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

Work package 2

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1 Introduction

This document has been created within the Erasmus+ CBHE project “Enhancing Competencies of Central Asian Universities in Agricultural Policy focused on Environmental Protection & Land Management – ECAP” No. 561590-EPP-1-2015-1-SK-EPPKA2-CBHE-JP.

The purpose of this 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 current document is based on the results of a questionnaire developed by the project coordinator (see Annex A). After the short introduction and the explanation on the structure, a short description of all the partner universities involved in the project is given. Chapter 3 is focused to the Higher Education on the topic of Environmental protection and Land management at all partner universities. National co-operations and the political environment in each of the partner countries are outlined in *Chapter 4*. Afterwards the academic environment as well as a compilation of project relevant study courses offered at all partner universities is presented. In *Chapter 6* the agricultural sector on the two relevant project topics is analysed, followed by the documentation of strengths, weaknesses, opportunities and threats of Land Management and Environmental Protection activities in the partner countries.

2 Brief description of partner universities

The consortium of the ECAP project consists of 7 partners from 3 European and 2 Central Asian countries:

- Partner 1: Slovak University of Agriculture in Nitra (SUA), Slovakia
- Partner 2: University of Natural Resources and Life Sciences Vienna (BOKU), Austria
- Partner 3: Czech University of Life Sciences Prague (CULS), Czech Republic,
- Partner 4: Kazakh National Agrarian University (KazNAU), Kazakhstan,
- Partner 5: A.Baitursynov Kostanay State University (KSU), Kazakhstan,
- Partner 6: Samarkand State University (SamDU), Uzbekistan,
- Partner 7: Karakalpak State University (KarSU), Uzbekistan

2.1 Slovak University of Agriculture in Nitra (SUA)

SUA is a top educational and scientific institution with its main aim to provide students with higher education in agriculture and related sciences. SUA offers at 6 faculties and 56 departments a wide range of study possibilities in the areas of agricultural, natural, economic,



technical and social sciences. It offers 36 bachelor degree programs, 31 master and 22 doctoral degree programs. Around 10.000 students are enrolled in study programs of all levels and forms of study each year. SUA has 571 Academics and 651 research and technical staff.

2.2 University of Natural Resources and Life Sciences Vienna (BOKU)

BOKU focuses on renewable resources and their conservation and protection. The topics aimed by BOKU are various: Forestry and Wood Science, Water Management, Agriculture, Food Chemistry and Biotechnology, Natural Resources Management and Ecological Engineering, Landscape Design and Landscape Planning, Environment and Bio-Resources Management. BOKU attends about 12.000 students and it also employs more than 1.500 people. BOKU offers more than 40 study programs on BSc, MSc and PhD level.

2.3 Czech University of Life Sciences Prague (CULS)

CULS has various faculties with different focuses. Faculties related to the environment are: Faculty of Agrobiolgy, Food and Natural Resources, Faculty of Tropical AgriSciences, Faculty of Environmental Science and Faculty of Forestry and Wood Sciences. CULS aims primarily at life sciences and bio economy (from physiology to contemporary management). There are more than 150 study programs offered at BSc, MSc and PhD level. CULS attends almost 25.000 students from which 2.200 students are international students. There are 6 faculties, 1 institute, 60 departments and approximately 1.700 employees.

2.4 Kazakh National Agrarian University (KazNAU)

KazNAU focuses on agro-industrial development. The university is attended by more than 6.000 students. University staff consists of 9 academicians of NAS of the RK, 172 doctors of sciences and professors, 300 candidate of sciences, 12 PhDs and 166 masters of sciences. There are many study programs: 42 Bachelor-, 39 Master- and 16 PhD-programs.

2.5 A. Baitursynov Kostanay State University (KSU)

KSU focuses on Agriculture, Economics, Engineering, Humanities, IT, Law and Veterinary Sciences. KSU has more than 5.000 students, 7 faculties, 31 departments and it provides Bachelor, Master and PhD level of education.

2.6 Samarkand State University (SamDU)

SamDU is part of international scientific and educational centres and programs such as Erasmus+, NATO, DFG, UNDP, USAID, ICARDA, MAGATE and many others. Academic staff, graduate and undergraduate students constantly take part in international individual grants and exchange programs.



2.7 Karakalpak State University (KarSU)

KarSU focuses on Humanities, Management, Natural Sciences and Ecology, Technology, Informatics, Athletics. There are 8.000 BSc students and more than 200 MSc students. There are 11 faculties and 39 chairs. KarSU has 1 member of Academy of Science of Uzbekistan, 31 professors and doctoral degree holders, 168 associate professors (PhD). Study programs related to Agricultural Policy are: Geography, Soil Science, Ecology and Environment protection, Biology, Hydrometeorology, Law, Economy, and Accounting.

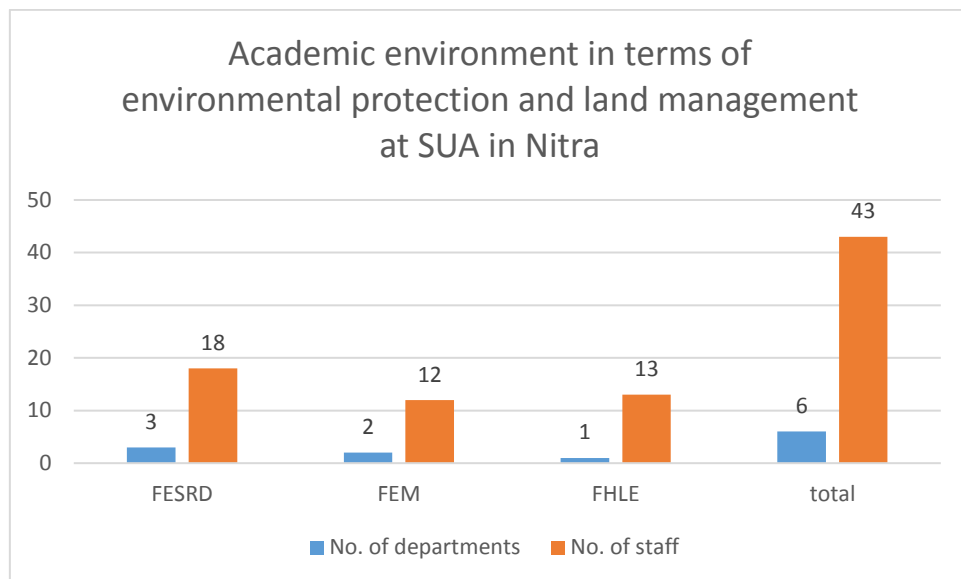
3 Higher Education on environmental protection and land management

The knowledge about the educational and scientific environment of partner universities in Central Asia is important for the European partner universities to formulate recommendations to the Central Asian partners. On the other hand, the knowledge about the academic units of European partner universities, their focus, their staff, their courses and their content in order to facilitate their work is helpful for Central Asian universities for adapting their study programmes. This part of the document provides detailed information about the academic units at partner universities, who are actively dealing with environmental protection and land management issues. It particularly focuses on quantitative aspects – number of academic units and staff – as well as on the contents of topic relevant courses provided by each partner university.

