SAMARKAND STATE ARCHIRECTURAL AND CIVIL ENGINEERING INSTITUTE NAMED AFTER M. ULUGBEK

REPORT

on study visit to Salzburg University of Austia in the frame of the Erasmus+ DSinGIS project

(May 20– July 15, 2019)

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Scientific supervisor: Sabine Hennig

SAMARKAND - 2019

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Introduction

Geographic Information System (GIS) is a multifunctional information system designed to collect, process, model and analyze spatial data. The main purpose of GIS is to generate knowledge about the Earth, certain territories, terrain, as well as timely communication of the necessary and sufficient spatial data to users in order to achieve the highest efficiency of their work.

In Uzbekistan, geoinformatics can provide effective assistance in resolving issues such as climate change, land degradation, intensive use of agrochemicals, leakage of a huge amount of irrigation water from the two main rivers of the region, lack of water, chronic lack of water treatment, such as the Aral Sea, or a growing threat air quality - in all these problems, the GISC can effectively support solutions to such problems. [1]

Uzbek society will benefit from innovation to improve quality, productivity and interactivity public services, reducing costs and resource consumption, as well as to improve contacts between citizens and the government.

DSinGIS is a very important project for young and promising doctoral students and young teachers, it opens up enormous opportunities to increase their competence, knowledge and qualifications. DSinGIS is successfully introducing an online learning infrastructure as a common platform, including leaders. Training materials are distributed from a joint, cooperative body of knowledge. The infrastructure will host a Learning Management System (Moodle). Intelligent online features created for all network partners.

Useful information for students visiting Department of Geoinformation Techno_Z of Salzburg University. EU finances for Uzbekistan the development of a doctoral program in the field of geoinformation sciences within the framework of the international project DSinGIS. The main goal is the creation of a new doctoral study program designed to raise Uzbek graduates to a higher academic level and increase the country's potential in education and research. Activities include teacher training programs, new doctoral programs, an international network in the field of geospatial sciences, an e-learning platform, and a glossary of geospatial terms in Uzbek. The project is designed for three years and is funded by the EU ERASMUS +. [2]

Very important information for students should be emphasized: the DSinGIS project provides grants for beginning scientists from Uzbekistan for 60 days in EU partner institutions (see http://www.dsingis.eu/partners). What can grants give to Uzbek partners? Young researchers of Uzbekistan preparing or conducting research in the field of PhD today have the opportunity to effectively collaborate with partners from the EU in order to improve their research potential and the development of doctoral research.

Detailed information on the details of the grant, including a list of proposed topics for cooperation, can be found at http://geoinformatics.uz/dsingis/2019/06/23/scholarship3/.Study Plan

Important to mention, that my internship for the DSinGIS project took place from May 20 till July 15, 2019. A detailed training plan for 2 months was drawn up (Table No. 1)

1. Introducing the Director of the Department of Geoinformatics Josef Strobl and scientific supervisor Sabine Hennig from Host Institute.
2. Discuss the plan of study, schedule, aims and strategy of study.
3. Writing a research proposal. Collecting the data.
4. Coordination and study of literary and electronic sources related to my research at the Salzburg University Library. Classification of collected data.
5. Study the main basics of GIS computer programs - Arc GIS for mapping detailed geoinformational maps.
6. Study the basics of GIS computer programs - Quantum GIS for mapping detailed geoinformational maps. Creating the maps in Q-GIS
7. Creating the Survey123 questionnaire to collect data in the field of study. Learning the effective ways of data processing. Collecting the responses.
8. Processing the data in SPSS program.
9. Writing a scientific article based on the results of the research and completed maps, skills of work in programs Arc GIS, Quantum GIS.

Time table of all activities

BWS	Task name	Start	Finish	Percent complete
1	Accommodation in Salzburg, Austria. Meet the Director of the Department of Geoinformatics of Salzburg University Professor Josef Strobl and scientific supervisor Sabine Hennig. Discuss the plan of study, schedule, aims and strategy of study.	20-May -19	20-May -19	100
2	Writing a research proposal. Collecting the data. Coordination and study of literary and electronic sources related to my research at the Salzburg University Library. Classification of collected data.	21-May-19	06-June-19	100
3	Study the main basics of GIS computer programs - Arc GIS for mapping detailed geoinformational maps.	28-May-19	12-Jul-19	100
	Study the basics of GIS computer programs - Quantum GIS for mapping detailed geoinformational maps.Creating the maps in Q-GIS	04-June-19	03-July-19	100
4	Creating the Survey123 questionnaire to collect data in the field of study. Learning the effective ways of data processing. Collecting the responses. Processing the data in SPSS program.	10-June-19	05-July-19	100
5	Writing a scientific article based on the results of the research and completed maps, skills of work in programs Arc GIS, Quantum GIS	06-July-19	Sep-19	100
6	Visiting the places of Salzburg architectural monuments, historical museums and modern galleries, University scientific center. Return to Uzbekistan	25-May-19	15-July-19	100

Activities and Outputs of the stay

As part of the internship, a phased, technological scientific analysis was carried out on the topic of scientific work devoted to the analysis of recreational countryside rest places of the Samarkand region.

