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SCIENTIFIC MASTER IN SUSTAINABLE FOOD PRODUCTION SYSTEMS/STEPS

STEPS PROJECT BOOKLET
DISSEMINATION/EXPLOITATION

JANUARY 2023

STEPS PROJECT BOOKLET

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Position

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LIST OF ABBREVIATION

AUA	Agricultural University of Athens
AUT	Agricultural University of Albania
CULS	Czech University of Life Science
EACEA	Education Audiovisual and Culture Executive Agency
EU	European Union
EUT	European University of Tirana
D.	Deliverables
HEIs	High Education Institutions
MESCS USK	Ministry of education, science, culture and sport of Una-Sana Canton
ReadLab	Research Innovation and Development Lab Private Company
UC	Universum College
UNBI	University of Bihac
UNSA	University of Sarajevo
USAMVB	University of Agronomic Sciences and Veterinary Medicine in Bucharest
WB	Western Balkans
WP	Work Packing

EXECUTIVE SUMMARY

In the document "STEPS Proceeding Book" are underlined the main outcome during the implementation of STEPS Project.

The first chapters (Chapter 1 and Chapter 2) of the Proceeding Book give to the readers a general overview of STEPS project:

1.STEPS project goals
2. Main motivation that has driven the consortium to develop and implement STEPS project
3. Organization structure of STEPS project
4. Partners of STEPS project
5. Associated partners

In Chapter 3 is described the work package of STEPS project along with the main deliverable and outcomes. A detailed description of the ten work packages, their deliverables and main outcome are depicted in Chapter 4 of the document.

Organization of open lecture/ training needs for academic staff HEIs of WB where the STEPS master program is implemented was one of the crucial activities organized in frame of STEPS project. A catalogue of open lecture from academic staff of HEIs of EU is reflected in Chapter 5.

An integral part of the STEPS Proceeding Book are the articles published in scientific journals as well as the participation of STEPS project in scientific conferences.

Part of this document is an Agreement Document for a further cooperation between all the STEPS project partner on the field of education, science and technical too to achieve the sustainability of the main outcome, implementation of a Master of Science in "Sustainable Food Production System" in western Balkans.

GENERAL INFORMATION ON STEPS PROJECT

Project tittle: **Scientific Master in Sustainable Food Production Systems**

Acronym: **STEPS**

Duration: **January 2019- January 2023**

Scope: **International**

Programme: **Erasmus +**

Sub-Programme: **Cooperation for innovation and the exchange of good practices**

Action: **Capacity Building in the field of Higher Education**

SUMMARY

The main goal of STEPS project goal is to implement a Scientific Master in "Sustainable Food Production Systems" in HEIs of Western Balkans Countries (Albania, Kosovo, and Bosnia & Herzegovina). The programme will offer knowledge of engineering and management topics that affect the transition to such systems as well as of the technological achievements that support this transition. The consortium is a balanced partnership, capable of designing, developing, and delivering a blend of courses addressing food production systems from technical, economic, social, and political perspectives. It has established a large network with stakeholders that ensures the relevance of the STEPS programme and has a strong willingness to lead the social and economic development of Western Balkans.

The consortium covers an important region of the Western Balkans region. AUT (P1) has significant experience in agro-food technology and quality control. AUT is the Coordinator (WP10) and will lead Dissemination/Exploitation tasks (WP9). Based on its experience and its great network with stakeholders, UET will lead the needs analysis of stakeholders (WP1). UET (P2) will bring into the consortium significant experience in sustainable management, agricultural and rural development policies and strategies and business development. UHZ (P3) and UC (P4) will offer experience in food production, quality control, business management and entrepreneurship. They intend to build leadership in order to face the challenges by the economy and society in Kosovo. UHZ will lead the tasks related to the professional development of scientific staff (WP3). UNBI (P5) will offer experience in the strategic management of higher education institutions and curricula modernization. It will lead tasks focusing on infrastructures development and also, the delivery of the programme (WP7). UNSA (P6) will bring experience in agribusiness management and quality systems, in relation to rural development policies. UNSA will lead the development of the STEPS courses.

Most European partners are close neighbors while a key partner from central Europe will bring significant experience on linking rural development and food production systems with educational strategies and programmes. The EU institutions are complementary to each other. CULS (P8) will bring knowledge on collective marketing initiatives, socio-economic issues of organic farming, social innovation in relation to food systems in rural areas, and pathways towards sustainability in agriculture. Based on great experience in the development of relevant programmes and strong scientific background in organics practices, food technology and quality and safety, USAMVB (P9) will lead the design of the STEPS programme (WP2).

AUA (P10) will bring into the consortium significant knowledge of supply chain management and "green" logistics. ReadLab (P11) will provide the consortium with knowledge on industrial ecology and small-scale post-harvest practices; it will also contribute to the design and the development of educational methodologies and will lead the tasks focusing on the evaluation of the project (WP8).
The impact of the project is going to be threefold:

1. Improvement of the quality of education offered by HEIs. This will be as a result of open lectures, laboratories demonstration, exchange experience in teaching & learning activities between partners of STEP project, related mainly with ICT –based methodologies and student-centered approaches.

2. Improvement of the quality of collaboration between HEIs and stakeholders (companies & industries that perform in food sector, national organizations and governments body making decision related with food sector etc.). Enforcement of existing communication channels with stakeholders and development of new ones will increase their role and involvement not only in designing the MSc program during and after the lifetime of STEPS project.

3. Launching in labour market engineers and food chain managers motivated and well prepared for the needs underline in foods sector in Balkan regions.

DESCRIPTION

The main goal of the project is the implementation of a modern MSc programme on "Sustainable food production systems", compliant to the Bologna Convention. Food cultures and sociology, agriculture and rural development, food engineering, quality and safety, environmental footprints, economics, management, and governance will be combined in a flexible and modular educational programme, designed and developed in the light of the European initiative for the transition to circular economy.
The MSc Programme will address interdisciplinary and interdependent topics, related to a cost effective, environmentally friendly and socially accepted food production of high quality. More important the master program is designed in accordance with the recommendation and the needs of the target groups and stakeholders needs that were underline during the preparatory activities of the project.
The master courses are structured under two main pillars:
(i) Food engineering, quality, and safety,
(ii) Food production systems management.
The main focus of the first group (food engineering, quality, and safety) will be in: advance food science and technologies, innovation harvest and post-harvest practices, food quality and safety and energy design of processes and emission control. The main focus of the second group (food production systems management) will be in: agri-food marketing, industrial ecology and circular economy in agriculture, sustainable supply chain management, innovation in sustainable food systems.
The most important outcome of the project will be the production of skilled workforce, able to face the challenges of food production systems. According to their specialization, graduates will be able to work in the industry as engineers or managers but also, to innovate and start new businesses in rural regions.
Another important objective of STEPS project is to provide a paradigm shift among all involved, i.e. the higher education institutions hierarchy, the faculty staff and the students and raise the awareness of stakeholders activated in food production systems, i.e. industry, small and medium enterprises, non-governmental organizations, ministries of education, agricultural and rural development, NGO's, and decision making bodies

at national/regional level. Particular efforts will be devoted to the active involvement of stakeholders in the design of the programme and the evaluation, based on its quality, relevance, efficiency and effectiveness.
A comprehensive methodology was developed in order to design a scientific master's curriculum that would reflect the demands of the agri-food sector in the Western Balkans in connection to sustainable food production, rather than just improving existing programs. The whole methodology proposed by the STEPS project is organized in 10 work packages. The following are the main steps in the methodology:

1. Assessment and analyses of stakeholders needs in Western Balkans

Several research instruments have been employed in order to identify the competencies and skills needed by agri-food sector in Western Balkans (Albania, Kosovo, and Bosnia Herzegovina) in frame of sustainable food production systems, such as in-depth interviews, online surveys and focus groups. These research instruments allowed us to perform a deep analysis of the Food Chain Sector (from farm to table) in Western Balkans, where the main actors were the stakeholders and target groups: Students, academic staff, scientific staff, technical staff, certification bodies in food systems, trainee in food system development program, suppliers, farmers, food processing industries, government agency, NGO etc. (STEPS report, 2019).

2. Survey on best practice of master programmes in sustainable production systems in Europe, North America etc.

Trace and investigation of at least twenty (20) scientific masters in the subject of sustainable production that have been implemented in various European Union, America, and international countries. The organization/structure of the scientific master program, its influence on the agri-food sector and society, as well as the mechanisms utilized to maintain constant communication with stakeholders and the labor market, were all examined (STEPS report, 2019)

3. Defining mechanisms for a continuing communication and collaboration between stakeholders and HEIs.

Data collection of stakeholders that perform in agricultural food sector in Albania, Kosovo, and Bosnia and Herzegovina, along with developing and improving communication channel between HEIs and stakeholders throughout and after STEPS master implementation and their involvement in designing and updating in the future the master program are well define.

4. Design a harmonized STEPS curricula and courses in sustainable food production systems within Western Balkans countries.

The master curricula and courses are design and adapted with the results obtained from analyses of stakeholders needs in Albania, Kosovo and Bosnia and Herzegovina and moreover from the analyses of the best practice of homologue master programs in sustainable food production systems implemented in European Union countries, in America etc.

5. Design a harmonized STEPS master programs syllabus in sustainable food production systems within Western Balkans countries.

Designing and developing a harmonized courses syllabus is a result of a close collaboration between academic staff of HEIs of Western Balkans and academic staff of HEIs of EU partners. The harmonized syllabus among others includes:

•Basic information about the course, such as course title and code, prerequisites, semester and ECTS units
•Professor/teaching assistances contact information
•Description of course purpose and link with specific processes, problems, and challenges
•Course learning objectives and learning outcomes for each of the sections of the course and skills that are expected to be developed by students
•Schedule and course calendar including the details of the educational content that will be presented, activities that will be carried out, individual and/or team projects to be conducted
•Scheduled laboratory experiments and software simulations
•Additional learning resources and literature
•Evaluation and grading criteria for assignments, projects and laboratory reports and the percentage of the various grades to the final grading of students etc.

6. Assessment of academic staff of HEIs of Western Balkans needs in terms of scientific background improvement.

Mechanisms choose to fulfilled academic staff of HEIs needs in terms of scientific background improvement in the frame of sustainable food production systems are open lectures, seminars, and workshops. Despite invited lecturers, academic staff of HEIs of EU countries involved in project will play a crucial role.

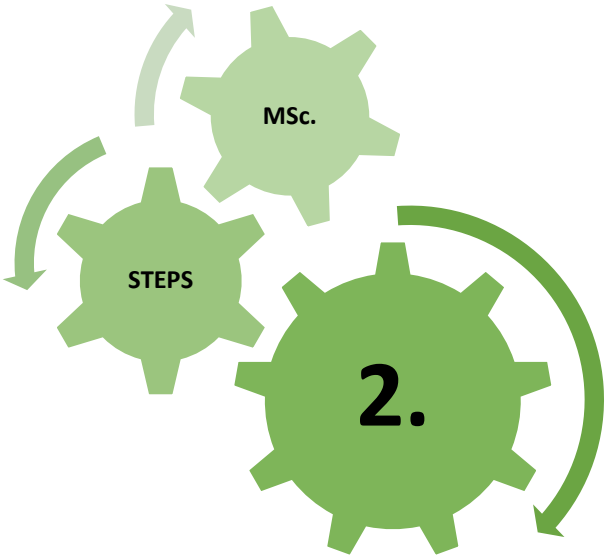
In a long term, the project aims to contribute to the modernization and improvement of the quality and relevance of the education in Western Balkans countries in order to meet labour market's needs and society's expectations. It also aims to the building of capacities that will support the development of efficient teaching/learning approaches and the research capacity of HEIs in Western Balkans region.

7. Continues dissemination/exploitation of STEPS project outputs/activities and a continues collaboration/involvement with stakeholders.

Two main routes are chosen for the dissemination of STEPS project output/activities:

- Online platform. STEPS webpage (www.steps-project.eu), Facebook, Instagram etc.
- Face to face meeting. Organization of workshops, round tables, interviews, study visits ect.

In a long term, the project aims to contribute to the modernization and improvement of the quality and relevance of the education in Western Balkans countries in order to meet labour market's needs and society's expectations. It also aims to the building of capacities that will support the development of efficient teaching/learning approaches and the research capacity of HEIs in Western Balkans region



PROJECT PARTNERS AND MANAGEMENT STRUCTURE OF STEPS PROJECT

2.1 STEPS Project Team

In STEPS project are involved 11 partners, 3 (three) EU institution/universities (CULS, USMVB, and AUA) and a private laboratory (ReadLab) and 6 (six) HEIs from partner countries. HEIs from WB are: 2 (two) HEI from Albania (AUT and EUT), 2 (two) HEIs Universities from Kosovo (UHZ and UC), 2 (two) HEIs universities (UNSA and UNBI) and also a cantonal administrative body from Bosnia and Herzegovina (MESCS USK).

PARTNERS

1. Agricultural University of Tirana AUT- Partner 1

STEPS project Coordinator
https://ubt.edu.al/sq/

Agricultural University of Tirana (AUT) is the largest center of studies in agriculture and food in Albania. AUT offers 74 study programs as follows: 21 first cycle study programs (Bachelor), 38 second cycle programs (18 Masters of Science and 20 Professional Masters), 3 professional programs and 12 programs in the third cycle (Doctorate). All the study programs mention above are structured according to the Bologna Convention and the Law for Higher Education and Scientific Research in Higher Education Institutions in The Republic of Albanian no. 80/2015. AUT study programs are a real reflection of the history of this institution, labor market demands, challenges, and dynamism of the socio-economic development of the country as well as the fruit of permanent cooperation and experiences of best practices in universities across the globe.

2. European University of Tirana EUT- Partner 2

https://uet.edu.al

European University of Tirana (EUT) is a leading university and research center in Albania, established in full compliance with the criteria of the Bologna Convention. The mission of EUT is to provide students with a qualitative education, incorporating the results of valuable scientific research, enhancing the knowledge of Albanian society through teaching, creativity, using the best scientific achievements, in partnership with the labor market and international partners. UET offers high quality education in a variety of scientific topics, including economy, finance, business, social sciences, political sciences, communication, and information technology etc. UET has been involved in projects funded by the European Commission, including Jean Monnet Chair, Tempus, Erasmus Mundus, Science and Technology (COST), Erasmus Credit Mobility and Capacity Building for Higher Education Institutions.

3. University of "Haxhi Zeka" UHZ- Partner 3

https://unhz.eu

University of "Haxhi Zeka" in Peja (UHZ) is a successor of the Faculty of Business and Applied Sciences in Peja that was established in 1960. UHZ has cooperation with numerous organizations and programs offered by international organizations such as TEMPUS and KFOR. UHZ was recently reformed according to the Bologna Declaration model. There are five faculties at the UHZ: Business, Law, Management in Tourism, Hospitality and Environment, Agri-Business and Arts. Around 10,000 students are enrolled. UHZ is established as a higher education institution for research and science, which is eligible to offer first, second and third cycle study programs. Its mission is to contribute to the continuous development and capacity building through preparation of qualified individuals in various fields. Moreover, the UHZ mission is to prepare students for the job market by equipping them with the necessary skills and competences.

4. Universum College UC-Partner 4

https://www.universum-ks.org

Universum College (UC) is a center for scholarship, research, and creative activity involving the creation, testing, and dissemination of knowledge, understanding, expressions, and techniques. UC aims to provide education and training to enable individuals to realize their full potential. UC is among the richest education institutions in terms of international partners and collaborations; within its international network there are prominent partners such as London School of Economics, Chichester College, Tallin University of Technology, Middlesex University, European University of Tirana, Kadir Has Universitesi, Middle East Technical University, and many more.

5. University of Bihać UNBI-Partner 5

https://unbi.ba

University of Bihać (UNBI) has 7 member units (6 Faculties, 1 College) and a wide network of institutes and laboratories. Currently 4000 students are enrolled. Education is offered through 33 first cycle and 7 second cycle study programs. The Biotechnical Faculty consists of four Departments: Agriculture, Forestry, Food-processing technology and Environment protection. The Faculty has in its disposal 1000 m^2 of work space and 60.000 m^2 of agricultural experimental stations, botanical garden, experimental constructed wetlands and laboratories. In addition, it is equipped with laboratories for scientific research and laboratory for wastewater and soil analysis, which is used by the industry. Biotechnical Faculty has many years of experience in the development of study programs according to Bologna requirements

6. University of Sarajevo UNSA-Partner 6

https://www.unsa.ba

University of Sarajevo (UNSA) is the largest university in Bosnia and Herzegovina. The organization and activities of the University of Sarajevo, as a public higher education institution in the Sarajevo Canton, are prescribed by the Framework Law on Higher Education of Bosnia and Herzegovina, the Law on Higher Education in the Sarajevo Canton and the University's Statute. The University of Sarajevo is comprised of twenty-five Faculties, three Academies and five research Institutes with the status of full members, internally organized within six Science/Arts Groups from the fields of Humanities, Medical sciences, Natural science, mathematical and bio-technical sciences, technical sciences and Arts. UNSA has been involved numerous projects, including Tempus (103), FP7 (38), Erasmus Mundus (19), CEEPUS, Mevlana, Fulbright, DAAD, and others.

7. Ministry of Education, Science, Culture and Sport of Una-Sana Canton, MONCS USK-Partner 7

http://vladausk.ba

Ministry of Education, Science, Culture and Sport of Una-Sana Canton (MONSC USK) is cantonal administrative body, part of Cantonal government, which is constitutionally responsible for education activities in the area of the Canton. Ministry is responsible for the operation of 49 elementary schools and 23 high schools and higher education institutions enrolling about 4000 students. Considering in particular HEIs, the Ministry of Education is responsible for the accreditation and funding of study programs at public universities, and the update of the Qualifications Framework of new professional diplomas and titles.

8. Czech University of Life Sciences Prague CULS-Partner 8

https://www.czu.cz

The Czech University of Agriculture in Prague (CULS) is a public university (according to Act 111/1998 Coll., On universities). CULS is one of the leading educational and research centers of agriculture, forestry, environment, economics and management, informatics, rural and regional development in the Czech Republic. It consists of six faculties, i.e. Agrobiology, Food & Natural Resources, Economics & Management, Engineering, Environmental Sciences, Forestry & Wood Sciences, Tropical Agro-sciences) and the Institute of Education & Communication. CULS offers bachelor, master and doctoral education for more than 20,000 students (about 3,000 from more than 100 countries). Research activities of the university focus on scientific areas related to bioeconomy, based on three pillars: healthy lifestyles (food safety, sustainability, and cultural landscape), healthy nutrition (food and food production) and quality of life (nature, green technologies and rural development). CULS has a large network of partners in national, EU and international projects.

9. University of Agronomic Sciences and Veterinary Medicine in Bucharest USAMVB-Partner 9

https://www.usamv.ro

The University of Agronomic Sciences and Veterinary Medicine in Bucharest (USAMV) is an accredited higher education and research institution, with legal personality, which is part of the network of higher education institutions of public interest, having a non-profit and apolitical character. The mission of USAMV is to train through education and scientific research specialists with a high degree of qualification and skills corresponding to the requirements of the labor market in the fundamental fields: "engineering sciences" and "biological and biomedical sciences". The fields of study covered by USAMV are: Agronomy, Biology, Forestry, Horticulture, Engineering and Management of Animal Production, Veterinary Medicine, Food Engineering, Civil Engineering, Environmental Engineering, Geodetic Engineering, Biotechnology, Applied Engineering Sciences, Engineering and Management, Engineering and management in agriculture and rural development. USAMVB has established a strong network of stakeholders (industry and SMEs) in the Balkan region, and it is involved in a large number of scientific and educational projects.

10.Agricultural University of Athens AUA-Partner 10

ΓΕΩΠΟΝΙΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ
AGRICULTURAL UNIVERSITY OF ATHENS

https://aua.gr

Agricultural University of Athens (AUA) is the third oldest university in Greece, and it was established by Law in 1920 (Law 1844/1920) as an Independent Higher Education Institute with university status and it is organized into seven independent academic School/departments. The Agricultural University of Athens (AUA) offers high-level undergraduate and postgraduate Education and Research in Agricultural Science, and its vision is to achieve Educational and Research Excellence so as to occupy a dynamic position in the international academic environment.

11. Research Innovation and Development Lab Private Company ReadLab- Partner 11

http://read-lab.eu

Research Innovation and Development Lab Private Company (ReadLab. P.C) is a R&D company which aims to generate positive social and sustainable impact through innovation. It brings together a multidisciplinary team of highly specialized researchers from the fields of engineering, communication technologies, education, and social and political sciences with a long experience in project management and implementation of national, EU-funded, and international projects. Team members have cooperated with a wide range of private, public, and non-profit organizations in Europe, Middle East and Latin America and the Western Balkans, transferring technical knowledge and designing novel products.

ASSOCIATED PARTNERS

1. Ministry of Agriculture and Rural Development, Tirana Albania.

https://bujqesia.gov.al/

2. Ministry of Education, Sports and Youth, Tirana Albania.

https://www.acce.al/en/ministry-education-sport-and-youth

3. Albanian Agribusiness, Tirana Albania.

https://www.prodhuesit.org

4. Ministry of Agriculture Forestry and Rural Development, Pristina, Kosovo

https://www.mbpzhr-ks.net/en/home

5. Ministry of Education, Science and Technology, Pristina Kosovo.

https://masht.rks-gov.net/en/home/

6. Initiative for Agriculture Development in Kosovo, Organization in Mitrovica, Kosovo.

https://initiativeforagriculturaldevelopmentofkosovo.business.site/

7. Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina, Sector for Agriculture, Food, Forestry and Rural Development, Sarajevo, Bosnia and Herzegovina.

http://www.mvteo.gov.ba/?lang=en

8. **Federal Ministry of Education and Science**. Sarajevo, Bosnia and Herzegovina

http://www.fbihvlada.gov.ba

9. Center for Ecology and Energy, Tuzla , NGO, Tuzla, Bosnia and Herzegovina.

https://www.devex.com/

10. **IFOAM AgriBio Mediterranen,**

https://www.ifoam.bio/

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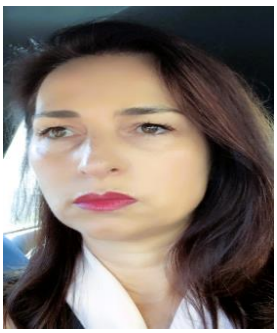

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Key responsibilities include inter-university cooperation and communication with external stakeholders, preparation of international agreements, contribution to project design, advisory and administrative assistance in projects and preparation of documentation for audit and evaluation of tasks/activities.

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2.2 MANAGEMENT STRUCTURE OF STEPS PROJECT

STEPS Project Coordinator is **Prof. Dr Renata Kongoli**, who manages the project on a day-to-day basis; she has the official contact with EACEA, responsible for overall project management (technical and operational), communication and reporting to EACEA, the efficient use of the project grant, etc.

The management structure of the STEPS is designed to ensure effectiveness, flexibility and quality of work and to fit the specific requirements of the Erasmus+ program for successful realization of planned project activities. The project management structure was established and officially adopted at the Kick-off meeting. It involves:

- Legal representative of coordinating institution,
- Project Coordinator,
- Steering Committee,
- Internal Quality Assurance Team,
- External Quality Assurance Team,
- Project Management Team,
- Partner County Team,
- Work Package Leaders,
- Task Leaders.

Organizational scheme of management structure indicating relations between management bodies is shown in the Figure 1.

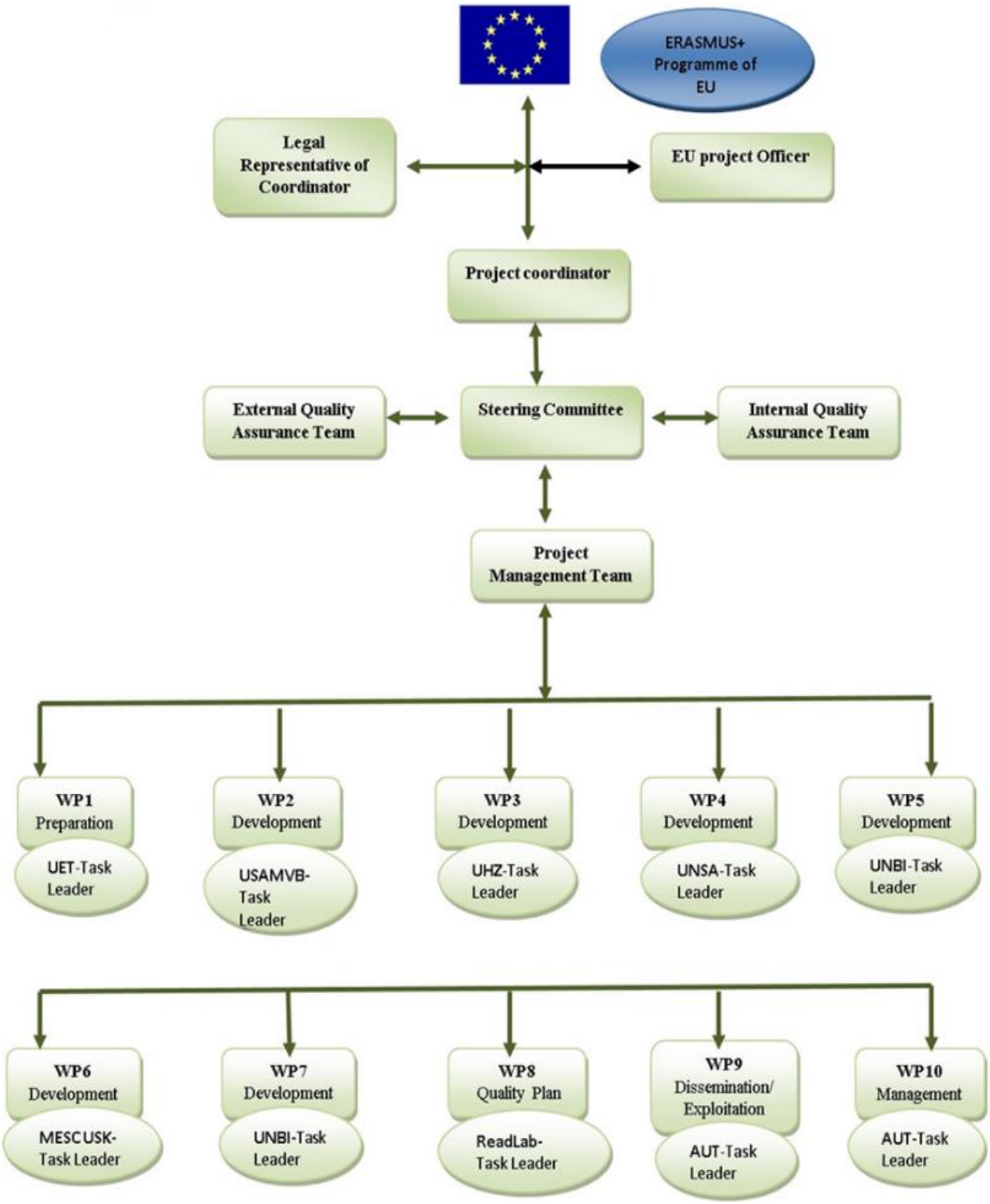
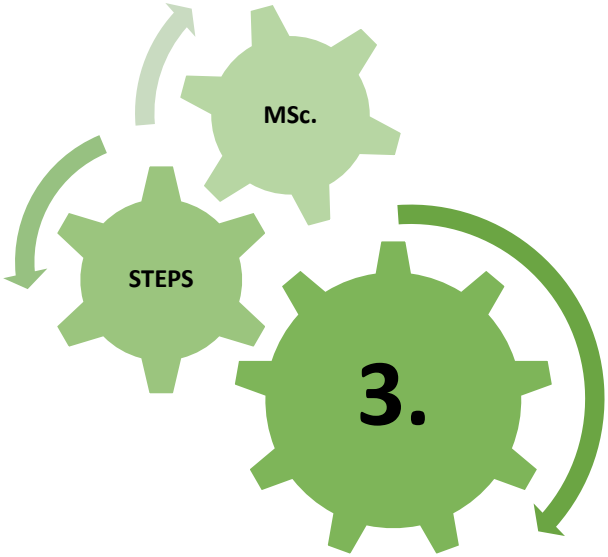


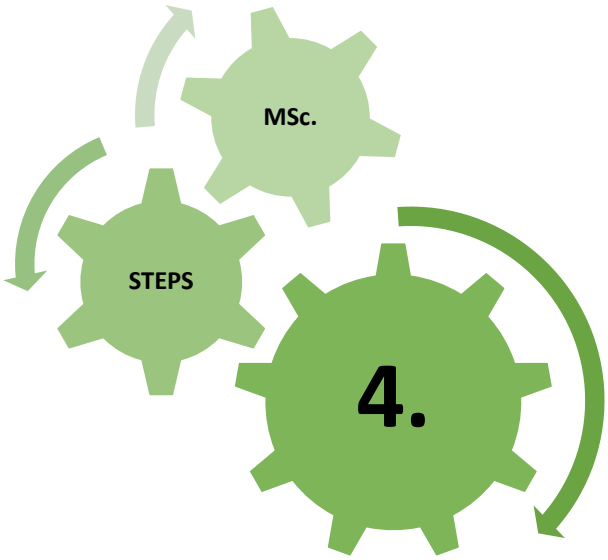
Figure 1. Organizational scheme of the STEPS project



WORKPACKAGE AND ACTIVITIES

WORKPACKAGE AND ACTIVITIES

WP. 1 PREPARATION
• T1.1 Assessment and analysis of stakeholders needs
• T1.2 Research on STEPS relevant programmes
• T1.3 Review and analysis of best practices
• T1.4 Development of mechanisms for continuous stakeholders input
WP. 2 DEVELOPMENT, STEPS structure and courses design
• T2.1 Design of STEPS structure
• T2.2 Selection of faculty staff and organization of working groups
• T2.3 Organization of study visit
• T2.4 Design of STEPS courses
WP. 3 DEVELOPMENT, Professional development of scientific staff
• T3.1 Assessment of training needs
• T3.2 Organisation of seminars and lectures
• T3.3 Continuous support and improvement of scientific background and teaching capacity of scientific staff
WP. 4 DEVELOPMENT, STEPS development
• T4.1 Development of LMS platform
• T4.2 Development and harmonization of STEPS courses
• T4.3 Conversion and digitization of educational material
WP. 5 DEVELOPMENT, Development of infrastructures
• T5.1 Development of teaching/learning environment
• T5.2 Development of research labs
• T5.3 Development of experiments/simulations and training material
WP. 6 DEVELOPMENT, STEPS application for official accreditation
• T6.1 Preparation of the application of STEPS programme for accreditation
WP. 7 DEVELOPMENT, STEPS programme delivery
• T7.1 Development of STEPS programme plan
• T7.2 STEPS programme delivery
WP. 8 QUALITY PLAN, Quality plan and evaluation of project progress
• T8.1 Organization of internal and external quality teams and development of the quality plan
• T8.2 Quality monitoring and evaluation
• T8.3 External evaluation
WP. 9 Dissemination / Exploitation
• T9.1 Development of dissemination/exploitation strategy
• T9.2 Web site development
• T9.3 Development of social media profiles and dissemination material
• T9.4 Organisation of workshops
• T9.5 Organisation of laboratory demonstrations
• T9.6 Career offices development/enhancement
WP. 10 MANAGEMENT, Project management and coordination
• T10.1Establishment of management team and working groups
• T10.2Development of internal communication platform
• T10.3Coordination and management
• **T10.4Organization of project meetings**



DESCRIPTION OF WORK PACKAGES, ACTIVITIES, MAIN DELIVERABLES

Work package 1. PREPARATION
Title: Connection of the MSc programme with the world of work, the social and the economic environment
Work Package Leader: European University of Tirana

WP1 has served as the key driver of the project. The main aim is to provide the background and support in designing of the STEPS programme in order to meet labor market and society's needs and expectations. The main objectives were:

- Explore partner countries' needs in terms of skilled engineers and managers, which will support every aspect of the transition towards sustainable food production systems
- Identify and analyze relevant MSc programmes at national, regional, European and international level that focus on the sustainability aspects of food production systems and address similar needs in similar social and economic environments
- Provide best practices by highlighting the role of the education in the sustainable development of food production systems and by seeking to reflect the interconnections between management of physical resources, food production and processing methods, technological advancements, rural development and political reforms on the design of the STEPS programme.
- Establish mechanisms in order to contact systematically stakeholders, be informed about intensions, specific priorities and plans prioritized, policies that need to be implemented in the near future etc. This will help the STEPS programme to be strongly linked and be adapted with its external environment.

