



**CAREC Institute**

**Workshop Report**

**Silk Road of Knowledge:  
Scientific-Practical Online Conference**

**27 November 2020**

## Disclaimer

The CAREC Institute workshop report and policy brief series is a forum for stimulating discussion and eliciting feedback on ongoing and recently completed research and workshops undertaken by the CAREC Institute staff, consultants, or resource persons. The series deals with key economic and development issues, particularly those facing the CAREC region, as well as conceptual or analytical issues relating to program or policy design and implementation.

This report is one of the outputs of the scientific-practical online conference titled “Silk Road of Knowledge” jointly organized by the Kazakh-German University, the CAREC Institute, Green Central Asia, GIZ and other partners.

The conference was delivered through seven sessions during 24-27 November 2020. The aim of the conference was the identification of scientific gaps and generation of knowledge on the impact of climate change on water management, food security, infrastructure development, etc., as well as enhancement of constructive regional dialogue in Central Asia and strengthening emphasis on educational and youth outreach and experience-sharing. The CAREC Institute led session six on infrastructure and logistics under climate change. This session aimed to present and discuss how transport corridors in the CAREC region affect the economic potential of linking cities and regions starting from the quality of transport infrastructure and leading to their export potential to follow sustainable development goals.

The report is drafted by Rose Shao, Capacity Building Specialist, the CAREC Institute, and edited by Eisa Khan Ayoob Ayoobi, Chief of Capacity Building Division, the CAREC Institute. Rovshan Mahmudov, Senior Capacity Building Specialist at the CAREC Institute has contributed to the report.

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## Abbreviations

ABEC	Almaty–Bishkek Economic Corridor
ADB	Asian Development Bank
ADBI	Asian Development Bank Institute
CAREC	Central Asia Regional Economic Cooperation
CPMM	Corridor Performance Measurement and Monitoring
CTTN	CAREC Think Tank Network Forum
GIZ	Gesellschaft für Internationale Zusammenarbeit
LED	Local Economic Development
PRC	People’s Republic of China
SDGs	Sustainable Development Goals
STKEC	Shymkent-Tashkent-Khujand Economic Corridor
TBK	Tashguzar – Baysun – Kumkurgan
TIF	Tax Increment Financing

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## Introduction

The development of science-based solutions to meet climate change impact and to secure sustainable development is one of the crucial challenges for the Central Asian countries and for future decision making at the regional and national levels. With climate change, the water cycle is expected to undergo significant changes. With increasing shortage of water, the region is expected to face severe climate change issues. Water is one of the main sources of socio-economic development in the region. Thus, climate change impacts on water alone will have detrimental effects on the livelihood of the communities.

Obviously, climate change and its associated environmental challenges also bring about natural disasters to the region. Considering such predictable climate change obstacles, the region is in serious need of new scientific discovery to mitigate and adapt for the future tests. Among other immediate supports needed, the region requires a profound scientific framework and platform that provides guidance and incentives to attract young and senior professionals to conduct relevant research to generate new knowledge and disseminate the acquired knowledge products to the regional partners.

The CAREC Institute joined hands with the Kazakh-German University and other partners in the region to lay some groundwork on this front by conducting a regional scientific conference – “Silk Road of Knowledge” – during 24-27 November 2020. The regional knowledge conference aimed at: i) identification of scientific gaps regarding the impact of climate change contributing to the enhancement of constructive regional dialogue in Central Asia; ii) knowledge generation covering the impact of climate change on water management, food security, infrastructure development, land management, and water and climate security and energy efficiency practices in Central Asia; and iii) strengthening emphasis on educational and youth outreach and experience-sharing.

Furthermore, the conference was to set the basis for knowledge transfer of what had been developed in the Berlin process during 2009-2019 as well as paving the way for future research initiatives in the frame of Green Central Asia, a regional initiative on climate and security in Central Asia and Afghanistan launched at the beginning of 2020. The core theme of the conference was how regional collaboration, informed by science, can help solve climate-related challenges in Central Asia.

The conference also encouraged presentation of feasible recommendations for consideration of the relevant high-level policy makers and policy influencers in the region. Prior to the Conference, a collection of abstracts for each thematic presentation was collected from each selected speaker. The composition of the abstracts is to set the basis for the development of a scientific book in the future on governance of natural resources under the impact of climate change in Central Asia.

The conference was delivered online with specific objectives of bringing together leading voices from scientists and practitioners to generate new knowledge and enhance a constructive dialogue on climate change issues. It was to facilitate experience exchange and knowledge generation concerning water management, food security, infrastructure development, energy efficiency practices in the context of climate change through identification of the status-quo and existing gaps. It was also to enhance collaboration through the prism of science to address policy challenges in the sphere of climate and water. Finally, it was to raise awareness about current environmental conditions in Central Asia to strengthen regional cooperation among young and senior scientists through identification of joint research opportunities, publication, and networking.

