ECAP

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Erasmus+ KA2 Capacity Building in the Field of Higher Education

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# ECAP - ENHANCING COMPETENCIES OF CENTRAL ASIAN UNIVERSITIES IN AGRICULTURAL POLICY FOCUSED ON ENVIRONMENTAL PROTECTION & LAND MANAGEMENT

## About the project

ECAP is an Erasmus+ KA2 Capacity Building in Higher Education project No. 561590-EPP-1-2015-1-SK-EPPKA2-CBHE-JP implemented in the consortium with partners from Slovakia, Austria, Czech Republic, Kazakhstan and Uzbekistan. The project starts from the necessity of enhancement and strengthening the awareness in environmental protection and land management as integral parts of the agricultural policy needed to be implemented in Uzbekistan and the Republic of Kazakhstan via innovative curricula addressed to students of Uzbek and Kazakh universities, with intention of initiating a public discussion at both - academic level, as well as at the level of policy makers in relevant fields.

## Project outputs

**Target Group Needs Analysis** on Environmental Protection and Land Management in the field of higher education.

The purpose of the document is to analyse the situation in partner organisations and in partner countries (Slovakia, Austria, Czech Republic, Kazakhstan and Uzbekistan) in the field of higher education on environmental protection and land management. The investigations are used to gain information for the purpose of identifying gaps and needs in the current training curricula of Central Asian partner universities with focus on environmental protection and land management. The document is based on the results of a questionnaire.

All information gained by the questionnaire as well as the findings of the analysis of these data are presented in the publication. This document is used for the compilation of the Methodological Manual which for guiding Central Asian partners when innovating study programmes and developing content of newly created or updated courses.

**Methodological Manual for Curricula Development** The manual is designed as guideline, how to develop and/or to modify programmes and/or courses of universities in Kazakhstan and Uzbekistan to meet the requirements of the Bologna Process with its aim to harmonize higher academic education in Europe. The document is created by the ECAP project consortium under the supervision of the project coordinator, the Slovak University of Agriculture in Nitra (SUA), with essential contributions from the Czech University of Life Sciences Prague (CULS) and from the University of Natural Resources and Life Sciences Vienna (BOKU).

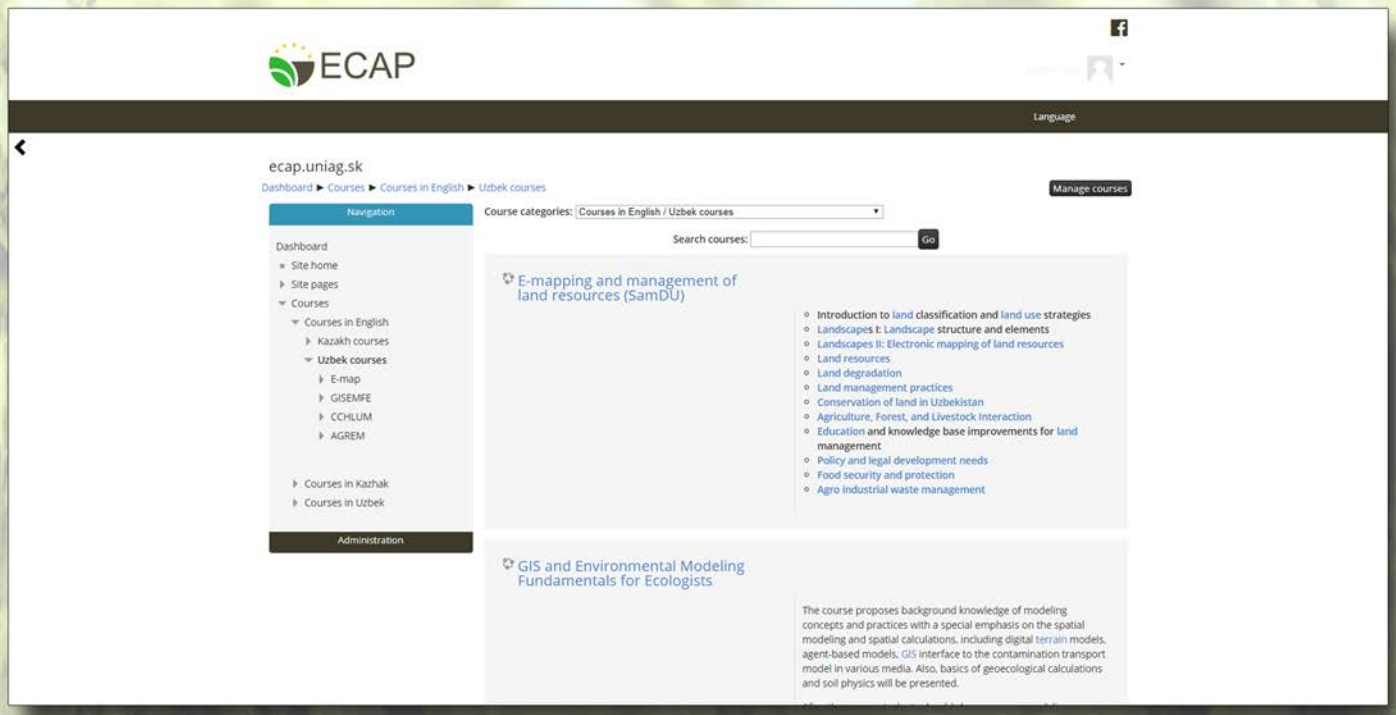
The main purpose of the Curriculum Manual is to facilitate development of study programmes, courses and syllabuses focused to higher academic education in the fields of Environmental Protection and Land Management.

