the trends in agriculture and the needs of society. Their graduates (42%) will be committed to contributing to improving the prosperity of rural communities and society, and to more sustainable agricultural systems.

This vision is the driving force for their university decision-making (92%), which is aimed at improving the institutional capacity of their universities and their educational models including curricular and co-curricular actions to graduate the ethical leaders needed by their rural communities. They seek to attract students to study agriculture by promoting an educational model that is innovative (50%) and thus attractive to students; by the opportunity to put theory into practice and to learn from the real world through experiential/action-based learning (42%); and through the integration of the community as partners in their educational process (33%). They also seek to attract students by promoting the potential



of agriculture as a professional career by demonstrating what their students and graduates are able to do and the impacts that they can achieve (42%).

The universities recognize the importance of improving female participation in faculties of agriculture and feel that this can be achieved by faculty members becoming more involved with students' families (58%) and by promoting female leaders within the universities and externally by inviting outstanding female professionals (33%) to participate in forums, in videos, and in other curricular and co-curricular activities sponsored by the university.

### **The change process (Questions 5–14)**

***Innovative education practices*** The innovative practices that the respondents mentioned ranged from focusing on the students as the centre of the educational process and the development of competencies, to including experiential learning through projects, research, community actions, open classrooms, etc., and through the incorporation of community engagement, ethical and value-based education, entrepreneurship, and conflict resolution as key elements in a more innovative educational model. Experiential learning directly or conceptually was mentioned by 83% of the respondents as central to their innovative practices. When asked to define more specifically these innovative educational practices, 100% of respondents mentioned experiential education and community engagement (interaction with and commitment to the communities) as central to their innovative practices, followed by the inclusion of entrepreneurial and business skills education (58%), pedagogical innovations (58%) and ethical leadership (50%).

***Success in transforming education systems*** The comments on the successes that they have achieved in transforming their educational systems emphasize experiential learning as part of community engagement (50%) (agricultural practices in plots owned by farmers and the communities, problem solving in the community, and professional practices within the community). A further 25% mentioned the inclusion of experiential learning practices within the normal coursework at the university. Another 33% mentioned the integration of a systemic value-based education programme within the curriculum and 34% mentioned the inclusion of entrepreneurial learning through interaction with community farms and businesses (17%) and through entrepreneurial events within the university (17%). The primary reason that was mentioned for the successful inclusion of these innovations is the preparation of the university community for the changes to be introduced and the integration of the community members in teams to lead the changes (66%). Key elements of this included that university leadership supported and led and/or facilitated the change process and that the commitment and participation of the entire university community in the change process. Other reasons that were mentioned included the availability of critical resources and learning from other innovative transformation experiences.

***Challenges*** Some of the main obstacles to the university transformation that these universities faced included faculty resistance (named by 42%), policies and guidelines not supporting the changes sought (33%) and a lack of necessary resources (33%). It was also mentioned that centralized decision making slowed the decision-making processes and therefore changes sought (33%) and 17% mentioned that there was not enough human resource time to achieve the planned changes. To overcome these obstacles, 42% of the universities mention the role of university leadership and the orientation teams/committees in promoting the benefits of the changes, 33% mentioned the importance of incorporating the entire university community into the process, and 33% mention improved and more efficient planning, execution, and follow-up as means of overcoming these obstacles.

**Drivers for education transformation** Several reasons were given for the incorporation of innovative educational practices. The decision was driven by university leadership (75%) and institutional champions/professors (58%) in their recognition of the need to respond to a more dynamic and complex agricultural ecosystem and the demands of society (58%). Also named by 50% of the respondents were changes in national or institutional policy as a driving force for the inclusion of innovative practices such as entrepreneurship and community engagement. Also, the students were named as a driving force by 42% of the respondents.

**The length of the curriculum change process** The process of university transformation is not immediate as a formal review of and change in the curriculum can take a year (25%) or longer (50%). In some circumstances the process is considered to be very fast and effective (17%). Some of the reasons mentioned for longer process time include a change in university leadership, lack of trained faculty, and institutional policies and procedures. It was also mentioned that the change process is gradual, adjusting the curriculum, policies, pedagogy, and institutional structure to facilitate transformational learning.

**Reward systems** One area that influences the effectiveness of the change process is the university reward system for faculty. The responses indicate that 25% of the respondents are rewarded for their publications, whereas another 25% are rewarded for their overall contributions to the university's mission (teaching, research, training, and outreach, as well as administrative duties). 17% mentioned specifically that they are rewarded for their contributions to the change process.

