

## **International Summer School WEFCA 2019**

### **Sustainability Assessment of the Water–Energy–Food Nexus for Irrigated Agriculture: Interdisciplinary Approaches for Central Asia (WEFCA)**

The Leibniz Centre for Agricultural Landscape Research (ZALF) invites applications for International Summer School that will take place during **29 April – 5 May 2019 in Tashkent (Uzbekistan)**.

Applications are invited from highly-motivated doctoral (PhD) and post-doctoral (Post-doc) researchers who want to become familiar with advanced research methods for conducting sustainability assessment of the water–energy–food (WEF) nexus, integrating the notions of ecosystem services, resource use efficiency, long-term soil quality maintenance, human health and economic viability using empirical examples from Central Asia and Afghanistan.

The WEFCA Summer School provides a panorama of interdisciplinary and transdisciplinary methods and experiences in social and natural sciences, relevant to the study of WEF nexus.

The course language is English. The maximum number of participants is 35.

#### **DATES AND VENUE**

**29 April – 5 May 2019**

Tashkent Institute of Irrigation and Agricultural Mechanization Engineers (TIAME)

Kary-Niyaziy str. 39

100000 Tashkent, Uzbekistan

<http://tiame.uz>

#### **OBJECTIVES**

Agriculture remains an important sector in the economy of Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan). The sustainable use of agricultural land is therefore essential to economic growth, human well-being, social equity, and ecosystem services. However, salinization, erosion, and desertification cause severe land degradation which, in turn, endanger human health and ecosystem services. Soil salinization is a major threat that is leading to declining crop production and deteriorating environmental services. Moreover, population growth along with emerging climate change problems (e.g. increased temperatures) have resulted in rising water demand for both, energy and irrigated agriculture. The conflicting interests between water for energy (numerous power plants are newly built or planned in the area) and water for irrigation have

been complicating water resource management there, including efforts to meet the increasing food demands of a rapidly growing population. These issues have resulted in a decline in the production of agricultural crops in the region. The Summer School intends to reflect on the environmental, social and economic features of important agricultural land and water use systems and the possibilities for broader diffusion. The specific objective is to apply interdisciplinary approaches for advancing scientific knowledge in the areas of water, energy, and food in Central Asia.

## **PROGRAMME**

The final programme will be posted on the website in due course. All presentations, made available by lecturers, will also be posted on the website.

## **ORGANIZERS**

The Leibniz Centre for Agricultural Landscape Research (ZALF), organizer of this Summer School, has long-term research experience on addressing issues related to water, energy, soil, and sustainable agriculture. In particular, it is well-known for its interdisciplinary group of scientists who employ theoretical as well as advanced methodological tools in analyzing natural resource use.

The Tashkent Institute of Irrigation and Agricultural Mechanization Engineers (TIAME), hosting institution of the Summer School, is well-known agricultural and water-related university in Uzbekistan. TIAME mostly educates specialists in agriculture with focus on water and land management, hydro-melioration, environmental conservation, soil salinity, and energy management.

## **COURSE DESCRIPTION**

The course will train early-career scientists (PhD students and Post-docs) on advanced research methods for studying agricultural land use systems under irrigation. It will provide its participants with a comprehensive look into theories and research methods (e.g. Qualitative comparative analysis (QCA), systematic reviews (Web of Science and Scopus analysis, as well as Endnote), participatory impact assessment (PIA), driver-pressure-state-impact-response (DPSIR), text analysis using Atlas.ti qualitative data analysis tool, and integrated crop system models) for addressing empirical problems.

The students will be engaged in discussions and group work on the key issues. The study field visit will be organized to the areas that are affected by the dilemma between water for energy use and water for agriculture. In addition, soil degradation and crop production

under environmentally-stressed areas will be monitored. A field trip will provide participants the opportunity to interact with local stakeholders to discuss their experience with WEF challenges.

The Summer School starts with three days of classes that include introductory lectures on advanced empirical methods for analyzing sustainability dimensions of WEF as well as extensive practical exercises. During the exercises, the students form a group (5-6 students per group) and get individual advice from their teachers. On the fourth day, a field trip to the case study region (preferably, Tashkent province) is planned, where local stakeholders present their practical problems and students learn from practice examples. On the last two days, the students prepare and present the results of their group work by applying different methods that they have learned during the week. Throughout the week, the students have the chance to get personally involved with the lecturers.