The material is based on European standards concerning the creation of study programmes. The Curriculum Manual provides:

- Guidelines for creation of templates of study programmes
- Guidelines for creation of templates of courses and syllabuses

## E-learning platform

E-learning platform will allow to create quality training course content for the newly developed or innovated courses of partner universities. The courses will are available in English and in native laguages. It can be accessed by the following link http://ecap.uniag.sk/eplatform.




## Training curricula for students of CA universities at the undergraduate degree.

Each partner from CA countries with assistance of supervisors from EU partners have developed or innovated two courses, they are following:

### KAZAKH NATIONAL AGRARIAN UNIVERSITY (KAZNAU)

### 1. Natural Resources and Sustainable Development.

The course covers issues such as the management of land and water resources, environmental and climatological concerns and methods of assessing and handling data related to natural resources in a development context. The main objective is to see natural resource management in developing countries from a holistic and sustainable perspective. The main focus is on land and water resources in the light of climate change.

### 2. Monitoring and Cadastre of Land Resources.

The course Monitoring and Cadastre of Land Resources will provide students with the knowledge and hands-on skills to monitor and cadastre of land resources, skills which have proven to be indispensable input for making plans and finding solutions for a sustainable future.

## KOSTANAY STATE UNIVERSITY A. BAITURSYNOV (KSU)

### 1. Environmental Monitoring

Ensuring environmental safety as a component of sustainable development of the state, and prevention of harmful anthropogenic impact on the environment and human beings, are the basic directions of environmental protection. One of the important instruments of environmental protection is environmental monitoring. It is designed to provide timely and reliable information on the state of the environment, which is the basis for the development and adoption of optimal management decisions in the field of environmental protection, as well as for assessing the effectiveness of environmental protection measures and the prevention of environmental emergencies.

### 2. Land Use Planning

The question of rational land-use in conditions of a variety of types of ownership and management on land includes a wide group of activities to further intensify land-use, environmental protection, soil fertility increase on a basis of large-scale deployment of achievements of science and best practices. First of all, organization of rational and efficient usage of land resources in every level of of national economy is very important. As well as land management with consideration of natural and economical specific, development perspective of agriculture and other industries of economy. This is a subject of the land-use planning.

## SAMARKAND STATE UNIVERSITY (SAMSU)

### 1. Application of GIS/RS on environmental monitoring

The course covers various aspects of Geoinformatics such as coordinate systems and projections, spatial data models and their structure, spatial database technology, data supply for geographic information systems: digital maps, digitizing, and surveying with geodetic instruments, basic cartographic methodology, project planning and system solutions for GIS in organisations; basic geodesy; basic remote sensing, thematic classification of multispectral data. Principles and application of Geographic Information Systems (GIS) technologies with emphasis on the use of GIS for collecting, storing and analyzing spatial data associated with agricultural and natural sciences. Application of Global Positioning Systems (GPS) and GIS in agriculture and natural resource management.

### 2. E-mapping and management of land resources

The course is taught through an integration of theory and practice. We rely upon “lecture and discussion” to convey theoretical rationales and to describe geospatial data, data handling approaches, and analytical techniques for information fusion, management, and analysis; hands-on data processing to develop student skills in spatial digital technologies through lab experiences designed to map, monitor, and manage a diversity of multi-thematic and multi-scale information with a focus on assessing land use/land cover change at the farm and landscape levels in Uzbekistan.

## KARAKALPAK STATE UNIVERSITY NAMED AFTER BERDAKH (KARSU)

### 1. GIS and Environmental Modeling Fundamentals for Ecologists

The course proposes background knowledge of modeling concepts and practises with a special emphasis on the spatial modeling and spatial calculations, including digital terrain models, agent-based models, GIS interface to the contamination transport model in various media. Also basics of geoecological calculations and soil physics will be presented.

After the course students should choose proper modeling approach and platform for a particular environment problem, they will be able to formulate initial and boundary conditions and prepare input spatial data. Also they will be able to understood results of the simulation, verify it, and integrate the result with spatial and non-spatial data. Competences in active interaction with numerical methods and spatial data handling will be very useful in other disciplines as well as for their further work as ecologists.