### **Community Engagement and Experiential Learning as part of university transformation (Questions 15–17)**

One of the key areas of transformative change to the university educational model is the university commitment and involvement of community stakeholders in the process. 67% of the respondents mentioned that their universities have or are building a systemic programme that involves farmers, agricultural enterprises and businesses, other members of the community, students, and faculty in experiential learning activities, co-innovation, and co-research. 17% are initiating the creation of a systemic community engagement programme and 17% said that they do not have a programme. Eight of the 12 respondents stipulate that community engagement activities have been incorporated into their formal curriculum as well as being integrated into extracurricular activities. This accounts for all of the respondents that previously stated that they have or are building community engagement programmes within their universities. Also 17% of the total respondents mentioned that their universities have extracurricular activities, although not as part of a systemic programme.

The types of community engagement activities carried out by the universities who have programmes include internships and professional practices (33%); programmes, activities, and projects that directly contribute to community development (33%); and 17% mention that they share technologies, tools, and strategies which empower the communities to become more conserve their environments and to improve their well-being.

There was a widely varied response to the question of how experiential learning contributes to the development of interpersonal skills: 33% declare that the active participation in the application of theory to practice allows students to develop many attitudes and interpersonal skills which are beneficial to their professional growth; 25% of the respondents mentioned the development of higher levels of self-confidence, assertiveness, self-awareness and self-control; 25% pointed out that it helped develop team-working and collaboration skills, how to work together effectively with others and empathy. Another 25%

mentioned active communication and effective learning skills, as well as the skills needed to resolve conflicts, and 17% pointed out that active, experiential-based learning contributed to enhanced learning in general.

When considering how to strengthen the commitment to the development of communication skills within other technical courses, 33% of the respondents suggested emphasizing communication practices as part of all experiential learning, and community engagement activities; 33% stated that communication practices should be included in all technical courses and as part of experiential learning practices; another 17% of the respondents suggested that different types of communication skills should be included (oral, written, social interactions, non-verbal, among others).

### **The roles of non-academic actors in the transformation of your university (Questions 20–21)**

Regarding the participation and role of non-academic actors in the transformation of the university educational system 58% of the respondents to this survey stipulate that these non-academic actors, businesses persons, farmers, and community leaders act as facilitators and support the learning process by an interchange of knowledge, and sharing experiences with students, faculty, and university leaders. Another 17% suggest that these non-academic actors provide input into curricular and co-curricular development processes.

To strengthen the interaction between the academia and these non-academic actors, 75% of the respondents suggest that the university should create more systematic mechanisms or responsible units within the university system to involve members and leaders from the non-academic stakeholders. This could include the creation of advisory boards, committees or internal units that have a responsibility to introduce systemic mechanisms and to create these links. Also 17% of respondents propose that the university should identify common objectives with the non-academic community and strengthen the institutional leadership capacity.

Of the respondents 83% see that massive open online courses offer a very valuable resource for universities to strengthen the capacity of the rural community and society at large. However, it was also mentioned that, for many rural communities, difficulties of access to the internet still today create challenges for the potential of virtual training and communications in connecting with the rural community in many countries around the region.

A critical question for higher education is how the university can become more involved in the co-creation of innovation and new technologies with small and family producers across the region by linking the university with extension and advisory services. A majority of the respondents (58%) feel that this should be done as part of a systemic programme of involvement with the producers and the rural community; 42% say that the university should create formal and active institutional programmes partnering with farmers and extension and advisory services; 25% say the university should directly partner with farmers in the co-creation of agricultural research, involving faculty and students, as part of the process.

### **Transformational leadership (Questions 23–26)**

Institutional leadership is considered critical to the success of the transformation of the university: 42% of the respondents specify that the level of leadership support is great or very great, 33% say the support is at a medium level, and 17% suggest that it is small. Most respondents (58%) report that farmers and

farm organizations are included in the institutional consultative process within their institutions, while 33% feel that this is not the case.

The leadership characteristics that respondents consider key to the success of the transformation include being available and open to listening to ideas from the faculty, administrators, and students (42%); commitment to innovation and the transformation process, to the academic community and student learning (33%); and having a clear vision of the future of university education (33%) to meet the needs of agriculture and society; and having the ability to communicate their vision to all stakeholders, the university community, partners, and members of the community (17%).

