EXPERT GROUP MEETING REPORT

Harnessing Innovative Technologies to Advance Green Transformation for Sustainable Development in North and Central Asia

26-27 March 2024
Almaty, Kazakhstan, and online
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Background

The Expert Group Meeting (EGM) on Harnessing Innovative Technologies to Advance Green Transformation for Sustainable Development in North and Central Asia was held on 26-27 March 2024 through a hybrid format in Almaty, Kazakhstan, and online on Zoom. The EGM was organized by the Subregional Office for North and Central Asia (SONCA) of the UN Economic and Social Commission for Asia and the Pacific (ESCAP). The objectives of the meeting were to (i) examine how countries in North and Central Asia can foster innovation and adopt new, emerging, and appropriate technologies, (ii) assess their impact on digital development, sustainable transport, and climate-smart agriculture to address persistent development challenges (iii) provide concrete recommendations for policymakers and facilitate regional cooperation. The outcomes of the meeting will feed into the discussions of the Third United Nations Conference on Landlocked Developing Countries, set to take place in June 2024 in Kigali. The final programme of the EGM is enclosed in Annex 1.

The EGM was attended by a total of 75 participants (25 females and 50 males) from the following ESCAP member countries in North and Central Asia: Azerbaijan, Armenia, Georgia, Kazakhstan, Kyrgyzstan, the Russian Federation, Tajikistan, Turkmenistan, and Uzbekistan. In addition, technical experts from multiple International and Regional Organizations, NGOs and academia also participated. There were 22 representatives from member States (5 females and 17 males), 16 participants (3 females and 13 males) from business and academia, 19 participants from intergovernmental organizations, international and regional organizations (7 females and 12 males). 17 participants from the United Nations (10 females and 7 males) and 1 female participant from a non-governmental organization. The list of participants is enclosed in Annex 2.

Opening

The meeting started with welcome remarks by Mr. Nikolay Pomoshchnikov, Head, Subregional Office for North and Central Asia, ESCAP. In his opening remarks, Mr. Pomoshchnikov noted that North and Central Asia has been witnessing several challenges encompassing pandemic, political tension, and climate change. He emphasized the importance of fostering collaboration, knowledge-sharing, and technology transfer to unlock new pathways towards sustainable development benefiting all segments of society.

He highlighted three priority areas to further advance progress on innovative and green technology development and adoption: firstly, inclusive and equitable implementation of innovative technologies; secondly, expanding innovation in key sectors such as transportation and agriculture; and lastly, emphasizing the importance of engaging the private sector and fostering partnerships to exchange knowledge and enhance access to cutting-edge technologies.

Following the opening remarks, H.E. Mr. Askar Zhambakin, Vice-Minister of the Ministry of Digital Development, Innovations, and Aerospace Industry, Kazakhstan, delivered the keynote statement. He emphasized the strong potential of innovative technologies in the
region and the need for inclusivity, equity, and accessibility in digital transformation efforts. He stressed that as cutting-edge technologies are being further developed, it is essential to reach especially the most marginalized communities, empowering them to fully participate in the transition towards sustainability. Mr. Zhambakin underscored the critical role of mastering new technologies to tackle society’s development and social challenges, and concluded with a positive outlook, expressing hope to utilize platforms such as this EGM to achieve productive outcomes.

**Highlights**

**Session 1: The role of science, technology, and innovation in addressing development challenges in North and Central Asia**

- Innovation and green technologies are a core element of North and Central Asian countries’ broader development strategies and serve as promising instruments to further accelerate progress towards national sustainable development objectives.

- Digitalization is a critical driver of innovation, including by supporting countries’ recovery plans after COVID-19 Pandemic. It will strengthen countries’ resilience and their ability to develop robust solutions in multiple sectors of their economy, such as healthcare, education, agriculture, finance, trade, and tourism.

- There are several drivers to accelerate innovation and technology development in the region, including by expanding foreign trade, attracting foreign direct investment (FDI), and enhancing human capital development to boost productivity and foster growth.

- Foreign Direct Investment (FDI) plays a critical role in driving technological breakthroughs. By introducing new technologies in the market and spearheading new product and services development, multinational corporations can go a long way to transform the market. They can also contribute to enhancing the innovation performance of local enterprises, complement local sources of finance, and facilitate access to international markets.

- The creation of an enabling ecosystem also serves as a cornerstone for supporting green technology adoption and adaptation, and innovation development. This consists of the formulation of conducive policies and regulation as well as participation from all innovation stakeholders such as the government, academia, industries, community, and investors/financial institutions. This process requires paying specific attention to the design of a robust legislative framework to attract private capital, including FDI. Within this framework, Kazakhstan and Georgia’s innovation ecosystems provide a useful example that combines human capital development, talent attraction and a strong investment climate to foster industry development.