The conference covered a wide range of topics discussed through thematic sessions in the context of climate change and COVID-19 in Central Asia. Various national and regional partners were assigned to deliver sessions related to their institutions and expertise portfolios. The following list of topics reflects

the structure of the conference:

- Session 1: Climate Impact Assessment
- Session 2: Water under Climate Change
- Session 3: Land Management and Food Security under Climate Change
- Session 4: Potentials of Digitalization for Increasing Sustainability in Agriculture
- Session 5: Water and Climate Security in Central Asia
- **Session 6: Regional Infrastructure and Logistics under Climate Change**
- Session 7: Decarbonization of Energy Systems and Climate Neutrality

The CAREC Institute has designed and delivered session six (regional infrastructure and logistics under climate change). The Institute's international experts in collaboration with experts from key development partners presented in the session and put forward policy recommendations. **This workshop report reflects only the CAREC Institute session.**

## Regional Infrastructure and Logistics under Climate Change

Sustainable infrastructure and logistics are priority areas of regional cooperation under the Central Asia Regional Economic Cooperation (CAREC) Program that aims at promoting regional economic cooperation and sustainable development in Central Asia and along the ancient Silk Road. Also, most of the countries of Central Asia are investing heavily in roads, railways, bridges, and other major regional connectivity infrastructure to lay sustainable foundation for cross-border trade and logistical services. While intensifying regional connectivity infrastructure investment is crucial for Central Asian countries, they also need enhanced and effective regional cooperation. The region remains among the least integrated parts of the world. Obviously, investment in regional infrastructure projects requires close regional cooperation, coordination and more importantly co-financing.

Acknowledging the increasing impacts of climate change, in particular temperature rise in Central Asian, all future investments must be climate change adjusted. It is to allocate substantial amount of additional fund for addressing climate change aspects or sustainability of the projects. The CAREC Institute session was to analyze investments in infrastructure and logistics under the increasing challenges of climate change in the CAREC region. The session included presentations based on recent CAREC Institute research projects on sustainable water infrastructure financing, CAREC Corridor Performance Measurement and Monitoring mechanism and other relevant issues as well as partners' research findings on spillover effects of investment in regional infrastructure projects in CAREC and other Asian sub-regions.

The session highlighted that Central Asian countries have been increasing their efforts in attracting investment in transport infrastructure to rebuild the ancient Silk Road connectivity. They believe that such revival of historical routes of trade and commerce will help them enjoy economic benefits through enhancement and participation in regional and global trade. In line with this rationale, the CAREC Institute along with partners presented research findings and facilitated regional policy dialogue and discussions. There were also country-perspectives or case studies in the session. The overall aim was to deliberate how CAREC transport corridors and associated investments will help the CAREC countries reach their economic potentials. It was also to analyze that linking cities and regions requires sustainable planning, design, and management to have quality transport infrastructure and logistical services. Through thoughtful consideration and cooperation, CAREC countries can move forward towards reaching their regional trade, commerce and transit potentials in sustainable manner that would also help them achieve their commitments under the UN Sustainable Development Goals.

The CAREC Institute session was chaired by **Eisa Khan Ayoob Ayoobi**, the CAREC Institute Chief of

Capacity Building Division. Mr. Ayoobi started the session by briefly introducing the CAREC Program and the CAREC Institute to the conference audience, which included scholars, researchers, and development practitioners from Central Asian countries as well as development partners from the region and beyond. He listed the CAREC priority clusters and linked the theme of the conference to the CAREC Program and CAREC Institute ongoing efforts. Then, he highlighted some of the important aspects of soft regional infrastructures in promoting regional connectivity, trade, transit and overall regional cooperation and integration. He also pointed out several ongoing relevant capacity building efforts that the CAREC Institute is undertaking in sustainable regional infrastructure and connectivity.

Mr. Ayoobi highlighted the CAREC Institute's open policy of engaging with all national and regional implementing partners to leverage efforts and resources in support of member countries and all stakeholders. He believed that such collaborative regional knowledge sharing conferences are key in promoting evidence-based policy making in the region. They would not only help address climate change challenges scientifically but also address other regional issues holistically together with scientists, decision makers, practitioners, and development partners.

Before introducing the speakers, he once again restated that the session was going to analyze investments in infrastructure and logistics under the increasing challenges of climate change in the region through expert presentations. He encouraged all conference participants to engage in expert discussions on how the transport corridors in the CAREC region affect the economic prospects of linking cities and regions starting from the quality of transport infrastructure and leading to their export potentials.