For a better implementation and to get concrete results the WP1 is organized in four deliverables:

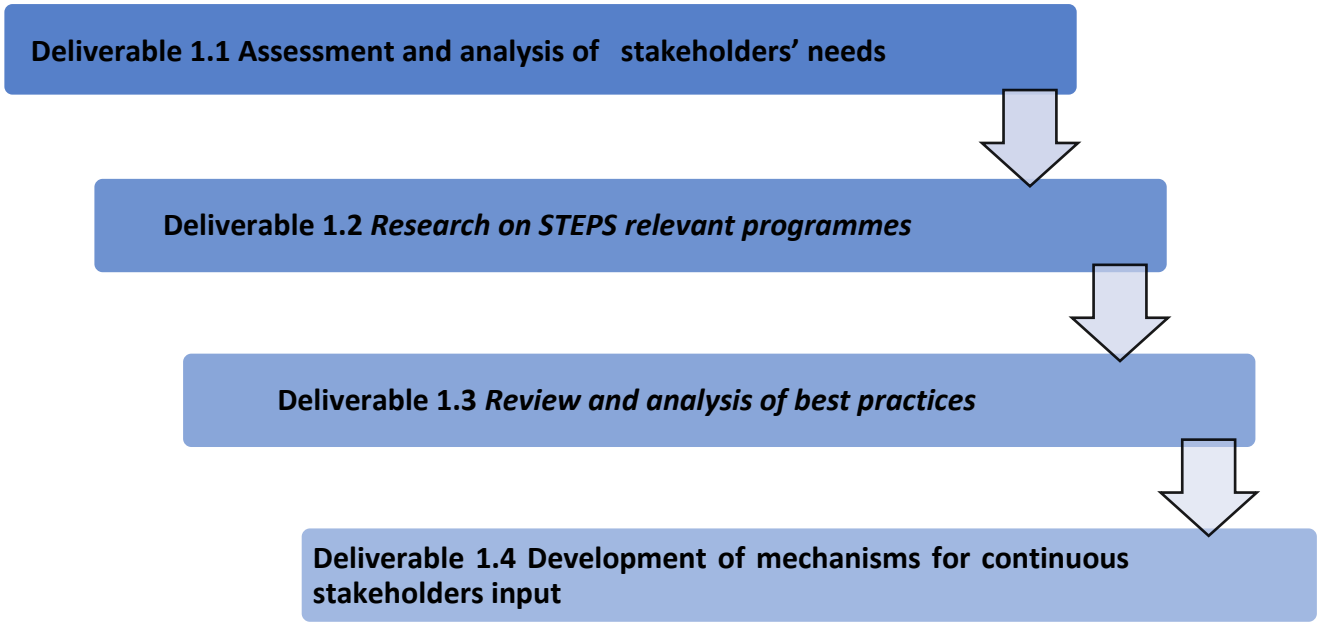


Figure 2: Organization chart of work package 1 "Connection of the MSc programme with the world of work, the social and the economic environment"

Deliverable 1.1 Assessment and analysis of the stakeholders' needs

The main aim of D1.1 is the assessment of the stakeholders needs that perform in agrifood sector in WB toward sustainability. Several research instruments were used to involve the stakeholders and define their needs, constrains, gaps in frame of sustainability of food chain as listed below:

- In-depth interview
- Roundtables
- Questionnaire

The main output of this deliverable is a REPORT. Available at:
http://steps-project.eu/wp-content/uploads/2020/04/WP1-D-1.1-Assessment-and-analysis-report-on-stakeholders%E2%80%99-needs.pdf

Deliverable 1.2 *Research on STEPS relevant programmes*

The main aim of D1.2 is the monitoring of relevant MSc programmes and an in-depth analysis on how can be adapt to technological advancements, labor market needs, social and economic environments and political reforms. Survey MSc programmes related to food production systems in partner countries, the EU and at international level, and analyze if and how they may adapt to technological advancements, modern management approaches and national/regional policies in the Western Balkans region.

The main output of this deliverable is the compile of a REPORT. Available at:
http://steps-project.eu/wp-content/uploads/2020/04/WP1-D-1.2-Survey-of-STEPS-relevant-programmes.pdf

Deliverable 1.3 *Review and analysis of best practices*

The main aim of this deliverable is the analyze of "best practices" of MSc programmes. About 20 "best practices" will be analysed in detail in a report (D1.3). An in-depth understanding of the factors affecting the design the STEPS programmes will be addressed. The report will be a critical input for the design of the STEPS programme (task 2.1). Partners will provide best practices based on the regions they explored during the implementation of tasks 1.1 and 1.2.

The main output of D1.3 is the compile of a REPORT. Available at:
http://steps-project.eu/wp-content/uploads/2020/04/WP1-D-1.3-Review-and-Analyses-of-Best-Practices.pdf

Deliverable 1.4 Development of mechanisms for continuous stakeholder's input

Contact information of stakeholders will be presented in detail, in order to be used for delivering questionnaires, in organized meetings, roundtables, workshops etc. and offer them the opportunity to be engaged with project activities. The mechanisms of regular communication and collaboration between STEPS partners and stakeholders will be presented in the report.

The report is available at:

http://steps-project.eu/wp-content/uploads/2020/04/WP1-D-1.4-Development-of-mechanisms-for-continuous-stakeholders-input.pdf

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Deliverable 1.1. Assessment and analysis of stakeholders' needs

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP1 Connection of the MSc programme with the world of work, the social and the economic environment
WP Leader:	UET
Task:	1.1 Assessment and analysis of stakeholders' needs
Task Leader:	UET
Last Version date:	06.11.2019
Author(s):	Kebjana Haka Elena Kokthi
Status:	Final
Dissemination Level:	International

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Deliverable 1.2: Survey of STEPS relevant programmes

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP1 Connection of the MSc programme with the world of work, the social and the economic environment
WP Leader:	UET
Task:	1.2 Research on STEPS relevant programmes
Task Leader:	UET
Last Version date:	06.11.2019
Author(s):	Kebjana Haka
Status:	Final
Dissemination Level:	Department/ Faculty, Institution

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Deliverable 1.3 Review and analysis of best practices

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP1 Connection of the MSc programme with the world of work, the social and the economic environment
WP Leader:	UET
Task:	1.3 Review and analysis of best practices
Task Leader:	UET
Last Version date:	06.11.2019
Author(s):	Kebjana Haka
Status:	Final
Dissemination Level:	International

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Deliverable 1.4 Development of mechanisms for continuous stakeholder's input

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP1 Connection of the MSc programme with the world of work, the social and the economic environment
WP Leader:	UET
Task:	1.4 Development of mechanisms for continuous stakeholder's input
Task Leader:	UET
Last Version date:	15.09.2019
Author(s):	Kebjana Haka Fatri Morina
Status:	Final
Dissemination Level:	Department/Faculty/Institution

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Figure 3: Reports delivered during the implementation of WP 1.

Work package 2: Development
Title: STEPS structure and courses design
Work package leader: University of Agronomic Sciences and Veterinary Medicine in Bucharest

The main aim of WP2 is to design a modernised educational programme, which will produce workforce armed to support the transition towards sustainable food production systems, by applying engineering advances, management approaches, policies and reformations at all levels.
The programme is aligned with the European vision for green, circular economy and the national strategies of Western Balkans countries, as related to agriculture restructure, business diversification and rural development. The MSc programme is adapted to the best practices (D1.3) and designed according to the needs analysis of target groups (D1.1). The MSc programme will be designed according to the Bologna convention; it will be structured based on ECTS credits. It will be organised into four semesters and account for a total of 120 ECTS credits.

For a better implementation and get concrete results the WP2 is organized in four deliverables:

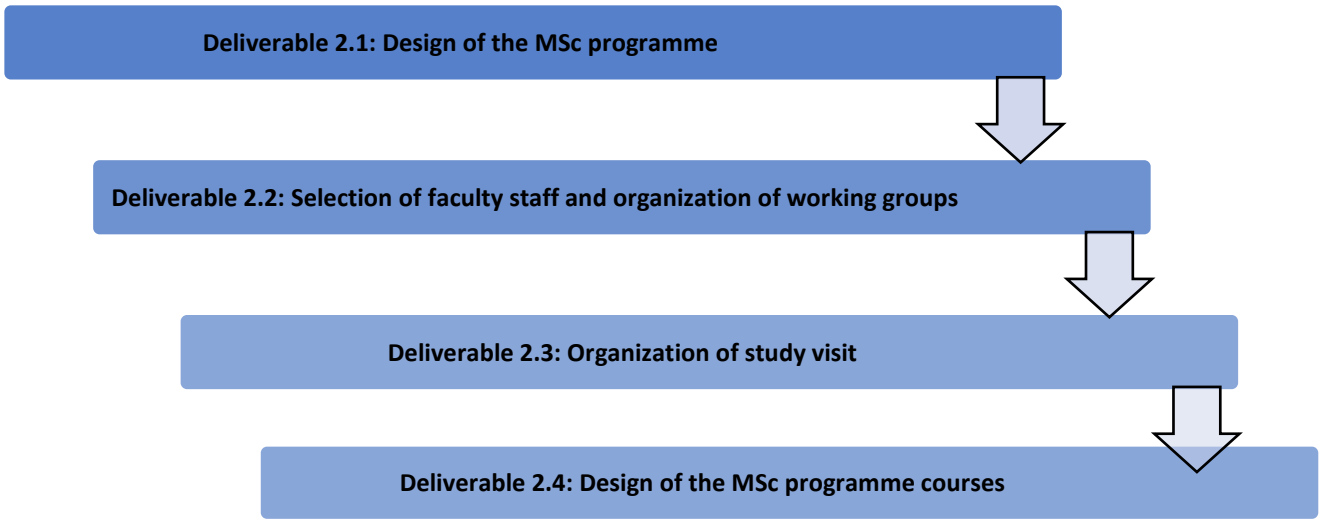

Figure 4: Organization chart of work package 2 “STEPS structure and courses design”

Deliverable 2.1: Design of the MSc programme

The main aim of the D2.1 is to design of the MSc programme in relation to the specific needs identified during the preparatory tasks, the vision and the strategic goals of national educational policies. The MSc will target engineers, managers who will support every aspect of the transition towards sustainable food production systems. According to the target groups and the needs analysis, the scientific background and the experience of the partners, courses will be organized in two profiles, i.e.

- Food engineering, quality and safety
- Food production systems management

Two groups of elective courses will be delivered based on the two main profiles, mentioned above:

Group I. Food engineering, quality and safety

- Advanced food science and technology
- Innovative harvest and post-harvest practices
- Energy design of processes and emissions control
- Food quality and safety

Group II. Food production systems management

- Agri-food marketing
- Industrial ecology and circular economy in agriculture
- Planning and administration of rural communities' development
- Sustainable supply chain management
- Innovation and entrepreneurship for sustainable food systems

The main output of this deliverable is a REPORT. Available at:
http://steps-project.eu/wp-content/uploads/2020/05/D2.1-STEPS-structure-and-courses.pdf

Deliverable 2.2: Selection of faculty staff and organization of working groups

The main aim of the D2.2 is the organization of Scientific staff from all partners of HEIs in working groups,based on their contribution, involvement and participation in open lecture/seminars, in the desinging of STEPS master courses etc. Two working groups will be organized based on the nature of the STEPS master courses described previously and their scientific background and capacity:

- Scientific staff that will work on courses related to food engineering, quality and safety will be designed by AUT, UHZ, and UNBI. Scientific staff of USAMVB and ReadLab will act mainly as mentors of their colleagues of partner countries HEIs.
- Scientific staff that will work on courses related to food production systems management will be designed by UET, UHZ and UNSA. Scientific staff of CULS, TEISTE and ReadLab will act mainly as mentors of their colleagues of partner countries HEIs.

The main output of this deliverable is a REPORT. Available at:
http://steps-project.eu/wp-content/uploads/2020/04/D2.2.-final-version-27.02.20.pdf

Deliverable2.3: Organization of study visit

The main aim of the study visit to the infrastructures of USAMVB in June 2019 was to compare educational strategies and practices, exchange ideas about technological advancements, and in addition, develop new contacts and explore opportunities of cooperation. Regarding the STEPS programme, a main task was to identify and record how interrelated scientific topics can be combined in the structure of educational programmes, and how the inter-institutional collaboration can improve the quality of the educational programme.

The main output of D2.3 is the:

- Organization of the event
- Development of a REPORT. Available at:

http://steps-project.eu/wp-content/uploads/2020/04/D2.3.-final-version-.pdf

Figure 5: Image from the Study visits in University of Agronomic Sciences and Veterinary Medicine in Bucharest

Deliverable 2.4: Design of the MSc programme courses

Scientific staff from partner countries HEIs will provide major contribution to the design of courses. Scientific staff from EU partner countries will, mainly, offer guidance on the interrelation of scientific topics addressed by the courses and the development of STEMS related topics and subjects that need to be included.

The output of the design will be a list of courses with the necessary information to be used for the development of the educational content. Among others, it will include:

- course unit title
- type of course (compulsory or optional)
- semester of delivery
- number of ECTS credits
- course description and link with the problems and needs that it intends to address
- scientific topics, methods and approaches that will be analyzed in relation to the specific problems and needs
- high-level learning outcomes
- course contents and proposed sections
- teaching methods and learning activities proposed, including laboratory experiments and software simulations
- proposed evaluation methods and grading criteria

The outputs of D2.4 will be presented in a form of REPORT. Available at:

http://steps-project.eu/wp-content/uploads/2020/04/D2.4.-final-version.pdf

Deliverable 2.1. STEPS structure and courses

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP2- STEPS structure and courses design
WP Leader:	USAMVB
Task:	D2.1. STEPS structure and courses
Task Leader:	USAMVB
Last Version date:	10.01.2020
Author(s):	Toader Maria, Roman Gheorghe Valentin, Ion Viorel, Epure Lenuta Iuliana, Dusa Mirela Elena, Adrian Gheorghe Basa, Cosmin Sonea, Renata Kongoli, Luziana Hoxha, Sabahudin Bajramovic, Emir Mujic, Nexhdet Shala, Uran Rraci, Michal Lošťák, Ermira Qosja
Status:	Final
Dissemination Level:	Internal

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Deliverable 2.2. Selection of faculty staff and organization in working group report

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP2- STEPS structure and courses design
WP Leader:	USAMVB
Task:	D2.2. Selection of faculty staff and organization in working group report
Task Leader:	USAMVB
Last Version date:	16.12.2019
Author(s):	Toader Maria, Roman Gheorghe Valentin, Ion Viorel, Epure Lenuta Iuliana, Dusa Mirela Elena, Basa Adrian Gheorghe, Sonea Cosmin, Ionescu Alina Maria, Radu-Popovici Andrei, Mircea Mihalache
Status:	Final
Dissemination Level:	International

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Deliverable 2.3. Study Visit Report

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP2- STEPS structure and courses design
WP Leader:	USAMVB
Task:	D2.3. Study visit report
Task Leader:	USAMVB
Last Version date:	15.06.2019
Author(s):	Toader Maria, Roman Gheorghe Valentin, Ion Viorel, Epure Lenuta Iuliana, Dusa Mirela Elena, Petros Chondros, Renata Kongoli, Luziana Hoxha
Status:	Final
Dissemination Level:	International

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Deliverable 2.4. Design of STEPS courses

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP2- STEPS structure and courses design
WP Leader:	USAMVB
Task:	D2.4. Design of STEPS courses
Task Leader:	USAMVB
Last Version date:	15.03.2020
Author(s):	USAMVB, Read Lab, AUA, AUT, CULS, UNSA, UNBI, UHZ, UC
Status:	Final
Dissemination Level:	International

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Figure 6: Reports delivered during the implementation of WP 2

Work package 3: Development
Title: Professional development of scientific staff
Work package leader: University of Haxhi Zeka

The main aim of WP3 is the organization of the seminars and lectures in oreder to improve the capacity of scientific staff of the partner countries HEIs, by transferring/exchanging knowledge. Scientific staff of partner countries and EU HEIs will be organised in working groups, according to the courses that HEIs will deliver during the implementation of the MSc programme (D 7.1, 7.2) and assess their needs in terms specific scientific topics that will be included in the content of courses, as defined by the design (task 2.4). UHZ will be the leader of the tasks.

Seminars and lectures will be organised in partner countries HEIs. The objetive are:

- Enrich the scientific background of scientific staff of partner countries HEIs, transfer and exchange knowledge mostly on "hot" topics, related to:
  - i)advanced technological achievements related to food production, processing, quality monitoring and food safety, from an engineering point of view and
  - ii) aspects of sustainable management of food production systems, including supply chain management, economics and environmental management
- Gain experiences of how MSc courses can be structured and delivered by utilizing modern infrastructures, experimental rigs and ICT-based educational material and methods.

For a better implementation and to get concrete results the WP3 is organized in three deliverables:

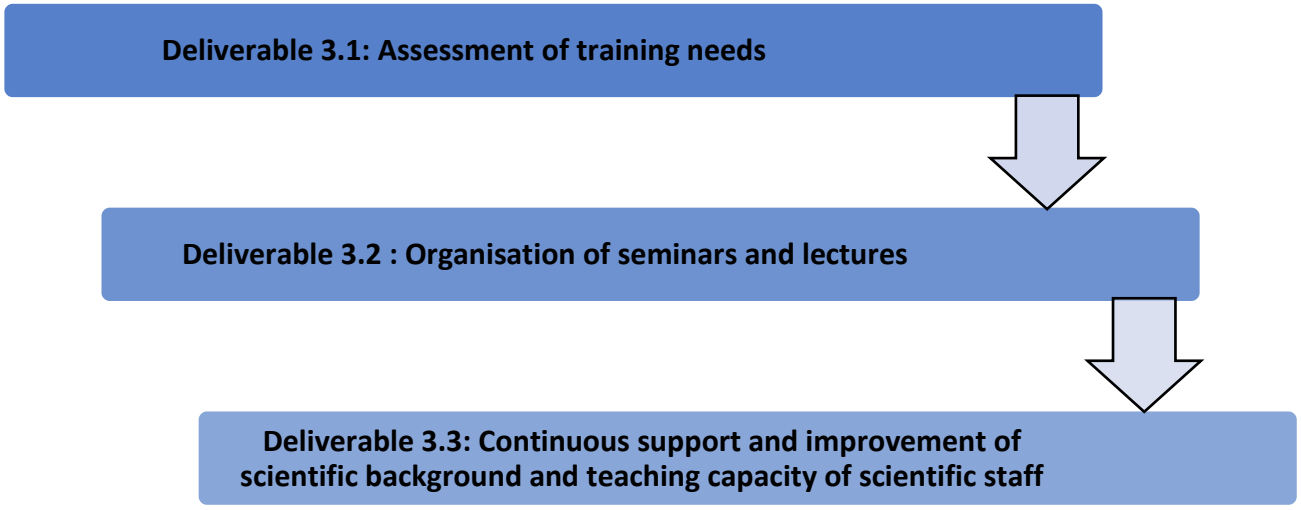

Figure 7: Organization chart of workpackage 3 "Professional development of scientific staff"

Deliverable 3.1: Assessment of training needs

The main aim of D3.1 is the asseement of Scientific staff for all partners HEIs needs in terms of scientific background improvements and also teaching competences, related in particular with ICT-based methodologies, student-centred approaches and modern teaching/learning environments. Scientific staff has participated in the seminars according to the intention and the capacity to deliver specific courses.
The main output of the deloverable 3.1 is a REPORT
http://steps-project.eu/wp-content/uploads/2020/05/STEPS_WP3_Dev-3.1.-Assesment-of-training-needs.pdf

Deliverable 3.2: Organisation of seminars and lectures

Seminars and lectures are organized in partner countries HEIs. At least three(3) persons per partner have participated in seminars. Lectures, in particular were open to scientific staff of the HEIs organising the event or outside the consortium, students, engineers and managers already working for private companies, and stakeholders in general. Five (5) events are hosted by partner countries HEIs.

The main output of the deliverable is the organization of:

- Event
- Report

A detailed information regarding the organization of events an open lectures are presented in chapter 5 of the STEPS proceeding book

Figure 8: Image from the events organized in Peja, Sarajevo, Pristina and Tirana where the open lecture were held

Deliverable 3.3: Continuous support and improvement of scientific background and teaching capacity of scientific staff

The main objectives of D3.3 are:

- A continuously transfer and exchange of knowledge between scientific staff between EU and partner countries HEIs applied during and after the project lifetime. Apart from the seminars and lectures formally organised at specific dates, faculty staff with common background and scientific interests will work together in order to prepare research articles and publications, research proposals.
- To organize guest lectures for students, common projects also involving students' mobility, and research plans offered by the joint implementation of the STEPS master.

The main output of the deliverable is the organization of:

- Service/product
- Report

STEPS

Co-funded by the Erasmus+ Programme of the European Union

Deliverable 3.1. Assessment of training needs

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP3 - Professional development of scientific staff
WP Leader:	UHZ
Task:	D3.1. Assessment of training needs
Task Leader:	UHZ – Kosovo
Last Version date:	November 20th 2019
Author(s):	UHZ
Status:	Final
Dissemination Level:	Internal

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STEPS

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Deliverable 3.2. Organization of seminars and lectures

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP3 - Professional development of scientific staff
WP Leader:	UHZ
Task:	D 3.2 : Organization of seminars and lectures
Task Leader:	UHZ – Kosovo
Last Version date:	November 20th 2022
Author(s):	UHZ
Status:	Final
Dissemination Level:	Internal

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STEPS

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Deliverable 3.3: Continuous support and improvement of scientific background and teaching capacity of scientific staff

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP3 - Professional development of scientific staff
WP Leader:	UHZ
Task:	D3.3: Continuous support and improvement of scientific background and teaching capacity of scientific staff
Task Leader:	UHZ – Kosovo
Last Version date:	November 20th 2022
Author(s):	UHZ
Status:	Final
Dissemination Level:	Internal

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Figure 9: Reports delivered during the implementation of WP 3

Work package 4: Development
Title: STEPS Development
Work package leader: University of Sarajevo

The main aim of the WP 4 is to develop and harmonize the content of the STEPS courses. Over 20 courses will be developed. An LMS platform is developed and is used to upload the educational material developed during the task. The platform is based on open source tools, while it will be in addition harmonised, adapted to the educational needs and material.

For a better implementation and to get concrete results the WP4 is organized in three deliverables:

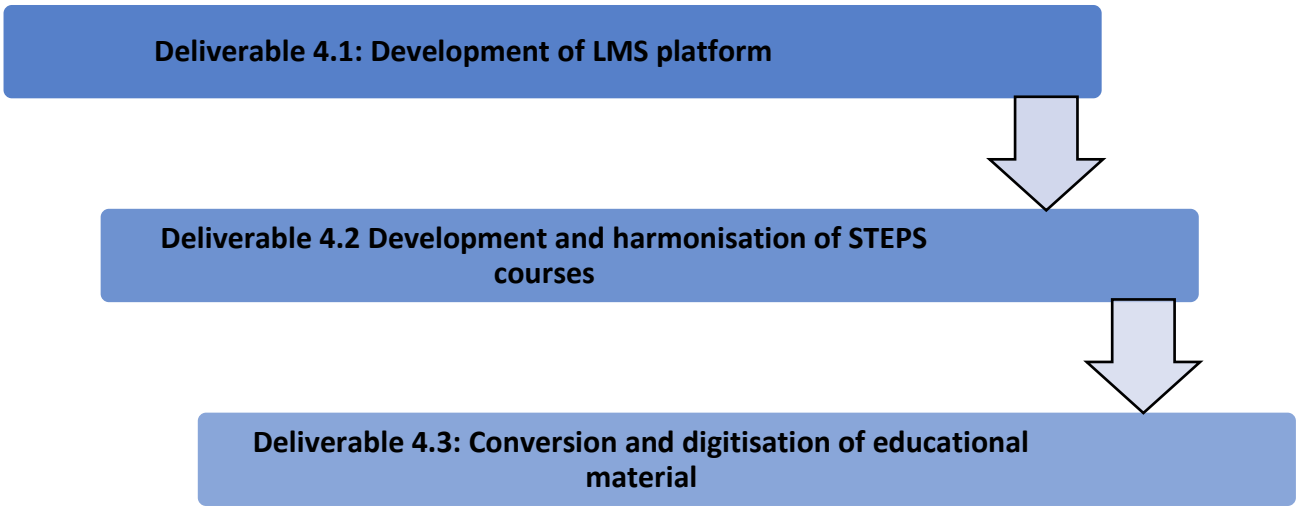

Figure 10: Organization chart of workpackage 4 "STEPS Development"

Deliverable 4.1: Development of LMS platform

A LMS platform based on open source utilities but also plugins and customised tools will be used to upload and harmonise the educational material of the STEPS courses. The platform will offer the opportunity to upload videos and simply- formed and interactive presentations, but also to organise joint activities and projects, questionnaires and quizzes, and monitor the participation and performance of STEPS attendees and record specific pathways followed. Educational material of high quality will be developed to offer advanced knowledge on topics related to sustainable engineering and managerial practices of food production systems.