3.1 SUA

Studies in the field of environmental protection and land management are provided by three faculties of the SUA in Nitra. **Faculty of European Studies and Regional Development – FESRD** (Department of European Policies with 6 members focused on the EU Common Agricultural Policy and rural development, Department of Law with 7 members focused on environmental and agrarian law and Department of Ecology with 5 members focused on ecology and environmental protection), **Faculty of Economics and Management – FEM** (Department of Economic policies with 7 members focused on agricultural economy and policy and Department of Sustainable Development with 5 members focused on ecology and sustainable development) and **Faculty of Horticulture and Landscape Engineering – FHLE** (Department of Landscape Planning and Land Consolidation with 13 members focused on landscape planning and land consolidation). The following figure summarises information on academic units of the SUA in Nitra:

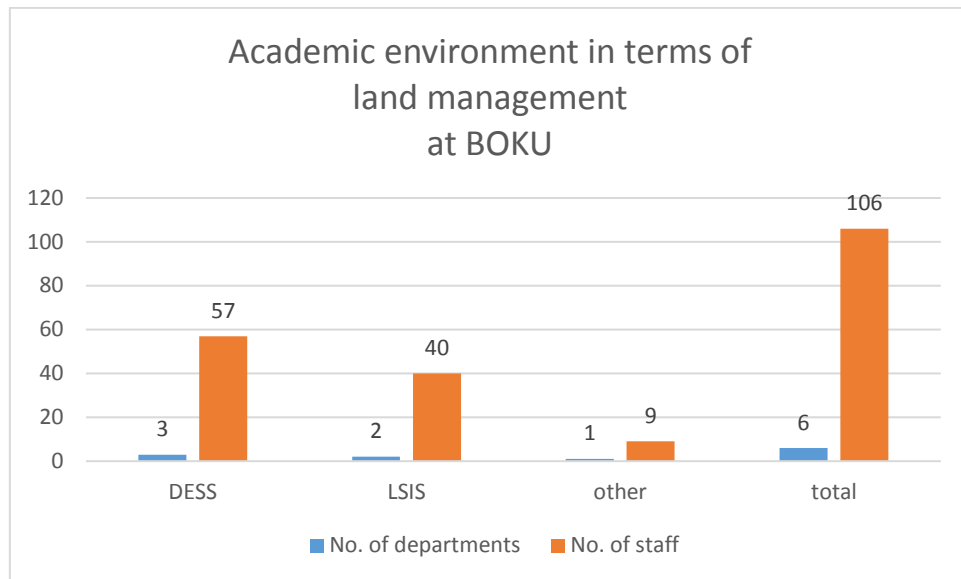




3.2 BOKU

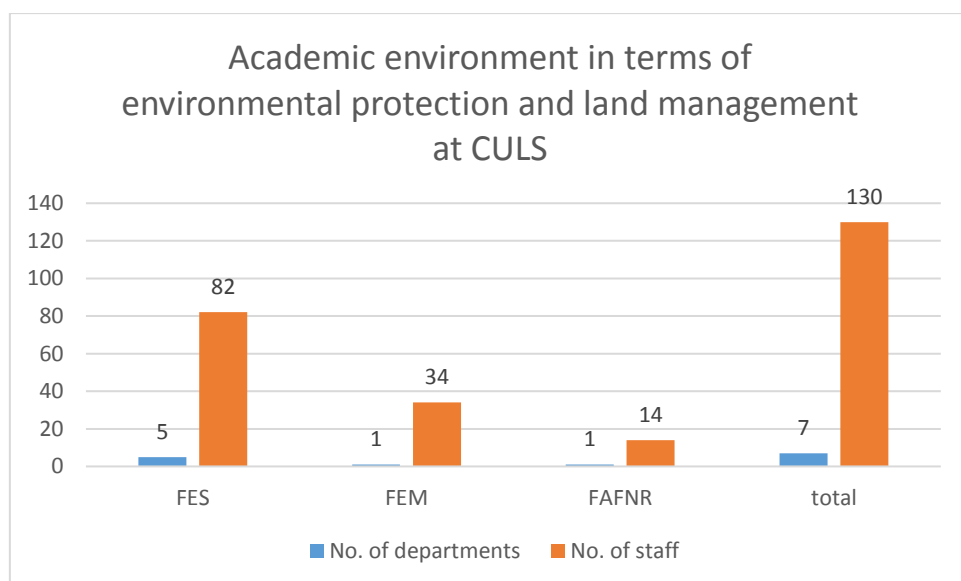
The focus of BOKU within the current project is particularly on land management. This topic is provided within 3 departments – **Department of Economics and Social Sciences – DESS** (Institute for Sustainable Economic Development with 31 members focused on sustainable economic development, Institute of Forest, Environmental and Natural Resource Policy with 18 members focused on political science research within environmental policies and Institute of Law with 8 members focused on legislation in terms of environment, agriculture, soil and water), **Department of Landscape, Spatial and Infrastructure Sciences – LSIS** (Institute of Spatial Planning and Rural Development with 20 members and Institute of Surveying, Remote Sensing and Land Information with 25 members) and **Centre for Development Research – CDR** (classified within the BOKU organizational structure among Other Scientific Units, Initiatives, Platforms, Networks and Shareholdings) with 9 members focused on applied development research and training. Academic units of the BOKU are summarised on the following figure:





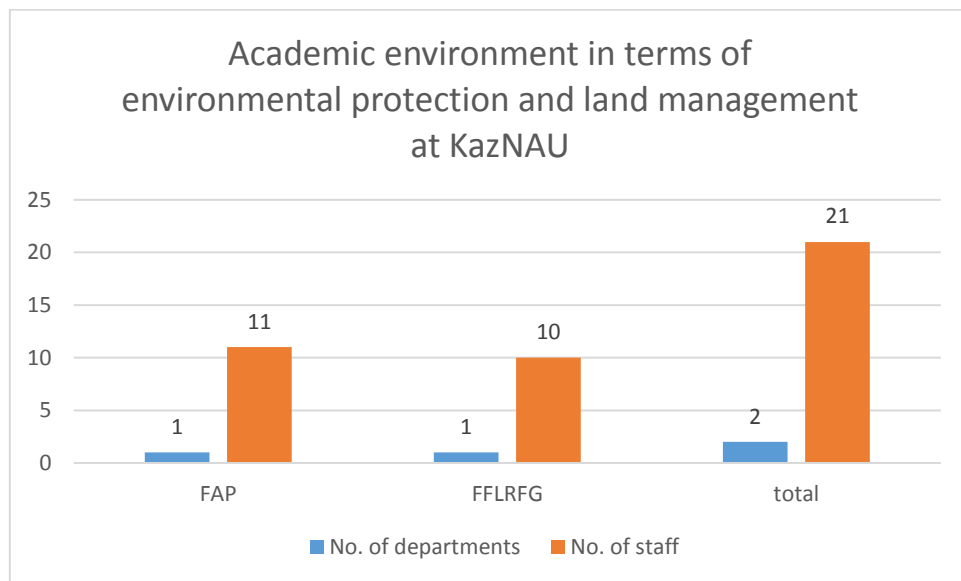
3.3 CULS

Topics related to environmental protection and land management are provided by 3 faculties of the CULS – **Faculty of Environmental Sciences – FES** (Department of Applied Geoinformatics and Spatial Planning with 18 members, Department of Environmental Geosciences with 6 members, Department of Ecology with 26 members, Department of Land Use and Improvement with 19 members and Department of Applied Ecology with 13 members), **Faculty of Agrobiography, Food and Natural Resources – FAFNR** (Department of Soil Science and Soil Protection with 14 members) and **Faculty of Economics and Management – FEM** (Department of Economics with 34 members focused on management of natural resources). Summary of information on the CULS academic environment is on the figure below:



3.4 KazNAU

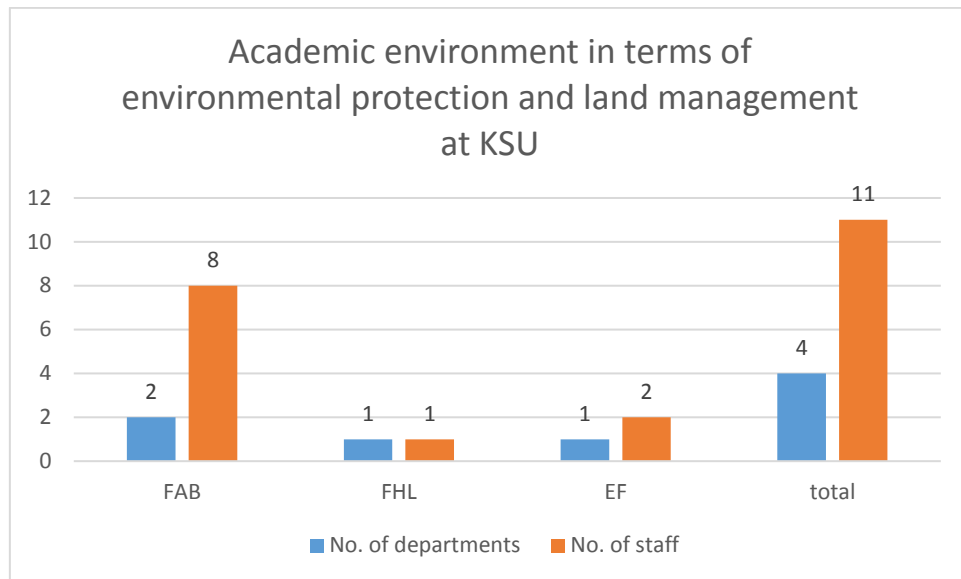
On its 2 faculties, KazNAU provides studies for students within 2 study programmes – Environmental Protection and Land Management. **Faculty of Agroecology and Phytosanitary – FAP** with 11 members of its Department of Ecology focuses on topics of ecology and rational use of natural resources, agroecology and environmental monitoring. 10 members of the Department of Land Resources and Cadastre within the **Faculty of Forest , Land Resources and Fruit-And-Vegetable Growing – FFLRFG** focus on rational use and protection of lands, land cadastre, land and real estate valuation, land use planning, legal regulation of land, geodetic works and land planning). The summary information is on the figure below:



3.5 KSU

There are 3 faculties at the KSU providing studies on environmental protection and land management within 4 departments altogether. There are 2 departments at the **Faculty of Agriculture and Biology – FAB**: Department of Ecology with 4 members focusing on environmental protection, environmental assessment of land management, environmental status of farm enterprises and agrocenoses and on biological resources and Department of Agronomy with 4 member focusing on soil organic matter, soil fertility, environmentally safe products for pre-treatment of seeds, biologization of agriculture and on water saving agriculture. **Faculty of History and Law – FHL** and its Department of Civil Law and Process with 1 member focuses on environmental law. **Economics Faculty – EF** and its Economics Department with 2 members focuses on land management economics and management of natural resources. Summary is provided by the following figure:

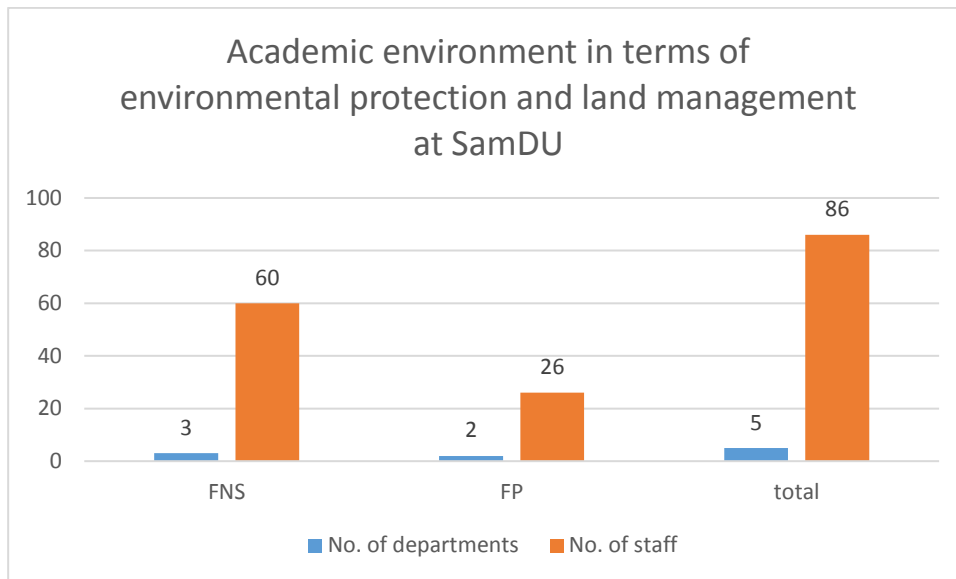




3.6 SamDU

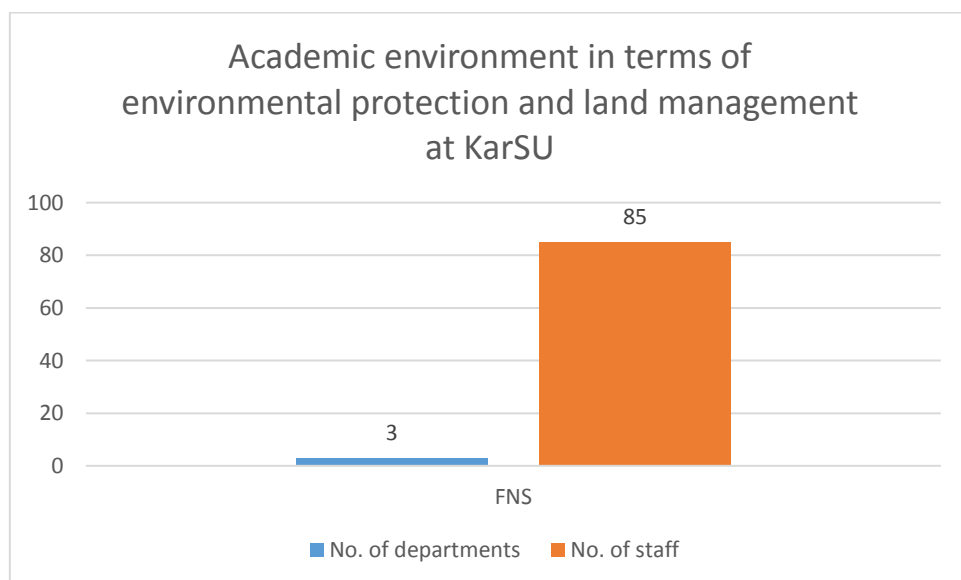
At SamDU topics on environmental protection and land management are ensured by 2 faculties: **Faculty of Natural Sciences – FNS** (Department of Ecology and Environmental Protection with 14 members focusing on ecology and environmental protection of different ecosystems, Department of Botany and Plant Physiology with 24 members focusing on rational utilization of vegetation resources of the Zaravshon river basin and Department of Geography with 22 members focusing on natural and physical geography of the region) and **Faculty of Physics – FP** (Department of Physic-chemical and Ecological Chemistry with 14 members focusing on environmental chemistry of the urban and agro industrial domains and Department of Nuclear Physics with 12 members focusing on application of nuclear physics methods in environmental science). Summarising information on academic environment of the SamDu in terms of environmental protection and land management is following (see figure below):





3.7 KarSU

Studies on environmental protection and land management are provided by the **Faculty of Natural Sciences – FNS** of the KarSU and its 3 departments: Department of Ecology (28 members focusing on ecology, environment and soil science, + 3 researchers in the Agronomy laboratory), Department of Biology (32 members focusing on the biology) and Department of Geography (18 members focusing on geography, geodesy, meteorology and GIS and 4 researchers at the GIS Centre). Summary is provided by the following figure:



4 Cooperation and policy environment

The objective of the ECAP project is to innovate existing study programmes of Central Asian universities. However, the project also focuses on enhancing educational capacities of these universities and for this purpose we also investigate their cooperation with other higher education institutions on national and international level and networking activities, as well. The Database of experts is planned to be created as one of the project outputs. For this purpose, we pay our attention on the policy and decision making bodies and their cooperation with project partners, as we plan to involve experts from these bodies into the Database of experts.

This part of the document provides a short overview on institutions cooperating with project partners in the field of environmental protection and land management. It also describes in details bodies in each partner country with direct influence in the policy and decision making processes within the project thematic sectors.

4.1 SUA

4.1.1 Cooperating partners in the thematic sector

- a) National Agricultural and Food Centre, Slovakia,
- b) Agroinštitút Nitra, state enterprise,
- c) University of Agribusiness and Rural Development, Plovdiv, Bulgaria,
- d) Forest Research Institute, Poland,
- e) University of Bialystok, Faculty of Economics and Management, Poland,
- f) National Institute for Economic Research, Chisinau, Moldova.

4.1.2 Policy making bodies in the thematic sector

- a) *Ministry of Agriculture and Rural Development of the SR* – central state administration body and policy making body for agriculture, forestry, land consolidation and protection of agricultural land, irrigation and melioration systems, veterinary control, inspection and supervision, plant protection, aquaculture, hunting and food industry.
- b) *Ministry of Health of the SR* – a central state administration body providing evaluation of health hazards of the chemicals listed on the market, proposes a strategy for reducing health risks, cooperate in identifying and deposition of ambient air quality limits and standards for drinking water quality and other water types.
- c) *Ministry of Environment of the SR* – a central state administration body responsible for the care and protection of the environment, especially through the environmental state policy.

4.1.3 Decision making bodies in the thematic sector

- a) *Agricultural Paying Agency* – the paying unit of the Ministry of Agriculture and Rural Development of the SR. As the accredited body of the state administration



provides administration of supports in agriculture, food industry, forestry and fisheries according to the special prescriptions.

- b) *Central Controlling and Testing Institute in Agriculture* – the national budget organization directly managed by the Ministry of Agriculture and Rural Development of the Slovak Republic, carrying out professional state supervision and testing under the conditions of the agricultural sector, as well as professional state inspection of quality of inputs into agriculture.
- c) *Slovak Environmental Inspectorate* – the budgetary organisation of the Ministry of Environment of the Slovak republic, expert control body carrying out a state supervision in the field of environmental protection and local state administration in the field of integrated environmental pollution prevention and control.

4.2 BOKU (Land Management)

4.2.1 Cooperating partners in the thematic sector (national level)

- a) TU Vienna, Department of Geodesy – Research Group Geoinformation
- b) BEV – Federal Office of Metrology and Surveying

4.2.2 Policy making bodies in the thematic sector:

- a) *The Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management* – the state body responsible for agriculture, agricultural policy making (especially CAP implementation including rural development programmes), forestry, natural hazard management, water management and environmental affairs.
- b) *Agricultural departments in the nine federal/regional state governments of Austria* – state bodies responsible for implementation of agricultural (administration of funding schemes) and rural development policy (especially coordination of LEADER activities) in the nine federal states of Austria.
- c) *AgrarMarkt Austria* – the public body responsible for implementation and control of agricultural funding programmes.
- d) *Agricultural Chamber (centre, state and district offices)* – the public body, farmers’ legal interest group, consulting of farmers regarding agricultural and agro-environmental funding schemes.
- e) *Land Consolidation Offices* – state bodies responsible for implementation of land consolidation and other measures of agricultural land reform.
- f) *Federal Office of Metrology and Surveying* (Department of the Ministry for Economic Affairs) – state body responsible for providing land information: Austrian Map, orthophotos, cadastral maps, terrain information etc., runs district cadastral offices.
- g) *Ministry of Justice – Land Registration* – state body responsible for administration of land register (real estate data base).