## CAREC Corridor Performance Measurement and Monitoring

**Dr. Iskandar Abdullaev**, Deputy Director Two of the CAREC Institute, was the first presenter of the session. He delivered a presentation on CAREC Corridor Performance Measurement and Monitoring (CPMM) mechanism. This is a major collaborative work that the CAREC Institute has been undertaking in close collaboration with the Asian Development Bank (ADB).

Dr. Abdullaev started by identifying trade and transport corridors as major drivers of regional cooperation and integration in the CAREC region. According to him, quick, paperless, and smooth trade has various potentials to decrease poverty, and increase inclusive and sustainable development. In the CAREC region, trade and transport corridors are promoting connectivity and mobility across involved countries by providing competitive value for regional cooperation.

He quoted recent studies which indicate that poverty levels range from 5% to 40% in CAREC and due to the outbreak of the COVID-19, around 20 million people will be affected seriously by loss of job. The economic slowdown has seriously reduced job opportunities in many sectors of the CAREC economies. Therefore, he argued, only regionwide increased trade, improved partnership and regional cooperation will bring more opportunities for the affected populations. In addition, transboundary cooperation and mobility, supply chain of goods, efficient and cost-effective cooperation are key enabling elements for trade. However, levels of economic development, poverty, and livelihood quality are differing among CAREC countries.

Hence, Dr. Abdullaev continued, there is need for research to understand potential positive impacts and scope of trade-transport corridors in the CAREC region that would identify the scope for new corridor development. While conventional and physical trade-transport corridors are helping bring economic growth to the region, new opportunities in the form of digital and knowledge corridors are emerging as new attractive onuses to further promote regional trade, connectivity, infrastructure, and logistical services.

In addition to the ongoing research project, such as assessment of the performance of trade-transport corridors, analysis of opportunities for knowledge and digital corridors in CAREC region are needed. Such new areas of research will add further basis for policy analysis. They could compliment ongoing major research like the ADB-developed CPMM mechanism. In his conclusion, Dr. Abdullaev encouraged all conference participants, mainly the development partners and the region's scholars, to joint research and capacity building efforts. He extended the CAREC Institute invitation and willingness to collaborate on this front.

## Benefits of Private Finance in Water Infrastructure in CAREC

**Dr. Nella Hendriyetty**, Senior Capacity Building and Training Economist, Asian Development Bank Institute (ADBI), was the second speaker. She delivered a presentation titled “The Way to Increase Private Finance into Water Infrastructure in the CAREC Region.”

According to Dr. Hendriyetty, as cities grow in population and economic development activities increase, clean water becomes scarce. Water shortages could be a serious problem for countries across the world, but more so for the CAREC countries that are heavily dependent on water. Therefore, the United Nations have put access to clean water as one of the Sustainable Development Goals (SDGs).

For Central Asia, water infrastructure has been outdated, and most water infrastructure has not changed much since Soviet times. The water management systems in Central Asian countries are still managed by governments, with little private sector participation. At the same time, the governments do not have sufficient funds to address infrastructure problems in water sector. Therefore, private sector participation is needed to develop infrastructure in the region.

Based on recent ADBI research findings, while existing research-based policies have been crucial for infrastructure development in the CAREC region, new policy responses and new concepts for governments to keep quality infrastructure development in the water sector are needed. New mechanisms for attracting private investment in sustainable infrastructure are required. To attract private sector participation, governments could utilize part of spillover tax revenues created by infrastructure investments to compensate for risks and finance further expenditures to support small and medium-sized enterprises.

Additionally, CAREC countries may need to offer incentives for secondary markets, technology development, and environmental protection in further enhancing sustainable infrastructure development in the region. Only then, foundations are laid for high-quality infrastructure investment where quality is measured by how much economic and social value can be created by infrastructure projects in a region. Simultaneously, the value created by the infrastructure could be utilized to address the financing gaps for future sustainable infrastructure investment.

## Kazakhstan as a Bridge between Europe and Asia

The third speaker of the session was **Professor Zhandos Kegenbekov**, faculty of Engineering & Information Technology, Kazakh-German University, Kazakhstan. He presented his study titled “Kazakhstan as a Bridge between Europe and Asia.”

Professor Kegenbekov started by pointing out that in the case of globalization, no state can evolve effectively without integration into the overall global market chain. According to him, transportation infrastructures are key for a country and a region to participate in global economic activities. The transport network plays an essential role in the integration of Kazakhstan's economy into the world economy. The advantageous geographical location of Kazakhstan between Europe and Asia



predestinates its important transit capacity and gives an exceptional prospect to act as the “Eurasian Transcontinental Bridge.”