The main output of the deliverable 4.1 is:

- Report http://steps-project.eu/wp-content/uploads/2020/05/D4.1a-Specifications-of-STEPS-LMS-Platform.pdf
- Service/product

Deliverable 4.2 Development and harmonisation of STEPS courses

The main aim of D4.2 is to develop the syllabus of the courses, by following guidelines designated in D2.4. EU HEIs staff will provide guidance and mentoring and will cooperate with their colleagues in order to produce harmonized educational material. In courses syllabus are included:

- Basic information about the course, such as course title and code, prerequisites, semester and ECTS units
- Professor/Instructor and teaching assistances contact information, including professor's name and title and web page address
- Description of course purpose and link with specific processes, problems and challenges
- Scientific topics, methods and approaches that will be analysed to address processes, problems and challenges
- Course learning objectives and learning outcomes for each of the sections of the course and skills that are expected to be developed by students

- Schedule and course calendar including the details of the educational content that will be presented, activities that will be carried out, individual and/or team projects to be conducted
- Scheduled laboratory experiments and software simulations
- Educational material including presentations, videos, quizzes, questionnaires, projects, assignments
- Additional learning resources and literature
- Evaluation and grading criteria for assignments, projects and laboratory reports and the percentage of the various grades to the final grading of students etc.

The main output of the deliverable 4.2 is:

- Teaching/learning materials
- Report. Three reports were delivered for D2.4. Available at:

Report D4.2a:
https://docs.google.com/document/d/1rd4fSA9hSAwc4XNZz6d9OBaMdx7jo0Xr/edit?rtpof=true
Report 4.2b
https://docs.google.com/document/d/1IUqbaBh-nP2EPfR9d1lPrgsegfByB6FY/edit
Report D4.2
https://docs.google.com/document/d/1uA_R3RdnUWmGDnZVAg_w8P1qNDhiBcZz/edit?rtpof=true

Deliverable 4.3: Conversion and digitisation of educational material

Courses developed by scientific staff from partner countries HEIs, while EU partners will be mainly act as mentors and will provide guidance on including "hot" scientific topics, innovative concepts and STEMS oriented subjects are digitised in order to be uploaded in the LMS platform.
The main output of the deliverable 4.3 is teaching and learning materials
Report is available at:
https://docs.google.com/document/d/1h0kKppWkKGcDTU_ErqomOoG3KS2k7wob/edit#heading=h.gjdgxs

STEPS

Deliverable 4.1 Specification of the STEPS LMS Platform

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP 4– Steps Development
WP Leader:	UNSA
Task:	4.1 – Development of the LMS Platform
Task Leader:	ReadLab
Last Version date:	October, 2019
Author(s):	Petros Chondros, Alexandros Vouros
Status:	Final
Dissemination Level:	Local

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Deliverable 4.2: Development and Harmonization of STEPS Courses

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP 4 – Steps Development
WP Leader:	UNSA
Task:	4.2 – Development and harmonization of STEPS courses
Task Leader:	UNSA
Last Version date:	24.02.2022
Author(s):	Milenko Blesić, Sabahudin Bajramović
Status:	Draft
Dissemination Level:	Public

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Deliverable 4.3 Digitization of STEPS Courses

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP 4 – Steps Development
WP Leader:	UNSA
Task:	4.3 – Conversion and digitization of educational material
Task Leader:	UNSA
Last Version date:	xx. xx. xxxx
Author(s):	Milenko Blesić, Sabahudin Bajramović
Status:	Draft
Dissemination Level:	Public

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Figure 11: Reports delivered during the implementation of WP 4

Work package 5: Development
Title: Development of Infrastructure
Work package leader: University of Bihać

The aim of WP 5 is to build the capacity of laboratories of partner countries HEIs, in terms of:

- ICT-centers equipped with computers, software and relevant infrastructures that will be used for the development/enhancement of teaching/learning environment
- Advanced measurement instrumentation related to food small-scale processing and most importantly, food quality and control
- Licenses of advanced software tools used for analyzing processes and supply chain scenarios, in terms of supply chain management, energy consumption and environmental impact, and evaluate the feasibility of basic and alternative scenarios

For a better implementation and to get concrete results the WP4 is organized in three deliverables:

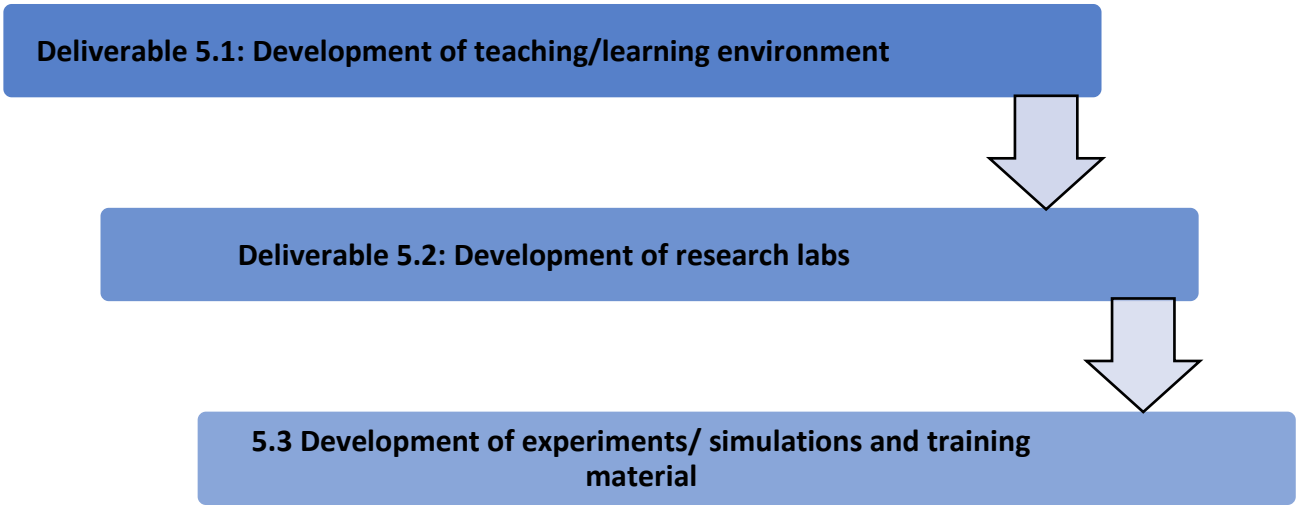

Figure 12: Organization chart of workpackage 5 "Development of Infrastructure"

Deliverable 5.1: Development of teaching/learning environment

The main aim of D 5.1 is the development of ICT centres in all partner countries HEIs, in order to enhance the teaching/learning environment and the infrastructures in terms of computer, network devices and related infrastructures as well as educational software tools that will support the quality of teaching practices. Partner countries HEIs has validated the lists of equipment delivered to the Coordinator during the preparation of the proposal and each partner HEIs has purchased and installed the equipment.
The main output of this deliverable is:

- Report

Available at:
http://steps-project.eu/wp-content/uploads/2022/10/1.-WP5-D5.1.-Development-of-infrastructure-final-27.11.2021-new-FINAL-According-to-QE.pdf

- Service/product

Figure 13: Some imag es from ICT infrastucture developed in HEIs in WB in frame of STEPS project

Deliverable 5.2: Development of research labs

The main aim of D 5.2 is the development of two types of laboratorie:

- The first will be the "Food Quality Control Lab"; it will offer the advantage of specifying experimentally the quality of agricultural products, by means of mass spectrometry, in particular after small-scale treatment and/or small-scale processing. This type of laboratory will provide enhanced knowledge related to the first group of courses defined in the design
- The second will be the "Food Production Systems Management Lab"; it will offer the opportunity to the students to design and analyze processes and supply chains and evaluate the performance of production systems, in terms of energy consumption, environmental impact and recoup. This type of laboratory will provide enhanced knowledge related to the second group of courses, i.e. food production systems management

The main output of this deliverable is:

- Report

Available at:
http://steps-project.eu/wp-content/uploads/2022/12/1.-WP5-D5.2.-Development-of-research-labs-V-05-final-version-29.11.2021-new-FINAL-According-to-QE.doc.pdf

- Service/product

Figure 14: Some of the equipements/laboratory infrastructure development in HEIs of WP in frame if STEPS project, founded by Erasmus + programme

5.3 Development of experiments/ simulations and training material

The main aim of D 5.3 is the development of experiments/simulations and training material for the STEPS master students. Scientific staff will design laboratory and software-based exercises and projects, with the aim of exploiting at the maximum degree the purchased facilities and improve further the level of knowledge and the relevance of a variety of courses. For each of the experiments and simulations, training material will be developed by scientific staff involved in the development of the two laboratories. UNBI assisted by UNSA will provide the partnership with guidelines so that the educational material is aligned with the theoretical part of the courses (task 4.2). Training material will be based on learning outcomes in experiment/simulation level and will include detailed description of the experiment/simulation, guidance and description of steps towards the successful implementation of the activity, samples as well as samples of the results and scenarios for additional exercises and research.

The main output of this deliverable is the development of:

- Teaching/ learning/training Materials
- Report

The report is available at:
http://steps-project.eu/wp-content/uploads/2022/10/WP5-D5.3.-Development-of-experiments-simulations-and-training-material

Deliverable 5.1. Development of teaching/learning environment

STEPS

Deliverable 5.1. Teaching/learning environment

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	Agricultural University of Tirana (AUT)
Work Package:	WP5 - DEVELOPMENT Title: Development of infrastructures
WP Leader:	University of Bihac (UNBI)
Task:	D5.1. Development of teaching/learning environment
Task Leader:	University of Bihac (UNBI)
Last Version date:	27.11.2021
Author(s):	Emir Mujić, Alma Bosnić
Status:	Draft
Dissemination Level:	Internal

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Deliverable 5.2. Development of research labs

STEPS

Deliverable 5.2. Development of research labs

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	Agricultural University of Tirana (AUT)
Work Package:	WP5 - DEVELOPMENT Title: Development of infrastructures
WP Leader:	University of Bihac (UNBI)
Task:	D5.2. Development of research labs
Task Leader:	University of Bihac (UNBI)
Last Version date:	29.11.2021
Author(s):	Emir Mujić, Alma Bosnić
Status:	Draft
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Deliverable 5.3. Development of experiments/ simulations and training material

STEPS

Deliverable 5.3. Development of experiments/simulations and training material

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	Agricultural University of Tirana (AUT)
Work Package:	WP5 - DEVELOPMENT Title: Development of infrastructures
WP Leader:	University of Bihac (UNBI)
Task:	D5.3. Development of experiments/simulations and training material
Task Leader:	University of Bihac (UNBI)
Last Version date:	10.02.2021
Author(s):	Emir Mujić, Alma Bosnić
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Figure 15: Reports delivered during the implementation of WP 5

Work package 6: Development
Title: STEPS application for official accreditation
Work package leader: Ministry of Education, Science, Culture and Sport of Una-Sana Canton

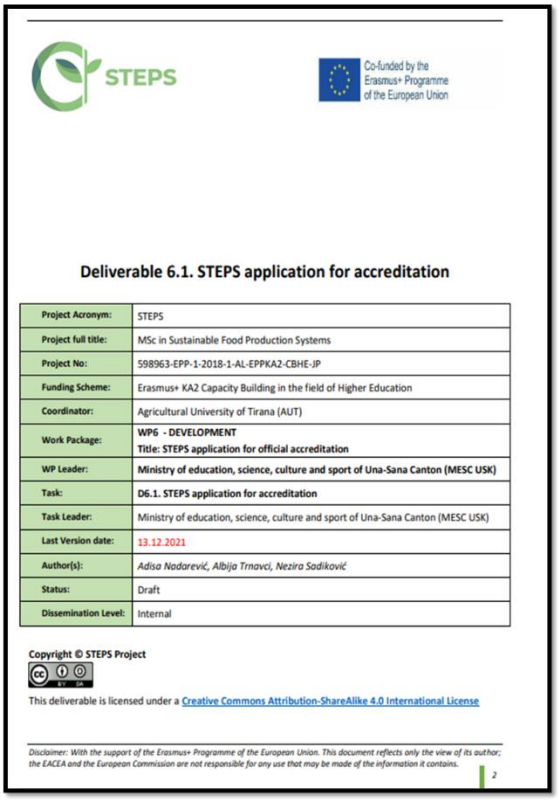
The main aim of WP6 is preparation of all the documentation for the process of opening and accreditation of the STEPS master programme in Western Balkans countries involved in the project. STEPS programme will be compliant to the national legislation of partner countries and the Bologna convention. Partner countries HEIs will prepare and submit the application and a self-evaluation report to the national authorities in Western Balkans counties. Apart from formal documents of the organizations, detailed descriptions will be provided regarding:

- The organizational structure of HEIs, funding and financial related mechanisms
- The strategy of the HEIs at institutional level
- The structure of the STEPS programme, the number and the list of courses and the sum of the ECTS offered by the STEPS programme
- The courses content and ECTS credits assigned
- The assessment and examination procedures and grading
- The capacity of the institutions and laboratories to accommodate students, laboratory exercises and demonstrations, in terms of infrastructures, faculty and administration services.

The arrangements that will ensure the sustainability of the STEPS programme

Deliverable 6.1: Preparation of the application of STEPS programme for accreditation

The main aim of this deliverable is the organization of all the documentations needed from WB countries to apply for the opening and the accreditation process. The material is going to presented in form of a report.



STEPS

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Deliverable 6.1. STEPS application for accreditation

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	Agricultural University of Tirana (AUT)
Work Package:	**WP6 - DEVELOPMENT** **Title: STEPS application for official accreditation**
WP Leader:	**Ministry of education, science, culture and sport of Una-Sana Canton (MESC USK)**
Task:	**D6.1. STEPS application for accreditation**
Task Leader:	Ministry of education, science, culture and sport of Una-Sana Canton (MESC USK)
Last Version date:	13.12.2021
Author(s):	*Adisa Nodarević, Albija Trnavci, Nezira Sadiković*
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Figure 16: Report developed during the implementation of WP6.

Work package 7: Development
Title: STEPS programme delivery
Work package leader: University of Bihać

The main aim of this task is the implementation of the STEPS master program in HEIs of WB countries.

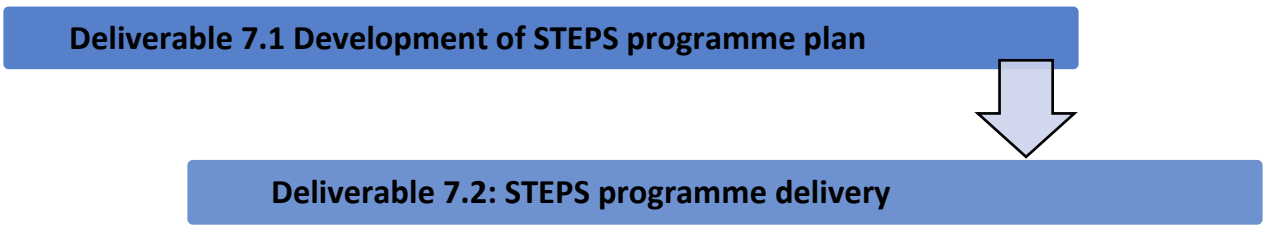


Figure 17: Organization chart of workpackage 7 “STEPS programme delivery”

Deliverable 7.1 Development of STEPS programme plan

The main of D7.1 is preparation from Partner countries HEIs all the necessary documentation/services for students' admission, guidance, description/presentations of STEPS programme and courses etc. Scientific, technical and administrative staff will be informed about the duration and the program of courses, laboratories will need to be synchronized in order to ensure availability of equipment and staff. Software will be installed, and infrastructures and experimental devices will be operational and ready to be used by students (under the guidance of technical and scientific staff). Career offices will be open and available for students, in order to be informed about internships, scholarships and additional opportunities and job fairs. Exhibitions to industrial partner and private sector companies and invited lectures and presentations by stakeholders will be included in the program of the courses.

The main output of this deliverable will be the compile of a REPORT.

The report is available at:

https://docs.google.com/document/d/1XKoILM_pUBI6-YhKGl_izJHcBV2iMfnD/edit

Deliverable 7.2: STEPS programme delivery

The main objective of D7.2 is the delivery/implementation of STEPS master program in partner countries HEIs. Core courses and elective courses will be delivered by HEIs, according to scientific background of faculty staff, their professional development during the implementation of the project and possible recruitment of additional staff.

Courses will be delivered from M25 to M36 – one full academic year. During the summer months, ICT centres and labs will be open to students in order to prepare projects, communicate with scientific staff and plan and/or start implementing theses. As a pilot first version, delivery will foresee full-time attendance. At least 25 students per HEI will attend the STEPS programme.

The main output of this deliverable will be the development of:

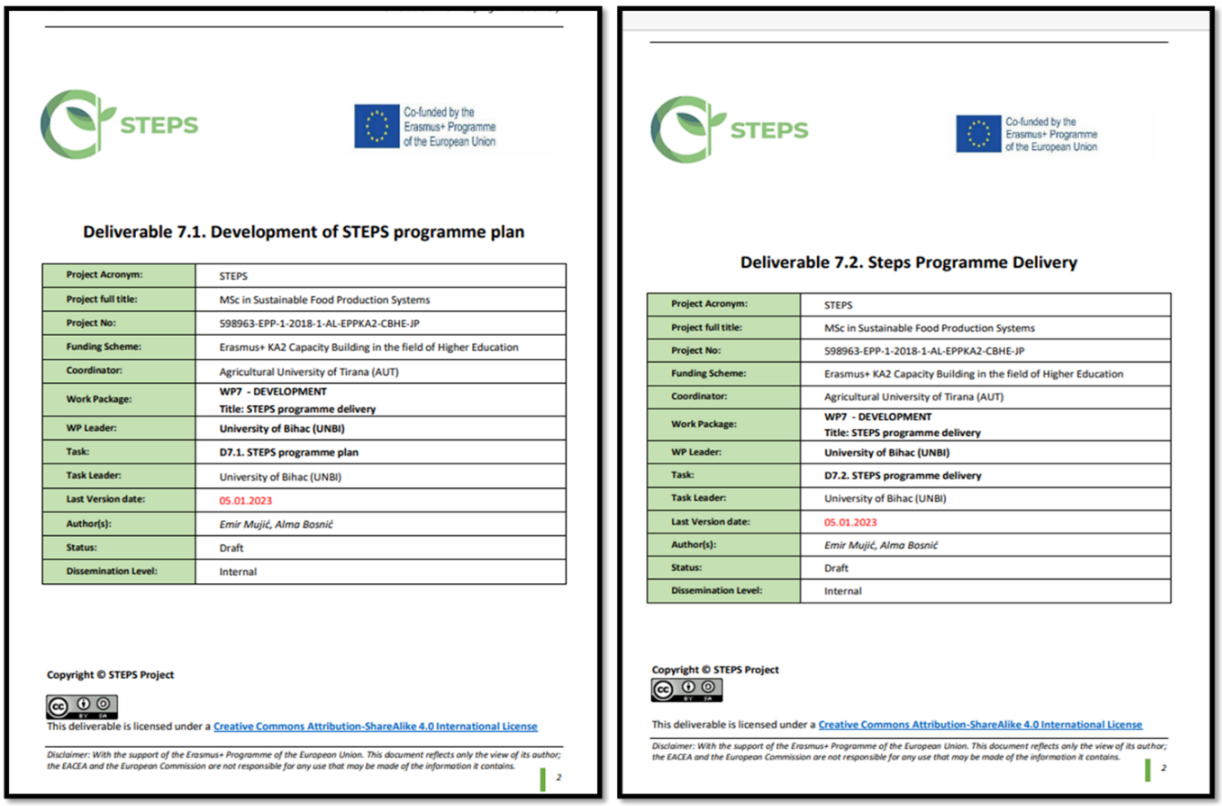
- Report

Report is available at:

https://docs.google.com/document/d/1989Vbjc83CUctuVlAufNtpda_MQR1Ah0/edit

- Product/service

Figure 18: Image of academic staff and STEPS master students from AUT/EUT, UHZ/UC, UNSA and UNBI.



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Deliverable 7.1. Development of STEPS programme plan

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	Agricultural University of Tirana (AUT)
Work Package:	WP7 - DEVELOPMENT Title: STEPS programme delivery
WP Leader:	University of Bihac (UNBI)
Task:	D7.1. STEPS programme plan
Task Leader:	University of Bihac (UNBI)
Last Version date:	05.01.2023
Author(s):	*Emir Mujić, Alma Bosnić*
Status:	Draft
Dissemination Level:	Internal

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Deliverable 7.2. Steps Programme Delivery

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	Agricultural University of Tirana (AUT)
Work Package:	WP7 - DEVELOPMENT Title: STEPS programme delivery
WP Leader:	University of Bihac (UNBI)
Task:	D7.2. STEPS programme delivery
Task Leader:	University of Bihac (UNBI)
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Author(s):	*Emir Mujić, Alma Bosnić*
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Dissemination Level:	Internal

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Figure 19: Reports delivered during the implementation of WP7

Work package 8: Quality Plan
Title: Quality plan and evaluation of project progress
Work package leader: Read Lab. P.C.

The WP aims to the implementation of tasks related to:

- Standardization of processes regarding communication among partners, sharing of working documents, deliverables submission and also, evaluation of the quality of outputs/outcomes, decision making, crisis management and conflicts resolution
- Overall monitoring of project implementation according to the work plan, the identification of warning signs as well as planning and activation of mechanisms for better implementation
- Continuous monitoring of tasks progresses according to indicators included in the logical framework matrix
- Evaluation of the quality of project's outputs and outcomes based on specific criteria and the success of tasks
- Survey and the dissemination of the results of evaluation on a yearly basis and after critical milestones of the projects, including events
- Planning and applying corrective actions, in order to respond to any deviation of the project outcomes in terms of time, quality and cost, by applying a plan-do-check-act (PDCA) procedure

For a better implementation and concrete results, WP 8 is organized in three deliverables.

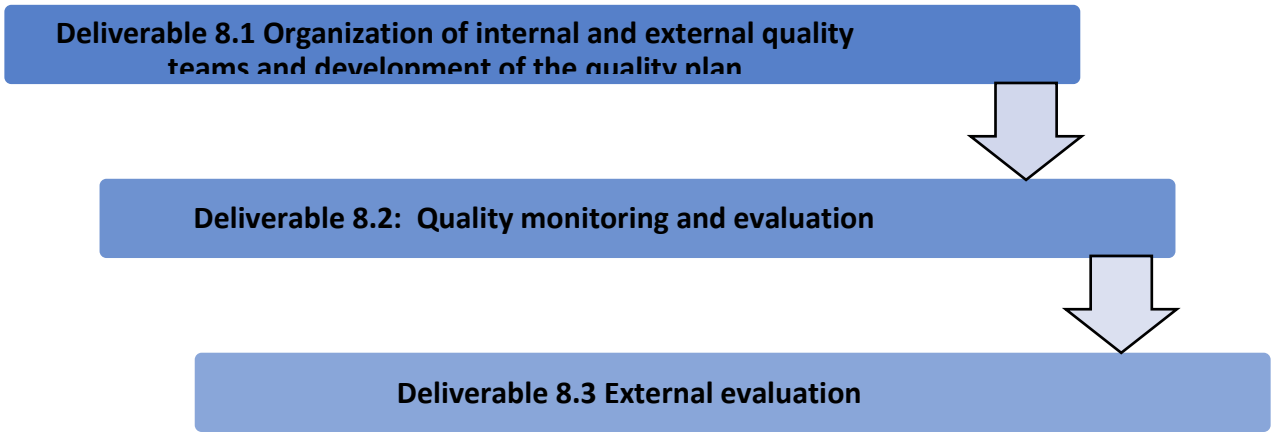

Figure 20: Organization chart of WP 8 "Quality plan and evaluation of project progress"

Deliverable 8.1 Organization of internal and external quality teams and development of the quality plan

The (internal) Quality Team (QT) will be organized at the very beginning of the project, i.e. during the kick-off meeting. The IQT will be responsible for the development of the Quality plan. The project coordinator, in collaboration with the MT, will be responsible for the organization of an external quality team (ET).

The main output of this deloverable will be the development of a REPORT.
Report available at: http://steps-project.eu/wp-content/uploads/2020/05/STEPS_8.1_Quality-Plan.pdf

Deliverable 8.2: Quality monitoring and evaluation

The main aim of D8.2 is the quality monitoring and evaluation of project activities, in order to analyze strengths and weaknesses, to plan and apply corrective action in order to improve the quality of the implementation of tasks and project outputs and outcomes. One of the most important concerns is to develop a culture of quality assurance among the whole partnership by monitoring the relevance, the effectiveness, the efficiency, the impact and the sustainability of the project results.

The main output of this deliverable are REPORTS.

Reports are available at:
http://steps-project.eu/wp-content/uploads/2020/05/STEPS_WP8.2a-1.pdf
http://steps-project.eu/wp-content/uploads/2020/05/STEPS_WP8.2b-1.pdf
http://steps-project.eu/wp-content/uploads/2020/05/STEPS_WP8.2c-1.pdf

Deliverable 8.3 External evaluation

The main output will be the delivery of three (3) annual reports will be delivered by the External quality time, i.e. D8.3.a (M13), D8.3.b (M25) and D8.3.c (M36). Reports will present the plan and the methodology of the evaluation process and the findings of the external evaluation related to the relevance, the effectiveness, the efficiency, the impact and the sustainability of the project outputs/outcomes.

Deliverable 8.1. Quality Plan

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP8 Quality Plan
WP Leader:	ReadLab
Task:	8.1 Quality Plan
Task Leader:	ReadLab
Last Version date:	15/04/2019
Author(s):	ReadLab
Status:	Final
Dissemination Level:	Public

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Deliverable 8.2a Study Visit in Bucharest (USAMVB) Evaluation Report

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP8 Quality Plan
WP Leader:	ReadLab
Task:	8.2 Internal Evaluation Reports
Task Leader:	ReadLab
Last Version date:	15.04.2020
Author(s):	Alexandros Vouros; Petros Chondros
Status:	Final
Dissemination Level:	Public

Deliverable 8.2b Meetings and Seminars/Lectures in Peja/Kosovo (UHZ) Evaluation Report

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP8 Quality Plan
WP Leader:	ReadLab
Task:	8.2 Internal Evaluation Reports
Task Leader:	ReadLab
Last Version date:	15.04.2020x
Author(s):	Alexandros Vouros; Petros Chondros
Status:	Final
Dissemination Level:	Public

Deliverable 8.2b Meetings and Seminars/Lectures in Sarayevo (UNSA) Evaluation Report

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP8 Quality Plan
WP Leader:	ReadLab
Task:	8.2 Internal Evaluation Reports
Task Leader:	ReadLab
Last Version date:	15.04.2020
Author(s):	Alexandros Vouros; Petros Chondros
Status:	Final
Dissemination Level:	Public

Figure 21: Some of the reports delivered during the implementation of WP8.

Work package 9: Dissemination & Exploitation
Title: Dissemination/Exploitation
Work package leader: Agricultural University of Tirana

The main aim of WP9 is the Dissemination/exploitation of project results during the project lifetime in order to raise the awareness of project results and make the most important findings, outputs and outcomes visible to the stakeholders and the society at large. Exploitation actions will ensure the relevance of project results through the engagement of stakeholders during the project lifetime and provide the background for the sustainability of the outputs and outcomes, after the project lifetime.

The target of the project is a wide audience, including:

- Students of agriculture, food science, engineering, and management departments
- Faculty staff and managers in the partner countries HEIs, also including the hierarchy system of HEIs involved in the project
- Private sector engineers and managers who work for private companies
- National authorities and decision-making bodies including the ministries of education and agriculture of the partner countries
- Other governmental non/governmental organizations and chambers, which promote reforms, policies and modernization of both education and food production systems

For a better implementation and to get concrete results WP9 is organized in seven deliverables.