- h) *Soil Evaluation Offices* (Department of Federal Ministry of Finance) – state body responsible for evaluation and monitoring (in terms of value) of agricultural land.
- i) *Spatial planning departments in the nine federal/regional state governments of Austria* – state bodies responsible for spatial planning on state and regional level, supervisory authority for municipalities (responsible for spatial planning at local level).
- j) *Nature Conservation departments in the nine federal/regional state governments of Austria* – state bodies responsible for nature conservation administration and co-implementation of selected agri-environmental programmes.
- k) *Water Management departments in the nine federal state governments of Austria* – state bodies responsible for water management administration.
- l) *Environmental protection departments in the nine federal/regional state governments of Austria* – state bodies responsible for administration of environmental protection issues.
- m) *Environment Agency Austria* – public body responsible for environmental administration, consulting and monitoring for federal government.
- n) *LEADER Local Action Groups* – public/private partnerships focusing on implementation of LEADER projects on local and regional level.

4.2.3 Decision making bodies in the thematic sector

- a) Austrian Federal Government
- b) Nine Federal/Regional State Governments

4.3 CULS

4.3.1 Cooperating partners in the thematic sector

- a) University of Natural Resources and Life Sciences Vienna, Austria
- b) Swedish University of Agricultural Sciences, Uppsala, Sweden
- c) University of Hohenheim, Stuttgart, Germany
- d) Wageningen University, The Netherlands
- e) Warsaw University of Life Sciences, Warsaw, Poland

4.3.2 Policy making bodies in the thematic sector

- a) *Ministry of the Environment of the Czech Republic* – the state body responsible for all kind of state regulations and instructions in the field of environmental protection.
- b) *Ministry of Agriculture of the Czech Republic* - the state body responsible for all kind of state regulations and instructions in the field of agriculture.
- c) *Nature Conservation Agency of the Czech Republic* – the state body responsible for protection and conservation of nature and landscape on the whole territory of the Czech Republic.
- d) *Czech Environmental Information Agency* – the state body responsible for collection and administration of environmental data for the Czech Republic.



- e) *The Czech Environmental Inspectorate* – the state body responsible for supervision in the area of environmental legislation enforcement.
- f) *The State Environmental Fund of the Czech Republic* – the state body responsible for evaluation of applications and the quick payment of approved subsidies to all subsidy applicants and project contractors in the field of environmental improvement.

4.3.3 Decision making bodies in the thematic sector

- a) The Government of the Czech Republic.

4.4 KazNAU

4.4.1 Cooperating partners in the thematic sector

- a) “Angel Kanchev” University of Ruse, Bulgaria
- b) University of Ljubljana, Slovenia
- c) Szent István University, Gödöllő, Hungary
- d) State University of Land Planning, Moscow, Russia
- e) Latvian University of Agriculture, Riga, Latvia
- f) Aleksandras Stulginskis University, Kaunas, Lithuania
- g) Kazakh State Agro-technical University named after S.Seifullin, Astana, Kazakhstan
- h) State Scientific and Production Center for Land Management, Astana, Kazakhstan

4.4.2 Policy making bodies in the thematic sector

- a) *Ministry of Agriculture of Kazakhstan Republic* – the state body responsible for creating conditions for improving the competitiveness of agriculture, sustainable development, water, fisheries and forestry.
- b) *Institute of Botany and Phytointroduction* – the state body providing laboratory and practice base for the study of ecosystem species, the species composition of the flora of the studied region.
- c) *Kazakh Research Institute of Soil Science and Agricultural Chemistry named after U. Uspanov* – the state body responsible for study of the mechanical and chemical composition of the soil, use of fertilizers and pesticides and for management measures for the conservation of soil by human activities.
- d) *Kazakh Research Institute of Plant Protection and Quarantine* – the state body responsible for implementation of measures for improvement the species composition and conservation of vegetation from various pests.
- e) *Kazakh Research Institute of Horticulture and Viticulture* – the state body taking measures to improve the quality of agricultural products.
- f) *Institute of Microbiology and Virology* – the state body focusing on studies of modern species of viruses and bacteria found among living organisms.



- g) *Research Institute of Transport and Communications* – the private entity with focus on transport technologies, their impact on the environment and measures to improve environmental conditions.
- h) *Scientific – Production Center of Land Cadastre* – the state body creating normative documents, acts and activities aimed at improving the soil and land conservation.
- i) *Committee for Construction, Housing and Utilities and Land Management* – the state body responsible for implementation of unified state policy in the field of land management and the regulation of land relations.
- j) *State Research and Production Center for Land Management* – the public body automatically generating a data Bank on land parcels in the country.

4.4.3 Decision making bodies in the thematic sector

- a) Government of the Republic of Kazakhstan.

4.5 KSU

4.5.1 Cooperating partners in the thematic sector

- a) Kostanay Research Institute of Agriculture, Zarechniy, Kazakhstan
- b) Karabalyk Agricultural Experiment Station, Nauchniy, Kazakhstan
- c) Warsaw University of Life Sciences, Warsaw, Poland
- d) Omsk State Agrarian University named after Stolypin, Omsk, Russia

4.5.2 Policy making bodies in the thematic sector:

- a) *Department of Agriculture of the Local Administration of Kostanay region* – the state body responsible for approvals to carry out any research in the field of agricultural enterprises territories.
- b) *Department of Land Relations of Resources Local Administration of Kostanay* – state body responsible for land resources management and control of soil yield class.
- c) *Department of Natural Resources and Environmental Management of the Local Administration of Kostanay region* – the state body responsible for management in the areas of forestry, hunting, fisheries, water resources, specially protected areas, environmental protection and other objects of flora and fauna within Kostanay region.
- d) *Department of Ecology of Kostanay region of the Committee of Ecological Regulation and Control of the Ministry of Environment of the Republic of Kazakhstan* – the state body responsible for management in the areas of forestry, hunting, fisheries, water resources, specially protected areas, environmental protection and other objects of flora and fauna within Kostanay region.
- e) *Kostanay region Farmers Association* – the public body providing legal support for small and medium-sized businesses.
- f) *Maslikhat of Kostanai region* – the public body approving plans, economic and social development programs of the respective territory, local budget, etc.



- g) NGO «Naurzum» (Kostanai region) – the public body responsible for strengthening of cooperation of government agencies in implementing environmental conventions on biodiversity, desertification, International Trade in Endangered Species of Wild Fauna and Flora, on climate change, on the cultural and natural heritage.

4.5.3 Decision making bodies in the thematic sector

- a) Government of the Republic of Kazakhstan.

4.6 SamDU

4.6.1 Cooperating partners in the thematic sector (national level)

- a) Samarkand Agricultural Institute
- b) Uzbek Research Institute of Karakul sheep breeding and ecology of rangelands
- c) International Centre for Agricultural Research in Dry Areas (ICARDA).

4.6.2 Policy making bodies in the thematic sector

- a) *President and Government of Republic of Uzbekistan,*
- b) *Oliy Mojlis of Republic of Uzbekistan* – the state legislative body (Parliament of Republic of Uzbekistan).
- c) *Ministry for Agriculture and Irrigation* – the state body supervising in all questions of agricultural policy including irrigation, crops, amelioration etc.
- d) *State Committee for Nature Protection* – the state body responsible for nature protection and ecological monitoring.
- e) *Uzcadastre* – the state body providing land cadaster services.
- f) *Ministry of Finances* – the state body responsible (among the others) for Supervision in farm loans and other forms of financial support for agriculture.
- g) *Ministry of Higher and Secondary Special Education* – the state body responsible (among the others) for education and training of personnel for agro-industrial complex.