Kazakhstan alone has the landscape and transport infrastructure leverages to provide Asian countries a single land transport link to Europe and Russia. There are six roads, nine railways and four international air corridors which pass through Kazakhstan. The global index of logistics efficiency ranks Kazakhstan as 71<sup>st</sup>.

Professor Kegenbekov highlighted some of the ongoing works in Kazakhstan to acquire new knowledge to modernize its logistics centers. He pointed out the cooperation between Germany and Kazakhstan for knowledge exchange, to transfer German logistics know-how to Kazakhstan. On this front, an initiative “LogCentre” is already launched through the Kazakh-German University. It provides a network between education, science, and applied research in logistics. This center helps establish a developed logistics system in Kazakhstan.

## Evidence Based Infrastructure Financing: The Case of Uzbekistan

**Dr. Umid Abidhadjaev**, Deputy Director of the Center for Economic Research and Reforms of Uzbekistan, was the fourth speaker. He delivered a presentation title “Evidence Based Infrastructure Financing: The Case of Uzbekistan.” His presentation highlighted an important and positive lesson learned in areas of infrastructure investment in Uzbekistan.

Dr. Abidhadjaev started his presentation by giving a brief introduction of the newly built railway line - Toshguzar-Boysun-Kumkurgon (TBK) in the south-eastern part of Uzbekistan. He went on to discuss the associated various benefits and positive spillover effects that this infrastructure development has brought to the country mainly to the localities along the railway line. His presentation was based on a comprehensive research he had completed with the main goal of identifying the magnitude and multitude of TBK (a major national transport infrastructure project) benefits.

Through his presentation, Dr. Abidhadjaev explained and quantified the impacts of TBK on the financial performance of enterprises and institutions based on specific timeframe and localities. His analysis revealed positive spillover effects. In particular, he quantified, on average, 246 bln. soums and 319 bln. soums increase in the profits of enterprises and institutions compared with the outcomes of control localities for short and long-term accordingly.

The results also showed statistically significant anticipation and postponed effects. The policy implications suggested local infrastructure financing through different tools, including the well-known principle of Tax Increment Financing (TIF). Dr. Abidhadjaev believed that TIF is an important tool that should be put forward for discussion within the policy and decision-making circles in the CAREC region. He concluded his presentation by encouraging all CAREC countries to invest in sustainable infrastructure projects, which will bring short- and long-term spillover effects.

## Impact of the Silk Road Corridor: The Case of Kazakhstan

**Dr. Aisuly Taisarinova**, researcher, Kazakh-German University, Kazakhstan, was the last speaker of the session. She presented her study title “Impact of the Silk Road Corridor on Affected Regions: The Case Kazakhstan.”

Dr. Taisarinova emphasized that the idea of stimulating regional development through infrastructure projects is reflected in the concept of the Silk Road. Thus, many of Central Asian countries were

interested to incentivize investment in transport infrastructure with the aim of reconstructing the Silk Road corridor and obtaining economic gains from participation in regional and global trade, commerce, and transit.

One of the first projects in Central Asia in the framework of this concept was the international corridor "Western Europe - Western China (WE–WC)." Dr. Taisarinova stressed that further research would be needed to assess a holistic picture on how this transport corridor would impact the economic potential of linking cities and regions starting from the quality of transport infrastructure leading to their export potential.

In the case of Kazakhstan, this corridor is at an early stage of transforming from a transport corridor into an economic corridor, while the Russia-Uzbekistan section continues to perform mainly a transit function and operate at the level of transport infrastructure, at the same time, the PRC-Kyrgyzstan section has begun to develop as a multimodal transport and logistics corridor.

The economic viability of the WE–WC network in the mining and agricultural regions of Kazakhstan is still questionable and depends on further regional policy initiatives. Dr. Taisarinova' key findings indicated that the entire corridor is not fully functional, just a section of the route linking the PRC to Central Asia is working as of now. Her findings also included that rural regions have performed better than industrial regions.

At the end of each presentation time for questions and answers as well as expert comments were given. Participants asked questions, development partners gave comments and the session speakers responded to each question and comment until the session was closed.

## Closing and Wrap-Up

Eisa Khan Ayoob Ayoobi, Head of Capacity Building Division of the CAREC Institute, closed the session by thanking all the speakers and participants for the engaging presentations, policy dialogue and discussions. He pointed out some of the main policy discussion points, including a set of recommendation based on the research findings of the speakers and the outcome of the policy discussions throughout the session.