In order to identify the public opinion of the local population of Samarkand region about the preferences of a country vacation in the region, about types of recreation in the lap of nature, the duration, concretization of the location of popular places of a country rest places and important issues of protecting the environment and ecology of natural places of recreation, a social survey was conducted using the program Survey 123 Online ArcGIS software from Esri. In the process of compiling this extensive and interactive online social survey, online maps were compiled showing the preferred vacation spots for the population of the Samarkand region. Taking into account their location in the conservation zone or not, their remoteness from the city, as well as attendance, starting from the less popular and increasing. For the ability to map and acquire the skill of working with maps, layers, Shp files, I studied the basics of the Quantum GIS program. (Fig. 1 QGIS map)

For subsequent work, as part of a scientific study, which is a phased complex system of processing statistical data, data processing was performed in computer programs such as Acces, Exell, SPSS. Whereas for the public the first two of the above programs are familiar and generally accessible and often applicable in the daily work process, then SPSS is a specific program that is mainly used by statisticians and economists. (Diagrams 1-8)

Diagram 1.

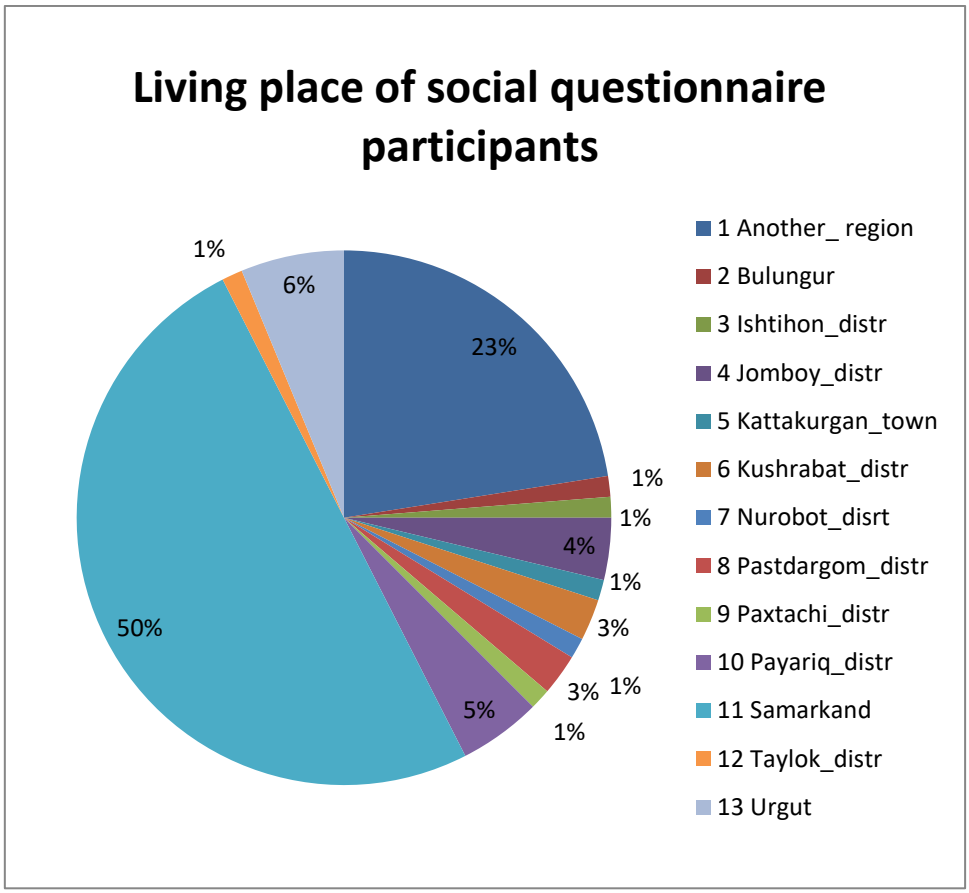

Living place of social questionnaire participants
1%
6%
23%
1%
1%
4%
1%
3%
1%
3%
1%
5%
1%
50%
1 Another_ region
2 Bulungur
3 Ishtihon_distr
4 Jomboy_distr
5 Kattakurgan_town
6 Kushrabat_distr
7 Nurobot_disrt
8 Pastdargom_distr
9 Paxtachi_distr
10 Payariq_distr
11 Samarkand
12 Taylok_distr
13 Urgut

Fig. 1. The map of Uzbekistan . Samarkand region most popular countryside rest places highlighted in pink. indicated by different colored dots.