4.7 KarSU

4.7.1 Cooperating partners in the thematic sector (national level)

- a) Tashkent Institute of Irrigation and Melioration, Tashkent
- b) Nukus branch of Tashkent Agrarian University, Nukus
- c) Samarkand State University, Samarkand

4.7.2 Policy making bodies in the thematic sector

- a) *President and a Government of Republic of Uzbekistan,*
- b) *Oliy Mojlis of Republic of Uzbekistan* – the state legislative body (Parliament of Republic of Uzbekistan).
- c) *Jokargy Kenes of Karakalpakstan* – the regional legislative body (Parliament of Republic of Karakalpakstan).

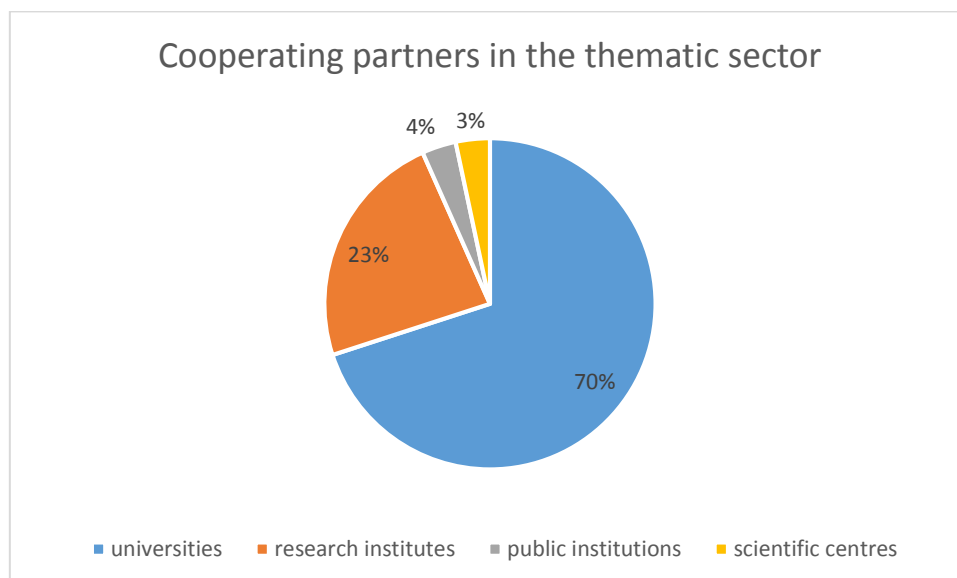


- d) *Ministry for Agriculture and Irrigation* – the state body supervising in all questions of agricultural policy including irrigation, crops, amelioration etc.
- e) *State Committee for Nature Protection* – the state body responsible for nature protection and ecological monitoring.
- f) *Uzcadastre* – the state body providing land cadastre services.
- g) *Ministry of Finances* – the state body responsible (among the others) for Supervision in farm loans and other forms of financial support for agriculture.
- h) *Ministry of Higher and Secondary Special Education* – the state body responsible (among the others) for education and training of personnel for agro-industrial complex.

4.8 Analysis of cooperating partners

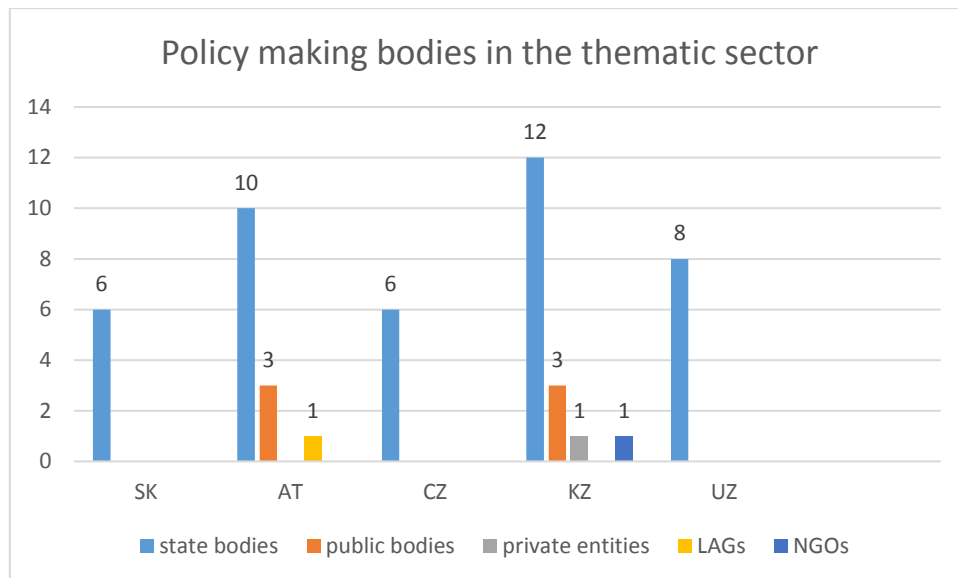
Based on the data in terms of cooperation and policy environment provided by partners it can be stated that all project partners have created a very broad networks of institutions cooperating in the field of environmental protection and land management. These networks are the starting baselines where partners develop their educational and research activities in subject fields. Using partners’ knowledge and their experiences gained within the cooperation within the mentioned networks directly will contribute to achieve the objectives of the ECAP project.

The cooperation network is of a highly scientific character, as 70% of the cooperating institutions are universities (see figure below). The share of SMEs and private stakeholders currently is not visible, but it will be important to involve also experts from the private sphere into the network and with it into the database. For the transfer of innovations into the practice (SMEs) it is necessary to get knowledge and feedback also from stakeholders.