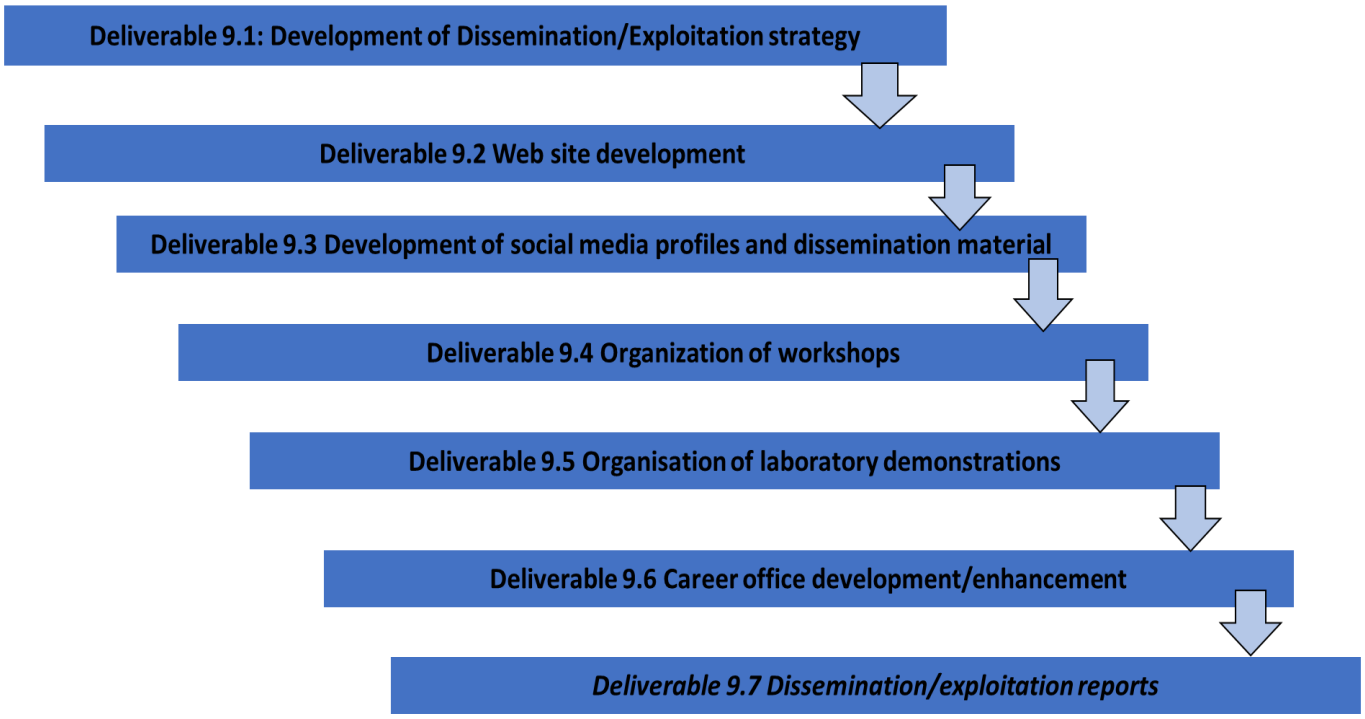

Figure 22: Organization chart of WP 9 'Dissemination/Exploitation"

Deliverable 9.1: Development of Dissemination/Exploitation strategy

The main objective of D9.1 is the delivery of a document (report) in which is outline the project outputs/outcomes that will be disseminated, the target groups and the stakeholders, as well as the means of communication among them (task 1.4). Planned dissemination/exploitation activities are described in detail. Exploitation activities are documented, with respect to their importance in the sustainability of the project. The strategy will also include indicators used for the evaluation of the activities, including the level of stakeholders' involvement, target groups satisfaction and the development of the conditions for multiplication and up scaling of the STEPS programme.

The report is available at: http://steps-project.eu/wp-content/uploads/2020/04/D9.1.-Disss_Plan.pdf

Deliverable 9.2 Web site development

The main objective of D9.2 is the development of STEPS Website. The overall goal of the web site will be to raise the awareness of the project to a wide audience including students, HEIs outside the consortium, private companies and public organizations, NGOs, social enterprises etc.

STEPS Website: http://steps-project.eu/

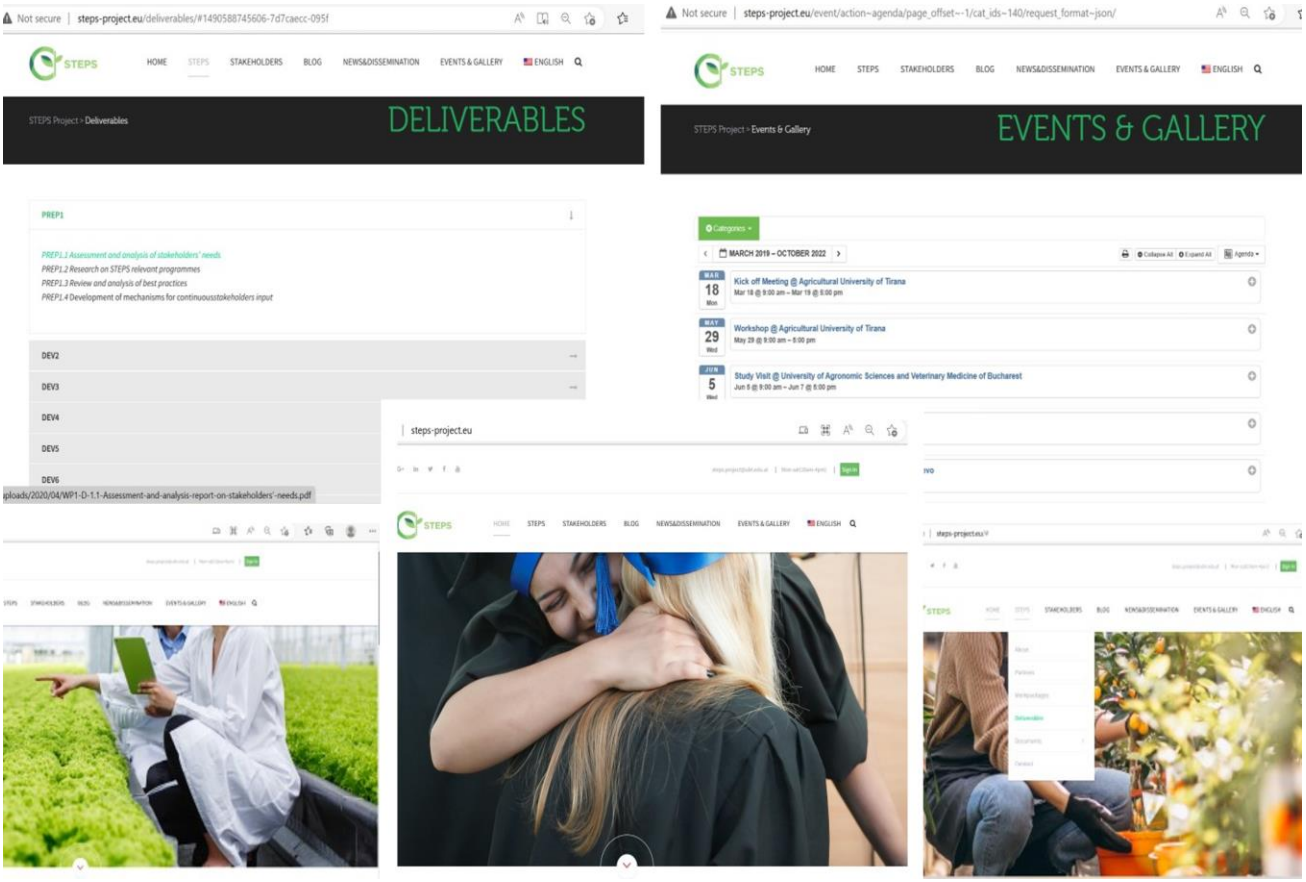

Figure 23: STEPS website http://steps-project.eu/

Deliverable 9.3: Development of social media profiles and dissemination material

The main aim of D9.3 is the development of promotion (dissemination) material that wil be used during STEPS meetings, workshops, roundtables etc. Different dissemination materials (that has the logo of STEPS project and Erasmus + programme) are developed during the implementation of STEPS project:

- Rollup
- Leaflet
- Newsletter
- Pens
- Cups
- Others

STEPS has been active in social media to dessiminate activities/results acheived during different stages of project implementation. Two types of social media has been choose:

- Facebook
- Instagram

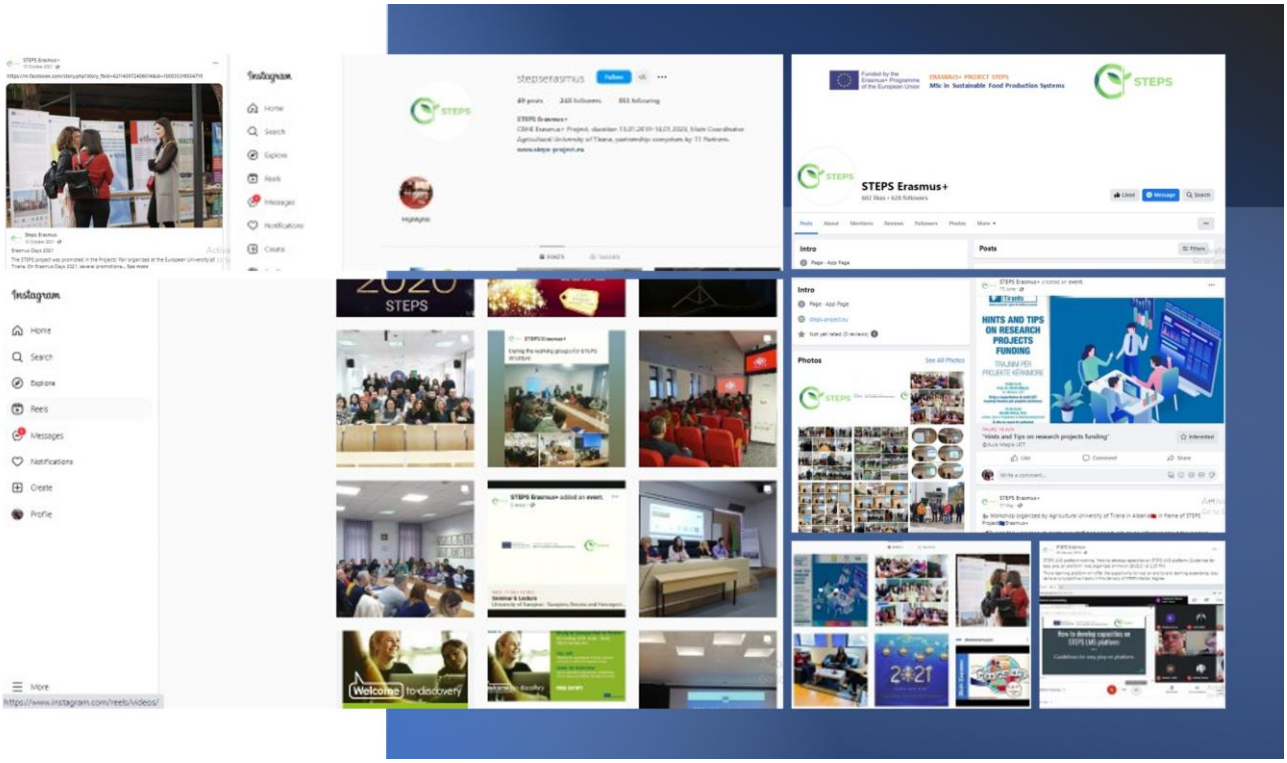

Figure 24: STEPS being active in social media, FB and Instagram

Figure 25: STEPS Newsletter and leaflets

Figure 26: Some promotional material developed during STEPS project implementation

Deliverable 9.4: Organization of workshops

Three (3) workshops are organized in all the Western Balkans countries represented in the consortium. At least 3 persons per partner has participate in the evens. The main goal of D9.4 is the involvement of stakeholders in workshops in order to disseminate STEPS outputs and to ensure the sustainability of stakeholder's contribution/engagement in STEPS master.

Table: STEPS workshop host organizations

Deliverable	*City/Country*	*Host Organisation*	*Combined with*
D9 .4.a	Pristina/Kosovo	UC	**D3.2.d, D10 .4.f**
D9. 4.b	Tirana/Albania	AUT	**D3.2.e, D10. 4.g**
D9. 4.c	**Sarajevo/Bosnia-Herzegovina**	**UNSA**	**D10.4.h**

The main output of D9.4 is:

- Organization of events
- Report

Figure 27: Image from the workshops organized in UC Pristina, UNSA Sarajevo and AUT/EUT Albania

Deliverable 9.5: Organization of Laboratory Demonstration

Three (3) laboratory demonstration are organized in all the Western Balkans countries represented in the consortium combine with workshops activities. At least 3 persons per partner has participate in the evens. The main goal of D9.4 is to disseminate HEIS infrastructure capacities developed in frame of STEPS project. Furthermore, laboratory demonstration activities will serve as a tool for the involvement of stakeholders, to

disseminate STEPS outputs and to ensure the sustainability of stakeholder's contribution/engagement in STEPS master.

Table: STEPS laboratory demonstration- host organizations

Deliverable	*City/Country*	*Host Organisation*	*Combined with*
D9.5.a	Pristina/Kosovo	UC	**D3.2.d, D10.4.f**
D9.5.b	Tirana/Albania	AUT	**D3.2.e, D10.4.g**
D9.5.c	**Sarajevo/Bosnia-Herzegovina**	**UNSA**	**D10.4.h**

The main outputs of D9.5 are: Organization of events & Report

Figure 28: Image from laboratory demonstration with the participation of STEPS master students

Deliverable 9.6: Career office development/enhancement

Career offices will be developed in order to become the driver of the opening up of the HEIs to the world of work and the society at large. Career offices (D9.6) will be responsible for extending existing and developing new communication channels with stakeholders and providing advanced services to the attendees of the STEPS programme. They will be supported with physical, human and financial resources in order to organize internships for students, in cooperation with private companies and public organizations, inform about jobs openings and provide career prospects to young people willing to join the world of work. The strong linking between the career offices of the partner HEIs will also promote the mobility of students and scientific staff

and will be responsible for informing students and scientific staff for scholarships, open calls in national, European and international level.

The main outputs of D9.6 are: Service/product & Report

Figure 29: Images of Career offices contribution of in informing/consulting students in frame of STEPS project

Deliverable 9.7 Dissemination/exploitation reports

Dissemination/exploitation activities performed during the project lifetime will be reviewed on a yearly basis (in total three reports per year.)

Deliverable 9.1. Dissemination/exploitation strategy report

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP9 Dissemination & Exploitation
WP Leader:	Agricultural University of Tirana
Task:	9.1 Dissemination/exploitation strategy report
Task Leader:	Agricultural University of Tirana
Last Version date:	September 20th, 2019
Author(s):	Prof. Dr. Renata Kongoli Dr. Enkeleda Berberi Dr. Luziana Hoxha
Status:	Final
Dissemination Level:	Internal/external

Deliverable 9.7. Dissemination/exploitation report

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP9 Dissemination & Exploitation
WP Leader:	Agricultural University of Tirana
Task:	9.7 Dissemination/exploitation report
Task Leader:	Agricultural University of Tirana
Last Version date:	January 15th, 2020
Author(s):	Prof. Dr. Renata Kongoli Dr. Enkeleda Berberi Dr. Luziana Hoxha
Status:	Draft
Dissemination Level:	Internal/external

Deliverable 9.7. Dissemination/exploitation report

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP9 Dissemination & Exploitation
WP Leader:	Agricultural University of Tirana
Task:	9.7 Dissemination/exploitation report
Task Leader:	Agricultural University of Tirana
Last Version date:	January 15th, 2022
Author(s):	Prof. Dr. Renata Kongoli Dr. Enkeleda Berberi Dr. Luziana Hoxha
Status:	Draft
Dissemination Level:	Internal/external

Figure 30: Image of some of the reports delivered during the implementation of WP9 “Dissemination/Exploitation”

Work package 10: MANAGEMENT
Title: Project management and coordination
Work package leader: Agricultural University of Tirana

The overall goal of the WP10-management of the project is to plan, organize, monitor and control all aspects of the project and motivate all those involved in it, to achieve project objectives on time and to the specified cost and quality. For this purpose, a Management Team (MT) will be shaped at the kick-off meeting. MT will provide the partnership with plans considering budget, human resources, communication, risk management, conflicts resolution, quality assurance procedures, and dissemination/exploitation plan. The role of the MT will be also explained to partners. MT will supervise tasks and will provide suggestions for better implementation at all levels, i.e. preparatory and development tasks, quality monitoring and dissemination/exploitation activities. All the above issues will be documented in the Management plan report, else mentioned as Grant Agreement.

For a better implantation and to get concrete results WP10 is organized in three deliverables.

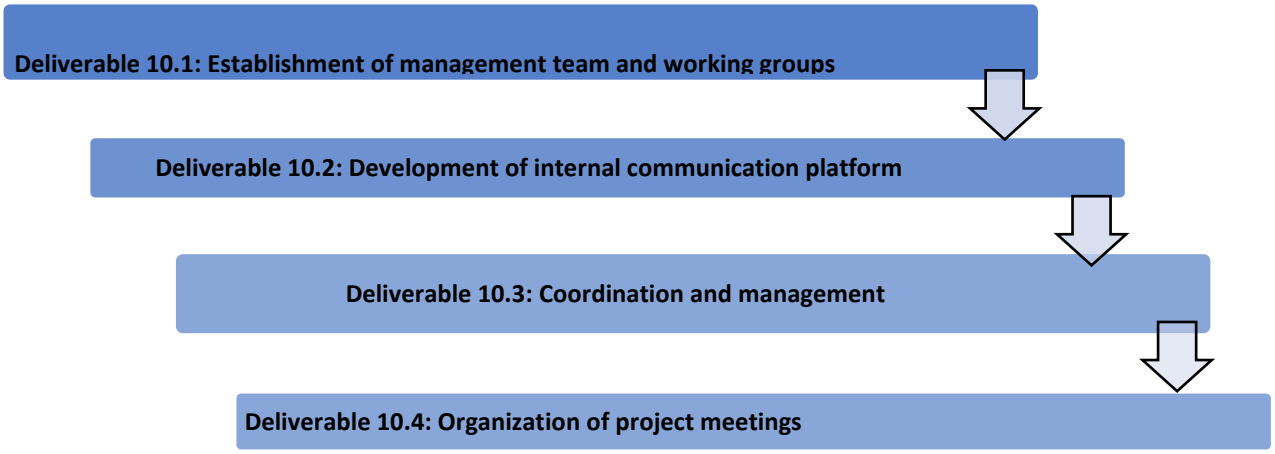

Figure 31: Organization chart of WP10 "Project management and coordination"

Deliverable 10.1: Establishment of management team and working groups

The main objective is to define the Management plan of STEPS project along with the establishment of MT. The main output is the delivery of a report: Management Plan Report which is available at:

http://steps-project.eu/wp-content/uploads/2020/04/D10.1-Management-Plan-Report.pdf

Deliverable 10.2: Development of internal communication platform

The project Coordinator in cooperation with the MT will provide the means of communication among partners. An internal communication platform (D10.2) will be employed to ensure the efficient cooperation between partners working on specific, complementary or inter-related tasks.

The main output is the Internal communication platform Report which is available at:

http://steps-project.eu/wp-content/uploads/2020/05/D10.2-DEVELOPMENT-OF-INTERNAL-COMMUNICATION-PLATFORM.pdf

Deliverable 10.3: Coordination and management

Annual reports will present the overall achievements of the project. The presentation of the progress will be structured according to the work plan. Actions related to financial and technical management will be reviewed. Communication, information exchange and effective cooperation activities will be also highlighted. The reports will contain links to the most important outputs and outcomes of the project and quality monitoring issues. Specific sections will be devoted to the dissemination/exploitation activities and the management of links/relationships with the external environment of the project, including other similar projects, stakeholders, EACEA etc.

The first annual report is available at:
http://steps-project.eu/wp-content/uploads/2020/04/STEPS-Mng-D10.3-1st-Annual-Report_Final-version.pdf

Deliverable 10.4: Organization of project meetings

The main objective is the coordination of STEPS project meetings that will be organized on a monthly basis. Apart from regular Skype meetings, MT meetings with physical presence of participants are summarized in the table below.

Table 3: Planned STEPS project meeting organized from March 2019 until December 2022

Deliverable	*Month nr.*	*City/Country*	*Host Organisation*	*Combined with*	*Report link*
D10.4.a	2	Tirana/Albania	AUT		http://steps-project.eu/wp-content/uploads/2020/05/D10.4-Report-1_Kick-off-MM.pdf
D10.4.b	6	Bucharest/Romania	USAMVB	D2.3	http://steps-project.eu/wp-content/uploads/2020/05/D10.4-Report-2_Bucharest-MM.pdf
D10.4.c	9	Peja/Kosovo	UHZ	D3.2.a	http://steps-project.eu/wp-content/uploads/2020/05/D10.4-Report-3_Peja-MM.pdf
D10.4.d	12	Bihac/Bosnia-Herzegovina	UNSA	D3.2.b	http://steps-project.eu/wp-content/uploads/2020/05/D10.4-Report-4_Sarajevo-MM.pdf
D10.4.e	15	Bihac/Bosnia Herzegovina	UNBI	D3.2.c	
D10.4.f	18	Pristina/Kosovo	UC	D3.2.d, 9.4.a, 9.5.a	
D10.4.g	21	Tirana/Albania	AUT	D3.2.e, 9.4.b, 9.5.b	http://steps-project.eu/wp-content/uploads/2022/12/AUT_D10.4-Report-MM_Tirana_First-draft-version_November-2022.pdf
D10.4.h	34	Sarajevo/Bosnia-Herzegovina	UNSA	D9.4.c, 9.5.c	http://steps-project.eu/wp-content/uploads/2022/12/AUT_D

					10.4-Report-MM_Sarajevo_October-2022_Final-version-1.pdf
D10.4.i	36	Tirana/Albania	AUT		

Figure 32: Photos from some of STEPS project meeting from 2019 to 2022

Deliverable 10.1 Management Plan Report

STEPS

Co-funded by the Erasmus+ Programme of the European Union

Deliverable 10.1. Management Plan Report

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP10 Management
WP Leader:	Agricultural University of Tirana
Task:	10.1 Management plan report
Task Leader:	Agricultural University of Tirana
Last Version date:	September 20th , 2019
Author(s):	Prof. Dr. Renata Kongoli Dr. Enkeleda Berberi Dr. Luziana Hoxha
Status:	Final
Dissemination Level:	Internal

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Deliverable 10.2 Development of Internal Communication Platform

STEPS

Co-funded by the Erasmus+ Programme of the European Union

Deliverable 10.2. Development of internal communication platform

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP10 Management
WP Leader:	Agricultural University of Tirana
Task:	10.2 Development of internal communication platform
Task Leader:	Agricultural University of Tirana
Last Version date:	March 20th, 2019
Author(s):	PMT
Status:	Final
Dissemination Level:	Internal

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2

STEP

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Deliverable 10.3. Annual progress reports

Project Acronym:	STEPS
Project full title:	MSc in Sustainable Food Production Systems
Project No:	598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP
Funding Scheme:	Erasmus+ KA2 Capacity Building in the field of Higher Education
Coordinator:	AUT
Work Package:	WP10- Management
WP Leader:	AUT
Task:	D10.3. Annual progress reports
Task Leader:	AUT
Last Version date:	23.12.2019
Author(s):	Renata Kongoli, Luziana Hoxha, Enkeleda Berberi
Status:	Draft
Dissemination Level:	International

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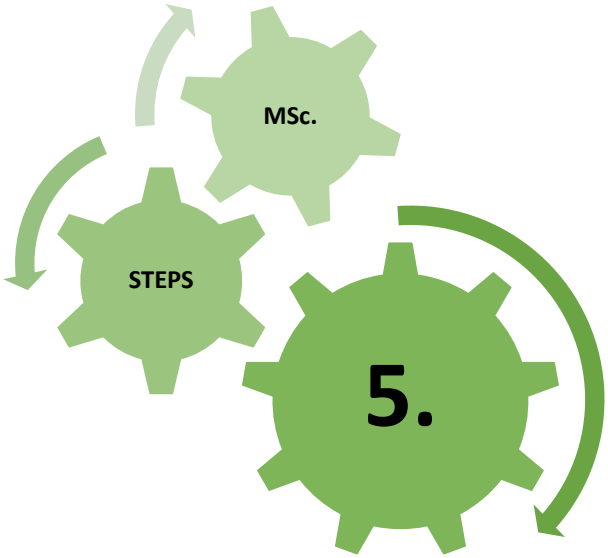
Figure 33: Same of the reports delivered during the implementation of WP10 "Project management and coordination"



STEPS OPEN LECTURES

ORGANIZED IN FRAME OF TRAINING NEEDS

ORGANIZATION OF OPEN LECTURE

Seminars and lectures are organized in partner countries HEIs. At least three (3) persons per partner has participated in seminars. Lectures, in particular were open to scientific staff of the HEIs organising the event or outside the consortium, students, engineers and managers already working for private companies, and stakeholders in general. Five (5) events were hosted by partner countries HEIs. Events are summarised in the table below:

Table 4: Events where the open lectures were held

Deliverable	*Month no.*	*City/Country*	*Host Organisation*
D3.2.a	9	Peja/Kosovo	**UHZ**
D3.2.b	12	Sarajevo	**UNSA**
D3.2.c	15	Bihac/ Bosnia-Herzegovina	**UNBI**
D3.2.d	18	Pristina/Kosovo	**UC**
D3.2.e	**21**	**Tirana/Albania**	**AUT**

All the open lectures that were held in the events underline in the table 2 are listed below in form of abstracts.

They are also available STEPS website:

https://studio.mooc.steps-project.eu/course/course-v1:AUT+OL001+2022-2023

Funded by the Erasmus+ Programme of the European Union

IMPROVED FUNCTIONAL FOOD PRODUCTS -A REVIEW OF POLYUNSATURATED FATTY ACIDS

Suzana Jahić*

*Faculty of Biotechnology, University of Bihać, Bosnia and Herzegovina

Venue: Sarajevo STEPS Meeting, University of Sarajevo (UNSA), Sarajevo, Bosnia & Herzegovina (10-14 December 2019)
Topic: Food Quality and Safety

Abstract

In addition to familiarization with the basic characteristics of fatty acids, the processes of elongation and desaturation of polyunsaturated fatty acids, which are essential in human nutrition, are presented. In the Western population, there is a trend of increased intake of n-6 polyunsaturated fatty acids and the ratio of n-6 and n-3 polyunsaturated fatty acids in the diet is disturbed, which multiplies the risk increase of cardiovascular diseases, type 2 diabetes and other chronic diseases. That is why certain associations and health institutions in the world recommend the most optimal ratio of n-6 and n-3 fatty acids, as well as recommended daily amounts for certain categories of the population. As the trend of production and consumption of functional food is widely present in the world, a series of experimental research on this topic was carried out at the Biotechnical Faculty in Bihać, which was also shown in the presentation. In the field of plant production, linseed production was carried out with different soil treatment approaches (organic, mineral and bacterial fertilizer) as well as the linseed oil production, and the results of the composition of fatty acids in seeds and oil for the mentioned experimental groups were presented. In the domain of animal production: the production of sheep's cheese, in which the animals' nutrition was specific - with the addition of flaxseed to feed mixtures and a comparison of the fatty acid composition of cheese obtained from the milk of animals in the treated - experimental and group with the standard group (on pasture). The experimental results of the composition of fatty acids in the production of lamb meat with the addition of linseed in animal nutrition are also presented, as well as a comparison with the composition of fatty acids in the meat of lambs that were reared using the traditional breeding method.

Key Words: polyunsaturated fatty acids, chronic disease, plant production, animal production

DRYING OF QUINCE SLICES - EXPERIMENTS AND COMPUTATIONAL MODELLING

Dimitris Tzempelikos[1], Dimitris Mitrakos[2], Achilleas Bardakas[3], Alexandros Vouros[3,4], Dionissios Margaris[1], Andronikos Filios[3]

[1]Mechanical Engineering Department- University of Patras, [2]School of Mechanical Engineering- National University of Athens, [3]School of Educational and Technological Education of Athens, [4]ReadLab P.C.

Presented by Alexandros Vouros, STEPS Training Seminar, Sarajevo Meeting, 10-14 October 2022.

Abstract

The training seminar deals with the analysis of the drying process of organic materials, i.e., fruits and vegetables, by applying both experimental and computational approaches. The presentation demonstrates first how the drying of cylindrical quince slices in a lab scaled convective drying facility is monitored experimentally based on the development of a measurement chain consisted by velocity, temperature, and humidity sensors as well as load cells for the continuous measurement of the moisture content. The details of the development of a computational model, developed based on the discretization of the conjugated heat and mass transport equations during drying are then analyzed. The model is based on the physical mechanisms, adopting to the maximum degree a mechanistic approach. Upon its validation through comparison with experimental results, the model can be used for an in-depth study of the process while it can be also used for predicting the temporal evolution of the moisture content loss, for a range of drying operational conditions. In this way, it is discussed how the existing experience and the specific model could contribute the optimization of the drying process, having in mind the design and the implementation of product-specific drying curves of a variety of organic materials under consideration.