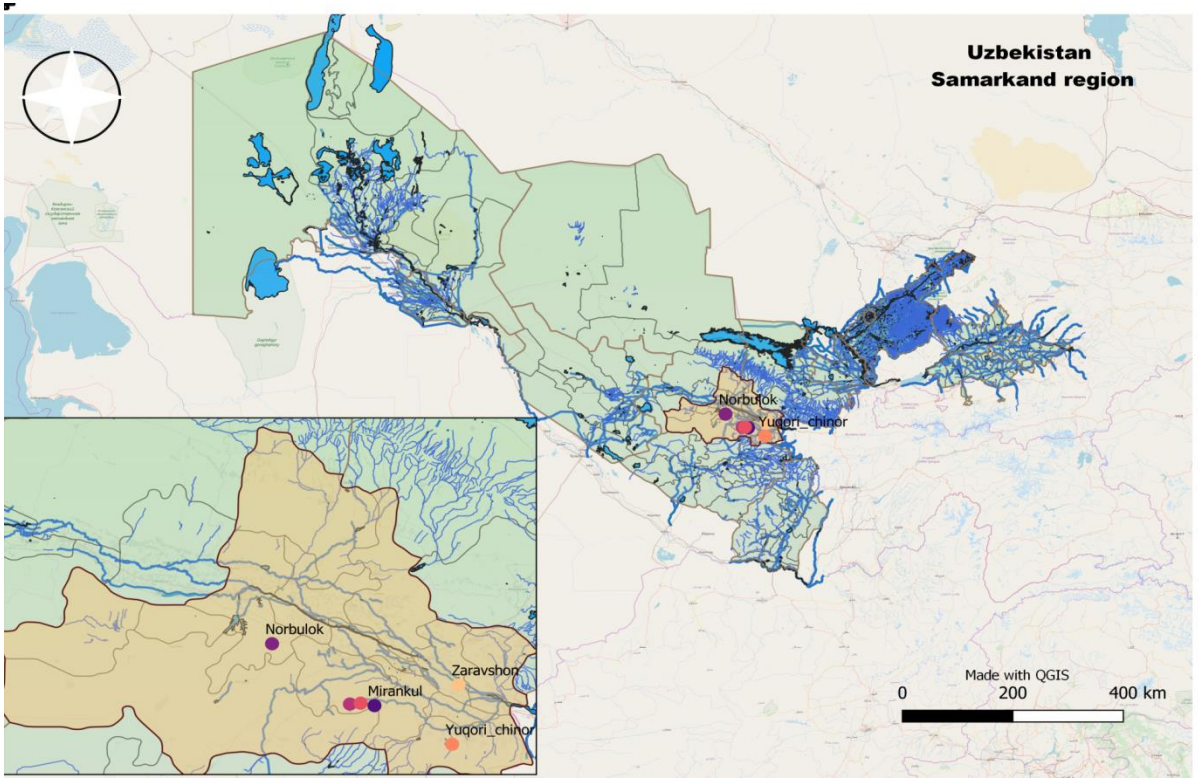
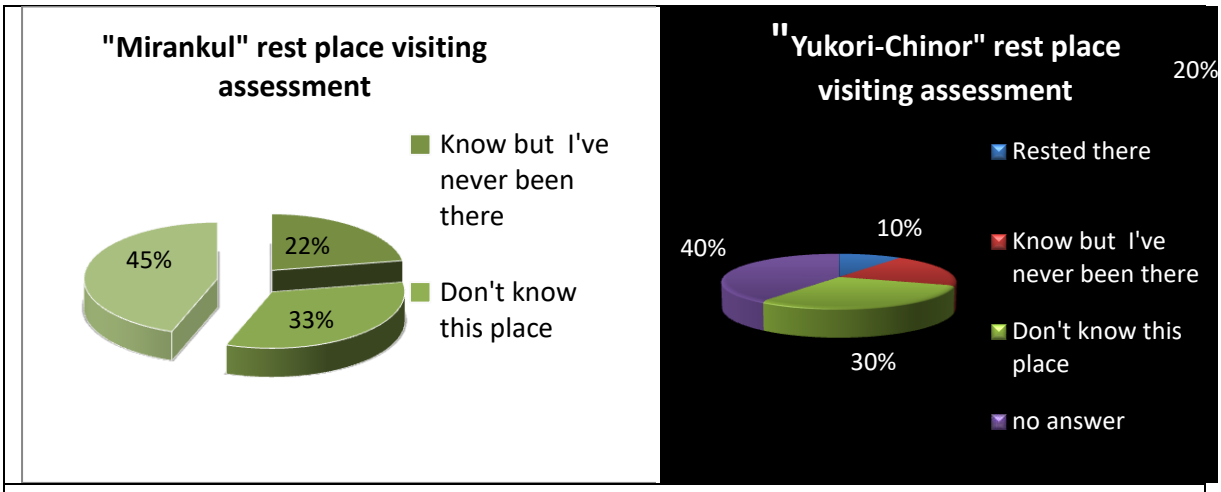
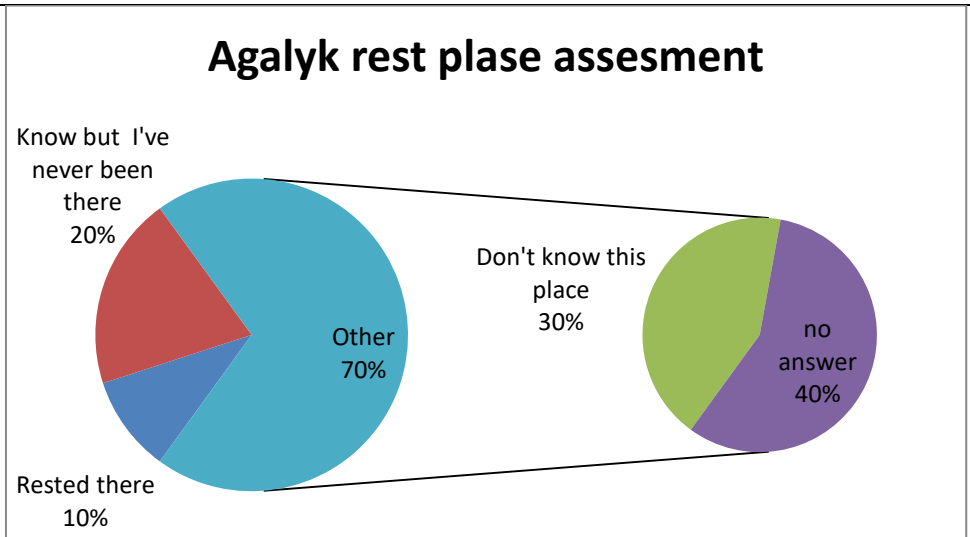