- Providing earlier-stage financing for new technologies until they are market-ready is crucial to allow them to overcome the "valley of death." This is particularly critical for new technology-
based start-ups. These companies face particular challenges in obtaining early-stage financing to further develop and commercialize these technologies. These companies are often unable to cope with the initial financial burdens before reaching financial viability.

- Business incubators (BIs) serve as critical platforms to leverage human capital potential and catalyze innovative ideas to foster innovation, thus supporting the transition towards green and sustainable development. With over 7000 BIs worldwide and an ever-growing number, they provide incentives, support, connections, and an enabling environment for experimentation, thereby accelerating the development and adoption of sustainable practices and technologies.

- SPECA countries encounter a wide range of challenges in operating business incubators, including inadequate skills among BI staff, difficulties in measuring and/or achieving financial sustainability, and a lack of entrepreneurial culture among young people, despite high literacy rates. This is even more important as young people represent a high share of the total population in the region.

**POLICY RECOMMENDATIONS**

- Digital infrastructure development should be considered as one of the top priorities of countries national development strategies, including broadband connectivity and more attention towards green electrification, such as generation, grid, and regional electricity trade. These are considered essential preconditions for enabling faster innovation and adoption of frontier technologies in the CAREC region.

- The development of enabling policies to foster an entrepreneurial culture should be treated as a key prerequisite to boost innovation. Entrepreneurs are the core of the innovation ecosystem. According to a few experts, future efforts in this direction should focus on designing and implementing targeted measures and policy support aimed at fostering innovation and encouraging entrepreneurs to develop new products and ideas.

- Mobilizing financing and additional investment in innovative technology is equally recommended. Within this framework, governments should facilitate access to financing for start-ups and innovative businesses, and step-up efforts to connect publicly funded research and businesses.

- Developing comprehensive programmes combining research as well as entrepreneurial education, including for young people, should be a key priority to foster innovation at all levels. Soft infrastructure such as education, and human capital development require additional investments to ensure workforce readiness to meet future market needs and skillset.

- SPECA countries should pay more attention to the adoption and adaptation of existing technologies through technology transfer with a view towards achieving faster results/impacts.
• Access to scientific data and information should be enhanced, together with targeted programmes and business courses to strengthen the technical knowledge and know-how of start-ups and entrepreneurs. To this end, business incubators can provide a valuable learning experience for start-ups and young talents, and further contribute to building a thriving innovation ecosystem.

• Regional Cooperation in promoting innovation and technology for sustainable development should be strengthened through policy dialogue, guidelines, analytical support, and the formulation of targeted recommendations to further intensify reforms and policies towards innovation strategies, as pointed out by an expert.

• Addressing the existing digital divide within and across countries is crucial. Digital technology development should aim to balance inclusivity. It should consider broad-based representation throughout the development phase, while paying particular attention to minimizing potential negative impacts and allowing access to most vulnerable groups.

Session 2: Fostering digitalization and emerging technologies in North and Central Asia

• Digital technology, as mentioned by several experts, can be instrumental in developing innovative and pioneering solutions to tackle climate change and environmental challenges. For example, digital tools for monitoring water use efficiency and irrigation could help optimize water use in the Aral Sea basin. In addition, computerized monitoring systems can effectively monitor violations of environmental legislation.

• Artificial Intelligence (AI) as well as other innovative technologies have a strong potential to enable the development, delivery, and transformation of Digital Public Infrastructure (DPI). There are six broad pillars to guide future efforts in this direction: increase service efficiency, improve decision-making, increase service accessibility, enhance national security, improve overall service delivery, and enhance transparency.

• While generative Artificial Intelligence (AI) technology holds a strong potential for enhancing productivity and creating new jobs, it may also automate existing jobs, leading to potential job losses.

• Facilitating potential job displacement, as some jobs may disappear due to AI, requires proactive measures to retrain and upskill employees. Tailored approaches and technical support should leverage employees’ existing knowledge and aim to enhance overall workforce productivity.

• Stronger women participation is also necessary to drive industrial transformation. There is a potential negative gender impact and bias as AI trainings are typically carried out by young male data scientists. This calls for actions to mitigate this bias and increase women representation throughout AI training and development processes.
• Finally, regulation, reporting systems, and audit standards can go a long way to improve the transparency of Artificial Intelligence (AI) systems and take ethical issues into account.

POLICY RECOMMENDATIONS
• To ensure the development of inclusive as well as effective e-public services, governments should **develop user-friendly and accessible systems** that offer the same benefits and access to online users. This should be accompanied by robust communications and advocacy strategies to promote awareness. These efforts should encourage the uptake of e-public services and enhance efficiency and accessibility in public service delivery. In this context, the Russian Federation’s efforts on digital transformation provide useful lessons on the importance of leveraging communication and advocacy to ensure efficient and inclusive access to online public services for all.