How can university leadership improve the commitment to their vision of university change, to achieve the transformation in the educational model to graduate the ethical leaders and change agents that are required by their employers and society at large? The responses pointed to the importance of creating an institutional strategy that includes: the continuous communication of the expected changes to the university community; communication and the interchange of ideas in collaboration with the agricultural sector, farmers, and leaders to understand their needs; the continuous capacity development of faculty and staff of the expected changes, involving students and the university community in the decision-making processes on the university transformation. The change process should focus on the creation of institutional capacities, changing the curriculum, developing entrepreneurial capacities of students of agriculture, and problem-solving research for the benefit of the agricultural community.

Regarding whether farmers and farm organizations are involved in the leadership and consultative process with the respondents' universities, 58% of the respondents reported that farmers and farm organizations are included in the institutional consultative process within their institutions, while 33% feel that this is not the case. It is explained that there is open dialogue between the academic community, farmers, entrepreneurs and businesspersons, and community representatives. Discussions involve curriculum and academic programme development, the evaluation of needed skills by employers and graduates which provides input to the curriculum development processes, and mutual collaboration in problem-solving research.

### **Resource availability (Questions 27–28)**

Financial and human resources are critical to achieving any change process, and particularly so to achieve transformational change. Although much can be done with the limited resources available, much more could be achieved if we can find and attract what is necessary. So the question was asked in the survey on how each institution is obtaining the necessary resources for the implementation of the university transformation.

The answers were varied, beginning with the observation that there was no systemic programme of fundraising to obtain additional resources. Other responses included that there was a project financed externally in support of the transformation process of their institution, and others mentioned that they were also using or redistributing existing institutional resources. It was also indicated that faculty were hired or assigned responsibilities according to the institutional strategy for the university transformation. The sources of financial resources mentioned included government sources (66%), autogenerated (25%), external donors (17%), student fees (17%), projects (17%), trust funds (8%) and private-sector support (8%).

### **Alignment with the SDGs**

Another question raised is whether the university in its vision for the future is seeking to align itself with contributing to the Sustainable Development Goals as defined by the United Nations. Fifty percent of the respondents indicated that their university strategies, institutional plans and programmes are aligned with the SDGs. Areas considered that are incorporated include educational quality, zero hunger, climate change, the promotion of gender equality in all areas and services offered by the universities, and responsible production and consumption practices.

The following means were mentioned to evaluate the certification of the contributions: reports and publications sharing and communicating the contributions that the university is making, the establishment and measurement of key success indicators, and certification of the results through outside sources.

## **Conclusions**

Although the survey respondents were predominantly concentrated in Mexico, we can also learn from experiences from other regions of Latin America and the Caribbean. We expect that the regional conference will have greater representation from across the region. The lessons learned from the experiences shared in this survey tell us that university transformation is possible, and that there are lessons learned that will support the successful process at other universities. The respondents share the need and vision for university transformation.

The responses to the survey provide many experiences and lessons. We have learned that the transformation process has greater effect when the institutional leadership is engaged in the process, involving the institutional actors, faculty, administrative staff, and students, as well as partners and stakeholders from the wider community including farmers and farm families, agribusiness and community leaders, and others. The leadership and the institutional community must create an institutional vision of the university transformation and the expected impact on the students and graduates, as well as an vision of the what the university is expected to look like in the future. That vision must align with producing graduates who are able to respond to the needs of the agricultural sector and society at large. University leadership must communicate this vision continuously to the university community and university stakeholders. This consultation process must incorporate actors from the rural communities to understand their needs and vision for the future and how the university can contribute to these.

The changes should incorporate experiential learning, engagement with the community, entrepreneurship, and value-based education as key components of the change. These innovative practices will enhance learning, and the development of many soft skills such as ethical leadership, communication skills, self-confidence, teamwork and personal relations skills, and the ability to effectively and creatively solve problems to contribute to improved life within the rural communities.

Community engagement will integrate the community as part of the university learning community, act as a real-life classroom for students to learn and contribute, involve problem-solving research, and incorporate community members in the critical processes of curriculum development and learning. This enriches the university community and its mission, and ensures the students are better prepared to understand the community's challenges, apply theory to real-life problems, and contribute to the community's growth.

An effective change process requires the development of understanding and buy-in among the university community and faculty training on these components and how to become effective members of an

integrated community to achieve the expected vision. The survey respondents shared their challenges and how to overcome them. There is always a need for more resources and university transformation requires resource redistribution and often new resources. Much can be done with few resources, the transformation process may take more time, and new resources can always enhance the process.