## **EXPECTED RESULTS**

After completing the course, participants will be able to:

- understand and analyze empirical problems of the WEF nexus in irrigated agriculture from scientific and practical perspectives;
- apply theoretical and methodological tools to address research problems in relation to sustainable development;
- work more effectively in collaboration with other disciplines for investigating trade-offs and interconnectedness of the three sectors water, energy, and food;
- prepare a joint draft paper about the sustainability impact assessment of water–energy–food nexus for irrigated agriculture in Central Asia.

## **LECTURERS**

**Prof. Katharina Helming** is professor for sustainability assessment at the University for Sustainable Development (University of Applied Sciences) in Eberswalde, Germany. She is co-chair of the Landscape Research Synthesis research area as well as the head of the Impact Assessment working group at ZALF. She has conducted sustainability impact assessment of agricultural land use in Central Asia, China and Europe. She uses scenarios and participatory methods to integrate knowledge systems for sustainable land use and soil management.

**Prof. Andreas Thiel** is professor and the head of the Section of International Agricultural Policy and Environmental Governance, University of Kassel, Germany. He has experience working on water management in Europe as well as in Uzbekistan. His research interests include water–energy–food nexus and its implications for governance, polycentricity, and institutional economics approach.

**Prof. Yarash Pulatov** is professor and the head of the Department of Innovative Technologies of the Institute of Water Problems, Hydropower Engineering and Ecology of the Academy of Sciences of the Republic of Tajikistan. His main research interests are sustainable water and energy management, irrigation and water law, and water–energy–food–ecosystem nexus. He is a member of the Regional Council of the Global Water Partnership in Central Asia and Caucasus, a member of Tajikistan society of soil scientists, and the chairman of the National Water Partnership in Tajikistan.

**Dr. Heidi Webber** is a senior scientist at ZALF where she leads the Integrated Cropping System Analysis and Modelling working group. She studies cropping system adaptations to climate change using on-farm experimentation, biophysical models and integrated impact assessment methodologies. A particular research focus is to improve process based modelling tools to account for multiple stressors encountered in real production conditions (e.g. water scarcity, salinity, high temperatures). She has worked in Uzbekistan investigating water saving irrigation technologies and options to re-introduce legumes into cropping systems, as well as in various countries of West Africa and Europe.

**Dr. Katrin Daedlow** is post-doc researcher and a lecturer at Humboldt University of Berlin. She has profound knowledge and practice in natural resource management and impact assessment research, in particular in soil and land, but also fisheries. Her expertise comprises institutional economics, governance and resilience of social-ecological systems and she applies comparative case study approaches with qualitative and quantitative methods.

**Dr. Ahmad Hamidov** is post-doc researcher at ZALF and coordinator of BioWat project. He is a lecturer at Humboldt University of Berlin for Master students on Advanced Empirical Methodology for Social-Ecological Systems Analysis course. He has vast experience in conducting research related to natural resource management (e.g. water, land, and pasture) in Central Asia. His research work involves understanding the interconnectedness and the trade-offs of the three sectors water, energy, and food in small-scale river basins in Uzbekistan.

**Dr. Dilfuza Egamberdieva** is senior scientist at the Land Use and Governance research area at ZALF and has extensive experience on improvement of soil productivity and crop production under hostile environmental condition. She has wide experience in management of international projects related to research and education, and involved in capacity-building projects in higher education of Central Asia funded by the Norwegian Centre for International Cooperation in Education.

**Dr. Hussam Hussein** is post-doc researcher at the Section in International Agricultural Policy and Environmental Governance of the University of Kassel, Germany. His PhD - from the School of International Development, University of East Anglia (Norwich, UK) - investigated the discourse of water scarcity in the case of Jordan. His research interests lies within critical

hydropolitics, transboundary water governance, and the water-food security nexus, with a geographic focus on the Middle East.

## **APPLICATION**

Interested PhD and Post-doc researchers should send their application documents in English language by e-mail (1 single pdf-file, max. 3 MB) to [wefca2019@zalf.de](mailto:wefca2019@zalf.de). A set of application documents should include:

1. A short statement about motivation for attending the Summer School (1 page max);
2. Abstract of an own research project (400 words);
3. Curriculum vitae;
4. Proof of English language proficiency (preferably, IELTS 5.0 score or higher).

Closing date for receiving applications is **28 February 2019**. Participants will be confirmed by 15 March 2019.

If you have questions please contact Dr. Ahmad Hamidov ([wefca2019@zalf.de](mailto:wefca2019@zalf.de)).

