



# Training Needs Assessment Report

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Author(s): Nelly Kostoulas & Vassilios Makrakis University of Crete (UOC)  
& Aravella Zachariou (FU)  
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Project Acronym: **CCSAFS**

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## **Disclaimer**

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## **Executive Summary**

In this WP3 (D3.1), a number of training needs assessment templates have been developed to identify 1) the critical shortages of expertise that the CCSAFS needs should be addressed, 2) the places of working after graduating from the CCSAFS MSc programme, 3) the prospective job titles and 4) professional roles to be performed. This template was delivered to 40 participants in the 1st regional training workshop to elicit their views. After eliciting their views, discussion was followed-up. Through this discussion we have derived useful information that in combination with the respective inputs received from 70 stakeholders participating in the colloquia were used for framing the CCSAFS courses. In this way we assured that these courses reflect real training and societal needs. Particular attention was given to the existing gaps of CCSAFS skills that are perceived necessary in developing the CCSAFS course modules. In the following, we summarise the key results from the above actions.

### **Training needs identified**

1. Knowledge of CC mechanisms, challenges and solutions
2. Ability to make accurate business and market assessments
3. Post-harvest supply chain management
4. Developing and utilizing organic compost
5. Knowledge of livestock nutrition
6. Knowledge of the role of ethics in agricultural production
7. Ability to use ICT in agricultural activities
8. International communication
9. New and sustainable agricultural technologies
10. Data analysis software (GIS)
11. Research and teaching competence
12. Policy and legislation
13. Farm management
14. Water resources management
15. Management of risk and risk assessment
16. Project development and establishment in the field of agricultural production
17. Economics and business in agriculture
18. Link knowledge and practice
19. Focus on theory
20. Lack of expertise in managing tools/instruments that measure environmental change
21. Link to local communities
22. Coordination between university and labor market/stakeholders & NGOs
23. Systemic thinking
24. Environmental impact assessment
25. Re-using crop residuals
26. Data analysis techniques
27. Interdisciplinary thinking

### **Places for potential work for CCSAFS graduates**

- Farms & agricultural production factories
- Local authorities
- NGOs
- Research and Development
- Advisors in international bodies
- World food program, FAO
- Ministry of Agriculture & environment
- Academic and research institutes
- Food industry
- Ministry of finance/economic development
- Ministry of water and irrigation

### **Prospective job titles**

- Environmental officer
- Supply chain manager
- Quality assurance specialist
- Market analyst
- Consultant
- Nutrition officer
- Auditor
- Researcher
- Trainer
- Agricultural engineer

### **Professional roles**

- Raising awareness on CCSAFS
- Researching on CCSAFS
- Starting own company
- Developing CCSAFS business models
- Managing the supply chain
- Reducing post-harvest waste
- Managing the organic waste mix
- Managing the nutrition needs of live-stocks
- Developing networks
- Connecting with international partners & stakeholders
- Monitoring environmentally safe production
- Teaching and research on CCSAFS
- Design strategies on CCSAFS
- Training farmers on sustainable agricultural practices
- Training farmers on modern irrigation systems

## **Ideas of adjusting CCSAFS graduates' competences for the labor market**

This topic focused on identifying the needed competences for CCSAFS graduates. The discussions on this topic focused on the following competences:

- Knowledge of climate change
- Sustainable agriculture
- Skills of using new programs such as GIS and GPRS.
- Ability to apply nanotechnology
- Applying the concept of self-study □ Skills of using computers
- Entrepreneurship
- Research
- Creative thinking
- English language proficiency
- Planning skills
- Organizing skills
- Communication skills
- Quality control
- Management skills
- Marketing and feasibility studies

The demand for scientists with expertise in the agriculture/food sector is likely to increase in the next decade in the countries concerned and globally. There are also skills shortages in areas of expertise such as plant and crop breeding, plant physiology and pest management, large animal physiology and health, soil science, and horticulture. There is also need to bridge the gap between researchers, advisers and farmers. Making climate change-related information more accessible and relevant to the local actors; to improve the information and knowledge sharing between key stakeholders; 'give a voice' to groups and individuals that are often excluded; strengthen local empowerment and the ability to self-organise in response to external climatic disturbances and food insecurity.

