Free online training courses for sustainable water, and land use in arid regions with RS-GIS applications based on Chinese expertise

Training Schedule

Date: 12-17 August 2024

Venue: Kazakh British Technical University, Almaty, Kazakhstan

Introduction:

The Xinjiang Institute of Ecology and Geography (XIEG) of the Chinese Academy of Sciences (CAS) is the leading world research center with a focus on sustainable development, desert environment, mineral and biological resources in Xinjiang, Central Asia. XIEG has developed innovative contributions to the study of resources, ecology, and the mechanisms of environmental change in arid areas, and new technologies related to resource development and ecological protection such as XIEG of the Chinese Academy of Sciences (CAS) has worked on analyzing the uncertainties of ground validation for remote sensing land cover mapping in the era of big geographic data, soil moisture content retrieval based on apparent thermal inertia for Xinjiang province in China.

The aim of this ANSO training program is to share the XIEG knowledge with the developing countries in Central Asia, set up user-friendly dual TVET (technical and vocational education and training), a combination of online and offline training programs with the application of open source remote sensing and GIS technologies, including QGIS tools, and connect to the Free online training courses such as Coursera, https://www.coursera.org/, edX, https://www.edx.org/school/wbgx , Green Central Asia, droughtmap, https://www.youtube.com/watch?v=6wv9abOIWqQ, https://www.youtube.com/watch?v=H5g1auC0FuE, by making these training programs available for many people, including students, researchers, farmers in Central Asia and other developing countries worldwide. The balanced use of natural resources, eco-

friendly technologies, including sustainable agriculture, the responsible attitude to nature, the environment, biodiversity, and social responsibilities are complicated issues and require the proper TVET capacity building support programs on a permanent basis with regular investment support. Many training programs are missing practicality, connection to the people's real needs, current emergencies, and practical scientific support for the local people's needs, and TVET support with biodiversity emphasis is missing in many regions. The proper connections between Communities-School-Biodiversities-College-Industry-University (CSBSIU) are also missing in many countries. China is powerful in TVET CSBSIU connected programs. We are planning to set up free online training courses for sustainable water, and land use in arid regions with RS-GIS applications based on Chinese expertise within this cooperation program. To overcome the language issue and to train individuals from a beginner to an expert, this training is proposed in multiple languages such as Chinese, English, Urdu, Persian, Kazakh, and Russian. A team of experts in GIS and RS analysis will take the sessions with the help of hands-on exercises and lectures in different languages. This will be very helpful for people belonging to different nations. The main language will be English, but it can be explained in the local language.

The COMSATS University Islamabad (CUI), formerly known as COMSATS Institute of Information Technology (CIIT), is a public university in Pakistan. It is a multi-campus university with its principal seat located in Islamabad. The Xinjinag Institute of Ecology and Geography, Urumqi, China, joins hands with the CUI, Kazakh British Technical University (KBTU), Kazakh National Agrarian Research University (KazNARU), researchers from different countries, including Belgium, Ethiopia, Iran, Tajikistan, will deliver the training as per their expertise in the field.

Objectives:

The main objectives of the RS-GIS training workshop are:

- Training of the trainers especially for college university instructors and practitioners, who work on environmental issues, with communities, farmers.

- Based on Chinese expertise in RS-GIS applications, modeling, is to provide support for communities in emergency events (EE) mitigation, disaster risk reduction (DRR) and agriculture.

Relevance to the UN SDGs:

RS-GIS applications with emphasis on sustainable agriculture supporting biodiversity have several applications to address different SDGs:
SDG 2: “End hunger, achieve food security and improved nutrition and promote sustainable agriculture”
SDG 4: “Quality Education”
SDG 6: "Ensure availability and Sustainable Water management for all"
SDG 11: “Sustainable Cities and Communities”

Who Can Participate:

Students, researchers, practitioners working in the field of Environment, Hydrology, Biology, Biodiversity, Agriculture, Climate change, EE Mitigation, DRR, Emergency preparedness, and any other relevant field can participate both online and offline. Online link will be provided to the participants from ANSO member countries and COMSATS Headquarter, Islamabad member countries.

Fee and Online Registration:

Participation in Training is free of cost. For registration, please send an email to: drtoqeerahmed75@gmail.com , j.sagin@kbtu.kz , r_amanzholova@kbtu.kz
Links will be shared with the registered participants from different countries.

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RS-GIS application for DRR, EE mitigations		
Day 1, 10 Aug	**Arrival**	
Day 2, 11 Aug	**Preparation**	
Day 3 / Time	**Name of the Trainer**	**Title of Presentation**
Mon, 12 Aug 9.30-09.40 am	Ambassador Dr. Mohammad Nafees Zakaria	Opening Remarks
Mon, 12 Aug 9.40-10.30 am	Professor Dr. Philippe De Maeyer (online from Ghent, Belgium)	Introduction to RS and GIS
10.30-11.30am	Dr. Ramin Nourqolipour	GIS and Remote Sensing for Land Use/Cover Change and Emergency Preparedness
Refreshment (30 min)		
12-1.00pm	Professor Dr. Yuan Xiuliang	Application of Land Surface Models in Simulating Agricultural Irrigation in Arid Regions
Lunch Break (1 hour)		

2.00-3.00 pm	Professor Dr. Alishir Kurban	Mapping of Land Surface Dynamics
3.00-4.00 pm	Dr. Muhammad Usman	DRR, EE mitigation, Aral Sea basin monitoring, Green Central Asia, droughtmap, web GIS platform
RS-GIS application for Agriculture		
Day 4 / Time	**Name of the Trainer**	**Title of Presentation**
Tue, 13 Aug, 9.30-10.30am	Dr. Ramin Nourqolipour	Leveraging Remote Sensing and GIS for Sustainable Agriculture
10.30-11.30am	Dr. Alemayehu Tolossa	Ethiopian degraded land rehabilitation – cooperation with China, RS&GIS applications
Refreshment (30 min)		
12.00-1.00pm	Dr. Anwar Eziz (online from XIEG, Urumqi, China)	Application of R in geospatial data analysis for agriculture
Lunch Break (1 hour)		
2.00-3.00pm	Engr. Muhammad Ibtisam	Remote Sensing based Irrigation Advisory Services
3.00-4.00pm	Professor Dr. Athar Hussain	RS-QGIS / Climate Interventions
Day 5 / Time	**Name of the Trainer**	**Title of Presentation**
Wed, 14 Aug, 9.30-10.30am	Professor Dr. Hossein AZADI	Drought monitoring and management: Application of RS-GIS in climate-smart agriculture
10.30-11.30am	**Dr. Osman Ilniyaz** (online from XIEG, Urumqi, China)	UAV and machine learning applications for grape yard
Refreshment (30 min)		
12.00-1.00pm	Dr. Toqeer Ahmed	RS-GIS Applications in Water Quality Management
1.00-2.00pm	Dr. Mumtaz Ahmed (Online, Head of Economics, CUI)	Statistical Approaches in Data Analysis using Stata
Lunch Break		
	Closing Session	

Day 6 / Thu, 15 August	**Field Visit**	Kazakh National Agrarian Research University (KazNARU) Saymasay village farms, Kazakh-Netherland intensive center
Day 7 / Fri, 16 August	**Visit DRR, EE mitigation facilities**	Chymbylak – Medeo – combination of floods, landslides DDR, EE mitigation facilities
Day 8, Sat, 17 August (Departure)		