4.9 Analysis of policy making bodies

The scientific cooperation in all partner countries is strongly supported by a variety of policy and decision making bodies. One of the common characters for all partner countries is the fact that the policy is made mainly on national level by state bodies, as showed in the figure:

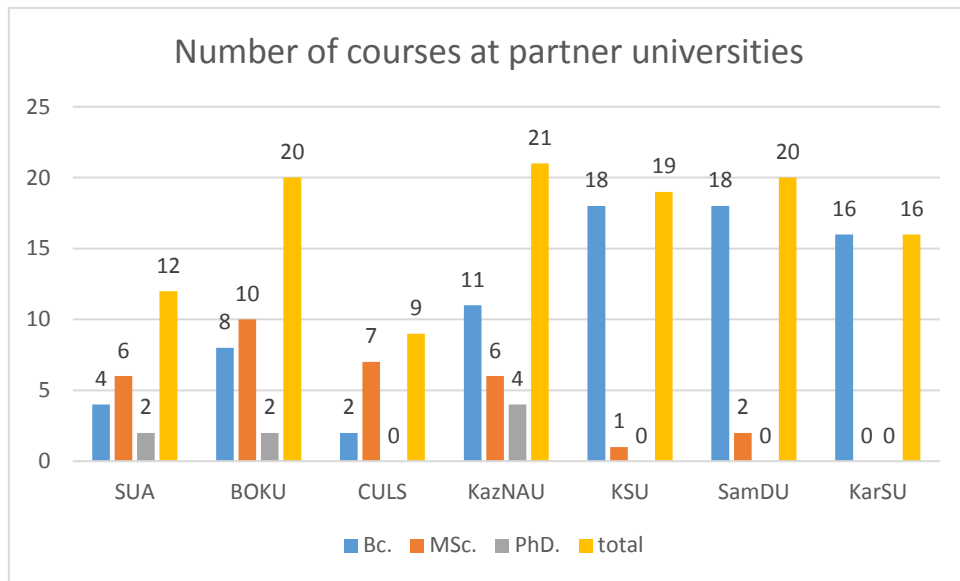


On the other hand, decisions are especially made by national governments or governmental bodies. Public institutions, private entities or public/private partnerships participate on these processes just in a very small scale (LAGs in case of Austria and NGOs on regional level in case of Kazakhstan). This might evoke an impression of highly centralised character of policy and decision making processes, however, competences within these processes are delegated to departments subordinated to central state bodies on regional and local level.

5 Academic environment and courses offered

As indicated in the previous chapter, information about the content of study courses provided by each of the partner universities within the thematic sector (environmental protection and land management) is an important part of the document, as it allows partners to compare the content of courses and to select courses at Central Asian universities most suitable for innovation. Each partner provided a list of main courses (numbers on each level of study are provided on the figure below) with information on thematic focus of courses.





A complete list of main and selected courses (marked with green and brown colour) is documented in *Table 1*. Based on this information, Central Asian partners will revise their courses and course contents in their study programs on the topics of land management and environmental protection.



Table 1: List of main courses offered by partner universities

Level	SUA	BOKU	CULS	KazNAU	KSU	SamDU	KarSU
Bc.	Analysis of Agricultural Policies I	Surveying and Mapping	Sustainable Use of Natural Resources	Environmental aspects of natural science	Ecology and Sustainable Development	Ecology	General land science
Bc.	EU Agricultural Policy	Land Consolidation and Land Development	Economics and Management	Basics of natural resource use	Soil science	Introduction to environmental science	Geography of the amelioration
Bc.	Ecology (Principles of Ecology)	Welfare Economic Analysis of Agricultural Policy: Theory and Applications		Biogeochemistry and ecotoxicology	Agroecology	Land management	Geoecology
Bc.	Cadastre of Real Estates	Agricultural Political Economy		Geoecology	Agrochemistry	Natural resources management	Soil amelioration
Bc.		Agro-environmental Law		Environmental monitoring	Protection of soil from erosion	Ecological tourism	Landscapes and soil degradation
Bc.		Sustainable Land Use in developing countries		State registration and accounting of lands	Sustainable agriculture	Climate change and ecological adaptation	Ecology of a soil
Bc.		Spatial Planning		Land cadastre	Soil protective forest planting	Geoecology	Soil fertility enhancement
Bc.		Regional Planning/Rural Development		Management of land planning and cadastral works	Monitoring and management of soil fertility	Radiobiology	Soil ecology and agroecology


Bc.				Cadastral zoning, assessment and tax liability	Integrated protection of crops	Ecological economics	Nature protection and rational nature management
Bc.				State control of land use and protection	Adaptive agriculture	Botany	Environment quality and Environmental monitoring
Bc.				Scientific bases of land planning	Environment studies	Plant physiology	Soil science and botany
Bc.					Agrocenosis of steppe zone	Microbiology	Agrometeorology
Bc.					Land Registry	Soil microbiology	Land Law
Bc.					Ecological resource studies	Neglected and Underutilized plants of Central Asia	Environmental Law
Bc.					Soil science	Geobotany	Agro-industrial complex
Bc.					Agroecology	Physiological plant ecology	Farm's accounting
Bc.					Ecological monitoring	GIS and RS	
Bc.					Ecological right	Cartography	
MSc.		International Land Management	Natural Resources and Environment	New technologies and rational use of biological and raw material resources	Economics and natural resources management	Environmental pollution	


MSc.	Environmental Politics	Welfare Economic Analysis of Agricultural Policy: Theory and Applications	Natural Resources Management and Ecological Engineering (Joint MSc Programme with BOKU Vienna)	Methodic of research			Application of 137CS in soil erosion control
MSc.	European Union Environment Policy	Agricultural Political Economy	Economics and Management	Ecology agrosystems			
MSc.	Agricultural policy	Land Administration	Nature Conservation	Environmental legislation. Ecological development and environmental policies			
MSc.	Environmental Law	Land Management	Environmental Modelling	Development of land market in Kazakhstan			
MSc.	Ecological Monitoring	Agricultural Law	Environmental Geosciences	Land planning and land management			
MSc.	Environmental Audit	Reforms and Decision Making Process of Common Agricultural Policy	Forestry Water and Landscape Management				
MSc.		Spatial Planning: Legal and					



		Planning Instruments					
MSc.		Politics of Spatial and Regional Planning					
MSc.		Sustainable Spatial Development					
PhD.	Sustainability of the land in the EU	Ecology		Land planning and land management			
PhD.	EU Agriculture and Land Policy	Exploitation and Protection of Natural Resources		Complex territorial cadastres of natural resources			
PhD.				Methodology of scientific research			
PhD.				Environment and Man			

legend:

 courses with focus on environmental protection

 courses with focus on land management



6 Agricultural sector with focus on Environmental Policy and Land Management in Central Asia

This part of the document summarises detailed information on frame conditions in which agricultural activities are carried out and environmental protection and land management are being implemented in Central Asian countries – Kazakhstan and Uzbekistan. The chapter is structured into 3 parts:

- i. Natural and climate conditions, main sectors, typology of enterprises.
- ii. Land management – policy, main stakeholders, problems.
- iii. Environmental policy – policy, main stakeholders, problems.

A continental type of climate is the common character for both countries. This has a decisive influence on everyday lives of inhabitants. Weather conditions are, however, variable and typical for particular regions within both countries. In Kazakhstan, large amplitudes between winter and summer temperatures, dry air, and a small amount of atmospheric precipitation in most parts of the country are typical together with long harsh winters and short summers in the north, and short winters and long hot summers in the south. The territory of Uzbekistan is under the influence of specific atmospheric circulations, consisting of 16 types of cyclones. These cyclones, together with rugged surface of the country (Aral Sea and a plateau in the north – west, a desert in the north – east, high mountains in the west and south with deep valleys, and Amudarya and Syrdarya rivers) characterise the 4 basic climate areas of the country (from west to east): cold desert, cold semi – arid, warm mediterranean, and warm continental/mediterranean continental. Each of these areas differs in summer and winter temperatures and precipitation.