Key Words: drying process, computational model

SOCIAL AND CULTURAL CONTEXT OF FOOD (SOCIAL PILLAR OF SUSTAINABILITY)

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Abstract

The lecture focused on farming the food into social context. The outcome should be the understanding of what might be seen to be “naturally given” (e.g., food) is also influenced by social factors – it asks questions: What do we eat? How do we explain why people eat something (social practice)? Where the food comes from (social relations: competition and cooperation)? How do we eat (social institutions: “norms of the game”). The lecture showed how food is linked to rituals and myths, cultural symbols, identity, lifestyles beyond the food, food as the tool for social inclusion and the knowledge

Key Words: food, social context

ETHICAL DILEMMAS IN FOOD PRODUCTION AND FOOD CONSUMPTION

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Abstract

The lecture outlined certain dilemmas in food production and food consumption (food indulgence or healthy food; convenience food or food cooking skills; food economizing or food extravagance), which are rooted in the question: are we free actors (agents) or do we have to act as demanded by external structures. Did I (actor - agent) invent contemporary industrial food system (structure)? Do I have to choose about whether I want to use it or not, if I wish to have the food? – These questions the student has to answer based on the lecture. The lecture also showed the role of agriculture in society and discussed the concepts of formal and substantive economy.

Key Words: questions, food indulgence, healthy food

FOOD AS SOCIAL CONSTRUCTION, CONSUMER BEHAVIOUR OF FOOD CONSUMERS

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Abstract

The lecture also presented a participative game for the students to address sustainable future food and showed how to apply the views framing our understanding of food into social and cultural context. As such the lectures provided the introduction to consumer sciences, therefore it highlighted consumer choice experiment and willingness to pay method of research. It also demonstrated how the food is communicated through symbols used to brands and labels of the food (presented various food labels used in EU). A special attention was paid to the issues of imagination over the food which brings innovative views on food (breaking away from the immediacy of everyday life).

Key Words: food, labels, consumers

EXPERIENCES WITH STUDYING MASTER ON FOOD SYSTEMS

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Abstract

The lecture presented the design of the master's degree programme in Sustainable Food Systems. This study programme is delivered by City University of London. The lecture showed that system understanding of food is needed (a holistic approach to food and consequences for the education). Experience of former students (feed-back food designing new study programme).

Key Words: Design, Master program, Sustainable food systems

FOOD ETHICS

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Abstract

The lecture introduced the participants into understanding what ethics is (practical philosophy). The lecture demonstrated the links between ethics as practical philosophy and food. Various ethical dilemmas concerning food were highlighted (e.g., novelty food vs retro food, food economizing vs food abundance). Links of food ethics and sustainability were presented (how to feed the world in the future: challenging question existing for centuries, from formal to substantive economy).

Key Words: Food, ethics

CONSUMER SCIENCE AND SUSTAINABLE CONSUMPTION

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Abstract

The lecture started from questioning the idea of growth. This question was later linked to suitability in general and sustainable consumption in particular as it is one of the UN Sustainable Development Goals. The lecture documented food consumption has big impacts on sustainability (e.g., greenhouse emissions, deforestation). Consumption patterns also impact human health and society in general (e.g., heart diseases). The lecture disused how to engage consumers in dietary transition towards sustainability through different food system with consumers participating in this transition. Such transition will include ethical issues: egoistic reasons (products for my health and wealth being) or social reasons (environmentally friendly, socially acceptable products). Examples what universities can do for this transition were highlighted. The end of the lecture was about alternative food networks and the concept of food sovereignty.

Key words: Food consumption, sustainability, SDG

INNOVATIVE PRODUCT AND PROCESS DEVELOPMENT

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Abstract
The lecture started from different understanding of innovations. The core of the lecture addressed the transition theory on innovation (multilevel perspective on innovation: sociotechnical landscape, sociotechnical regime, and niches for innovations). This theory was illustrated by examples from innovation in food sector also showing the issue of path-dependency blocking successful implementation of innovative practices. The second part of the lecture was of practical nature: how to train the students towards innovation thinking: examples of imagination were used.
Key Words: Innovation; innovative practices, product development,

WINES, BEERS, AND SPIRITS AS PRODUCTS OF SUSTAINABLE AGRICULTURE IN THE CZECH REPUBLIC

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Abstract

The lecture deals with various aspects of sustainable agriculture in the Czech Republic. Specifically, it presents the sustainable agricultural activities of Czech and Moravian companies producing alcoholic beverages - wineries, breweries, and distilleries. Examples of specific producers are presented - i.e., what steps in sustainable agriculture they use in growing (ensuring) raw materials for production, how they process these raw materials to obtain organic certification, and what are the marketing specifics of organic products (organic alcoholic beverages), including communication with the final consumers. The lecture is also devoted to organic certification ensured by production following organic farming. It shows that the beverage companies also deal with an even stricter classification of some beverages (especially wines) under the designation "authentic/natural wines." Last but not least, the wine production and sales chain corresponding to the methods of biodynamic agriculture, considered by many to be controversial, is approached. The lecture also includes a final tasting of Czech wines, beers, and spirits, all possessing organic certification. The practical tasting is intended to give the audience a better idea of how sustainable farming practices are reflected in the organoleptic characteristics of these products, as these aspects are used by producers when communicating with the customers.

Key Words: Czech wines, beers, and spirits, organic certification, sustainable agriculture

CZECH FOOD WITH PROTECTED GEOGRAPHICAL INDICATIONS: IS THERE A CLASH BETWEEN TRADITIONS AND SUSTAINABILITY

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Abstract

This lecture demonstrated digitalized lecture for the project (presented in the form of video). It highlighted how ethical issues (sustainability) influence the consumers choice towards protected geographical indicators. The triangle novelty – traditions and sustainability were discussed against the labels of protected geographical indicators.

Key Words: consumer choice, protected geographical indicators

FOOD QUALITY AND SAFETY STANDARDS IN KOSOVO – AN OVERVIEW

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Venue: Universium College (UC), Pristina, Kosovo (May, 23 to 27, 2022)
Topic: Food Quality and safety

Abstract

The aim of this lecture is to present an overview of the current state with regard to the application of risk-based quality and safety schemes at the primary as well as at the food processing process on the international level. The presentation contained information about the importance of applying food standards as a crucial condition for access to local, regional and international markets.
Participants of this open lecture had the opportunity to see the examples of different levels of standards (private, national, multilateral, and supranational standards) that apply worldwide. The context of food legislation in Kosovo was also a topic of this lecture and served to inform HEIs representatives from different countries about the prevalence of different food standards in the country and the main challenges that Kosovo is facing in this regard. Participants actively participated with their questions and comments contributing to exchange of knowledge and experiences about food safety and quality standards in general. After this lecture, the participants visited a confectionery production factory in Pristina. During the visit to this factory, the participants, apart from seeing the production in practice, were also informed about the implementation of food standards in this factory.
The participants evaluated the open lecture and the visit to the factory as valuable informative experiences.

***Key Words**: Food standards, food quality/safety, Kosovo*

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DEVELOPING AN INTEGRATED SYLLABUS USING XXI SKILLS/DEVELOPING TEACHING RESOURCES TO KEEP STUDENTS AWAKE.

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Venue: University of Peja "Haxhi Zeka" (UPHZ), Peja, Kosovo (September 12th, 2019)
Topic: Modern pedagogy in the field of agri-business

Abstract

The aim of this lecture is to provide a comprehensive approach to teaching which is mainly focused on student learning, as well as to present a modern approach to syllabus development using Prof. Dr. L. Dee Fink "Designing Courses for Significant Learning." The lecture was focused on experiential learning within teaching pedagogy in order to maximize student learning experience that fosters innovation and contributes to attaining the skills and attributes which allow students to gain a competitive advantage in their professional and academic careers. This new teaching methodology aims to reduce the role of professors and changes the format of classrooms. UC staff have already developed a particular approach named "Mentorship Teaching", where students are divided in groups of 4-6 (depending on the class size) which meet weekly to complete the tasks set forth by the professor. The professors' role is to develop the teaching resources and distribute them to students, where their input is mostly on mentorship basis. On the other hand, students work together with tutors, which are older students or graduate level students, to complete their tasks. The open environment is intended to foster innovation by not limiting them to premises where they could be demotivated.

Key Words: Teaching approach, methodology

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INTEGRATING SDGS IN DEVELOPING TEACHING RESOURCES FOR STEPS MODULES

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Abstract

Through the development of the module, the aim is how to include and emphasize the importance of the 17 SDGs to guarantee the development of sustainable food production systems according to the STEPS master's level program. Given that food and agriculture are at a crossroads today and compared to the past, major improvements in agricultural productivity have been recorded over the past decades to satisfy the food demand of a growing global population. But progress has often come with social and environmental costs, including water scarcity, land degradation, ecosystem stress, loss of biodiversity, diminishing fish stocks and forest cover, and high levels of greenhouse gas emissions. The productive potential of our natural resource base has been eroded in many places around the globe, jeopardizing the planet's future fertility. Looking ahead, the path to inclusive prosperity is clearly marked by the 2030 Agenda for Sustainable Development through its 17 goals. Overcoming the complex challenges facing the world requires transformative action, embracing the principles of sustainability and tackling the root causes of poverty and hunger to leave no one behind. The key link between people and the planet, food and agriculture can help achieve the Multiple Sustainable Development Goals (SDGs). We must develop sustainable food production systems to properly feed children, teach them and people how they can lead healthy and productive lives to progress as a sustainable society. Sustainable food and agriculture have great potential to revitalize the rural landscape, deliver inclusive growth for countries and drive positive change across the 2030 Agenda. This module presents a series of actions for students to accelerate transformation in food and agriculture sustainable that are based on evidence, experience, technical expertise and collective knowledge with the transfer of experiences from the most developed countries.

These actions include the 2030 Agenda's vision for sustainable development, in which food and agriculture, people's livelihoods and natural resource management are addressed not separately but as one; a future where the focus is not only on the end goal, but also on the means used to achieve it; and an environment where public and private actors participate in legitimizing, engaging in shaping and working towards achieving sustainable development solutions guaranteeing sustainable food production systems.

Key Words: SGS, STEPS module, teaching methodology

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AN ETHICAL APPROACH OF ORGANIC AGRICULTURE - STRATEGY TO FEED THE WORLD, TO PROTECT NATURAL ECCOSYSTEM ANS SAVE BIODIVERSITY

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Course title: Food ethics

Abstract

In the contemporary world, it is paramount to find new solutions to the problems that have arisen in several fields of activity, mainly to the problems posed by food production and environmental protection. The reasons for these problems are, on the one hand, the marked environmental degradation due to the inadequate exploitation of natural resources or the inefficient management of the agricultural production and the insufficient coordination of various human activities, and on the other hand, the depletion of the raw material and energy resources on which the 20th-century intensive technologies were based. in this context, it is impetuously necessary to find some alternative solutions for the problems we are facing. An alternative is organic agriculture system. At the conclusion of this class, students will be able to:

• assess the ethical significance of one's own actions in relation to food production, consumption, and distribution in organic agriculture system.

• understand the significance and scope of one's local organic food culture, especially in relation to globalized food systems.

• understand the current stage of human development allows both the necessity and the possibility of co-existence for the two agricultural systems: on the one hand, the intensive agricultural system (also known as conventional) that provides the efficient control of the damaging organisms (weeds, diseases, pests), the nutrients supply for agricultural crops, and sufficient food for the actual human demand, on the other hand, the developing ecological agriculture system that promotes agricultural production technologies of low impact upon the environment, emphasizes the biological links of the technological chain, and provides food at lower production costs and higher biological value.

Key Words: food production, environment protection

SUSTAINABLE ENERGY USE IN THE FOOD INDUSTRY. ENERGY PROBLEM IN THE WORLD.

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Course title: Sustainable energy use in the food industry

Abstract
By the end of the course the students will be able to:
-Analyze multiple and multi-scalar sources of sustainable energy and their relationship to provision and access.
-Integrate key sustainable energy issues with planning strategies for food industry.
- Assess and evaluate energy sources and their sustainability.
According to FAO studies, energy and food systems are deeply entwined and about 30% of the world's energy is consumed within agri-food systems. Energy is also responsible for a third of agri-food systems' emissions of greenhouse gases. Both systems must be transformed to meet current and future demand for food and energy in a fair, environmentally sustainable, and inclusive manner.
This course is designed to introduce students to the issues of energy in the 21st century – including food and fuels – which are inseparably linked – and will discuss energy production and utilization from the biology, engineering, economics, climate science, and social science perspectives.
This course will cover the current production and utilization of energy, as well as the consequences of this use, examining finite fossil energy.

Key Words: sustainable energy, food industry

LEGISLATION AND STANDARDS REGARDING ORGANIC AGRI-FOOD PRODUCTS

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Course title: Governance, Policy and Legislation in the Agri-Food Sector

Abstract
This course aims to help learner understand the specific requirements of the organic legislation, certification schemes and international standards for organic agri-food products.
Furthermore, it will develop the knowledge and skills which the learner will require to comply with the principles and practices of organic agrifood production as required by certification schemes.
This course includes some figures regarding situation of organic agriculture in the world, principles of organic agriculture in general and its benefits to the people and to the environment.
The participants appreciated that it was a useful course, which will help them in the future. Also, they appreciated that the organic agriculture is a farming method that aims to work in harmony with nature rather than against it.

Key Words: *Legislation, organic food*

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FUNDAMENTALS OF FOOD PRODUCTION SYSTEMS, SUSTAINABLE FOOD PRODUCTION SYSTEMS, INTRODUCTION TO SUSTAINABILITY

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Abstract

This course aims to:

- familiarizing of learners with the specific notions of the sustainable agriculture system, in order to stimulate individual and, especially, collective creativity regarding the production and processing of agri-food products (vegetable and animal);
- provide them with the necessary knowledge for the design of households, farms, processing units, agricultural companies or agro-industrial holdings, respecting quality and environmental standards and applying modern and efficient notions, techniques and processes in *sustainable agrifood system*;
- encourage holistic, systemic thinking of Master students to become self directed analystis and decizion-maker.

The participants learned that the agriculture system represents a set of economic, social and environment elements (components) in interaction, designed and made by man in order to obtain agricultural plant and animal products necessary to meet certain human needs.

They asked questions and actively participated in this course, bringing examples from their own experiences regarding the agricultural systems practiced in their countries.

Key Words: *Sustainability, food systems, concepts*

HACCP OF GRAIN MILLING AND BAKERY

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Elective Course title: Sustainable technology of bakery products

Abstract

The students can learn how to apply food safety practices and implement hazard analysis critical control points programs (HACCP) that specifically relate to grain milling at the Grain Milling: Food Safety and HACCP.
The application of the HACCP system is compatible with the implementation of quality management systems, and is the system of choice in the management of food safety within such systems.
An HACCP plan for bakeries is an output document of the Hazard Analysis and Critical Control Points (HACCP) Study. It specifies the strategies to be followed to assure control of physical, chemical and biological hazards based on the seven principles of HACCP when manufacturing baked goods.
The following elements are suggested: A trained HACCP team ; Product description, Intended use ; Process flow diagrams ; Hazard analysis chart (HACCP Principle 1) Critical Control Points (CCP) identification (HACCP Principle 2) HACCP Control Chart (HACCP Principles 3-7) ; The participants appreciated how very useful information about the bakery processing industry and a very clear practical application would have been presented.
Key Words : *HACCP, grain milling, bakery products*

LAW INPUT IN AGRICULTURE

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Course title: Low Input Agriculture

Abstract

Main aim of the course is to provide students with basic knowledge of soil functions in natural ecosystem, which is especially important for its sustainable management, food production and ecosystem protection.
This presentation has mains objectives to explain the principles of integrated agricultural input management imply the correct performance of all elements of agricultural technology and the relationship between sustainable land management and water quality. Also, describe land values and how they change depending on different factors, identify land cover changes in urban and rural areas in terms of land use planning, explain Upon successful completion of the module, the student was able to identify problems in sustainable agriculture caused by the intensive agriculture production and use tools and methods to solve land degradation problems.

Key Words: soil function, agricultural input, management

SUSTAINABLE ENERGY USE IN THE FOOD INDUSTRY. ENERGY PROBLEM IN THE WORLD.

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Course title: Agricultural and food industry waste management

Abstract
This course is designed to help students develop a critical awareness of strategies, policies and processes for the sustainable management of energy in the food processing industry. Graduates of the program are expected to have gained a thorough understanding of the challenges facing the food industry and to be able to provide applicable and relevant solutions for energy cost reduction and profitability. The course also focuses on environmental protection, advances in technology, risk, sustainability and the ethical dilemmas surrounding corporate social responsibility in food sustainable industry in connection with sustainable energy. The material offers statistical data about energy consumption in partner countries and solutions of sustainability in energy domain in the world. Also, participants learn about the renewable energy and it is one of the ways to ensure a cleaner energy supply.

Key Words: Food waste, management, energy cost reduction

TOTAL QUALITY MANAGEMENT IN THE AGRI-FOOD SECTOR II

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Course title: Total Quality Management in the Agri-Food Sector II

Abstract

This course present the principles of a plan for a Good Agricultural Practices (GAP), Good Manufacturing Practices (GMPs) and Good Hygienic Practices (GHPs). Minimum quality requirements are included in the food law to ensure the foods produced respect all rules and practices. In addition, food law should cover the total chain beginning with provisions for animal feed, on-farm controls and early processing through to final distribution and use by the consumer (FAO, 2021). The students from this MSc course will gain a deeper understanding of the importance of regional, national and international standards in regulatory processes, and the role of public institutions in delivering safe, quality foods to consumers. Also, the students will be able to use internationally accepted tools for food safety and quality management, evaluate the effectiveness of existing food safety and quality management systems, and design a plan to critically investigate a problem and generate an appropriate solution.

Key Words: Food quality, GAP, GMP, GHP

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TOTAL QUALITY MANAGEMENT IN THE AGRI-FOOD SECTOR I - ORGANIC AGRICULTURE SYSTEM

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Course title: Total Quality Management in the agri-food sector I

Abstract

Organic Agriculture, based on crop rotation, crop residues, manures and green fertilisers, and the biological control of the damaging organisms, is aimed to maintain soil fertility, to provide the necessary amount of nutrients for agricultural crops, and to control weeds, insects, and diseases efficiently.
Organic farming began to develop in the modern world as a response to intensified farming and industrial agriculture, using synthetic fertilizers, chemical pesticides, introduction of monocultures into large areas, the separation the animal husbandry from plant production and using heavy machinery. All of this leads both to environmental degradation, and on the other hand, the overproduction of food. At the same time the food quality decreases continuously with regard to nutritional value, which is also the effect of strongly developed food technology. Organic agriculture is a production system that avoids, or completely discards, synthesis fertilisers and pesticides, growth regulators and fodder additives, and genetically modified organisms.
Analyzing the market for organic food products, the management of food safety is all the more important as the supply of organic food products to the final consumer can mean global supply chains, products that cross national borders, passing through a wide spectrum of intermediaries, which adds complexity of the supply process and can stimulate the interested parties in obtaining an additional profit. Quality and food safety management systems are essential to reinforce the argument that the food industry is in the best interest of the community it operates in. In order to meet the needs and expectations of consumers globally, there must be an integrated, uniform and imperative approach for organizations in the food sector, based on well-defined quality standards and tools. Currently, companies can choose from a wide range of management tools that can facilitate understanding, as well as control processes and continuous improvement of aspects related to food quality and safety. By studying this subject, students will better understand the dynamic evolution of organic agriculture and trade in this field, which were supported by the development of the legislative framework, which sought to establish some minimum requirements specific to organic agriculture, but also the fact that by creating a framework institutional certification, the ecological label was given greater credibility.

Key Words: Organic food, food quality, food safety, management

Funded by the Erasmus+ Programme of the European Union

PREVENTION POLUTION IN FOOD INDUTRY

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Topic: Waste Management in Agriculture and Food Industry
Venue: University Haxhi Zeka (UHZ), Peja, Kosovo (September 10-14/2019)

Abstract

The aim of this lecture is to present an overview of key sources of pollution and ways to prevent it with special emphasis to the dairy industry. In the introductory part key environmental factors were presented as well as main sources of pollution. Generally, an overview of the consequences of constant pollution in the world was made. The dairy sector was taken as an example. The main part was a presentation of the main environmental aspects in dairy sector. Briefly, basic dairy products and processing but also types of waste generated from these processes were presented. Key factors were elaborated: water and energy consumption, effluent discharged, air emissions and solid waste generation. Pollution prevention opportunities in the dairy sector were elaborated. Participants of this open lecture had the opportunity to see examples of six case studies on how to reduce inputs consumption levels, minimize pollution into environment and make new valuable products: recovery and increase in value of cheese whey; improved operation procedure in cleaning processes; optimization of hot water production process; reduction of energy consumption in heat treatments; recovery of brine; use of environmental criteria in new product development. All examples included all necessary inputs and outputs, short descriptions of operations, environmental issues, pollution prevention opportunities (PPOs) and environmental and economics evaluation of every PPO. The participants evaluated the open lecture as a valuable innovative and informative experience.

Key Words: diary industry, pollution, enciromental issues, prevention

TRACEABILITY SYSTEMS OF FOOD PRODUCTS AND HACCP SYSTEM

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Course title: Traceability systems of food products and HACCP system

Abstract

Maintaining food safety from the time of production until at the time of their consumption by ensuring hygiene practices and traceability at each step of the supply chain are tasks essential for the food industry. Students will be able to:

- Explain the benefits traceability of food system,
- Describe the regulatory requirements associated with traceability,
- Describe the requirements of a good traceability system.

During the presentation, the students showed interest in the subject and became more aware of the advantages of food traceability and how it relates to food industry businesses.

Key words: traceability systems, HACCP systems

PRACTICES FOR STUDENTS' ENGAGEMENT - ENRICHING THE LEARNING EXPERIENCE IN MANAGERIAL COURSES

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Venue: University of Peja "Haxhi Zeka" (UPHZ), Peja, Kosovo (September 12th, 2019)

Abstract

In this presentation various practices for engaging students are presented. The focus is shifted on managerial courses, which constitute on of the main stream of the STEPS MSc Programme. The topic is addressed by bringing various perspectives from the academic literature.

Key Words: managerial courses, engagement, blended learning

THE USE OF ICT SOLUTIONS IN LAB COURSES

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Venue: University of Peja "Haxhi Zeka" (UPHZ), Peja, Kosovo (September 12th, 2019)

Abstract

In this presentation the case of ICT solutions for lab courses is presented. ICT solutions are seen as tools to support storage of courses, lectures, exercises, tests, communication and cooperation, and distance learning. Moreover, open source solutions are presented which may be very useful for the academic community.

Key Words: lab courses, ICT, open source solutions

MANAGEMENT OF SUSTAINABLE FOOD SUPPLY AND VALUE CHAIN

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Venue: Online meeting (May 21st , 2021)

Abstract

In this presentation an overview and an introduction to the designed course "Management of Sustainable Food Supply and Value Chain" is given. The objectives and the learning outcomes are illustrated and a model presentation is provided for the first topic of the course.

Key Words: sustainable food supply chain, value chain, course

LCA AS A TOOL FOR THE DESIGN AND OPERATION OF SUSTAINABLE AGRI-FOOD SUPPLY CHAINS

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Venue: University of Bihac (UNBI), Bihac, Bosnia & Herzegovina (November 25th, 2021)

Abstract

In this presentation the Life Cycle Assessment methodology is presented. In particular, the phases of the method are analysed along with the objectives of relevant studies and limitations. Moreover, useful software solutions are discussed and the application of the methodology in agri-food supply chains is outlined.

Key Words: Life Cycle Assessment, agri-food supply chains

DATA ANALYSIS AND DECISION MAKING

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Venue: Online meeting (June 4th, 2021)

Abstract

In this presentation an overview and an introduction to the designed course "Data analysis and Decision making" is given. The objectives and the learning outcomes are illustrated and a model presentation is provided for the first topic of the course.

Key Words: data analysis, decision making, course

COMPOSING FINANCIAL STATEMENTS

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Venue: Universum College (UC), Pristina, Kosovo (May 25th, 2022)

Abstract

In this presentation the significance of composing financial statements is addressed. The nature and scope of accounting is presented and the importance of ethical reporting is put forward. The basic accounting principles are discussed and illustrative practical examples are presented.

Key Words: financial statements, accounting, ethical reporting

AGRI-FOOD SUPPLY CHAINS: ENVIRONMENTAL HOTSPOTS ANALYSIS - FRAMEWORK & CASE STUDY

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Venue: Universum College (UC), Pristina, Kosovo (May 26th, 2022)

Abstract

In this presentation a qualitative stepwise approach is discussed for identifying environmental hotspots across end-to-end supply chain operations via considering key players and processes, while generating "close to real-time snapshots" of the main environmental hotspots for the focus firm. The hotspots analysis leverages both primary and secondary data, hence enabling its easiness, and informs about the 'Energy – Waste – Resource' environmental impact.

Key Words: financial statements, accounting, ethical reporting

FOOD LOSS AND WASTE, THE CONSEQUENCES FROM FARM TO FORK

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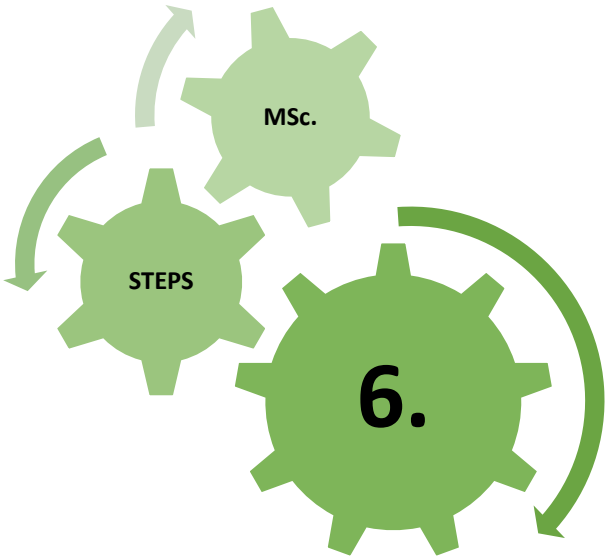
Topic: Food Quality and safety

Venue: Agricultural University of Tirana (AUT), Albania (November, 20-26/2022)

Abstract

This course is designed to help students develop their skills in relation to sustainable development policies in the food industry, strategies and procedures to be followed with the aim of good use of food, management of losses and waste from the food industry as well as the consequences of food safety from farm to table. Graduates of the program are expected to have gained a thorough understanding of the challenges facing the food industry and to be able to provide viable solutions for population hunger reduction, waste management and food security. In its entirety, this course focuses on food management, loss reduction in the food industry, technological advances to increase efficiency and sustainability in food production systems from farm to table. As well as the ethical dilemmas surrounding corporate social responsibility in the sustainable food industry in relation to poverty reduction and food security. The material provides abundant theoretical and practical information about the production and right consumption of food, provides sustainability solutions in food management to minimize losses and possible treatments for the treatment of waste from the food industry. Through the knowledge provided, the participants learn more about food production systems in the framework of the circular economy.

Key words*:Food loss, food safety, sustainability*



STEPS PROJECT LMS PLATFORM

DEVELOPMENT OF STEPS LMS PLATFORM

STEPS LMS is an online e-learning platform that will offer the opportunity to all the students of STEPS Master of Science in the partner country to hold the lessons when they have time and to have a different learning experience from the online one. During the pandemic COVID -19, the online teaching and learning platform has given the possibility to all students and the academic and scientific staff to continue the process of learning and teaching. A lot of platforms have been developed seems then, in a short time. The LMS platform has begun its process before the pandemic COVID-19 and has been developed by a company specialized in this platform.

The LMS platform serves as an online communication channel between academic staff and students to deliver all the material that are prepared including, lessons, presentation in PowerPoint, video presentation, tests, discussion, and all other material that are needed to support the students who will enrol in this study program. Since the beginning of the project, the LMS would have had a great role because the Master of Science study program in Sustainable Food Production System would be implemented through it.

For this reason, some pieces of training were done during the lifetime of the project for the academic staff on how to use the LMS platform.

A workshop was done on 26.02.2020 at 2.30 PM on “How to develop capacities on STEPS LMS platform”, where the Leader Team of DAE team, Mr Gorica trained a representative of the country partner on how the LMS platform works. During the workshop was explained how to open courses and upload material in pdf, ppt video, links from you tube etc.

