



## CONFERENCE ORGANISER'S REPORT

The opinions expressed and arguments employed in this report are the sole responsibility of the authors and do not necessarily reflect those of the OECD or of the governments of its Member countries.

*“Agricultural Higher Education in the 21<sup>st</sup> Century: a global challenge in knowledge transfer to meet world demands for food security and sustainability”*

### **Brief Description of what the conference/workshop was about**

The International Conference on Agricultural Higher Education in the 21st Century: A global challenge in knowledge transfer to meet world demands for food security and sustainability was held on 15-17 June 2015, in Zaragoza, Spain, organized by the Mediterranean Agronomic Institute of Zaragoza – International Centre for Advanced Mediterranean Agronomic Studies (IAMZ-CIHEAM), the Centre for Agricultural Research-Hungarian Academy of Sciences (MTA-ATK), the Union for the Mediterranean, the Association for European Life Science Universities (ICA) and the Global Confederation of Higher Education Associations for Agricultural and Life Sciences (GCHERA), with the sponsorship of the OECD Co-operative Research Programme on Biological Resource Management for Sustainable Agricultural Systems. Twenty-nine conference speakers, chairpersons, and facilitators from seventeen countries guided an interactive conference where all participants were able to engage in three formal general discussions focused on the analysis and recommendations for future development of curricula in the agricultural and life sciences, as well as informal discussions and networking for sustained collaboration beyond the conference. The conference program included the following sessions: Session I: Challenges for agriculture in the XXI century; Session II: Are current agricultural educational models suitable to meet global challenges? Session III: Addressing the needs and challenges for innovation in agricultural curricula.

### **Participation**

More than **80** participants from **28** Countries (Albania, Algeria, Australia, Belgium, Canada, China, Costa Rica, Egypt, France, Holland, Hungary, India, Ireland, Israel, Japan, Lebanon, Malta, Mexico, Morocco, Poland, Portugal, Romania, Spain, Switzerland, Tunisia, Turkey, United Kingdom, United States of America) attended the conference, representing agricultural higher education institutions and other stakeholders in agricultural curricular reform. Backgrounds of participants: most of participants were academic authorities (rectors, deans and directors) and professors of 35 Agricultural Universities and Faculties of the represented countries. Eleven participants were directives and staff of four international organisations (OECD, CIHEAM, Union for the Mediterranean, Commonwealth of Learning). Eight participants represented seven national and international associations involved in Agricultural Higher Education. Three researchers from public research institutions, 2 Administrations high officers and 2 private firms' executives also attended the conference. Some MSc students of IAMZ-CIHEAM also participated in the conference.

### **Major highlights from the presentations**

#### *Scientific*

Participants discussed the main challenges and uncertainty that affect agriculture today, and the role of Higher Education to respond to them. These are challenges that are not well understood, have ambiguous and conflicting interpretations, and shift with time. Challenges mentioned often during the conference included problems with food, environment, climate change, energy, and water. Higher education must respond by

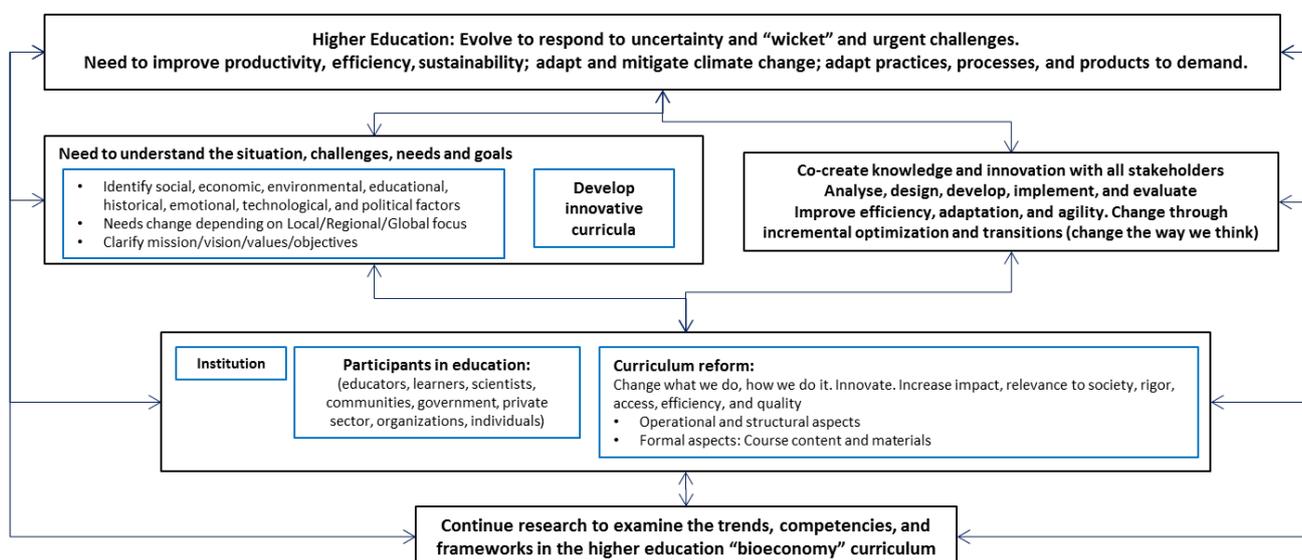


helping adapt practices, processes, and products to improve productivity, efficiency, and sustainability of agriculture to produce more food, healthier food, in less land, and to make it more accessible to more people, as well as adapt and mitigate climate change. To do that, Higher Education must appropriately identify social, economic, environmental, educational, technological, and political factors and clarify local, regional, and global focus, mission, vision, values, and goals.