### **Recommendations included the followings:**

- 1) Holistic approach to regional cooperation (mixture of hard and soft infrastructure)
  - Hard infrastructure: maintenance and further development of road and railway corridors in the region.
  - Soft infrastructure: promoting knowledge corridors among leading educational institutions (genuine, locally originated knowledge and best practice sharing, research collaboration and capacity building for evidence-based decision making).
- 2) Nexus approach to strengthen linkages among transport, energy, environment, labor, trade, and supply chain while optimizing CAREC corridors.
  - Consider positive spillover effects of transport infrastructure (LED).
  - Conduct more cross-sectoral research to assess the impact of public-private partnership projects and the multiplier effects.
  - Focus on human development as much as conventional economic development (GDP), avoid static investment in "pipes, concrete, or asphalt" and emphasize climate and local population livelihood sustainability adjusted investments.

The listed recommendations were shared with the CAREC senior officials for further discussion and consideration.

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## Appendices

### Agenda



Auswärtiges Amt



**DKU** DEUTSCH  
KASACHISCHE  
UNIVERSITÄT



**Green Central Asia**  
Conference Berlin 2020  
Enhancing environment, climate and water resilience

Regional Scientific and Practical online conference

# SILK ROAD OF KNOWLEDGE

Agenda

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November 24 - 27, 2020

Website of the Conference: <http://conference.academic-waters.org/>

## PROGRAM FLOW

### Tuesday, November 24

#### Pre-conference events

Youth session	11:00 AM
Poster session	12:30 PM
UNESCO Water Family: Cooperation in Education and Science in Central Asia (Closed Meeting)	15:00 PM

### Wednesday, November 25

Technical Check	13:30 PM
Opening	14:00 PM
Session 1: Climate Impact Assessment	15:00 PM
Session 2: Water under climate change	17:00 PM

\*Time of sessions is indicated according to Almaty time (GTM +6)

\*Session duration 1.30h.



### Thursday, November 26

Technical Check	10:30 AM
Youth session: Rational use of water	11:00 AM
Session 3: Land Management and Food Security under Climate Change	14:00 PM
Session 4: Potentials of Digitalization for Increasing Sustainability in Agriculture	16:00 PM
Session 5: Water and Climate Security in Central Asia	18:00 PM

### Friday, November 27

Technical check	10:30 AM
Session 6: Infrastructure and logistics under Climate Change	11:00 AM
Session 7: Decarbonization of energy systems and climate neutrality	14:00 PM
Closing session	16:00 PM



Tuesday,  
November 24

### 11:00 AM - Youth session

Involving young people in scientific and practical activities on environmental issues in Central Asia. The purpose of the session is to discuss the impact of climate change on the countries of Central Asia and Afghanistan, reducing current risks by optimizing landscape management and water use.

<https://us02web.zoom.us/j/82473889910>

Chair: Dr. Mitusov Andrey, Kazakh-German University

#### Application of the ClimPact2 software product to assess the impact of climate change in Kazakhstan

Ms. Gulsara Monkaeva, Scientific and research center, KazHydromet, Kazakhstan

#### Current state of the Mountain Pamir river hydrology: Impact of basin meteorology and orography on the Vanch River Runoff

Mr. Parviz Normatov, Institute of Water Problems, Tajikistan

#### Glacier Lakes Outburst Floods in Panjshir Province of Afghanistan

Mr. Abeer Ahmad Sajood, Kazakh-German University, Kazakhstan

#### Youth empowerment for water in Central Asia

Ms. Lyazzat Syrylbayeva, Central Asian Youth for Water (CAY4W) Network, Kazakhstan

### 12:30 PM - Poster session

#### 12:30 - 13:30 PM - Live broadcast of the posters on website:

<http://conference.academic-waters.org/#gallery>

#### 13:30 - 14:30 PM - Q/A with the Poster's Author

Zoom Link: <https://us02web.zoom.us/j/82473889910>

### 15:00 - 17:30 PM - UNESCO Water Family: Cooperation in Education and Science in Central Asia (Closed Meeting)

The UNESCO water-related centers, chairs and committees in Central Asia will discuss their experiences on challenges and issues in conducting their activities during the COVID-19 pandemic and will share on adjustments and adaptation of their activities under the new reality.

### 14:00 - 15:00 PM - Opening

<https://zoom.us/j/94013695463?pwd=cFJuRDNPREFBmZlVScWVaa0oxcjQZz09>

Chair: Dr. Barbara Janusz-Pawletta, Kazakh-German University

Co-chair: Ms. Marhabo Yodaliyeva, Kazakh-German University

#### Welcome Speeches:

Dr. Gabriele Stauner, President of Kazakh German University

Mr. Hinrich Thölken, Director for Climate and Energy Policy and Digital, German Foreign Ministry

Dr. Hendrik Meurs, Project Management Agency DLR, International Bureau, on behalf of German Education and Science Ministry

Ministry of Education and Science of the Republic of Kazakhstan

Dr. Caroline Milow, GIZ - Short overview of the Green Central Asia Initiative – A transboundary dialogue on Climate, Environment and Security in CA and AFG

### 15:00 - 16:30 PM - Session I: Climate Impact Assessment

The session is organized to analyze the state of art of the climate change and climate impact research in the Central Asian region and to identify critical gaps between the current climate related information field and the demand of different local and international stakeholder groups.