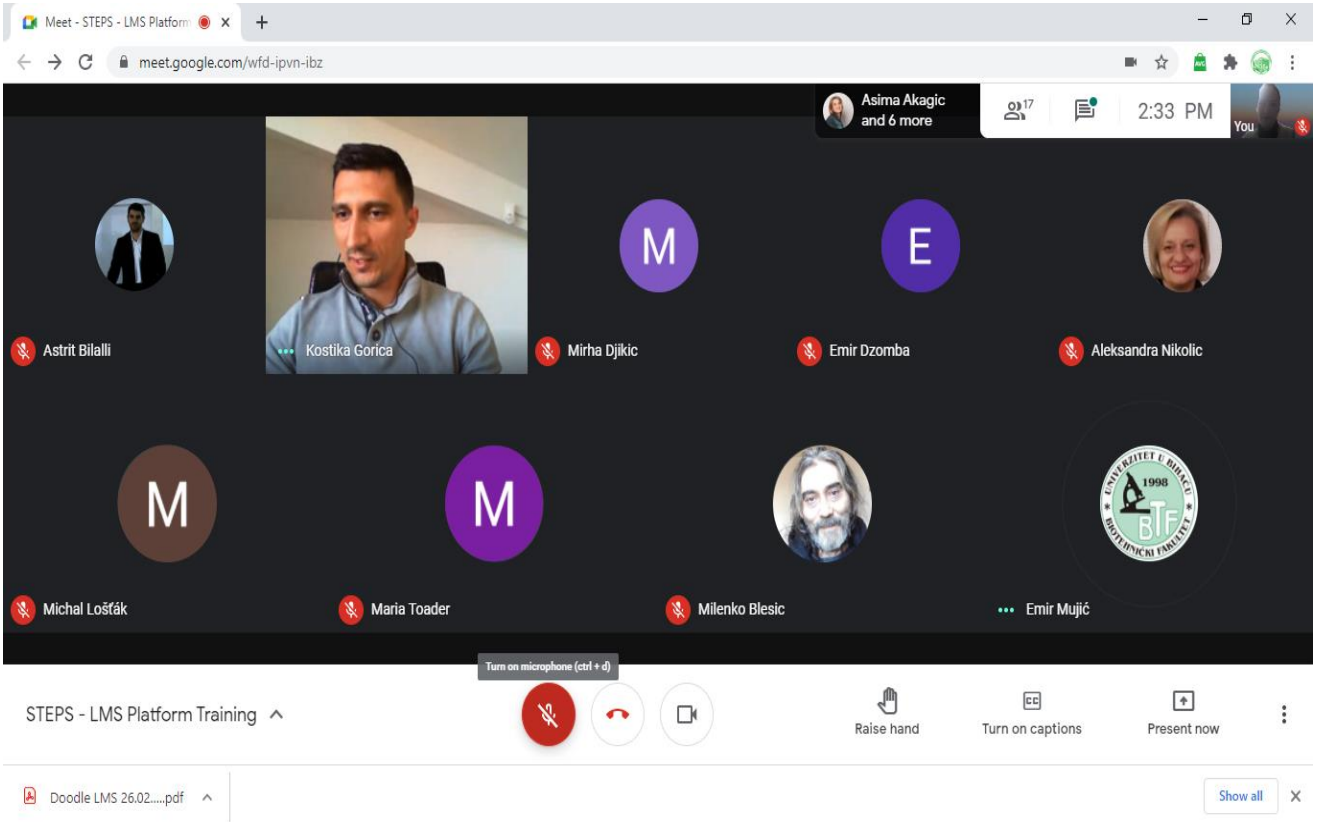


Figure 34: Workshop STEPS-LMS Platform Training

A second training was held online during the Meeting in BIHAC on 23.11.2021 to specify the needs of the country partners where the Master of Science STEPS is implemented and to fulfil all the requirements of the LMS Platform.

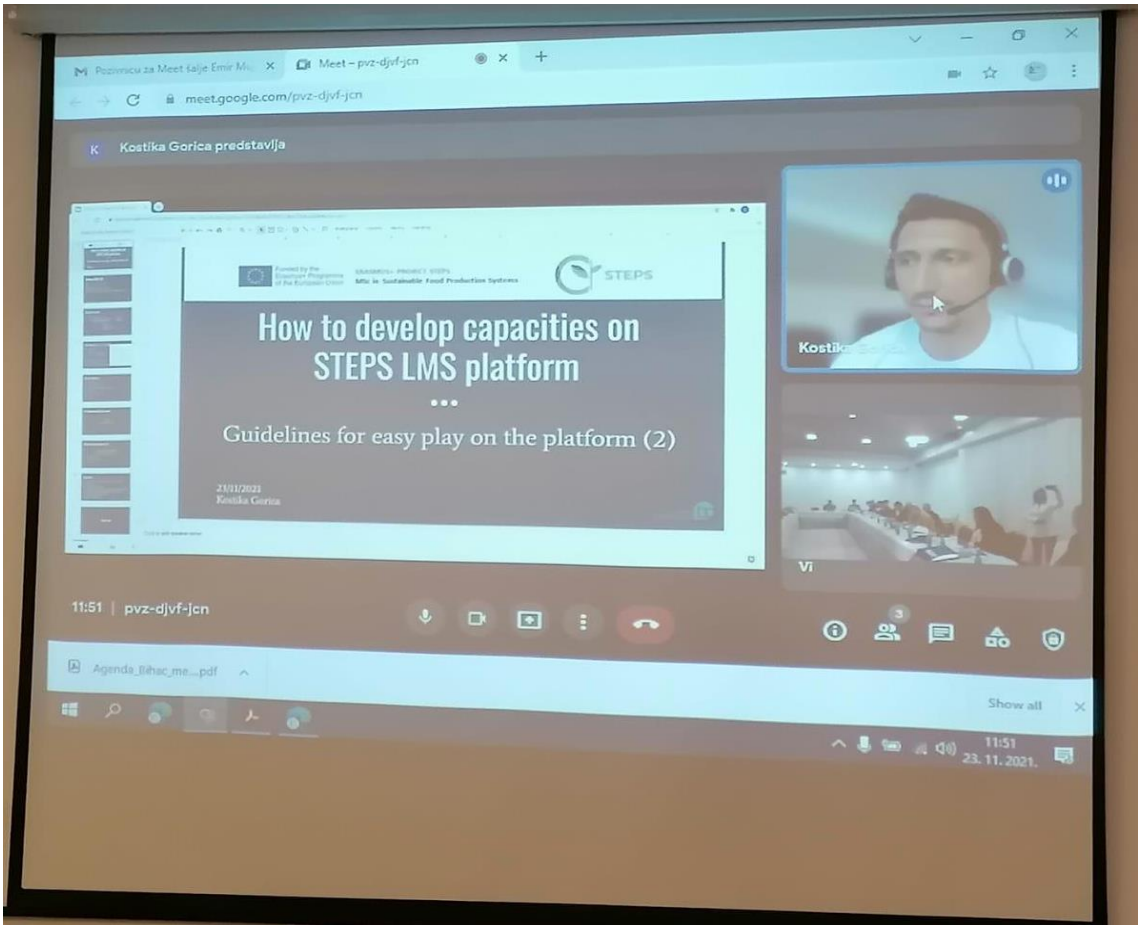


Figure 35: Image from second training on how to develop capacities on STEPS LMS Platform.

IMPLEMENTATION OF STEPS LMS PLATFORM

In the LMS platform are developed 169 courses from the three country partners where the Master of Science "Sustainable Food Production System" is developed and implemented. According to the curricula, the courses are divided into core and elected courses.

In the LMS Platform, all courses are available in English and in the national language of the country where the Master of Science STEPS is being offered. As we can see from the graph, three are the main language, English as an international one and Albanian language for Albania and Kosovo and Bosnia language for Bosnia and Sarajevo Canton. The platform has filters that help the students to choose which course they will choose, to which university and in what language.

Courses are divided into sections and subsections. All the material for the course is uploaded as pdfs, ppts, and videos by the professor responsible for it. Through the LMS platform, he can invite students to participate

in and follow the courses, as well as evaluate them regarding their activity. To see how the students interact, he can also open a discussion or ask a question. Most of the courses have didactic material and some of them are being uploaded.

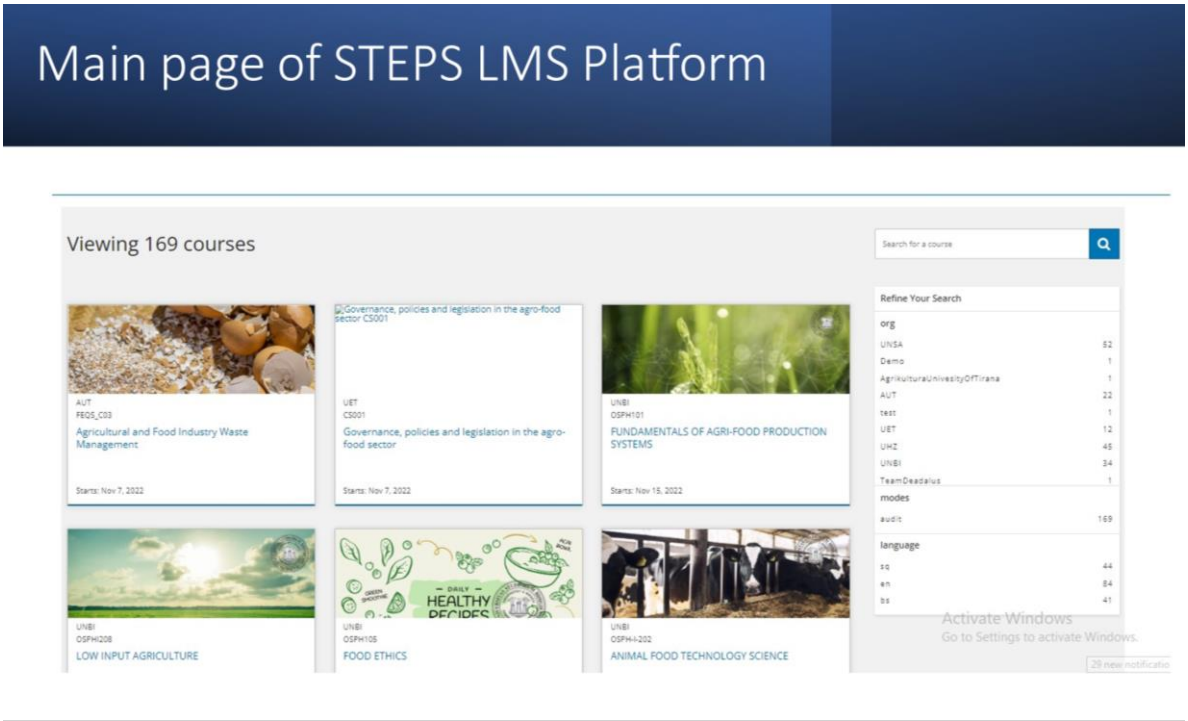


Figure 36: Image of Main page of STEPS LMS platform

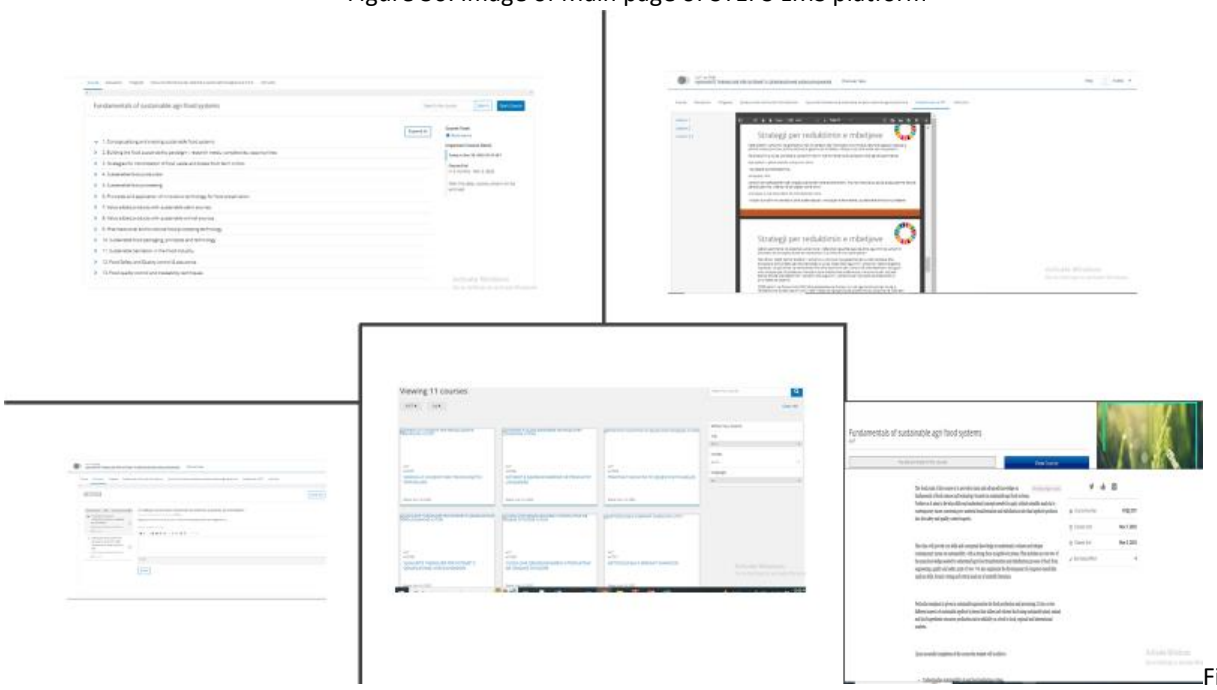
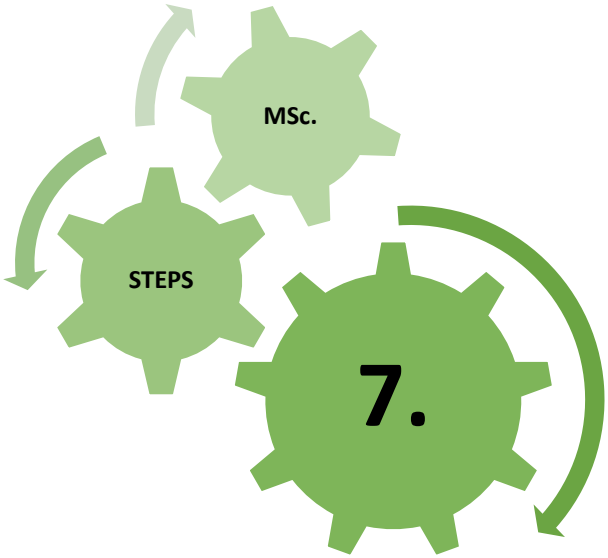


Figure 37: Image of STEPS LMS platform pages where courses are developed, filters implemented, students' interaction.

STATISTICS FROM STEPS LMS PLSTFORM

The graph below shows the number of courses that are open for each University where the STESP Master is implemented.

Figure 38: Statistic date from the STEPS LMS Platform
a) Language of the STEPS Master courses at the LMS Platform
b) No. of STEPS Master courses opened at the LMS Platform for HEIs of WB
c) No. of academic staff registered in the platform.
d) No of students registered in the LMS Platform to follow the courses.



STEPS PARTICIPATION IN SCIENTIFIC CONFERNECES AND SCIENTIFIC JOURNALS

PARTICIPATION OF STEPS PROJECT IN SCIENTIFIC JOURNALS

1. European Modern Studies Journal https://journal-ems.com/

ISSN 2522-9400 **European Modern Studies Journal** *Vol 6 No 2*
available at journal-ems.com

Developing a Joint Master of Sciences in Sustainable Food Production Systems in Western Balkan Countries: Evidence on the Design Process, the Structure of the Curriculum, and the Importance of a New Postgraduate Program

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[6]University of "Haxhi Zeka", Kosovo
[7]Universium College, Kosovo
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[9]Czech University of Life Sciences Prague, Czech Republic
[10]Agricultural University of Athens, Greece
[11]University of Patras, Greece
[12]Ministry of Education, Science, Culture and Sport of Una-Sana Canton, Bosnia and Herzegovina

Abstract. Food production systems are undergoing a structural transformation towards a sustainable resilient state, offering opportunities for economic benefits, employment creation, and enhanced food safety and security. Governing this sustainability transition is a complex process which calls for interventions at all policy levels, including higher education.

Adopting an agri-food systems perspective, the Western Balkans countries are facing challenges which are mostly related to issues such as the modernization of food engineering and food management practices, the organic agriculture production, the post-harvest processes, the supply chain management, the corresponding environmental footprint, etc. Tackling with the afore-mentioned topics requires educational interventions (among other actions), which may contribute effectively towards the specific sustainability transition.

To this purpose, and in light of these countries' current convergence, with the European Union, the Erasmus+ "STEPS" project offered a unique opportunity for collaboration between eleven (11) European partners, who led to the development of a joint Master of Sciences Program entitled "Sustainable Food Production Systems" with two directions: "Food Engineering and Food Safety", and "Food Production Systems Management".

The paper sheds light on the development process of the curriculum, providing evidence on the design process, the structure and the syllabus of the courses, the necessary accreditation process, and the benefits of the new joint postgraduate program.

Keywords: Erasmus+, higher education, master program, sustainable food systems, food engineering, Western Balkans

Introduction

The aspiration of the Western Balkan countries, Albania, Kosovo and Bosnia and Herzegovina to be part of the EU, goes hand in hand with the improvement in two crucial sectors of the economy and society: Agriculture and Food sector and the Education. The intervention and updating of these two sectors in compliance with European Commission requirements and legislation will enable a smoother transition toward the final destination which is EU integration. Western Balkans countries are facing similar challenges regarding

agricultural production, environmental conservation, food supply chain management, food quality and safety and consumer protection. All these challenges need interventions and need to be systematically addressed. To assure a long term and sustainable solution we strongly believe that these challenges should be addressed and reflected in study programs of Higher Education Institutions (HEIs). Furthermore, collaboration between the education sector and stakeholders from the food sector at all levels will aid in the design of a curriculum that reflect the agri-food issues that the Western Balkan countries face. In addition, global and European policies promoting sustainability were explored. The adoption of sustainable food production systems and sustainable educational policies will play a vital part in this strategy. The United Nations' Sustainable Development Goals (SDGs) and the European Green Deal sets addresses comprehensively the challenges of sustainable food systems and recognizes the inextricable links between healthy people, healthy societies, and a healthy planet.

The abovementioned issues were the main impetus for us to undertake and design a project of this nature with the final outcome the implementation of a joint scientific master in "Sustainable Food Production Systems" in HEIs of Western Balkans Countries (Albania, Kosovo, and Bosnia and Herzegovina). STEPS project[1] is co-funded by Erasmus+ Program of European Union, Key Action-2: Cooperation for innovation and the exchange of good practices, Capacity Building in the field of higher education (Project no. 598963-EPP-1-2018-1-AL-EPPKA2-CBHE-JP). For a successful implementing of the scientific master in "Sustainable food production systems", 6 (six) HEIs from Albania (Agricultura University of Tirana and European University of Tirana), Kosovo (University of "Haxhi Zeka" and Universium College) and Bosnia and Herzegovina (University of Sarajevo and University of Bihać) are involved and strongly cooperating with each other. Furthermore, a cantonal administrative body from Bosnia and Herzegovina, Ministry of Education, Science, Culture and Sport of Una-Sana canton, is involved and responsible of overseeing all the documentation required for the master's program's accreditation. The whole process for the design of curricula, program and courses as well as the implementation of the master will be under the guidance and advice of the HEIs partners of the European Union (Czech University of Life Science Prague, University of Agronomic Science and Veterinary Medicine in Bucharest, Agricultural University of Athens) and a private Company, Research Innovation and Development Lab. in Greece.

The master program is in compliance with the Bologna Convention. Moreover, it is designed in accordance with the recommendations and the needs of the target groups and stakeholders, which were identified during the preparatory activities of the project. The master courses are structured under two main pillars: (i) Food engineering, quality, and safety, (ii) Food production systems management. The main focus of the first pillar will be about advanced food science and technologies; innovation in harvest and post-harvest practices; food quality and safety; and energy design of processes and emission control. The main focus of the second pillar will be about agri-food marketing; industrial ecology and circular economy in agriculture; sustainable supply chain management; and innovation in sustainable food systems.

The new master program in "Sustainable food production systems" contains innovating elements that are going to add value to the education policies and agri-food sector within the Western Balkan countries.

STEPS Methodology for Curriculum Design

A comprehensive methodology was developed in order to design a scientific master's curriculum that would reflect the demands of the agri-food sector in the Western Balkans in

[1] https://steps-project.eu/

connection to sustainable food production, rather than just improving existing programs. The following are the main steps in the methodology:

1. *Assessment and analysis of stakeholders needs in Western Balkans*

Several research instruments have been employed in order to identify the competencies and skills needed by agri-food sector in Western Balkans (Albania, Kosovo, and Bosnia Herzegovina) in frame of sustainable food production systems, such as *in-depth interviews, online surveys and focus groups*. These research instruments allowed us to perform a deep analysis of the Food Chain Sector (from farm to table) in Western Balkans, where the main actors were the stakeholders and target groups: Students, academic staff, scientific staff, technical staff, certification bodies in food systems, trainee in food system development program, suppliers, farmers, food processing industries, government agency, NGO etc. (STEPS report, 2019).

2. *Survey on best practices of master programs in sustainable production systems in Europe, North America etc.*

Trace and investigation of at least twenty (20) scientific masters in the subject of sustainable production that have been implemented in various European Union, America, and international countries. The organization/structure of the scientific master program, its influence on the agri-food sector and society, as well as the mechanisms utilized to maintain constant communication with stakeholders and the labor market, were all examined (STEPS report, 2019)

3. *Defining mechanisms for a continuing communication and collaboration between stakeholders and HEIs.*

Data collection of stakeholders that perform in agricultural food sector in Albania, Kosovo, and Bosnia and Herzegovina, along with developing and improving communication channel between HEIs and stakeholders throughout and after STEPS master implementation and their involvement in designing and updating in the future the master program are well define.

4. *Design a harmonized STEPS curriculum and courses in sustainable food production systems within Western Balkans countries.*

The master curricula and courses are design and adapted with the results obtained from analyses of stakeholders needs in Albania, Kosovo and Bosnia and Herzegovina and moreover from the analyses of the best practice of homologue master programs in sustainable food production systems implemented in European Union countries, in America etc.

5. *Design a harmonized STEPS master program syllabus in sustainable food production systems within Western Balkans countries.*

Designing and developing a harmonized courses syllabus is a result of a close collaboration between academic staff of HEIs of Western Balkans and academic staff of HEIs of EU partners. The harmonized syllabus among others includes:

- Basic information about the course, such as course title and code, prerequisites, semester and ECTS units
- Professor/teaching assistances contact information
- Description of course purpose and link with specific processes, problems, and challenges
- Course learning objectives and learning outcomes for each of the sections of the course and skills that are expected to be developed bystudents
- Schedule and course calendar including the details of the educationalcontent that will be presented, activities that will be carried out, individual and/or team projects to be conducted
- Scheduled laboratory experiments and software simulations
- Additional learning resources and literature

- Evaluation and grading criteria for assignments, projects and laboratory reports and the percentage of the various grades to the final grading of students etc.

6. *Assessment of academic staff of HEIs of Western Balkans needs in terms of scientific background improvement.*

Mechanisms choose to fulfilled academic staff of HEIs needs in terms of scientific background improvement in the frame of sustainable food production systems are open lectures, seminars, workshops. Despite invited lecturers, academic staff of HEIs of EU countries involved in project will play a crucial role.

STEPS Master Program Structure and Courses

The scientific master program in " Sustainable food production systems" is designed and adapted by taking into consideration different variables and with the contribution of academic staff of HEIs of the consortium involve in STEPS project under the main supervision of USAMVB (University of Agricultural and Veterinary Medicine of Bucharest). The factors that served as the main driver and where the design of the master program was based are:

- *The results obtain after the analyzes of data of the stakeholders needs in frame of sustainable food production system in Albania, Kosovo, and Bosnia and Herzegovina.*
- *The results obtain after the survey of best practices in frame of sustainable food production systems master programs implemented in EU countries and worldwide.*
- *Bologna convention regarding the Higher Education Polices.*
- *Higher Education legislation and policies applied in Western Balkan countries, Albania, Kosovo, and Bosnia and Herzegovina.*

The outcome was a modernized educational program, which will produce workforce armed to support the transition towards sustainable food production systems, by applying engineering advances, management approaches, policies, and reformations at all levels. Furthermore, the product is a program in line with the European vision for green, circular economy and the national strategies of Western Balkans countries, as related to agriculture restructure, business diversification and rural development. The master is organized in four (4) semesters, over two (2) years, with a total number of credits of 120 ECTS. Courses are divided into two main groups, core and elective. Furthermore, courses are structured under to main pillars of food productions systems:

- *Food engineering, quality, and safety (FEQS)*
- *Food production systems management (MFPS)*

The master in "Sustainable food production systems" will be implemented as joint in Albania between the Agricultural University of Tirana and the European University of Tirana, and in Kosovo between the University of "Haxhi Zeka" and Universium College. In Bosnia and Herzegovina, the master is going to be implemented separately in University of Sarajevo and in University of Bihać. Despite this fact, the core courses that will be developed during the first semesters of the first year of master implementation as define in table 1. are the same in all HEIs of Western Balkans involved in the project.

Table 1. Core courses implemented in the first semester of master program "Sustainable food production systems" in Western Balkans Universities involved in the project STEPS

Universities Agricultural University of Tirana; European University of Tirana; Universitu of "Haxhi Zeka"; Universium College; University of Sarajevo; University of Bihać.				
Semester	Courses	C/E*	Type*	ECTS
First semester	Fundamentals of Sustainable Agri Food Systems	C	FEQS	5
	Agricultural and Food Industry Waste Management	C	FEQS	5
	Advanced Food Science and Technology	C	FEQS	5
	Governance, Policy, and Legislation in the Agri-food Sector	C	MFPS	5
	Food Ethics	C	MFPS	5
	Research Methodologies and Tools	C	MFPS	5

Note: *C/E- core or elective courses. FEQS-food engineering, quality, and safety type of courses. MFPS- management food production systems type of courses.

Courses, such as, "*Fundamentals of Sustainable Agri Food Systems*" and "*Governance, Policy, and Legislation in the Agri-food Sector*" will orient the students toward sustainable concepts not only in agri-food systems production but also will inform them about the regional and EU legislation and policies that modulate the sustainability in food sector. Course in "*Food ethics*" will introduce students to the food ethics as one of the main principles of sustainable agriculture and diets. The course explores how people make decisions about what they eat, as well as the moral, ethical, gender, sociological, industrial, and environmental factors that influence food choices and values. Furthermore, by attending the courses on "*Advanced Food Science and Technology*" and "*Research Methodologies and Tools*" the students will be informed on new technologies and approaches on food production in frame of sustainability.

Two groups of elective courses are delivered based on the two main pillars mentioned above, distributed in the second and third semester of master implementation as described in table 2. The list of courses underline in Table 2 is not exhaustive, specification in elective courses for each Universities (in Albania, Kosovo and Bosnia and Herzegovina) are not mentioned. In the second and third semester will be developed 6 elective courses, 12 elective courses in total, and courses are credit with 5 ECTS each. In the fourth semester the students will be focused on the research work for the master theses.

Table 2. Pools of elective courses that are going to be implemented during the second and third semester of master program "Sustainable food production systems"

Universities Agricultural University of Tirana; European University of Tirana; Universitu of "Haxhi Zeka"; Universium College; University of Sarajevo; University of Bihać.				
Semester	Courses	C/E*	Type*	ECTS
2nd	Quality System Development, Management and Shelf-Life Assessment of Food	E	FEQS	5
	Quality and Sustainability of Plant-source Food Production	E	FEQS	5
	Traceability systems of food products	E	FEQS	5
	Nutrition	E	FEQS	5
	Innovative Practices of Harvesting and Post Harvesting	E	FEQS	5

	Sustainable Ecology for Fish Management and Conservation	E	FEQS	5
	Environmental Chemistry towards Food Processing	E	FEQS	5
3rd	Sustainable Technology of Dairy Products	E	FEQS	5
	Sustainable Technology of Fruit and Vegetable Processing Products	E	FEQS	5
	Sustainable Use of the Plant Protection Products	E	FEQS	5
	Sustainable Technology of Wine, Beer and Spirits	E	FEQS	5
	Sustainable Technology of Bakery Products	E	FEQS	5
	Consumer Science and Sustainable Consumption	E	FEQS	5
	Innovation and Entrepreneurship for Sustainable Food Production Systems	E	MFPS	5
	Marketing of Sustainable Agri-food Products	E	MFPS	5
	Total Quality Management in the Agri-food Sector	E	MFPS	5
	Sustainable Food Value Chain Management	E	MFPS	5
4th	***Master thesis***	C		30

Note: *C/E- core or elective courses. FEQS-food engineering, quality, and safety type of courses. MFPS- management food production systems type of courses.

Courses, such as "*Sustainable Technology of Dairy Products*", "*Sustainable Technology of Fruit and Vegetable Processing Products*", "*Sustainable Technology of Wine, Beer and Spirits*" etc. will inform students for the new technologies applied in the production of dairy products, wine, beer vegetables in the viewpoint of sustainability. Whereas courses such as "*Marketing of Sustainable Agri-food Products*", "*Total Quality Management in the Agri-food Sector*" etc. will inform the students on the agri-food supply and value chains which are addressed in the context of the relationships of all constituent actors such as agriculture, agro-food processing industry, trade, catering, and consumption.