The role of Higher Education in the bioeconomy to in developing innovative curricula is crucial to respond to these challenges. Conference participants agreed that paramount to the development of innovative curricula is a change of paradigm. This new paradigm should strengthen its focus in the co-creation of knowledge and innovation with all stakeholders, follow a cycle of analysis, design, development, implementation, and evaluation; improve quality assure and accreditation processes; and lead innovation through both incremental optimization and transitions. There were also discussions on the need to strengthen “soft skills” in the curricula and a common concern on how to search for ways to attract students and explain agriculture to society. Also the reflection on professional ethics and meaningfulness of working on agriculture (that is, criteria beyond maximizing professionals income were apparently important for youngsters) were topics of the debates.

Participants agreed that, to do that, Higher Education should address institutional changes, persistent collaboration between all stakeholders, and a curricular reform that changes what we do and how we do it (learning goals, teaching and learning methods, course structure, program operations, course content, and materials). Finally, it is important to continue research to examine the trends, competencies, and frameworks in the higher education curriculum in the bioeconomy.

The following Figure summarizes the conference themes that emerged from the presentations and discussions focusing on the recommendations for future development of curricula in the agricultural and life sciences.



The facilitators (Dr Maria Navarro and Dr Simon Heath) used some group techniques and promoted very successfully the discussions and the participation of the attendees.



### Social event

Welcome reception at the *Aljafería Palace*, home of the Regional Parliament of the Autonomous Community of Aragon. It is a fortified medieval Islamic palace built during the second half of the 11th century of the *Taifas*, or independent kingdoms, period of Al-Andalus, nowadays Spain. The social dinner on the second day of the Conference was also remarkable, and participants enjoyed local specialties and a nice flamenco performance in a familiar environment. Social events contributed undoubtedly to the relaxed atmosphere of the Conference and facilitated the exchanges and active role of participants.

### **Major outcomes/conclusions in terms of policy relevance**

Much of the discussions focused on questions regarding what Higher Education needs to do to position itself to develop innovative, impactful, relevant, rigorous, accessible, efficient, and quality curricula. Key needs addressed included the following: 1) Better identify local, regional, and global challenges in agriculture and higher education that will help determine the curricular goals and changes necessary to meet future demands; 2) Shift from a focus in agriculture to a focus on the bioeconomy, which encompasses the production of renewable biological resources and the conversion of these resources and waste streams into value added products, such as food, feed, bio-based products and bioenergy. The bioeconomy must be managed with due regard to environmental and social sustainability; 3) Examine competencies for the curriculum. Much emphasis was placed on the balance between breadth and depth of knowledge within disciplines, and on preparing graduates who have better communication skills, are holistic thinkers, and effective problem solvers; and 4) Enhance pedagogical methods toward a more learner-centered education, and promote authentic and social learning. While many participants indicated that their institutions were being successful, others agreed that a score of universities still had to address institutional, environmental, and human resource challenges to be successful in that transition, which called for research regarding the challenges/barriers and possible solutions to improving pedagogical methods.

### **Relevance to CRP theme(s)**

In the next decades, Agriculture has to double food production on less per capita land, with less water and often under limiting and highly variable environmental conditions. However, in developed countries, farmers are aging, and less young people are interested in learning agriculture. This is an alarming issue in the OECD countries, where the agricultural knowledge are advanced, but its transfer via the higher education system is far behind and is not attracting the new generations. This issue raises concerns about communications, and a gap in understanding between the agriculture and the society as a whole. In most developing countries, agriculture has not lost its attraction, but more classical agricultural educations are needed with an emphasis on the advanced techniques. The aim of the conference and the workshop was to exchange the ideas and views on how we can attract the new generation to learn agriculture. What kind of teaching is needed to transfer the latest technologies? What kind of new communications are needed to pursue the societies and the decision makers on the importance of agriculture for our sustainability and for our future? What went wrong in the agricultural higher education which lost its former strength in attracting generations to learn? Etc.

### **Website for further details**

<http://www.iamz.ciheam.org/educagri2015/index.html> Conference presentations are already available in pdf format on the website. Short introductory videos and the whole audio and screen captures of the presentations are currently being edited and uploaded.

The Conference was sponsored by the OECD Co-operative Research Programme: Biological Resource Management for Sustainable Agricultural Systems, whose financial support made it possible for most of the invited speakers to participate in the Conference.