Agriculture represents an important sector within the national economies of both countries. Agricultural activities between both states are different and adapted to natural and climate conditions in the particular regions. In the north of Kazakhstan climatic conditions are favourable for the cultivation of spring wheat, oats, barley and other cereals. The climate allows to develop vegetable growing, melon growing and to cultivate a number of industrial crops - sunflower, flax, tobacco and others. In the south of the country, in the foothill zone and in the river valleys, where a lot of heat, with irrigation give high yields of cotton, sugar beet, yellow tobacco, rice, fruit orchards and vineyards. In the production of grain Kazakhstan ranks third in the Commonwealth of Independent States (CIS) after Russia and Ukraine. Diversity of natural conditions of Kazakhstan presents a significant potential for the development of animal husbandry. People in the Republic are traditionally involved in sheep breeding, horse breeding, camel breeding, and cattle breeding. The desert and semi-desert areas in the central and south-western parts of Kazakhstan are widely used as seasonal pastures for livestock.

Cotton represents the main crop in Uzbekistan with a high demand on water. A significant part of the country (especially Karakalpakstan) is thus covered with irrigation channels, using Amudarya river as the main irrigation resource, with strong negative impact on the Aral Sea.

There are recent tendencies in Uzbekistan to diversify its agricultural activities through cultivation of cereals, such as wheat, barley, corn, and also rice.

Land management in both countries lies in the responsibility of state bodies. State ownership of the land is common for both countries. The private sector in Kazakhstan uses the land in a form of tenure, mostly in the form of a long-term lease for 49 years. The implementation of land policy at the present stage is mainly carried out through realization of the provisions of the Land Code of Kazakhstan Republic. Significant improvements have been registered in terms of creation and maintenance of state land cadastre, the automated information system, registration of land plots to citizens and legal entities for different purposes, improve the development of paid land use and land market, the study of the state of soil and vegetation, mapping of land and provision of the necessary geodetic products, management land monitoring, the implementation of state control over observance of the land legislation and implementation of land management. Works on the implementation of the e – government are continuing in the country.

Similarly to Kazakhstan, land resources are state-owned in Uzbekistan, but farmers rent their fields only for a long term-period for cropping. Land use in the agriculture of Republic of Uzbekistan is based on the farmland long lease with state crop regulation, for the term of the lease of 50 years. Private farmers and collective enterprises (dehkan farms) are independent economical bodies but state institutions still control the main cultivations – cotton, paddy and wheat production – through credits and contracts. Farmers can request credit funds for farming purposes with appropriate bank interest using the right for the long lease of farmland as a guarantee. This specific agrocredit system is state regulated. Main implementation body is Ministry of Agriculture and Water Resources.

Both countries face several environmental problems inherited from the Soviet era and their environmental policy is adapted to this fact. In Kazakhstan, the Aral Sea area and the Semipalatinsk region (nuclear test polygon) are the most sensitive areas with destruction of natural ecological systems and degradation of flora and fauna due to unfavourable environmental conditions causing substantial harm to public health. Moreover, the country faces a permanent pollution and insufficiency of water resources. It has, however, made some significant steps towards improvements. Environmental policy of Kazakhstan is formed in line with the world in the field of environmental policy: Agenda 21st century, 1992, the Political Declaration of the World Summit on Sustainable Development (WSSD) Plan of Implementation and the WSSD, 2002. The legal basis of environmental policy is the Environmental Code, 2007, and related laws and regulations. The state regulation in the field of environmental protection (EP) and public administration in the use of natural resources is authorized by the Ministry of Environment and Water Resources (MOSiVR) and its territorial divisions. In the beginning 2003, Kazakhstan acceded to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their disposal.



Karakalpakstan, the autonomous republic in the north-west of Uzbekistan, faces several environmental problems, such as soil degradation and aridization. Main sources of soil degradation in Karakalpakstan are secondary salinization and wind erosion. Also there of Gradual aridization of local ecosystems, including agrolandscapes, due to water deficit in low course of Amudaria river, is also a problem. Similar to Kazakhstan, state bodies of Uzbekistan adopted several legal documents to meet these problems. Main decision and implementation body in environmental policy is the State committee for Nature Protection of Uzbekistan. State Committee for Nature Protection of the Republic of Karakalpakstan carries out many measures on coordination state institutions of activity, enterprises, agencies, and organizations in the nature protection activity, abidance by environmental law and improvement of ecological conditions. State Committee for Nature Protection of the Republic of Karakalpakstan instates the Program on Land Monitoring prosecution for 2016-2020. It executes the Program for Nature Protection, Natural and Biological Resources Management approved by Ministry of the Republic of Uzbekistan in 2016.

7 Swot Analysis (for CA countries)

The outlined survey of agricultural and environmental policies, of authorities and networks in the fields of environmental protection and land management as well as well as the analysis of relevant study programs provides a comprehensive overview about the legal, institutional, scientific and educational situation in the countries of EU and Central Asian partners. Focus was given on the academic environment (academic units, courses, experts in subject fields). Additionally, for Central Asian countries a more detailed background on land and environmental policy issues as well as on problems to face is documented.

Information provided from all CA partners was used to execute a SWOT analysis, as the identification of strengths, weaknesses and threats and recommended opportunities should help to increase the academic education and training in the field of environmental protection and land management in the CA countries. But the findings also should be used to strengthen the level of cooperation and internationalisation of the universities in CA partner countries.

7.1 Strengths

- Academic staff active in the field of environmental protection and land management
- Courses provided for students relevant for the environmental protection and land management
- Accredited study programmes mainly in the field of environmental management (including environmental protection and land management)
- Solid networks of institutions cooperating in the field of environmental protection and land management mainly at national level



- Strong linkages with other universities mainly at national level
- Harmonised length of the higher education studies

7.2 Weaknesses

- Less developed networks with commercial sphere and NGO's
- Lower level of educational and communication skills in international context
- Not harmonized credit system in higher education
- Less developed research infrastructure

7.3 Opportunities

- Innovation of study programmes and courses
- Strengthening the international cooperation
- Creation of expert groups dealing with innovation strategies in education and science
- Good opportunities for young people to be involved into the educational process
- Utilisation of modern ITC in the educational process

7.4 Threats

- Possible negative decisions by national state bodies affecting regional and legal departments
- Long-term accreditation process of study programmes and nonflexible accreditation system
- Low interest from the side of state administration
- Decreasing interest from the side of students within the subject field

8 Final remark

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



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ANNEX

Annex A: Template of Questionnaire

Annex B: Study plans of universities in partner countries