As mentioned above the elective courses in general are the same with a small difference which depends on the results of stakeholders needs in the three countries, Albania, Kosovo and Bosnia and Herzegovina. The master is in the second year of implementation in Bosnia and Herzegovina (University of Sarajevo and University of Bihać) and in Kosovo (between University of "Haxhi Zeka" and Universium College). The joint master in Albania (between Agricultural University of Tirana and European University of Tirana) is still in the procedure of opening with the premise to be open in September 2022.

Significance and Impact of STEPS Master

The main goal of STEPS project goal is to implement a Scientific Master in "Sustainable Food Production Systems" in HEIs of Western Balkans Countries (Albania, Kosovo, and Bosnia and Herzegovina). The project seeks to strengthen partner countries' higher education institutions' capability in providing high-quality education, as well as their ability to conduct research, innovate, and contribute to the Western Balkans' socioeconomic transformation. A relevant question that arises spontaneously is: Why now? Many factors influenced our decision to pursue such a project with the support of EU funds through the Erasmus + program. First and foremost, the necessity that agri-food and education sectors are facing for intervention and improvement in the Western Balkans. Intervention that will be consistent with EU policy, requirements, and legislation, which Albania, Kosovo, and Bosnia and Herzegovina have been attempting to join for many years. It is a novelty for Western Balkan countries implementing a master program, whose courses are totally oriented towards sustainability of a food chain, in terms of food production and management. This will serve as a cornerstone for the orientation

of educational and food sector policies, including safety and food quality, towards sustainable policies in accordance with EU directives and legislation regarding these two sectors. The impact of the project is going to be threefold: (i) improving HEIs curricula and education, (ii) in food industry labor market and (iii) in society. Academics, managers, and scientific staff at the university will benefit from the project's implementation by getting hands-on experience with collaborative activities, cultural exchange, and practical understanding of educational program design and development. The project's outcomes will be shared with counterparts outside of the consortium to foster new collaborations and synergies. The strengthening of HEIs' institutional capacity will provide the foundation for their participation in local, regional, European, and international networks. On a professional level, the project will assist faculty members by providing them with the opportunity to expand their scientific knowledge, become familiar with innovative teaching approaches, and put them into practice using current facilities and resources. The project's most essential outcome will be the development of a competent workforce capable of meeting the demands of food production systems. Graduates will be able to work in the sector as engineers or managers, as well as develop and start new companies in rural areas, depending on their specialization. The focus of their companies based on their education and qualification will be the promotion of slow food, and food production in respect with the environment. The benefit to society stems from its role as a consumer, as food products will be of higher quality and safety, and more importantly, will be available to a wider range of population.

Discussion

Food systems include all actors involved in the production, aggregation, processing, distribution, consumption, and disposal (loss or waste) of food products originating from agriculture (including livestock), forestry, fisheries, and food industries, as well as the larger economic, societal, and natural environments in which they are embedded (von Braun J. *et al.*, 2021). Food systems operate on a global, regional, national, and local scale. They are available in a wide variety of patterns and are specific to each location. Nowadays in Western Balkan countries food production is an intensive activity with profound impacts on the environment (Županić *et al.*, 2021). It consumes large amounts of natural resources such as water and energy, results in the loss of biodiversity, and contributes to climate change (Županić *et al.*, 2021). Globally food production is responsible for 21-37% of greenhouse gas emissions (Lynch *et al.*, 2021).

Despite all efforts and the close collaboration with European Union, access to safe and nutritious food is still problematic for parts of the Western Balkans population. According to Global Nutrition report (Country profile, Albania 2021; Bosnia and Herzegovina, 2021) obesity and diabetes and other non-communicable disease often related to unhealthy food offering and poor dietary choices have become a major public health issue in the Western Balkans, with additional negative effects on economic.

Orientation of food production system into a sustainable food production system is not a regional issue, i.e., an issue of the Western Balkan countries, but a global issue, accompanied by numerous efforts over the years to manage and regulate human food supply and minimize impact on ecosystems (Holden *et al.*, 2018). For the case of European Union countries despite all the efforts and the achievements, the European food system is currently neither sustainable nor 'just' with respect to environmental, social, and economic elements (according to EC, *Toward a sustainable Food Systems*, 2020). Furthermore, the EC, within the Farm to Fork strategy has taken an initiative to define a legislative framework for sustainable food systems by the end of 2023. Its goal is to accelerate and make the transition to sustainable food systems easier (according to EC, *Farm to Fork strategy*, 2020). Moreover, Food and Agricultural Organization (FAO, 2014) have underline five principles to support a common vision for

sustainable agriculture and food. These are: (i) improving efficiency in the use of resources (ii) action to conserve, protect and enhance natural resources; (iii) protect and improve rural livelihoods, equity, and social well-being (iv) enhanced resilience of people, communities, and ecosystems; and (v) effective governance mechanisms.

Based on the foregoing, there are numerous challenges in the production systems that must be addressed in order to orient themselves toward sustainable production systems. We feel that one of the most essential steps in this approach is the intervention in the Education systems in order to educate the next generation on how to produce food in a sustainable manner and sustainable eating habits while protecting environmental biodiversity. While there is extensive research on education for sustainable development, limited research has been conducted on the specific topic of education for sustainable food and nutrition (Tippmann, 2020). In the frame of STEPS project, we have designed a master program not only to be in line with the needs of stakeholders that perform in agri-food sector in Western Balkan countries, but what's more important a master program that contain courses that will inform and oriented students toward sustainable food production systems. To our knowledge, this is the first time a master of this complexity, totally focused on sustainable production systems, has been implemented at the Universities in Albania, Kosovo and Bosnia and Herzegovina. By taking into consideration the complexity of a food chain the courses implemented into the master program are oriented into two main pillars*: (i) Food engineering, quality, and safety (FEQS), (ii) Food production systems management (MFPS*). Courses, such as, "*Fundamentals of Sustainable Agri Food Systems*" and "*Governance, Policy, and Legislation in the Agri-food Sector*", "*Food ethics*", "*Sustainable Technology of Dairy Products*", "*Sustainable Technology of Fruit and Vegetable Processing Products etc.* will orient the students toward sustainable concepts and technologies in agri-food systems production but also will inform them about the regional and EU legislation and policies that modulate the sustainability in food sector. The outcome of this master will be labor force educated with the new vision, new policies, and technologies in frame of sustainability of food chain production and management. We understand that this endeavor alone will not be sufficient to provide a long-term sustainable food production and management chain, which is why we not only encourage but strongly believe that more initiatives should be undertaken in the near future.

Conclusion

The main outcome of STEPS project, co-founded from the Erasmus + Program of European Union, is the implementation of scientific master in "Sustainable food production systems" in Western Balkans countries, Albania, Kosovo and Bosnia and Herzegovina.

Momently the master is implemented in Kosovo, as a joint master between the University of "Haxhi Zeka" and Universium College. In Bosnia and Herzegovina, the master is implemented separately in University of Sarajevo and University of Bihac. Both in Kosovo and Bosnia and Herzegovina the master is in the second year of its implementation. For the case of Albania, the master is still in the procedure of opening, and it is going to be implemented jointly between the Agricultural University of Tirana and European University of Tirana. The master program is entirely compliant with the Bologna Convention, meets all agri-food sector needs in the Western Balkans, and, most importantly, is in line with the EU's Green Vision initiative and From Farm to Fork strategy.

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CURRICULUM DESIGN OF "SUSTAINABLE FOOD PRODUCTION SYSTEMS" MASTER PROGRAMME IN WESTERN BALKANS

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Abstract

The economic sectors involved in the search for a new balance in era of globalization and labour market flexibility are crying out for human resources capable of performing job activities to required standards in a variety of contexts and conditions. In this context, food sector and the education system are facing a lot of issues that are related not only with the strengthening of policies but also with the modernization of food engineering and food management practice. This paper presents the curriculum design of Master programme of Sustainable Food Production Systems according to the specific training needs of target groups, the vision and the strategic goals of the national educational policies regarding food sector for six universities from Western Balkans: Agricultural University of Tirana and European University of Tirana (Albania); University "Hacchi Zeka" of Peje and Universum College (Kosovo); University of Bihac and University of Sarajevo (Bosnia and Herzegovina). University of Agronomic Sciences and Veterinary Medicine of Bucharest was responsible to design this Curriculum, as partner of Erasmus plus project "MSc in sustainable Food Production Systems".

***Key words**: curriculum, master program, sustainable food production, Western Balkans.*

INTRODUCTION

A sustainable food system is a food system that delivers food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised (FAO, 2018). Sustainable food is food that is healthy for the consumers and produced in ecologically and socially responsible and economically fair way (Byloo, 2011). Also, sustainable food production systems offer opportunities for economic benefits, creation of jobs, enhanced food safety and security. According to European Commission (EU), on the Common Agriculture Policies, there are many different views as respect to what constitutes a "sustainable" food system, and what falls within the scope of the sustainability" term (EU, Sustainable Development Strategy, 2016). For food, a sustainable system might be seen as encompassing a range of issues such as security of the supply of food, health, safety, affordability, quality, a strong food industry in terms of jobs and growth and, at the same time, environmental sustainability, in terms of issues such as climate change, biodiversity, water and soil quality (EU, Sustainable Development Strategy, 2016).

According to the Institute of Food Technologists (IFT), a global organization with members in more than 90 countries, dedicated to advancing the science of food and its application across the global food system, "the food sciences draws from many disciplines, including biology, chemical engineering, and biochemistry to better understand food processes and improve food products for the general public" (Food Sciences Institute, 2020).

The economic sectors involved in the search for a new balance in this era of globalization and labour market flexibility are crying out for human resources capable of performing job activities to required standards in a variety of contexts and conditions. In different EU countries the competency certification of training systems is in an advanced stage of development, the training on offer already incorporates a competency-based approach, whereas for other countries this objective has yet to be achieved. The absence of a system of competency standards appears to be the brake that is holding back its adoption, although the

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need to modernize training has been clearly expressed in recent policies, legal instruments and educational reforms ("Steps" project proposal, 2018).

On the other hand, Western Balkans countries (in this case, Albania, Bosnia and Herzegovina, Kosovo) are all facing similar challenges regarding agricultural and food production and rural development (D1.1 report of "Steps" project). The latter are mostly related to the modernization of food engineering and food management practices. Organic agriculture production, post-harvest processes, environmental footprints, supply chain management, industrial ecology have to be addressed by educational programmes on the road to social, economic growth and integration with the EU (D2.1 report of "Steps" project). Such challenges are not limited within national borders; they are related to regional and global issues and call for cooperative actions. The Western Balkans region has clear aspirations to improve its economic competitiveness and integrate further into Europe. A highly skilled population is critical to achieving these goals, which makes creating and maintaining high quality and equitable education systems a vital part of regional development efforts (OECD, 2020).

In this context, the motivation behind the Erasmus plus project "Steps – Master Sciences of Sustainable Food Systems" is to build the capacity of partner countries from Western Balkans, to improve the quality of the education offered, and provide an education that is more aligned to the needs of the labour market and society. Capacity building of these countries will also offer the opportunity to engage in research, innovate, collaborate with EU and international partners in joint programmes and activities and face the challenges of the modern world. This programme offers advanced knowledge to graduates who work or aim to work in private companies and national bodies or start new businesses in particular, in rural, agricultural areas and in this way, can contribute to the transition to sustainable food production systems. The consortium includes partners that have diverse backgrounds and expertise's, so that they deal successfully with the complexities of project: Agricultural University of Tirana (coordinator) and European University of Tirana (Albania); University of Sarajevo, University of Bihac and Ministry of Education, Sciences, Culture and Sport of Una-Sana Canton (Bosnia and Herzegovina); University "Haxhi Zeka" of Peje and Universum College (Kosovo); Czech University of Life Sciences (Czech Republic); University of Agronomic Sciences and Veterinary Medicine of Bucharest (Romania); Agricultural University of Athens and Research Innovation and Development Organisation (Greece).

MATERIALS AND METHODS

In order to design the Curriculum, in the first year of the "Steps" project (2019), the stakeholders of MSc in Sustainable Food Systems: private sector companies SMEs and industry and SMEs, in terms of engineers and managers, rural society, farmers, students, national organizations, policy makers, national priorities, teaching staff, etc., from Higher Educations Institutions (HEIs) partners from Albania, Bosnia and Herzegovina and Kosovo, were investigated about topics of training needs. Also, other elements were analysed and taken into account for developing of specialised Curriculum, such as: the scientific background and the experience of the universities; the vision and the strategic goals of the national educational policies, other best practice in MSc in Food Sciences in the word.

The "Steps" Curriculum was developed by each HEIs partners through complex work teams (see name in Curriculum tables), which included both teaching staff and staff with experience in the certification of study programs, also, teams of EU project partners. University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania, due to its previous experience in creating educational curricula was coordinator of Working Package which had as subject the "Steps" structure and course design (WP2). MSc "Steps" Curriculum includes: the Core (mandatory, compulsory) Courses (subjects, disciplines) and Elective (optional); the number of hours reserved per week for a subject (and how many are intended for lectures, seminar, laboratory or projects); the type of assessment (evaluation, verification during the course); the number of related European Credit Transfer and Accumulation System (ECTS) per semester.

RESULTS AND DISCUSSIONS

The Curriculum is a set of courses that are considered basic and essential for future class work and graduation. Students may receive a grade and academic credit after completion of the course.

The Curriculum is the document that includes all the disciplines that must be passed in order to obtain a university qualification, divided by years of studies.

The list of disciplines included in the Curriculum, as well as their content, reflected in the analytical programmes, correspond to the legal profile and respond to the current training requirements of lawyers, with fundamental knowledge and the ability to adapt to the requirements of the practical activity,

The "Steps" MSc programme was designed according to the Bologna convention.

According to the target groups, the needs analysis, the scientific background, the expertise of the partners, and laboratories that were set up during the project (Figure 1), the Core Courses and Elective Courses will be organized in two working groups: *Food engineering, quality and safety* and *Food production systems management*.

Workloads were measured in ECTS credits and have defined 60 ECTS as a fulltime year of studies. The number of credits differs from country to country and is specified when the master's program is accredited. ECTS credits assigned to courses, in accordance with the estimated workload in terms of formal lectures, laboratory activities, projects and reports to be delivered by students, individual or team-based activities.

MSc Steps programme targets graduates of agriculture, food science and engineering, management, economics, business, engineers and managers already working in private companies or national organizations.

Attendees will have the opportunity to acquire knowledge of sustainability as related to the engineering and socio-economic aspects of food production systems. New teaching methodologies will focus on equip them with soft skills, including problem solving, team work, decision making.

Curriculum Design in Albania. For Agricultural University of Tirana (AUT) and European University of Tirana (EUT), the master program will be organizing by 6 ECTS credits per course, 30 ECTS per semester and 120 ECTS of two study years. The two universities offer a joint master's program in Albania. AUT will contribute with courses in the category of Food Engineering Quality and Safety and Master thesis and EUT will contribute with courses in the category of Food Production Systems Management and Master thesis. The Curriculum has the 6 common Core Courses, 7 Elective Courses for 1st year, 8 Elective Courses for 2sd year, with a total of 21 courses (Table 1).

Curriculum Design in Bosnia and Hertegovina. In University of Sarajevo (UNSA), the Master program was organised into four semesters and account for a total of 120 ECTS credits (Table 2). The Curriculum has a total of 26 courses, from which 6 Core Courses, 10 Elective Courses for 1st year and 10 elective courses for 2nd year. University of Bihac (UNBI) organise only one year of study, with 60 ECTS, and 6 Core Courses and 10 Elective Courses (Table 3). Jointly on the national level based on a bilateral agreement between UNSA and UNBI meaning: exchange all teaching staff during the first semester of the Master study, and joint mentoring and co-mentoring on student Master's thesis and membership in the Master's thesis defence commissions.

Curriculum Design in Kosovo. University of Peja decide to have 30 ECTS credits per semester, divide by 5 ECTS per course, with a total of 120 ECTS. Also, it has 6 Core Courses, 7 Elective Courses in 2nd semester, and 10 Elective Courses for 3rd semester (Table 4). Universum College will have the same structure in first year of study and in second year will have 7.5 ECTS per each course (Table 5). The two universities agree to do joint Master program to following principles: University of Peje should be home University and will prepare Self Evaluation Report; advertisement and enrolment conditions will be decided by home University; first semester with obligatory courses will be organised at University of Peje; second and third semesters and Master thesis will be organised in both universities based on student's interests.

Table 1. MSc - Sustainable Food Production Systems in Albania
Course Curriculum for Agricultural University of Tirana and European University of Tirana
(Renata Kongoli, Luziana Hoxha, Enkeleda Berberi, Anila Kopali, Myqerem Tafaj, Klotilda Marku, Alketa Shehaj, Anisa Peculi, Spase Shumka, Mariola Kodra, Erjon Mamoci (AUT); Kebjana Haka, Blerjana Bino, Elena Kokhti, Ermira Qosja, Arlinda Ymeraj, Klementin Mile, Kreshnik Bello, Irina Canco, Besarta Vladi, Selami Xhepa (EUT))

No.	Course title	Formative category	1st Semester (15 weeks)						2nd Semester (15 weeks)						
			Lect.	S.	Lab.	P.	ECTS	ET	Lect.	S.	Lab	P.	ECTS	ET	Total per sem.
I. CORE COURSES															
1	Fundamentals of sustainable agri food systems	Core; FEQS	30	6	8	16	6	Written and oral							6
2	Agricultural and food industry waste management	Core; FEQS	30	12	0	18	6	W+O							6
3	Advanced food science and technology	Core; FEQS	30	6	8	16	6	W+O							6
4	Governance, policy and legislation in the agri-food sector	Core; MFPS	30	30			6	W+O							6
5	Food Ethics	Core; MFPS	30	30			6	W+O							6
6	Research methodologies and tools	Core; MFPS							30	6	6	18	6	W+O	6
Total core courses: ECTS/semester							30								30
II. ELECTIVE COURSES															
2	Quality System Development, Management and Shelf Life Assessment of Food	Elective; FEQS							30	12	0	18	6	W+O	6
3	Quality and Sustainability of Animal-source Food Production	Elective; FEQS							30	8	10	12	6	W+O	6
4	Traceability systems of food products	Elective; FEQS							30	10	10	10	6	W+O	6
5	Innovative product development	Elective; FEQS							30	6	12	12	6	W+O	6
6	Innovative practices of harvesting and post harvesting	Elective; FEQS							30	2	10	18	6	W+O	6
7	Ecological sustainability for Fish Management and Conservation	Elective; FEQS							30	6	8	16	6	W+O	6
8	Environmental Chemistry towards Food Processing	Elective; FEQS							30	12	8	10	6	W+O	6
Total elective courses: ECTS/semester													30		30
Total year courses: ECTS/year							30						30		60
			3rd Semester (15 weeks)						4th Semester (15 weeks)						
			Lect.	S.	Lab.	P.	ECTS	ET	Lect.	S.	Lab.	P.	ECTS	ET	
III. ELECTIVE COURSES															
9	Management of Sustainable Food Supply Chain	Elective; MFPS	30	30			6	W+O							6
10	Marketing of Sustainable Agri-Food Products	Elective; MFPS	30	30			6	W+O							6
11	Innovation and Entrepreneurship for Sustainable Food Production Systems	Elective; MFPS	30	30			6	W+O							6
12	Sustainable Food Value Chain Management	Elective; MFPS	30	30			6	W+O							6
13	Consumer science and sustainable consumption	Elective; MFPS	30	30			6	W+O							6
14	Data Analysis and Decision-making	Elective; MFPS	30	30			6	W+O							6
15	Total Quality Management in the Agri-Food Sector	Elective; MFPS	30	30			6	W+O							6
16	Business economics and international trade in the agri-food sector	Elective; MFPS	30	30			6	W+O							6
Total elective courses: ECTS/semester							30								30
	Professional Practice	Compulsory							0			60	6	W+O	6
	MASTER THESIS	Compulsory							0		240		24	W+O	24
Total compulsory professional practice and master thesis: ECTS/semester													30		30
Total year courses: ECTS/year							30						30		60

Lect. – Lectures; S – Seminars; Lab.- Laboratory; P – Projects (hours/week); ECTS – credits/semester; ET – Evaluation type
FEQS – Food Engineering, Quality & Safety; MFPS – Management of Food Production Systems

Table 2. MSc - Sustainable Food Production Systems in Bosnia and Hertegovina
Course Curriculum for University of Sarayevo
(Sabahudin Bajramović, Milenko Blesić, Zlatan Sarić, Dragana Ognjenović, Nermina Spaho, Asima Akagić, Emir Džomba, Emir Bećirović)

No.	Course title	Formative category	1st Semester (15 weeks)						2nd Semester (15 weeks)						
			Lect.	S.	Lab.	P.	ECTS	ET	Lect.	S.	Lab	P.	ECTS	ET	Total per sem.
	I. CORE COURSES														
1	Fundamentals of sustainable agri food systems	Core; FEQS	30	-	15	-	5	W							5
2	Agricultural and food industry waste management	Core; FEQS	30	15	-	-	5	W							5
3	Advanced food science and technology	Core; FEQS	15	-	30	-	5	W							5
4	Governance, policy and legislation in the agri-food sector	Core; MFPS	30	15	-	-	5	W + O							5
5	Food Ethics	Core; MFPS	30	15	-	-	5	W							5
6	Research methodologies and tools	Core; MFPS	15	15	-	15	5	W+O							5
Total core courses: ECTS/semester							30								30
	II. ELECTIVE COURSES														
7	Sustainable land management	Elective; MFPS							30	-	15	-	5	W + O	5
8	Waste and recycling technologies in agriculture	Elective; FEQS							30	-	-	15	5	W + O	5
9	Nutritionism	Elective; FEQS							30	15	-	-	5	W	5
10	Rural development	Elective; MFPS							30	15	-	-	5	W	5
11	Harvesting and post-harvesting technologies for agricultural products	Elective; FEQS							30	15	-	-	5	W	5
12	Low input agriculture	Elective; FEQS							30	-	15	-	5	W	5
13	Consumer science and sustainable consumption	Elective; MFPS							30	15	-	-	5	W	5
14	Total quality management in the agri-food sector	Elective; MFPS							15	-	15	15	5	W + Practical	5
15	Agri-food economics	Elective; MFPS							30	-	-	15	5	W	5
16	Business economics and international trade in the agri-food sector	Elective; MFPS							30	-	-	15	5	W	5
Total elective courses: ECTS/semester													30		30
Total year courses: ECTS/year							30						30		60
			3rd Semester (15 weeks)						4th Semester (15 weeks)						
			Lect.	S.	Lab.	P.	ECTS	ET	Lect.	S.	Lab.	P.	ECTS	ET	
	III. ELECTIVE COURSES														
17	Sustainable technology of dairy products	Elective; FEQS	30	-	15	-	5	W + O							5
18	Sustainable technology of fruit and vegetable processing products	Elective; FEQS	30	-	15	-	5	W + O							5
19	Sustainable technology of meat products	Elective; FEQS	30	-	15	-	5	W + O							5
20	Sustainable technology of wine, beer and spirits	Elective; FEQS	30	-	15	-	5	W + O							5
21	Sustainable technology of bakery products	Elective; FEQS	30	-	15	-	5	W + O							5
22	Packaging technology	Elective; FEQS	15	-	15	15	5	W + O							5
23	Innovation and entrepreneurship for sustainable food production systems	Elective; MFPS	30	15	-	-	5	W							5
24	Marketing of sustainable agri-food products	Elective; MFPS	30	15	-	-	5	W							5
25	Project cycle management	Elective; MFPS	30	-	-	15	5	W							5
26	Sustainable food value chain management	Elective; MFPS	30	-	-	15	5	W							5
Total elective courses: ECTS/semester							30								30
	MASTER THESIS	Compulsory							0		240		30	O	30
Total compulsory master thesis: ECTS/semester													30		30
Total year courses: ECTS/year							30						30		60

Lect. – Lectures; S – Seminars; Lab.- Laboratory; P – Projects (hours/week); ECTS – credits/semester; ET – Evaluation type
FEQS – Food Engineering, Quality & Safety; MFPS – Management of Food Production Systems

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Table 3. MSc - Sustainable Food Production Systems in Bosnia and Hertegovina
Course Curriculum for University of Bihac
(teaching staff: Emir Mujić, Refik Šahinović, Suzana Jahić, Halid Makić, Jasmine Ibrahimpašić, Husein Vilić, Vildana Jogić Aida Džaferović, Melisa Oraščanin; students: Adnan Kovačević Amina Selimanović, (UNBI); Adnan Kreso (Ministry of Education, Science and Sport USK))

No.	Course title	Formative category	1st Semester (15 weeks)						2nd Semester (15 weeks)						
			Lect.	S.	Lab.	P.	ECTS	ET	Lect.	S.	Lab	P.	ECTS	ET	Total per sem.
I. CORE COURSES															
1	Fundamentals of sustainable agri food systems	Core; FEQS	45	15	-	15	5	W +O							5
2	Agricultural and food industry waste management	Core; FEQS	30	15	15	-	5	W +O							5
3	Advanced food science and technology	Core; FEQS	30	15	15	-	5	W +O							5
4	Governance, policy and legislation in the agri-food sector	Core; MFPS	15	15	-	15	5	W +O							5
5	Food Ethics	Core; MFPS	30	15	-	15	5	W +O							5
6	Research methodologies and tools	Core; MFPS	30	15	-	15	5	W +O							5
Total core courses: ECTS/semester							30								30
II. ELECTIVE COURSES															
7	Sustainable Land Management	Elective; MFPS							30	15	15	-	5	W +O	5
8	Harvesting and Post-Harvesting Technologies for Agricultural Products	Elective; FEQS							30	15	15	-	5	W +O	5
9	Low Input Agriculture	Elective; FEQS							30	15	-	15	5	W +O	5
10	Total Quality Management in the Agri-Food Sector	Elective; MFPS							30	15	-	15	5	W +O	5
11	Sustainable Technology of Dairy Products	Elective; EQS							30	15	15	-	5	W +O	5
12	Sustainable Technology of Meat Products	Elective; EQS							30	15	15	-	5	W +O	5
13	Sustainable Animal Production	Elective; FEQS							30	15	-	15	5	W +O	5
14	Sustainable Plant Production	Elective; FEQS							30	15	-	15	5	W +O	5
15	Animal Food Technology Science	Elective; FEQS							30	15	15	15	5	W +O	5
16	Marketing of Sustainable Agri-Food Products	Elective; MFPS							30	15	-	15	5	W +O	5
Total elective courses: ECTS/semester													15		15
	MASTER THESIS	Compulsory							0				15	O	15
Total compulsory master thesis: ECTS/semester													15		15
Total year courses: ECTS/year							30						30		60

Lect. – Lectures; S – Seminars; Lab.- Laboratory; P – Projects (hours/week); ECTS – credits/semester; ET – Evaluation type
FEQS – Food Engineering, Quality & Safety; MFPS – Management of Food Production Systems

Figure 1. Aspects of laboratories that were set up during the "Steps" project
(WP5, Development of infrastructures, 2020)

Table 4. MSc - Sustainable Food Production Systems in Kosovo
Course Curriculum for University of Peja
(Nexhdet Shala, Agym Rysha, Florin Peci, Ibish Mazreku, Afrim Selimaj, Fadil Millaku, Sabiha Shala, Ibrahim Hoxha, Defrime Berisha, Arsim Elshani, Naser Bajraktari, Astrit Bilalli, Bakir Kelmendi, Nazmi Hasanaj)

No.	Course title	Formative category	1st Semester (15 weeks)						2nd Semester (15 weeks)						
			Lect.	S.	Lab.	P.	ECTS	ET	Lect.	S.	Lab	P.	ECTS	ET	Total per sem.
I. CORE COURSES															
1	Fundamentals of sustainable agri food systems	Core; FEQS	30		30		5	W+O							5
2	Agricultural and food industry waste management	Core; FEQS	30		30		5	W+O							5
3	Advanced food science and technology	Core; FEQS	30		30		5	W+O							5
4	Governance, policy and legislation in the agri-food sector	Core; MFPS	30	15	15		5	W+O							5
5	Food Ethics	Core; MFPS	30	15	15		5	W+O							5
6	Research methodologies and tools	Core; MFPS	30	15	15		5	W+O							5
Total core courses: ECTS/semester							30								30
II. ELECTIVE COURSES															
7	Quality System Development, Management and Shelf Life Assessment of Food	Elective; FEQS							30		30		5	W+O	5
8	Quality and Sustainability of Plant-source Food Production	Elective; FEQS							30		30		5	W+O	5
9	Traceability systems of food products	Elective; FEQS							30		30		5	W+O	5
10	Nutrition	Elective; FEQS							30		30		5	W+O	5
11	Innovative practices of harvesting and post harvesting	Elective; FEQS							30		30		5	W+O	5
12	Sustainable Ecology for Fish Management and Conservation	Elective; FEQS							30		30		5	W+O	5
13	Environmental Chemistry towards Food Processing	Elective; FEQS							30		30		5	W+O	5
Total elective courses: ECTS/semester													30		30
Total year courses: ECTS/year							30						30		60
			3rd Semester (15 weeks)						4th Semester (15 weeks)						
			Lect.	S.	Lab.	P.	ECTS	ET	Lect.	S.	Lab.	P.	ECTS	ET	
III. ELECTIVE COURSES															
14	Sustainable technology of dairy products	Elective; FEQS	30		30		5	W+O							5
15	Sustainable technology of fruit and vegetable processing products	Elective; FEQS	30		30		5	W+O							5
16	Sustainable Use of the plant protection products	Elective; FEQS	30		30		5	W+O							5
17	Sustainable technology of wine, beer and spirits	Elective; FEQS	30		30		5	W+O							5
18	Sustainable technology of bakery products	Elective; FEQS	30		30		5	W+O							5
19	Consumer science and sustainable consumption	Elective; FEQS	30		30		5	W+O							5
20	Innovation and entrepreneurship for sustainable food production systems	Elective; MFPS	30		30		5	W							5
21	Marketing of sustainable agri-food products	Elective; MFPS	30		30		5	W							5
22	Total quality management in the agri-food sector	Elective; MFPS	30		30		5	W							5
23	Sustainable food value chain management	Elective; MFPS	30		30		5	W							5
Total elective courses: ECTS/semester							30								30
	MASTER THESIS	Compulsory							0				30	O	30
	Total compulsory master thesis: ECTS/semester												30		30
	Total year courses: ECTS/year						30						30		60