Diagram 2-5.


"Mirankul" rest place visiting assessment
Know but I've never been there
Don't know this place
45%
22%
33%
"Yukori-Chinor" rest place visiting assessment
Rested there
Know but I've never been there
Don't know this place
no answer
40%
10%
30%
20%


Agalyk rest plase assesment
Know but I've never been there 20%
Other 70%
Rested there 10%
Don't know this place 30%
no answer 40%

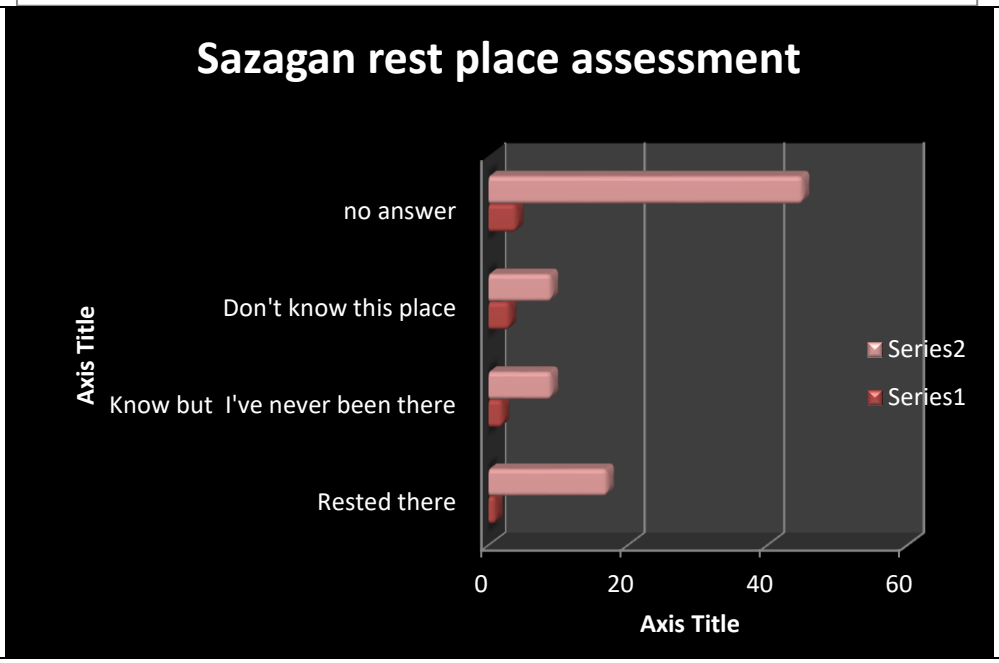
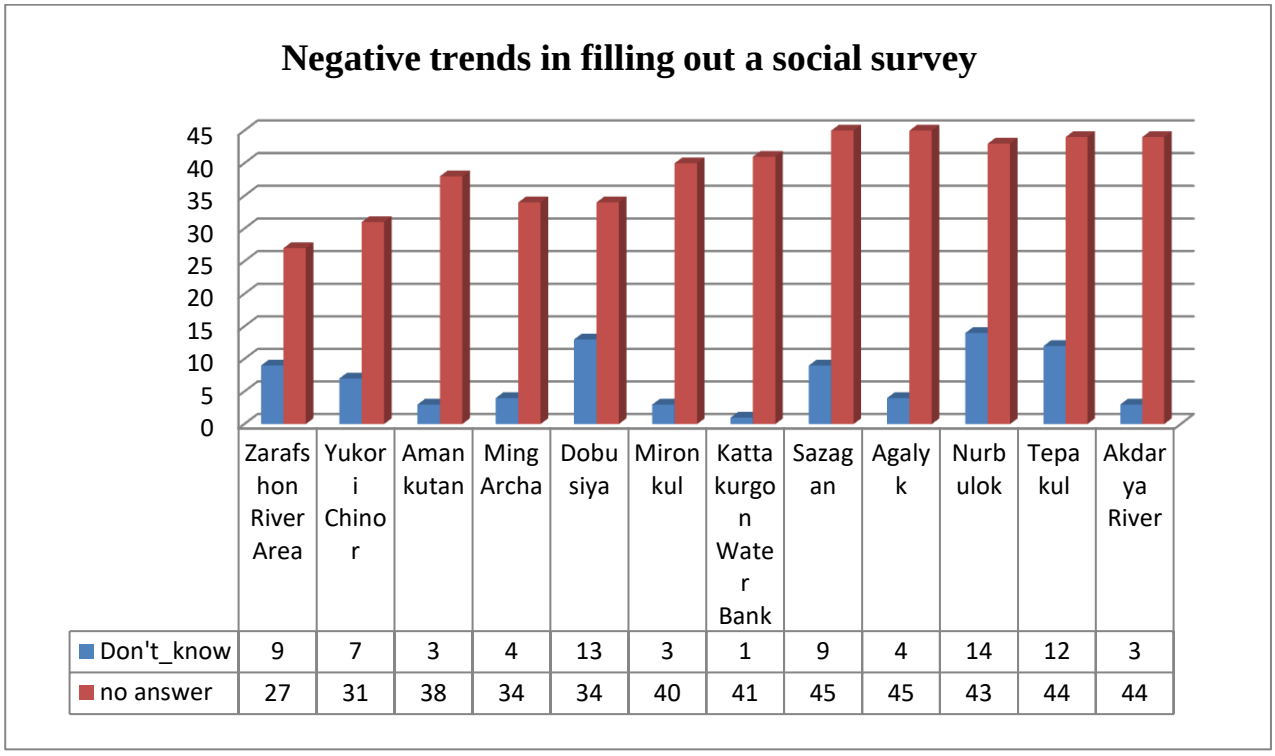