<https://zoom.us/j/94013695463?pwd=cFJuRDNPREFBmZlVScWVaa0oxcjQZz09>

Chair: Dr. Anastasia Lobanova, PIK, Germany

Co-Chairs: Dr. Iulii Didovets, PIK, Germany  
Ms. Larissa Kogutenko, Kazakh-German University, Kazakhstan

#### Presentations of the Session I:

##### Snow, Glacier and Water Resources – An Overview of UNESCO IHP activities

Dr. Anil Mishra, UNESCO, France

##### Climate Change, Glacier Wastage and Water in Central Asia

Prof. Dr. Maria Shahgedanova, University of Reading, United Kingdom

##### Water resources management challenges in a changing climate in Central Asia

Dr. Tobias Siegfried, hydrosolutions Ltd., Switzerland

##### Current Trends in Central Asia Climate Change: Vulnerability and Opportunities

Prof. Dr. Vitaliy Salmikov, Al-Farabi Kazakh National University (KazNU), Kazakhstan

### Session I: Climate Impact Assessment

Problems and relevance of the study of climate change issues in the Central Asia region

Ms. Zhanna Babagaliyeva, Independent expert on climate change, Scientific group for sustainable environment, Kazakhstan

#### Discussion session / Closing Remarks

16:30 - 17:00 PM - Health break

### 17:00 - 18:30 PM - Session II: Water under climate change

This session is dedicated to the management of water resources under climate change in Central Asia. It aims at providing up to date innovative solutions and scientific findings to contribute to improved water resources management strategies under climate change in Central Asia.

<https://zoom.us/j/94013695463?pwd=cFJuRDNPREFBmZlVScWVaa0oxcjQZz09>

Chair: Dr. Abror Gafurov, GFZ, Germany

Co-Chair: Mr. Almas Kitapbaev, Kazakh-German University, Almaty

#### Presentations of the Session II:

##### Melt water availability and runoff from small catchments under conditions of climate change in Central Asia

Prof. Dr. Martin Hölzle, University of Fribourg in Switzerland, Switzerland

##### Cryospheric Climate Services as an important basis for water related research and applications in Central Asia

Prof. Dr. Christoph Schneider, Humboldt University of Berlin, Germany

##### Impact of Climate Change on Water Resources Potential and Adaptation Measures (Case from Uzbekistan)

Prof. Dr. Abdulkhakim Salohiddinov, Tashkent Institute of Irrigation and Agricultural Mechanization Engineers, Uzbekistan

##### Impact of climate change on irrigation rates for agricultural crops in the south of Kazakhstan

Dr. Saken Baisholanov, Head of the Climatology Department of the International Scientific Complex "Astana", Kazakhstan

#### Discussion session / Closing Remarks

Wednesday,  
November 25

Thursday,  
November 26

### 11:00 - 12:30 PM - Youth session: Rational Use of Water

*Involving young people in scientific and practical activities on environmental issues in Central Asia. The purpose of the session is to discuss the impact of climate change on the countries of Central Asia and Afghanistan, reducing current risks by optimizing landscape management and water use.*

<https://us02web.zoom.us/j/84501381166>

**Chair:** Dr. Andrey Mitusov, Kazakh-German University, Russia

#### Presentations:

**Potentials of Digitalization for Increasing Sustainability in Irrigation Water Management**  
Dr. Janay Sagin, Kazakhstan

**Drinking water supply management in small cities of Kazakhstan: case study of Karatau**  
Ms. Irina Yugal, Kazakh - German University, Kazakhstan

**Comparative analysis of the efficient use of water resources in Canada, Israel and Uzbekistan**  
Mr. Aziz Khaydarov, Kazakh-German University, Kazakhstan

**Comprehensive studies of the Kazakhstan Aral Sea region**  
Ms. Diana Aripkhanova, Mr. Almas Kitapbaev, Kazakh - German University, Kazakhstan

**Discussion session / Closing Remarks**

12:30 - 14:00 PM - Helth break

### 14:00 - 15:30 PM - Session III: Land Management and Food Security under Climate Change

*Ways on how new adapted land use strategies and technologies can make land use more sustainable as well as effective under the specific natural conditions in CA will be covered during the session. Innovative and environmentally friendly technologies for locust management in the region will be presented by the experts working in the region.*