Lect. – Lectures; S – Seminars; Lab.- Laboratory; P – Projects (hours/week); ECTS – credits/semester; ET – Evaluation type
FEQS – Food Engineering, Quality & Safety; MFPS – Management of Food Production Systems

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Table 5. MSc - Sustainable Food Production Systems in Kosovo
Course Curriculum for Universum College
(Uran Rraci, Elejtin Berisha, Luan Vardari, Gezim Turkeshi, Muhamet Hajdari)

No.	Course title	Formative category	1st Semester (15 weeks)						2nd Semester (15 weeks)						
			Lect.	S.	Lab.	P.	ECTS	ET	Lect.	S.	Lab	P.	ECTS	ET	Total per sem.
	I. CORE COURSES														
1	Fundamentals of sustainable agri food systems	Core; FEQS	30		30		5	W+O							5
2	Agricultural and food industry waste management	Core; FEQS	30		30		5	W+O							5
3	Advanced food science and technology	Core; FEQS	30		30		5	W+O							5
4	Governance, policy and legislation in the agri-food sector	Core; MFPS	30	15	15		5	W+O							5
5	Food Ethics	Core; MFPS	30	15	15		5	W+O							5
6	Research methodologies and tools	Core; MFPS	30	15	15		5	W+O							5
	Total core courses: ECTS/semester						30								30
	II. ELECTIVE COURSES														
7	Quality System Development, Management and Shelf Life Assessment of Food	Elective; FEQS							30		30		5	W+O	5
8	Quality and Sustainability of Plant-source Food Production	Elective; FEQS							30		30		5	W+O	5
9	Traceability systems of food products	Elective; FEQS							30		30		5	W+O	5
10	Nutrition	Elective; FEQS							30		30		5	W+O	5
11	Innovative practices of harvesting and post harvesting	Elective; FEQS							30		30		5	W+O	5
12	Sustainable Ecology for Fish Management and Conservation	Elective; FEQS							30		30		5	W+O	5
13	Environmental Chemistry towards Food Processing	Elective; FEQS							30		30		5	W+O	5
	Total elective courses: ECTS/semester												30		30
	Total year courses: ECTS/year						30						30		60
			3rd Semester (15 weeks)						4th Semester (15 weeks)						
			Lect.	S.	Lab.	P.	ECTS	ET	Lect.	S.	Lab.	P.	ECTS	ET	
	III. ELECTIVE COURSES														
14	Management of Sustainable Food Supply Chain	Elective; FEQS	30	5	13	25	7.5	W+O							7.5
15	Marketing of Sustainable Agri-Food Products	Elective; FEQS	26	8	13	30	7.5	W+O							7.5
16	Innovation and Entrepreneurship for Sustainable Food Production Systems	Elective; FEQS	30	5	13	25	7.5	W+O							7.5
17	Sustainable Food Value Chain Management	Elective; FEQS	30	8	8	30	7.5	W+O							7.5
18	Consumer science and sustainable consumption	Elective; FEQS	26	13	5	30	7.5	W+O							7.5
19	Data Analysis and Decision-making	Elective; FEQS	30		13	30	7.5	W+O							7.5
20	Total Quality Management in the Agri-Food Sector	Elective; MFPS	30	13	13	15	7.5	W+O							7.5
Total elective courses: ECTS/semester							30								30
	MASTER THESIS	Compulsory							30	20	50	45	30	W+O	30
Total compulsory master thesis: ECTS/semester													30		30
Total year courses: ECTS/year							30						30		60

Lect. – Lectures; S – Seminars; Lab.- Laboratory; P – Projects (hours/week); ECTS – credits/semester; ET – Evaluation type
FEQS – Food Engineering, Quality & Safety; MFPS – Management of Food Production Systems

The courses efficiency and relevance are presented based on high-level learning outcomes. The design provided guidelines for the development of the content of the courses, the educational methodologies and material, the utilisation of Information and communications technology (ICT) tools, the combination of traditional teaching with student-centred or blended learning approaches etc.

Scientific staff of the Agricultural University of Tirana, University of Peje, University of Bihac, University of Agronomic Sciences and Veterinary Medicine of Bucharest and Research Innovation and Development – ReadLab design

the courses related to food engineering, quality and safety.

Scientific staff of the European University of Tirana, Universum College, University of Sarajevo, Czech University of Life Sciences, and Agricultural University of Athens design the courses related to Food production systems management. Ministry of Education, Science, Culture and Sport of Una-Sana Canton provided guidelines in order to ensure that the courses of the MSc programme are designed in accordance with the requirements of the educational systems of the partner countries.

The level of education offered by Western Balkans Higher Education Institutions has to be improved, in order to support the implementation of national policies and priorities related to agriculture restructure, rural development, food safety and security and sustainable food production systems (D1.1 report of "Steps" project).

By taking advantage of the technological growth, the existing agriculture-related study programmes, do not need to increase but rather be combined with Curriculum based on Science, Technology, Engineering, and Mathematics (STEM) oriented subjects ("Steps" project proposal).

Universities themselves need to enhance their networks with the labor market and society, improve the quality of the education offered, help graduates to be engaged with the world of work according to their skills and increase their perception and role considering social and economic growth (EU Commission, 2006).

Update of educational programs, modernization of teaching methodologies, development of infrastructures and professional development of scientific staff are critical, if the educational systems of Western Balkans countries are expected to develop the human capital that will be able to tackle the challenges of modern food production systems .

The goal is to develop capacities and infrastructures and improve the level of education offered, by delivering a new joint MSc programme, which, compared to existing courses and learning programmes, will offer a holistic approach of sustainability aspects of food production systems.

The Core Courses of Curriculum for all HEIs institutions are: Fundamentals of Food Production Systems, Food Industry Waste Management, Advanced Food Science and Technology, Food Legislation, Food Ethics, and Research Methodologies and Tools.

Elective Courses will have subjects: food engineering, including food quality monitoring techniques and safety and management, including supply chain, economics and environmental management of food production systems, sustainable of vegetal and animal production, environment protection issues, agroecology, organic agriculture, etc.

Each Course Description will include:

- course unit title;
- type of course (compulsory or optional);
- semester of delivery;
- number of ECTS credits;
- course description and link with the problems and needs that it intends to address;
- scientific topics, methods and approaches that will be analysed in relation to the specific problems and needs;
- high-level learning outcomes;
- course contents and proposed sections;
- teaching methods and learning activities proposed, including laboratory experiments and software simulations;
- proposed evaluation methods and grading criteria.

The working groups are comprised by scientific staff participating also in seminars/lectures during the workshops and open seminars in HEIs countries and it's are involved in the development of research labs and the experiments and simulations after the installation of the modern equipment in partner countries HEIs.

Institutions participating in the "Steps" project should assure themselves of the competence of their teachers. They should apply fair and transparent processes for the recruitment and development of the staff (D2.2 report of "Steps" project). The teacher's role is essential in creating a high quality student experience and enabling the acquisition of knowledge, competences and skills. Also, scientific staff of HEIs partners will be involved in the development of educational material, research labs, experiments simulations and accompanying material for the STEPS platform.

CONCLUSIONS

The MSc Steps program aims to analyse and to put into service the agri-food production chains, while it is considered to have a considerable impact on economic, social and environmental points.

The mission of the STEPS MSc program is justified by elements of relevance and opportunity in relation to the objectives of education and scientific research, as well as with the national qualification list and, respectively, with the requirements of the labor market.

All documents (Course Curriculum, List of Courses – Core and Elective, Number of Hours per activity, Number of ECTS per course, Names of Teachers, List of Topics for lectures and List of topics for practical applications) were in direct connection with the documents for the accreditation elaborated at National level by HEIs universities.

Descriptions of the MSc programme courses will be provided along with the key scientific topics addressed.

Courses efficiency and relevance will be presented based on high-level learning outcomes.

The design of courses will also provide guidelines for the development of the content of the courses, the educational methodologies and material, the utilisation of ICT tools, the combination of traditional teaching with student-centred or blended learning approaches etc.

ACKNOWLEDGEMENTS

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PARTICIPATION IN SCIENTIFIC CONFERENCES

1. International Conference "Agriculture for Life, Life for Agriculture"

https://agricultureforlife.usamv.ro

SESSION 1
Time: 14:40 – 16:30

Session Moderators: *Prof. Dr. Viorel ION*
Assoc. Prof. Dr. Lenuța Iuliana EPURE

Time	Authors	Paper Title
14:40 – 15:00	Renata KONGOLI, Luziana HOXHA, Gheorghe Valentin ROMAN, Maria TOADER, Petros CHONDROS, Vassiliki CHATZIPETROU	The importance of sustainable food production systems in helping to face today challenges in agricultural production and rural development

THE IMPORTANCE OF SUSTAINABLE FOOD PRODUCTION SYSTEMS IN HELPING TO FACE TODAY CHALLENGES IN AGRICULTURAL PRODUCTION AND RURAL DEVELOPMENT

Renata KONGOLI[1], Luziana HOXHA[1], Gheorghe Valentin ROMAN[2], Maria TOADER[2], Petros CHONDROS[3], Vassiliki CHATZIPETROU[3]

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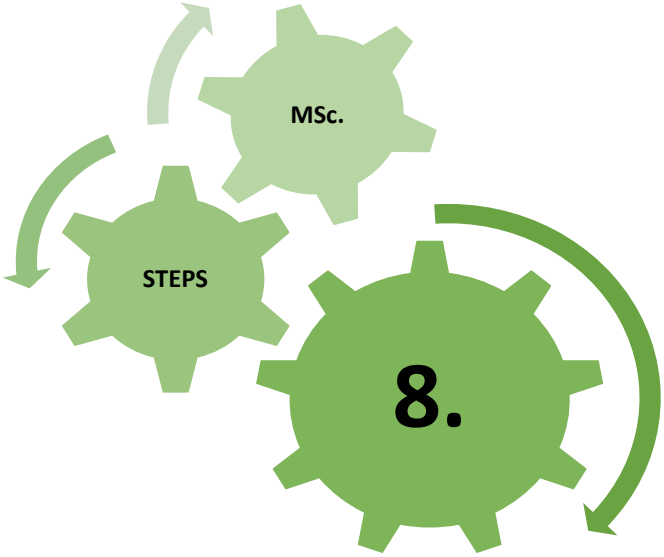
Abstract

Today consumers are being more aware for the food they consume, as an important factor affecting their health, but what is less known is the impact of food producing and consuming on the world's resources. This work aimed to present the challenges facing today agricultural production and rural development, and the need for cooperative actions on modernization of food engineering and food management practices. Structural impediments, traditional practices and low-level of education of people living in rural areas undermine the restructure of the sector, which is still characterized by weak planning, out-dated technology, low productivity, competitiveness and income. The diversification of rural sector

along with transition towards a knowledge-based agriculture, mostly related to the organic agriculture production, post-harvest processes, environmental footprints, supply chain management, industrial ecology, etc., may be achieved through interventions at all levels, that support the implementation of national policies and priorities related to agriculture restructure, rural development, food safety and security and sustainable food production systems. Furthermore, sustainable food production systems, may offer opportunities for economic benefits, creation of jobs, enhanced food safety and security. Related to above challenges, is addressed the need for creation of a new educational program aligned to the needs of the labour market and society at HEIs in Western Balkan countries. Based on above in the framework of Erasmus+ Project STEPS: "MSc in Sustainable Food Production Systems", funded by EU Commission, a new master program is being developed in Albania, Kosovo, and Bosnia and Herzegovina. This modern educational program will have an important role in capacity building of HEIs, as well as offering highly educated engineers and manager, able to tackle the challenges of modern food production systems, restructure of the sector by exploiting the benefits of the institutional frameworks and policies on the road to social, economic growth and integration with the EU.

***Key words**: agriculture, food safety, sustainable food production systems.*

2. Seventh International Scientific Conference "June 5th - World Environment Day", organized by the Biotechnical Faculty of the University of Bihać, in cooperation with Technical Faculty Bihać, University of Nova Gorica-Laboratory for Environmental and Life Science, University Metropolitan Belgrade - Faculty of Applied Ecology – Futura and Ministry of Construction, Urban Development and Environmental Protection of Una-Sana Canton took place on June 9 and 10



SYNERGIES WITH OTHER PROJECTS IN ACTION

1. HORIZON 2020 PROPOSAL FOR THE CALL CE-FNR-07-2020 "FOOD 2030 - EMPOWERING CITIES AS AGENTS OF FOOD SYSTEM TRANSFORMATION" FOOD TRAILS

Building pathways towards FOOD 2030-led urban food policies initiatives from an innovation and co-creation perspective, using empirical data that are uniquely accessible

FOOD TRAILS is a four-year, €12 million project, led by the City of Milan, which aims to translate the MUFPP's (Milan Urban Food Policy Pact) shared vision and collective commitment to integrated urban food policies into measurable and long-term progress towards sustainable food systems.

During the last decade, cities have emerged as key sites to engage with food system transformation. Successful examples of urban food strategies are well documented in the literature, which has to date addressed them as isolated cases. To maximize their impact, best practice examples should be mapped, analyzed, validated and accredited so as to make them eligible for structural support from private or public funding. Today's leading platform for this endeavor is the Milan Urban Food Policy Pact (MUFPP), a powerful global network of learning cities and city-regions that are experimenting around and advocating for, the implementation of a holistic approach to food system transformation.

At the heart of the project lies the co-designing and co-implementation of pilot actions as a leverage point for the development of urban food policies. They create synergies and co benefits across the 4 priority areas identified by the FOOD2030 flagship European research and innovation policy (nutrition and healthy diets, climate and environment, circularity and resource efficiency and innovation and empowerment of communities) in 11 European city-regions: Bergamo (IT), Birmingham (UK), Bordeaux (FR), Copenhagen (DK), Funchal (PR), Grenoble (FR), Groningen (NL), Milan (IT), Thessaloniki (GR), Tirana (AL) and Warsaw (PL).

Our 19-partner Consortium, which will work in conjunction with 27 prominent stakeholders (21 of which are follower cities), brings together municipal governments and the MUFPP with a EU-wide network of cities, leading researchers, civil society organizations, policy networks and the private sector, to co-create, implement and replicate innovative and integrated urban food policies that will deliver co-benefits in terms of human and environmental health and contribute to the creation of more sustainable food cities (in Europe and beyond). This proposal relates to the topic "FOOD 2030 – Empowering cities as agents of food system transformation" (CE-FNR-07-2020).

Main Objective

In the context of an inherently contradictory globalized food system permeated with social, environmental, and economic vulnerabilities and inequalities, cities have emerged as key sites to reimagine, enact and engage in participatory food policy innovations. Faced with the inertia of national food policies that have remained locked in thematic silos, during the last decade city governments have actively attempted to exploit the vacuum created by the absence of comprehensive, coherent, and integrated food and nutrition policies to design more sustainable food systems that are based on participatory forms of engagement and holistic systems thinking.

Against this background, the overall goal of this project is to provide the EU, municipal governments, and other agents of change with evidence-based narratives, co-designed and verified through multi objective and multi-actor FOOD 2030 Living Labs, to support the development, consolidation and replication of innovative food policies for sustainable city-region food systems. The participation in our Consortium of cities of different

sizes and at different levels of policy and governance engagement with food, located in both rural and coastal areas from across Europe, will enable FOOD TRAILS to identify and test a diverse range of strategies for activating and replicating new food-related flows (of knowledge, opportunities, resources and ideas) in urban areas, ensuring that they contribute to the design and implementation of urban-regional food policies that future-proof the European food system in terms of its resilience and sustainability.

Specific objective

Specifically, this multi-actor project will pursue the following objectives:

- To enhance theoretical and practical understanding of innovative urban food strategies,

Based on an intensified interaction between all food system actors and activities, and of their potential for supporting the development of policies that engender food system transformation. This will be achieved through a state-of-the art review of both scientific and 'grey' literature on food.

- To engage and empower communities.

Through the active participation of food system actors in the design and application of the urban food policies for food system transformation. Under the framework of the 'quadruple helix' model of innovation and addressing the Responsible Research and Innovation (RRI) principle about the importance of widening participation to align solutions with the needs and expectations of society, FOOD TRAILS will actively involve key actors from civil society organizations and the public and the private sectors in the FOOD 2030 Living Labs to co-design and implement inclusive and innovative FOOD 2030-related urban food policies.

- To create financial opportunities that will contribute to the long-term sustainability
- To maximize the replicability and transferability of policies (and associated assessment methods) that contribute to systemic food change
- To collaborate with local authorities with a view of creating political commitment

2. ENHANCEMENT OF KNOWLEDGE TRANSFER IN THE FOOD SECTOR STRENGTHENING TECHNOLOGICAL TRANSFER OFFICES IN ALBANIAN UNIVERSITIES
ACRONYM TTO4FOOD
PROPOSALS 2020 - EAC/A02/2019; SELECTION: 2020
KA2 – COOPERATION FOR INNOVATION AND THE EXCHANGE OF GOOD PRACTICES – CAPACITY BUILDING IN THE FIELD OF HIGHER EDUCATION
BUDGET 737 695 EUR

SUMMARY REVIEW

1. Project Description and Components

Project Components

The TTO4FOOD project aims to support the modernization, accessibility and internationalization of higher education in 4 Albanian Universities, improving the quality of higher education and improving management, governance and innovation capacities, as well as the internationalization of HEIs. The project follows the "third mission" of the University (Bologna process), where the activities mean the improvement and use of knowledge to benefit the social, cultural and economic development of the territory.

Albania, as a Partner country, aims to improve the quality of the Higher Education System, in order to respond better to the demands of the labor market, as well as to strengthen the transfer of technologies and cooperation with businesses. Universities and research organizations can play a strategic role through the so-called "Third Mission", which is a powerful tool for increasing innovation in the economic system. In this framework, activities have been defined that do not only focus on training or development of traditional research in the academic field, but are focused on promoting interventions capable of favoring the dissemination of research results, contributing to the socio-economic development of the territory, including external entities, such as companies, associations, organizations, etc.; in other words to increase the human capacity trained by universities, research results and innovation activities to encourage the creation of new businesses and new innovation companies through (Open Innovation), reducing the current distances between research systems and the world of work. At the policy level, initiatives such as the National Technology Program and the Albanian Centers of Excellence (National Strategy) aim at public and private cooperation. The legal framework for the protection of intellectual property has also been improved. But still both of these initiatives are delayed in implementation. Project selection: the inclusion of public universities in different geographical areas that cover almost all of Albania (UBT, UAMD, UV, UK)

Objectives of the Project

The main objective of the project: Improving key competencies and the level of skills according to the requirements of the labor market by strengthening the cooperation between the Albanian university system and the world of work

Specific objectives: Modernization of technology transfer offices in Albanian universities through the improvement of services, level of competence and skills; Strengthening the cooperation of universities with entrepreneurship, supporting new enterprises and creating employment opportunities for young people; Strengthening and internationalization of universities in scientific cooperation and knowledge transfer in the agri-food sector

The results according to the objectives expected to be achieved at the end of the project are: Preparation of a guide (functions, procedures and services); 60 key competence level and skills of the Albanian staff will be improved of the TTOs of the HEIs; Establishment of offices in each university; Strengthening the internationalization of TTO offices, through the network created in the project, the advanced experiences that EU partners have.

The planned activities aim to realize: Guides; the competences and abilities of the academic and administrative staff, the TTO network, through cooperation, exchange of experiences, sharing of competences at the national and international level, in favor of continuous improvement and application of their functions, procedures and services Coherent management with transparent processes and clear responsibilities of decision-making and conflict resolution will ensure the implementation of the project, according to these work packages:

Package 1: Preparation: Design of TTO core functions, procedures and services; Package 2, 3, 4: Development: Improvement of competencies and skills in 4 TTO of Albanian universities; establishment of specific competencies and skills; Local TTO pilot initiatives, TTO internationalization; Package 5: Quality plan; Package 6: Propagation and Development, Package 7: Management

Progress of the project

The project is under development, the Grant Agreement has been signed between the UNIBA coordinator and the Education, Audiovisual and Culture Executive Agency. During this period, partnership agreements were prepared. A questionnaire focused on 3 main pillars of TTO was drafted: 1. Management of intellectual property; 2. Business support; 3. University-enterprise cooperation. From the needs analysis, the importance of creating a specific space for knowledge sharing (between researchers, students, SMEs and large companies) to facilitate collaboration in the innovation model emerged. EU partners (UNIBA, CIHEAM, SINAGRI, CUT) guarantee the success of the project. Also, 3 meetings (online) were held, work groups and staff engaged in the project were set up, etc.

Target interested groups (for 4 universities): Academic staff engaged in the production of knowledge; The administrative staff of the university, who will create opportunities for cooperation; Students, with new innovative ideas; The trainees who will participate in the training courses; SMEs, mainly the agri-food sector, contributing to piloting innovations/supporting new demonstration ideas; Public institutions, providing support with funds.

Partner 1- Universita degli Studi di Bari Aldo Moro – UNIBA
Partner 2- Center International de Hautes Etudes Agronomiques Méditerranéeennes Bari – CIHEAM Ba
Partner 3- Servizi Avanzati per a Sostenibilita' e l'innovazione nelle Aree Agricole e Rurali Societa' a Responsabilita' Limitata- SINAGRI s.r.l.
Partner 4 - Cyprus University of Technology - CUT
Partner 5 - Agricultural University of Tirana - AUT
Partner 6- University "Alkesander Moisiu" of Durres-UAMD
Partner 7- University of Vlora "Ismail Qemali"-UV Partner 8- University "Fan S. Noli" of Korca-UNIKO

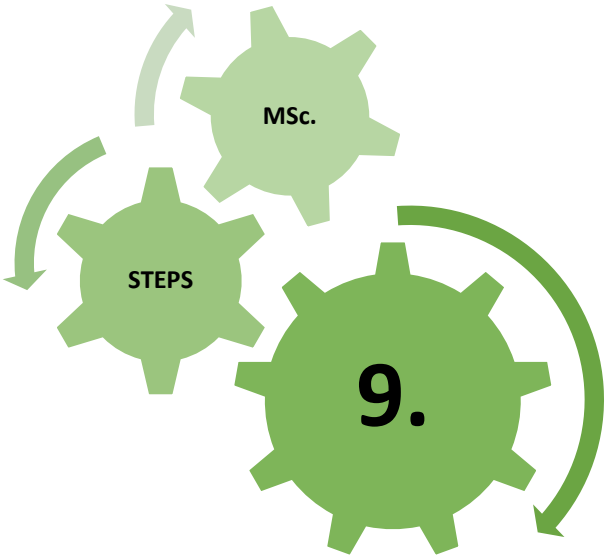
Impact of the Project/Indicators of Project Development Objectives

The indicators of the project in terms of expected results are the improvement of the competencies and skills of the university staff, promoting successful start-up and spin-off business models, increasing competition between businesses in the agriculture and agro-processing sectors, improving scientific cooperation (network) and international research.

3. BUSINESS PARTNERSHIPS AND SOLUTIONS FOR SDGS

"QUALITATIVE ASSESSMENT WITH THE MAIN ACTORS IN THE AGRI-PROCESSING SECTOR TO ASSESS SDG PRINCIPLES AND POSITIVE PRACTICES ADOPTED BY THE PRIVATE SECTOR, AS WELL AS DESIGN A ROADMAP OF SDG/EU GREEN AGENDA ADOPTION IN AGRI-PROCESSING SECTOR IN ALBANIA

Project FINANCED BY UNDP AND FAO



STEPS SUSTAINABILITY

Funded by the Erasmus+ Programme of the European Union

Co-funded by the Erasmus+ Programme of the European Union

DISSEMINATION AND EXPLOITATION OF STEPS PLATFORM

Memorandum of utilization of STEPS platform

AGREEMENT on educational, scientific and technical cooperation

November 2022

Co-funded by the Erasmus+ Programme of the European Union

The main outcome of the project is the delivery of a common master, under the name of "Sustainable Food Production Systems", which is open in three different regions of Western Balkans (Albania, Kosovo, Bosnia & Herzegovina). Needs and specification of each trade marker, rural area or other stakeholder that perform in food industry for each of the country's mentioned above are reflected in the Master curricula.

The common name for all parties of the Agreement is "Contracting Parties" or "Partner institutions"

In order to strengthen the capacity for training and education possibilities in line with STEPS Scientific master when the financial aid from Erasmus + European Commission is terminated, it is in everyone's best interest for scientific to exchange academic staff and students.

All of the STEPS project partners have committed to the following Agreement in light of their shared desire to maintain the master's sustainability as well as to continue their collaboration in the fields of education, science, and technology.

Since there is a common interest in the overcoming social barriers in education of instrumental analysis in food safety and quality control and also in management of food chain, exchange of scientific and practical knowledge and experience, strengthening the capacity of training and education possibilities, the Contracting Parties have established the agreement, as follows.

Article 1.

The educational institution of 9 (nine) Heigh Education Institution, a private company and a Governmental Cantonal body from Albania, Kosovo, Bosnia & Herzegovina, Czech Republic, Rumania and Greece are prepared for mutual educational cooperation, scientific research and other forms of cooperation in the areas of registered activities.

Article 2.

The contracting parties have an interest in their long-term mutual cooperation through establishing the sustainability of the project "STEPS: "Master in Sustainability Food Production Systems" after its completion, in which the educational institutions signatory to this Agreement were active participants;

- joint usage of laboratory equipment from scientific staff and exchange students which were part of the Project to expand long-term sustainability
- Joint usage of web platform domain which was developed within the project.
- Exchange of researchers, teachers, associates, and students.
- Scientific and research collaboration in realization of international and national projects.
- Exchange of scientific experiences and achievements.

Article 3.

The agreement generally defines elements of educational, scientific and technical cooperation between the contracting parties. In the case that some of the forms of cooperation are not covered by this Agreement, a special agreement on regulation of the subject of cooperation will be signed.

Article 4.

Within the possibilities provided in Article 2 of this Agreement, educational institutions, and signatories to the Agreement, will separately define mutual rights and obligations in each specific joint project using Contract annexes

Article 5.

The Contracting Parties shall implement the agreed cooperation under this Agreement in the following manner:

- Joint educational and research activity will be accomplished through bilateral and multilateral projects that may also involve participation of other entities that are not signatories to this agreement.

Article 6.

This contract does not imply any financial involvement of any party. All parties agree that the financial arrangements necessary for the implementation of this Agreement must be directly negotiated for each specific activity and will depend on the availability of funds. Each signatory to the Agreement will provide its own sources of funding for the completion of concrete forms of cooperation, or the source of funding will be provided as an outcome of joint scientific and research projects.

Article 7.

The Parties agree to resolve all mutual misunderstandings with mutual respect, mutual contact and agreement.

Article 8.

This Agreement shall enter into force when signed by representatives of the contracting parties, in accordance with the rules that oblige them.

Article 9.

This Agreement is concluded for an indefinite period.

Article 10.

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Amendments to this Agreement may be made by special annexes, in the manner and procedure as the Agreement has been concluded.

Article 11.

Any Contracting Party may require the termination of this Agreement if such circumstances arise which lead the Contracting Party to an unequal position or which substantially violate the interests of the Contracting Party without her fault, with the obligation to file a written request for termination at least six months earlier to each of the signatories of the Agreement.

Article 12.

All notices and correspondence of the contracting parties will be sent to official addresses, e-mail, telephone and fax.

Article 13.

This agreement is made in ... identical copies and each contracting party holds ... copies.

Signed ... (when) and ... (where)