Sazagan rest place assessment
no answer
Don't know this place
Know but I've never been there
Rested there
Axis Title
0
20
40
60
Axis Title
Series2
Series1

Diagram 6-7.


Negative trends in filling out a social survey
45
40
35
30
25
20
15
10
5
0
Zarafshon River Area
Yukori Chinor
Amankutan
Ming Archa
Dobusiya
Mironkul
Kattakurgon Water Bank
Sazagan
Agalyk
Nurbulok
Tepakul
Akdarya River
Don't_know 9 7 3 4 13 3 1 9 4 14 12 3
no answer 27 31 38 34 34 40 41 45 45 43 44 44

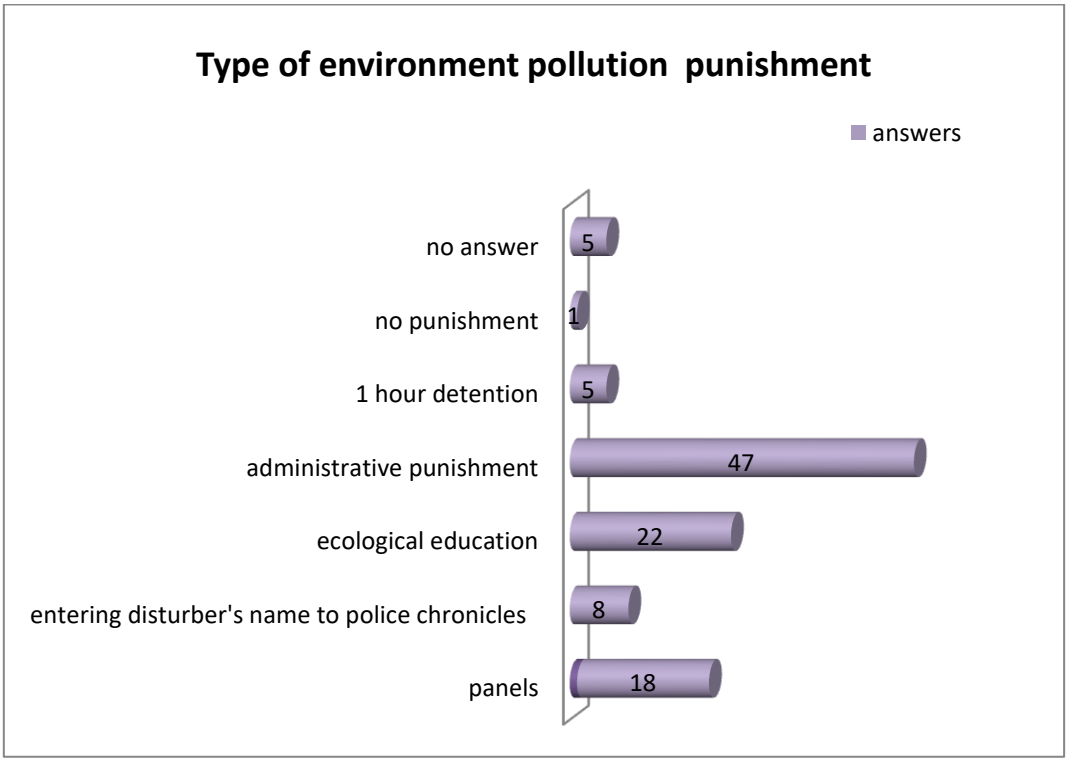
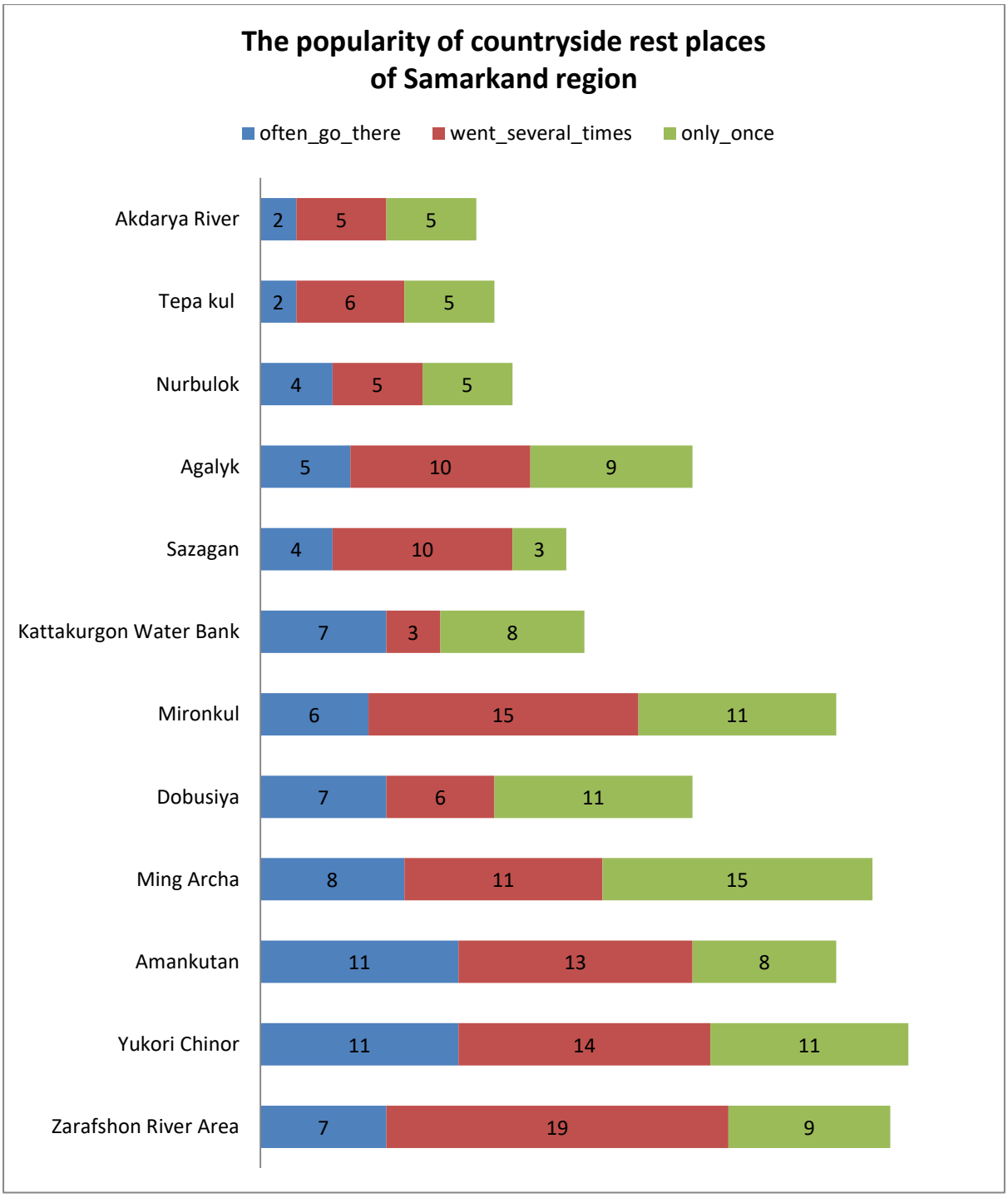

Type of environment pollution punishment
answers
no answer 5
no punishment 1
1 hour detention 5
administrative punishment 47
ecological education 22
entering disturber's name to police chronicles 8
panels 18

Diagram 8.