### 2. Climate changes and land use management

Climate change brings new threats and risks to vulnerable natural-territorial complexes of Central Asia. Preparedness of the ecology expert for new global challenges including climate changes demands knowing of up-to-date conceptual framework in applied ecology. Ecosystem services conception is one of the fundamentals of this framework. Following UNEP, ecosystem services are the benefits that people get from nature. This approach provides a framework by which human-nature interaction is integrated into public and private decision making. Implementation of the ecosystem services approach typically incorporates a variety of methods, including ecosystem service dependency and impact assessment, quantification and valuation, scenarios and policies. Incorporation ecosystem services proficiency with rational land use practices improves a level of student's general outlook in nature use and accomplishes the skills in integrated environmental management.

## Project progres

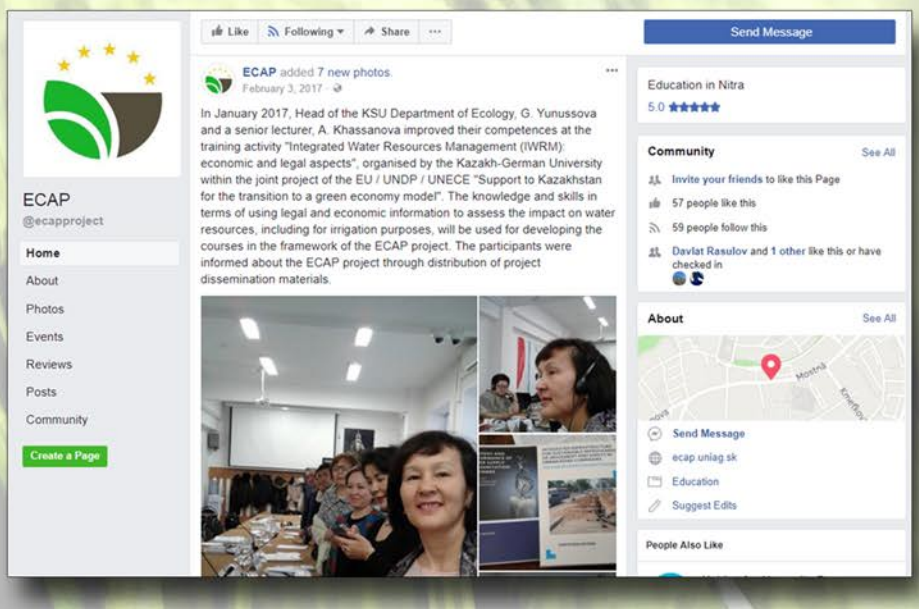

Training for teachers and consortium meeting was held at the University of Natural Resources and Life Sciences on 20 – 24 February 2017, the ECAP project consortium organised the training activity in Vienna, Austria for teachers and experts from partner universities from Central Asia – Kazakh National Agrarian University, Kostanay State University A. Baitursynov and Samarkand State University. During the training activity experts from the Slovak University of Agriculture in Nitra, the University of Natural Resources and Life Sciences, Vienna and the Czech University of Life Sciences Prague presented their professional knowledge and practical experiences in the field of land administration, land use planning and water management GIS Fundamentals and Geographic Data Availability for Environmental Applications, digital soil mapping as a tool for soil protection, implementation of the EU environmental policy and law in the slovak condition During the training experts and teachers had a chance to go excursion to the laboratory of the Institute of Hydraulics and Rural Water Management.

Third training activity for teachers and experts from partner universities from Central Asia – Kazakh National Agrarian University, Kostanay State University A. Baitursynov, Samarkand State University and Karakalpak State University was organised by the ECAP project consortium on 11 – 13 September 2017 in Nitra, Slovakia. During the training activity experts from the Slovak University of Agriculture in Nitra, the University of Natural Resources and Life Sciences, Vienna and the Czech University of Life Sciences Prague provided training participants with expert information in the field of land degradation, land consolidation, remote sensing, photogrammetry, water pollution and treatment and environmental monitoring.

## Dissemination activities

### The main dissemination activities of the project are following:

In January 2017, Head of the KSU Department of Ecology, G. Yunussova and a senior lecturer, A. Khassanova improved their competences at the training activity "Integrated Water Resources Management (IWRM): economic and legal aspects", organised by the Kazakh-German University within the joint project of the EU / UNDP / UNECE "Support to Kazakhstan for the transition to a green economy model". The knowledge and skills in terms of using legal and economic information to assess the impact on water resources, including for irrigation purposes, will be used for developing the courses in the framework of the ECAP project. The participants were informed about the ECAP project through distribution of project dissemination materials.




On 15th – 16th November 2016 the "TEMPUS Public Foundation" in Budapest hosted the international information seminar on Centralized Actions in cooperation with Partner Countries of the ERASMUS + programme. The event was organized in cooperation with the Slovak Academic Association for International Cooperation (SAAIC) and the Austrian agency for international mobility and cooperation in education, science and research (OeAD). The ECAP project has also been represented.

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