## **External stakeholders' perceptions of research needed on CCSAFS**

- Investigation of socio-economic factors affecting food systems and food security due to climate change
- Food systems adaptation and reduce influence of climate change
- Adoption of Agrobiodiversity to adapt to climate change and achieve food security in small scale farmers
- Life cycle and environmental assessment

**Areas of CCSAFS that external stakeholders interviewed think training is needed:**

- Applications on biocontrol
- Post-harvest treatments
- Training courses on effective agricultural extension relevant with agricultural sustainability, conservation and efficient management of environmental resources
- Improve irrigation use efficiency (new irrigation systems, irrigation networks design)
- Application of agricultural machinery (from seed to seed), especially in small scale areas to save labor work.
- Recycling of agricultural wastes in safe way
- Market needs analysis
- Environmental risk management in agriculture and rural development
- Natural resources management (soil and water conservation; reuse of agricultural waste water) and biodiversity conservation (through farmers participatory).
- Planning and implementation of developmental programmes for community affected by climate change.
- Lifecycle/environmental risk assessment
- Documentation of local knowledge relevant with crop cultivation and storage systems, local industries
- Proposal writing on sustainable agriculture

**Ideas of adjusting CCSAFS graduates' competences for the labor market**

- Awareness on different concepts of climate change, SA and FS and interrelation among them (how each affect others)
- Ecosystems and their characteristics
- Know and apply agricultural production factors to achieve FS 4. Able to transfer knowledge and skills to farmers
- Able to deal with different personal patterns
- Know international regulations, agreements and legislations relevant with biodiversity-safety and food security
- Know systems of quality application in agricultural production and food security

- Work in teamwork, groups; skills in marketing, project management and strategic planning
- Use agricultural resources in an efficient way
- Apply strategies to deal with agricultural livestock and fisheries wastes

**Identify what are the existing competences related to CCSAFS and what are the desired competences.**

- Aware of managerial and political procedures in agricultural production sector
- Aware of climate changing reasons and strategies of adaptation
- Use agricultural resources in efficient way
- Ambitious and interest in developing his/her own knowledge and skills
- Know the interrelationships among climate change factors, sustainable agriculture and impact on food safety and security
- Knowledge on different agricultural disciplines and ecosystems
- Obstacles of food security achievement

**Necessary changes in current agricultural education curricula**

- Integrating curricula linked to sustainable development in different field and concentrate on sustainability in agriculture, livestock and fisheries.
- Integrating curricula on modeling, data analyses software, GIS as tools to for decision making and monitoring climate changing, prediction, EIA, disaster management.
- Curricula should be designed to cover general concepts on climate elements, ecosystems, CC effects on ecosystems; local, regional and international impacts (as current curricula are not dealing with these topics).
- International laws, legislations, reports and protocols dealing with climate monitoring, mitigation and adaptation policies.
- Integrating curricula on socio-economic dimensions of climate change on small communities and adaptation strategies.
- European practices relevant with climate mitigation and concentrate on SA and its role in food availability and accessibility.
- Curricula on biotechnology application in crop improvement and its association with environmental stresses
- Curricula on biosafety in agriculture and food

**Mechanisms for improving the linkage between agricultural education and the labor market**

- Establish a cooperation protocols between university and employment sectors (companies, ministries, authorities, NGO) to perform training sessions for students during academic study
- Placement of students for practical training in companies relevant with cultivating, production and marketing of agriculture commodities, livestock and fisheries.
- Organize regular meetings gathering employment and academic sectors to discuss the updated graduate competences to satisfy market needs
- Regular meeting gathering alumni, agricultural experts and academics

- Incorporate experts from civil society (governmental, private sectors and NGO's) –during the phase of academic program/curriculum design to monitor the quality of the content.

## **Career Opportunities**

Students who are going to follow the CCSAFS MSc. program are expected to have employment opportunities in a wide variety of settings. More specifically, they can go on to work in government and non-governmental agencies, local/national businesses in the field of agricultural and food production, research institutes as well as international bodies and businesses where they can apply the invaluable knowledge, skills, values and action competences they have acquired on the programme.

The MSc in Climate Change, Agriculture and Food Security (CCAFS) is expected to provide prospective students with the skills and tools for developing agricultural practices, policies and measures to address the challenge that global warming poses for agriculture and food security, primarily locally and regionally, but also worldwide. This unique MSc offers students the scope and multidisciplinary approach to address all of these issues. In particular, students studying the CCSAFS Master programme will:

- Examine the environmental, economic, social and cultural perspectives of sustainable farming in the context of climate change and food security.
- Gain an understanding of the technical, agronomic, environmental, economic and socio-political factors that influence food security.
- Study how selected management practices can improve the resource-efficiency and overall sustainability of food production.
- Gain a local, regional and global perspective to question whether and how growing demand for food from limited land resources can be met through sustainable agricultural practices.
- Apply new technologies and methods in the analysis of complex climate change, sustainable agriculture and food security problems.
- Formulate a research problem and independently carry out the research needed to produce an appropriate solution in the field of climate change, sustainable agriculture and food security.

## **Conclusion**

It was clear that participants are satisfied with their invitation to give their voice and contribution in designing academic programs. Some of them mentioned that, “this is the first time to receive invitation from academic institutions to discuss and consider our opinion in the design of its academic programs”. They also stressed on the master in CCSAFS credibility for agricultural colleges graduates, as it is known that these colleges receives less attention from the government compared with others. They also revealed eagerness to participate in the selection of curriculum and program evaluation as a whole.