The popularity of countryside rest places of Samarkand region
often_go_there
went_several_times
only_once
Akdarya River
2
5
5
Tepa kul
2
6
5
Nurbulok
4
5
5
Agalyk
5
10
9
Sazagan
4
10
3
Kattakurgon Water Bank
7
3
8
Mironkul
6
15
11
Dobusiya
7
6
11
Ming Archa
8
11
15
Amankutan
11
13
8
Yukori Chinor
11
14
11
Zarafshon River Area
7
19
9

SPSS Statistics - “Statistical Package for the Social Sciences” - is a “statistical package for the social sciences” - a computer program for statistical data processing, one of the market leaders in the field of commercial statistical products designed for applied research in the social sciences. According to some experts, SPSS “occupies a leading position among programs designed for the statistical processing of information.” [2]

Conclusions and future plans

All scientific data obtained in the course of scientific research during the internship will be taken as the basis for a scientific article, which I am sending to one of the scientific journals with the Impact factor included in the Scopus system, as well as to upcoming international conferences within the framework of the DSINGIS project. In order to preserve information until it is made public (that is a main core of the scientific article) the results of a study of recreational countryside rest places of Samarkand region, are for this reason, not covered in the report.

My stay in Austria was also of a cultural and educational nature: many sights of Salzburg were visited: Mirabellplatz, Fortress Hohensalzburg, House of Mozart, his birthplace, House of natural history, St. Andrews Chirch, Nonnberg Abbey, Dom Cathedral and Museum of modern art (Foto).

Research proposal of Sitora-bonu Sadikova for DSinGIS Programme participation

Research proposal

Name: Sitora-bonu Sadikova Date: 21.05.2019

This initial proposal should be limited to approx. 4 pages! Based on further discussion a more detailed and individually structured project work plan will be the foundation for your research.

Working title

ASSESSMENT OF RECREATIONAL SITES OF SAMARKAND REGION

Short description of theme / problem domain

Samarkand city is a city in south-eastern Uzbekistan and one of the oldest continuously inhabited cities in Central Asia.

The Samarkand city has carefully preserved the traditions of ancient crafts: embroidery, gold embroidery, silk weaving, engraving on copper, ceramics, carving and painting on wood. [Encyclopedia of tourism of Kirill and Mefodiy]. 2008]. In 2001, UNESCO added Samarkand city to its World Heritage List as «Samarkand – Crossroads of Cultures». [UNESCO whc.unesco.org. Retrieved 2018-05-15. *] Samarkand is divided into two parts: the old city, and the new city developed during the days of the Russian Empire and Soviet Union. The old city includes historical monuments, shops and old private houses, while the new city includes administrative buildings along with cultural centres and educational institutions.["History of Samarkand". www.advantour.com*. Retrieved *2018-05-15.]*

According to list of «Protected Areas Of The Republic Of Uzbekistan» there are 8 State Nature Reserves;2 State Natural Parks;1 State Biosphere Reserve; 3 Nature Nurseries;12 State Reserves (Zakaznik) and 7 Nature Monuments.[Fifth national report Of the republic of Uzbekistan on conservation of biodiversity, 2015]

The ecotourism is one of the most fast-growing sectors of the industry of tourism in Uzbekistan. According to definition of Society of ecotourism (USA): ...«the ecotourism is any kinds of tourism and a recreation in the nature which do not cause damage to natural complexes, promote conservation and improvement of welfare of local population».

Thus, analyzing the facts mentioned above, it is important to make a conclusion on need of assessment of recreational sites of Samarkand Region that undoubtly will play a role of valuable tool in:

- *in promotion improvement of the sphere of domestic tourism in the Samarkand region, preserving the natural balance, ecology and biodiversity*

«Obtaining spatial data is often laborious and expensive. New approaches involving the general public in data collection can provide a solution. Among existing crowdsourcing initiatives, OpenStreetMap (OSM) is the largest. But, while public participation geographic information systems (PPGIS), volunteered geographic information (VGI), and user-generated content (UGC) are used in visitor management, OSM still receives less attention ...Thus, there is a need to expand the OSM tagging system to allow the description of different types of nature-based recreational infrastructure and to increase people's involvement in OSM». [Sabine Hennig. Open StreetMap used in protected area management. The example of the recreational infrastructure in Berchtesgaden National Park 30 doi: 10.1553/eco.mont-9-2s30].

Motivation: Why are you interested, who else might be, why do you consider this topic relevant?

"The museum under the open sky" with rich cultural heritage – Samarkand was an important trade centre in the Great Silk Road and still continues to be a strong initiative face of the Central Asia. The ecotourism is the steady and natural focused tourism and a recreation. Along with traditional tourism in Uzbekistan there is a sufficient potential for development of ecotourism in sites of Samarkand region which skillful use finally will lead to increase in tourist flow and, as a result, will create in the tourist sphere favorable investment conditions. Assessment of recreational sites of Samarkand region is an important task for ensuring sustainable development of ecotourism and settlement of economy Generally in of this region.