• **It is recommended to develop coherent standards and guidelines that help the government** promote and manage the development and adoption of technology. This should include the development of clear and openly available guidelines and protocols for the private sector to develop technology solutions responsibly, as well as the simplification and harmonization of existing regulatory frameworks.

• **AI development and adoption should be guided by ethical values and principles**, particularly to address our society’s most pressing priorities such as healthcare accessibility, environmental sustainability, and equitable economic opportunities, with focus on assisting marginalized communities and help those in need. To this end, it is important to ensure transparency and accuracy throughout the development of these technologies.

• Given the challenges posed by the digital transition, governments and organizations should **evolve and adapt their occupational health and safety measures to protect employees** and ensure their safety, security, and productivity. Developing adequate policies and instruments, such as employment protection packages and active labor market policies, are essential to support workers in transitioning to new roles during labor market changes caused by AI. This could build on previous examples that have already been developed, such as special tax schemes introduced during COVID.

• **AI development and related policies should also aim to mitigate and address potential negative impacts while supporting technological advancement.** Gender-disaggregated impacts should be a key consideration in this process as women can be disproportionately impacted by AI development, as there are more women employed in occupations that are at risk of automation compared to men. Policymakers should actively consider policy measures that reduce potential negative impacts on female employment while maximizing positive benefits on productivity and job creation.
• Regional exchanges and knowledge-sharing should be strengthened to help attract regional and international investors towards high-impact technology solutions. This should include, for example, the development of a regional innovation hub where technical experts can exchange and collaborate on large-scale R&D projects, as well as dedicated platforms to connect investors with high-impact projects. In this context, the Astana International Financial Centre (AIFC) Tech Hub provides a point of integration between innovation, investments, and new ideas with a view to supporting digital transformation efforts in Central Asia.

• Finally, reinvigorated partnerships at national level should be pursued to bring together all actors of society and collectively define key priorities and actions to advance digital transformation, as pointed out by an expert. It is also recommended to consider opportunities for peer exchange with neighboring countries, to exchange best practices and know-how on AI policy development, and scale-up or adapt successful solutions.

Session 3: Emerging technologies to advance green transformation of transport sector in North and Central Asia

• Transport is one of the fastest growing CO2 emitting sectors, however, it is not on track to meet its decarbonization targets by 2050. To advance the green transformation in the transport sector, there are a wide range of solutions, including by supporting sustainable and electric mobility, using public transport, and switching to alternative energy sources.

• Investing in green transportation, including urban transport, is critical to realise considerable environmental benefits, particularly in urban areas and large cities. Contrary to the misconception that funding green projects may not yield profits, some green projects can indeed be both environmentally friendly and financially lucrative.

• Transports Internationaux Routiers (TIR) save between 143 Kg and 334 Kg of CO2 per border crossing per truck, compared to regular transit. In this context, TIR digitalization can bring about significant benefits. For example, the introduction of streamlined digital procedures can significantly reduce the overall border-crossing time.

• Sustainable development of ports and transport can also increase the competitiveness of transport routes and overall system performance, such as system resilience. To achieve this objective, efficient resource management and energy consumption are necessary for sustainable port development. In this context, the green transformation of maritime transport in Turkmenistan combines the introduction of digital technologies, ecological transport, compliance with environmental standards, and the improvement of legislation related to environmental safety. Moreover, it also considers measures to foster adaptive and resilient transport infrastructure systems, for instance by looking at emission reduction options.
- The digitalization of the Transport Corridor Europe-Caucasus-Asia, (TRACECA) leverages synergies with partnering organizations, adopts common core standards, and implements both top-down and bottom-up initiatives. This comprehensive approach can help drive forward digital transformation in cross-border transportation and trade facilitation.

- Regional collaboration holds significant potential to advance climate action through the decarbonization of the transport sector. This includes particular focus on aligning countries priorities and strategies in the transport sector with regional and global decarbonization commitments and targets, such as the goals of the Paris Agreement under the United Nations Framework Convention on Climate Change. For example, ESCAP’s Regional Cooperation Mechanism on Low Carbon Transport aims to promote low carbon transport, and support member States to identify, develop and implement priority policies for low carbon mobility, clean energy technologies and logistics.

POLICY RECOMMENDATIONS

- Upgrading current standards and guidelines on the digitalization of multi-mode data and document exchange, such as maritime trade route, is critical to accelerate sustainable mobility development. On the other hand, safety, accessibility, efficiency, as well as sustainability aspects, should be equally prioritized throughout this process. Additionally, more efforts to ensure coherence and harmonization across standards and guidelines are recommended.