<https://zoom.us/j/96224623919?pwd=dnQ2Qm8vdjVXXZW5jZElhRGYycllPZz09>

**Chair:** Dr. Peter Liebelt, Central Asia Sustainable Innovation Bureau, Kazakhstan

**Co-Chairs:** Dr. Maira Kussainova, Kazakh-German University, Kazakhstan

Dr. Axel Paulsch, Institute for Biodiversity, Germany

#### Presentations of the Session III:

**Climate Smart Agriculture under Climate Change Conditions**  
Prof. Dr. Georg Guggenberger, Leibniz Universität Hannover, Germany

**Forest Landscape Restoration, Sustainable Biomass Utilization, and Effects on Food Production in Central Asia**

Dr. Niels Thevs, International Centre for Research in Agroforestry, Kyrgyzstan

**Preservation of selected Ecosystem Services of the Floodplain Forests along the Naryn River, Kyrgyzstan: Perspectives and challenges on the way to sustainability in a complex**

Dr. Akybek Chymyrov, KSUCTA, Kyrgyzstan,

Mr. Florian Betz, Catholic University Eichstaett-Ingolstadt, Germany

**Sustainable Development through Innovative Agricultural Insurance Products**  
Ms. Mashkhura Babadjanova, Tashkent State Agrarian University/IAMO, Uzbekistan

**Discussion session / Closing Remarks**

15:30 - 16:00 PM - Helth break



### 16:00 - 17:30 PM - Session IV: Potentials of Digitalization for Increasing Sustainability in Agriculture

*This session will highlight the technical potentials and existing solutions of digitization and digitalization in irrigation water management. In the discussion part it aims on pathways of implementation in practice, how the presented solution could realistically be embedded into the land use and water distribution sectors.*

<https://us02web.zoom.us/j/85991912503>

**Chair:** Prof. Dr. Christopher Conrad, Martin-Luther-Universität, Germany

**Co-Chairs:** Dr. Muhammad Usman, Martin-Luther-Universität, Germany  
Mr. Almas Kitapbaev, Kazakh-German University, Kazakhstan

#### Presentations of Session IV:

**GEO Global Agricultural Monitoring Initiative Overview: Global to National Crop Monitoring**  
Mr. Ian Jarvis, GEO Global Agricultural Monitoring, Switzerland

**AfriCultuReS, A long-term self-sustainable & user-centered initiative in Sub-Saharan Africa on food security**

Dr. Juan Suarez, Earth Observation Services for SDGs at GMV, Spain

**Potential applications of remote sensing, GIS tools and data analytics for evidence-based policymaking in agriculture and water resource management**

Dr. Zafar Gafurov, International Water Management Institute in Tashkent, Uzbekistan

**Adaptation of Irrigation System to optimize irrigation water applications with drone measurements**

Ms. Aigul Bekbayeva, GIS center of the Seifullin Kazakh Agrotechnical University (KATU), Kazakhstan

**Discussion session / Closing Remarks**

17:30 - 18:00 PM - Helth break

### 18:00 - 19:30 PM - Session V: Water and Climate Security in Central Asia

*The panel pinpoints the nexus between climate change/water and security in Central Asia. Panel participants discuss the water/security nexus at different levels of analysis – generally and more specifically using select examples.*

<https://zoom.us/j/91741740523?pwd=ZVNETUJ3WFZAzT2sKVmtma0tsRFQ3UT09>

**Chair:** Dr. Sebastian Mayer, Kazakh-German University, Almaty

#### Presentations of Session V:

**Dr. Dinara Ziganshina, Scientific Information Center of Interstate Commission for Water Coordination in Central Asia, Uzbekistan**

**Delphi Evaluation of Experts' Perspective on Water Security in Central Asia**  
Ms. Aliya Assubayeva, Nazarbaev University, Kazakhstan

**Dams in Central Asia: Opportunities and Challenges**  
Dr. Filippo Menga, University of Reading, United Kingdom

**Building trust in transboundary water governance through epistemic communities**  
Ms. Bota Sharipova, Kazakh-German University, Kazakhstan