Objectives: What new insights and knowledge do you anticipate? What will be the specific outcomes and deliverables?

- *Deep understanding on Uzbekistan recreation*
- *Recommendations for managers*

- *Creation a web map with base and recreational sites data and permitting restrictions on specific properties of Samarkand region;*
- *Creation online Web GIS application to answer zoning questions, visualize boundaries of environmentally protected areas of Samarkand region;*
- *Creation mobile app detailing trial length, possible risks for tourists.*

Research questions: What are the key research questions you are addressing?

Assessment of recreational sites in the Samarkand region by means of building spatial data of infrastructure of these sites needed to achieve all the year round use of Samarkand region sites development of tourizm and to promote economic benefits and sustainable increase of welfare of local population of the rural places.

Methods: Which methods and techniques will likely be applied?

A. Definition by means of the social <u>questionnaire:</u>

1. What vacation spots the population of the Samarkand region prefers to visit (to consider seasons of year)(ask local people by Questiounnaire Survey123, spreded with social networks)

2. Why these places? What has dictated their choice: distinctive features of these vacation spots and their negative features.(tracks, GPSes)

3. Do the population of the Samarkand region like the extreme type of turism?

B. Determination radiuses of availability of vacation spots of the Samarkand region.

1. *to define their orientation:*
2. *age censor (orientation)*
3. *sports bias*
4. *improving influence*
5. *religious character (in case if it is pilgrim center)*

C. Negative features of vacation spots of the Samarkand region in opinion of local people is possible to list ?

1. *Lack of toilets*
2. *The polluted country rest place with the bad ecological environment*
3. *not safe country rest place, in case of mudflows, rock falls from mountains or floods it is not protected*
4. *the vacation spot is not protected from attacks of wild animals in any way*
5. *your possible answer*

Sources: Where did you research the current state of knowledge in this field? On what previous work does your proposal build? What are the key references? What did you learn for your objectives and work plan?

I have researched the current state of knowledge in scientific articles, books, dedicated to ecotourism and assessment of recreational sights of Uzbekistan, Europe, USA: on https://learn.arcgis.com; https://.esri.com; https://www.iucn.org/theme/protected-areas/our-work/world-database-protected-areas; Centre, UNESCO World Heritage. "Samarkand – Crossroad of Cultures". whc.unesco.org. Retrieved *2018-05-15; "Uzbekistan: Provinces, Major Cities & Towns – Statistics & Maps on City Population". Citypopulation.de. Retrieved 2014-08-23.; BBC (April 29, 2009).*

Partners / Application: What is the institutional environment you work in / with, which practical application serves as orientation and justification?

I am working as a teacher in the chair of "Theory and history of architecture" of Samarkand state architectural and civil engineering institute(SamSACEI).

Constraints and Risks: Which critical conditions and requirements need to be met?

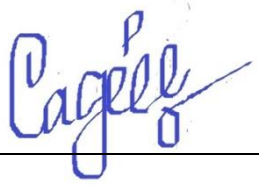
Schedule: What are your timeframe and important milestones? Break down your research project into phases!

Critical risks are - not quality data, not reliable information, not truthful answers? or responses not from all age groups.

***1 phase**: Conduction a social survey was using the program Survey 123 Online ArcGIS software to identify the public opinion of the local population of Samarkand region about the preferences of a country vacation in the region, about types of recreation in the lap of nature, the duration, concretization of the location of popular places of a country rest places and important issues of protecting the environment and ecology of countryside rest places Samarkand region*

***2 phase:** analyze the responses, spatial data, creating the maps*

***3 phase**: Writing of the scientific paper by results of research.*

Date / Signature: 

Acknowledgements

Expressing my gratitude, I would like to note that my scientific supervisor in Host Institute was Sabine Henneg. The administration of the Department of Geoinformatics Z_GIS represented by the head of the department - Professor Joseph Strobl, Sabina Hennig and Hatheier-Stampfl Regina, Aynura, Nicole, Christian were very attentive to me! They all provided hospitality, all kinds of information support and showed great professionalism in accepting and assisting a foreign intern in my person, and I want to wholeheartedly thank them all.

My supervisor Sabine Hennig

Mozart birthplace

View from Kappucinberg mountain top

Bechtesgarden national park scientific research trip

Z_GIS. AGIT Salzburg

GI Forum opening ceremony. Prof. Stobl speech

Welcome
agitSALZBURG
Geoinformatics on stage
ZGIS

DSinGIS
Doctoral Studies in GeoInformation Sciences

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

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12. https://arcg.is/10DrK9
13. https://arcg.is/01PO5m0
14. https://survey123.arcgis.com/share/664f6900fcbd4d20b3a2998a66036f60
15. https://survey123.arcgis.com/share/4545b174dde24593b73a51b8fc59cc5d