In case of positive decision, participants should provide a letter of confirmation from their organizations to prove their status (PhD or Post-doc researcher).

## **TARGET GROUP**

The Summer School programme is designed for PhD and Post-doc researchers working in the fields of agricultural and environmental sciences, rural development, water and energy management, and other related fields of natural resources management.

Students from universities and research institutions in Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan and Afghanistan as well as in Germany are encouraged to apply.

## **FINANCIAL SUPPORT**

A round trip travel (flight: economy class, railway: 2<sup>nd</sup> class), visa fees (if required), food and accommodation will be covered for successful applicants.

The Summer School is financially supported by the Volkswagen Foundation (<https://www.volkswagenstiftung.de/>).

## **ADDITIONAL INFORMATION**

### **UZBEKISTAN, A HEART OF SILK ROAD**

Uzbekistan is the heart of the Silk Road connecting the East to the West, which includes the fascinating and well-preserved history. Many centuries ago the Great Silk Road connected Europe with Asia, and contributed to the development of Central Asia, in particular, Samarkand, Bukhara, Khiva and Shash (modern Tashkent). Numerous centers of national crafts, art schools, madrasahs, palaces and mausoleums were created there. These cities of Uzbekistan have gradually turned into one of world's tourist destinations in Asia.

### **TASHKENT – THE CAPITAL OF UZBEKISTAN**

Tashkent is the largest city of Uzbekistan and is famous for its tree-lined streets, numerous fountains and pleasant parks. The city is the main political, economic, cultural and scientific center of the country. The city's numerous theatres, Uzbek and Russian, include the Navoi Theatre of Opera and Ballet. Also notable is the Navoi Public Library. Tashkent boasts with its markets and bazaars. There are around 20 major markets in Tashkent and the major ones include Alay Bazaar, Chorsu Bazaar, Kuyluk Bazaar, and Bek Baraka Wholesale Market. Last but not least, the Tashkent TV tower is a 375-metre-high and is the 11<sup>th</sup> tallest tower in the world.

### **WEATHER**

Uzbekistan is a sunny country with continental climate. It is expressed in sharp amplitudes of day and night, as well as summer and winter temperatures. Length of the day in summer is about 15 hours and in winter about nine hours.

The weather in Tashkent around the time of the Summer School can be changeable, with an average daytime temperature is around 20-25 °C, whilst at night 10-15 °C.

<https://www.weather2visit.com/asia/uzbekistan/tashkent-april.htm>

### **CURRENCY**

National currency of Uzbekistan is SUM. Currency exchange offices are located at the airport, hotels, in the markets and banks, as well as in district visa and registration offices. Majority of currency exchange offices in the city accept Euro and US dollar. Other currencies can be exchanged only in those exchange offices, which are located in banks. In hotels, currency exchange offices are open 24 hours 7 days a week.

## AIRPORT

Islam Karimov Tashkent International Airport is the main international airport of Uzbekistan. It is located about 12 km from the center of Tashkent. The airport is the main air hub for local airline Uzbekistan Airways. The international airport has regular bus and taxi connections to and from the city centers.

The Summer School local organizers will arrange a shuttle to the hotel.

## TRANSPORT

The city has a good public transport system which is cheap. The metro/underground system with large and impressive stations is quite modern. Tickets (small blue coin size tokens) cost around 1200 SUM for any single journey, regardless of distance or connections (metro only, no bus connections).

Tashkent metro has three lines (trains run every 5 minutes):

- **Uzbekistan (Blue line)** from Beruni to Dostlik;
- **Chilonzor (Red line)** from Olmazor to Buyuk Ipak Yuli;
- **Yunusabad (Green line)** from Ming Urik to Shakhriston.

## VISA

Participants who require an entry visa are advised to allow sufficient time for the visa application procedure. The local organizers will support with a letter of invitation and the participants should submit their visa application to the nearest Embassy or Consulate of Uzbekistan in their country of residence. Participants should contact the organizers for support if they need Uzbek visa.

### Visa-free nationalities

Citizens of the following CIS countries do not need an Uzbekistan visa for visits of up to 60 days: **Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, and Russia.**

Citizens of **France, Israel, Indonesia, Japan, the Republic of Korea, Malaysia, Singapore, Tajikistan, and Turkey** do not need a visa for visits of up to 30 days. From 15 January 2019, Uzbekistan introduces a visa-free regime for **German citizens** visiting Uzbekistan.

More details can be found here: <https://mfa.uz/en/consular/visa/>