**Discussion session / Closing Remarks**

Thursday,  
November 26



Friday, November 27	
<p><b>11:00 - 12:30 PM- Session VI: Infrastructure and logistics under Climate Change</b></p> <p><i>The session will analyze investments in infrastructure and logistics under the increasing challenges of climate change in the region. There will be a discussion on how the transport corridor affects the economic potential of linking cities and regions starting from the quality of transport infrastructure and leading to their export potential.</i></p> <p><a href="https://zoom.us/j/91067462856?pwd=UEh3ZTlmRzhzUW8ycGVVRyTzFkZz09">https://zoom.us/j/91067462856?pwd=UEh3ZTlmRzhzUW8ycGVVRyTzFkZz09</a></p> <p><b>Chair:</b> Mr. Eisa Khan Ayoob Ayoobi, Capacity Building Division of the CAREC Institute, China</p> <p><b>Co-Chair:</b> Ms. Yelena Yezakovich, Kazakh-German University, Kazakhstan</p> <p><b>Presentations of Session VI:</b></p> <p><b>CAREC Corridor Performance Measurement and Monitoring (CCPMM)</b> Mr. Iskandar Abdullaev, CAREC Institute, China</p> <p><b>The way to increase private finance into Water Infrastructure in CAREC region</b> Ms. Nella Hendriyetty, Asian Development Bank Institute</p> <p><b>Kazakhstan as a bridge between Europe and Asia</b> Mr. Zhandos Kegenbekov, Faculty of Engineering &amp; Information Technology, Kazakh-German University, Kazakhstan</p> <p><b>Evidence based infrastructure financing: case of Uzbekistan</b> Mr. Umid Abidhadiyev, Center for Economic Research and Reforms of Uzbekistan, Uzbekistan</p> <p><b>Impact of the Silk Road Corridor on affected regions: case study of Kazakhstan</b> Ms. Aisuly Taisarinova, Kazakh-German University, Kazakhstan</p> <p><b>Discussion session / Closing Remarks</b></p> <p><b>12:30 - 14:00 PM - Helth break</b></p> <p><b>14:00 - 15:30 PM- Session VII: Decarbonization of energy systems and climate neutrality</b></p> <p><i>The session will start with an overview of the context of climate change and fossil fuel emissions and clarify the necessity of changing the fossil-based energy systems globally until 2050. There will also be an illustration of the strategy of the European Union and its member states towards climate neutrality as well as challenges in the transformation of the energy system in the Central Asian region.</i></p>	<p><b>Session VII: Decarbonization of energy systems and climate neutrality</b></p> <p><a href="https://zoom.us/j/91067462856?pwd=UEh3ZTlmRzhzUW8ycGVVRyTzFkZz09">https://zoom.us/j/91067462856?pwd=UEh3ZTlmRzhzUW8ycGVVRyTzFkZz09</a></p> <p><b>Chair:</b> Prof. Dr. Lutz Mez, Free University of Berlin, Germany</p> <p><b>Co-Chair:</b> Mr. Alexey Kobzev, Kazakh-German University, Kazakhstan</p> <p><b>Presentations of Session VII:</b></p> <p><b>The Push for Climate Neutrality</b> Prof. Dr. Miranda Schreurs, Bavarian School of Public Policy, Technical University of Munich, Germany</p> <p><b>The European Target Triade for Energy Efficiency, Renewables, Greenhouse Gas Reduction and Policies to Achieve the Targets</b> Prof. Dr. Wolfgang Eichhammer, Competence Center, Netherlands</p> <p><b>Energy Policy and Energy Systems at the Fraunhofer Institute for Systems and Innovation Research ISI Conceptual approach for the sustainable introduction of renewable energy sources in Kazakhstan</b> Dr. Kairat Bakenov, Kazakh research Institute of energy named after Acad. Sh. CH. Chokin, Kazakhstan</p> <p><b>Steps and obstacles to decarbonizing the economy of Uzbekistan</b> Dr. Bahtiyor Eshchanov, Westminster University, Uzbekistan</p> <p><b>Discussion session / Closing Remarks</b></p> <p><b>16:00 - 17:30 PM- Closing Session</b></p> <p><a href="https://zoom.us/j/91067462856?pwd=UEh3ZTlmRzhzUW8ycGVVRyTzFkZz09">https://zoom.us/j/91067462856?pwd=UEh3ZTlmRzhzUW8ycGVVRyTzFkZz09</a></p> <p><b>Chair:</b> Dr. Barbara Janusz-Pawletta, Kazakh-German University, Kazakhstan</p> <p><b>Co-Chair:</b> Mrs. Marhabo Yodalieva, Kazakh-German University, Kazakhstan</p> <p><b>Presentation from Prof. Paolo Farah, West Virginia University</b></p> <p><b>Session Briefings:</b> Key recommendations</p> <p><b>Agreement and approval of recommendations</b></p> <p><b>Closing speeches</b></p> <p><b>Summing up and conclusion</b></p>

## List of Organizers

### CAREC Institute

Eisa Khan Ayoob Ayoobi, Head of Capacity Building Division, CAREC Institute

Rovshan Mahmudov, Senior Capacity Building Specialist, Capacity Building Division, CAREC Institute

Rose Shuai Shao, Capacity Building Specialist, Capacity Building Division, CAREC Institute

### Kazakh-German University

Ms. Yelena Yezakovich, Kazakh-German University, Kazakhstan

Ms. Marhabo Yodalieva, Water Program Coordinator, Natural Resources Institute, UNESCO Chair on water resources management in Central Asia, Kazakh-German University