- It is recommended to develop easy-to-implement solutions that deliver results in the short term towards the digital transformation of the transport sector. For instance, the adoption of the Electronic Consignment Note (ECMR) faces challenges during implementation across many countries in North and Central Asia. Hence, it is important to provide simple and easy-to-implement solutions for both private and public sector stakeholders by developing standardized templates or formats for electronic consignment notes that can be easily integrated into existing transport management systems. This process should ensure that the digital transition does not impose additional financial costs, especially on small and medium-sized enterprises (SMEs), which constitute the majority of the private sector.

- The public and private sectors must work together to facilitate a swift transition in the transport sector, in alignment with the SPECA Roadmap on digitalization. This collaboration entails leveraging the strengths and resources of both sectors to accelerate the adoption of digital solutions and promote interoperability across different modes of transportation. By pooling together these efforts,

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1 The SPECA Roadmap on Digitalization outlines a strategic plan to modernize and streamline logistics operations, supply chain management and data exchange among SPECA countries, with a view to increasing the efficiency and the movement of goods across borders.
stakeholders can streamline existing processes, enhance efficiency, and drive innovation, with a view towards accelerating a more sustainable and digitally driven transportation system in line with regional objectives.

**Session 4: Leveraging innovation and technologies for sustainable and climate smart agriculture in North and Central Asia**

- In North and Central Asia, the agriculture sector often suffers from outdated systems and infrastructure, underinvestment in research, limited governmental support, and predominance of small-scale farmers.

- On the other side, climate change risks and impacts, such as increasing soil and water scarcity, unsustainable farming practices, biodiversity loss, land, and soil degradation, and changing weather patterns, are putting further strain on the agriculture sector. These challenges pose significant threats to agricultural production, ecosystem services, and human health, highlighting the urgent need for science, innovation, and sustainable solutions to address them. Tailored interventions are therefore needed to address these challenges and unlock the region's agricultural potential.

- The aging population in North and Central Asia presents multifaceted challenges when it comes to adopting and implementing new technologies and innovations. With an aging workforce in rural areas, there is a decreasing pool of young labor available for agricultural activities. This demographic shift not only impacts the productivity of the sector but also limits the capacity of farmers to adopt and adapt to new technologies. Additionally, older farmers may be more resistant to change and less inclined to embrace innovative farming practices.

- Technology and innovation are critical enablers of improved productivity and sustainability in the agriculture sector, as evidenced by progress in the development of smart agriculture practices. For example, Kazakhstan has been investing in precision agriculture technologies, satellite imaging, and digital platforms to optimize crop management and improve resource efficiency. At the same time, it is critical to develop in parallel adequate institutional frameworks to support technology adoption and utilization effectively.

- Integrating artificial intelligence (AI) in the agriculture sector holds a strong potential to streamline current practices, increase overall sector productivity, and create new job opportunities, particularly in rural areas. For example, solar power sprinkles and drones used for spraying operations have effectively enhanced the productivity of the food system in North and Central Asia.

- AI can enhance agricultural practices by facilitating predictive analytics and automation and providing actionable recommendations. For example, remote control technologies on farms and irrigation scheduling and forecasting technology can be applied in North and Central Asia to enable farmers to optimize water usage and increase crop yields. This not only allows
to conserve water resources but also prevents waterlogging and soil salinity issues. Additionally, forecasting technology provides farmers with insights into future weather patterns, allowing them to plan irrigation schedules and crop management practices, accordingly, leading to more sustainable and efficient agricultural practices.

• Through devices such as smartphones, tablets, and IoT sensors, farmers gain access to real-time data for informed decision-making and resource optimization. In addition, AI-powered tools analyze data to offer valuable insights, empowering farmers with efficient and effective farming practices.

• The use of sustainable mechanization in North and Central Asia plays a key role in driving food system transformation, offering increased productivity, reduced environmental impact, enhanced crop quality, and the empowerment of small farmers. In Tajikistan, the use of small-scale mechanization equipment like mini-tractors and power tillers has enabled small farmers to cultivate larger areas of land more efficiently, leading to increased crop yields and incomes.

• Digital augmentation of agriculture has great potential to accelerate and scale up climate adaptation. It can be used to complement extension activities, capacity development and policy design to rapidly transform the agri-food system. Digital augmentation could take the form of smartphone extension apps, web-based platforms, ex-ante assessments and geomatics-based estimates. For example, bundling of service-based approaches can ensure that farmers have access to comprehensive information, such as agronomic advisory and weather forecasts, as noted by an expert.

• Rainwater harvesting is another important approach in North and Central Asia, where the annual precipitation is relatively higher than in other places. In 2023, a water project “Access To Water” implemented in Tajikistan by the World Intellectual Property Organization (WIPO) aimed to improve access to water by sourcing resilient technologies tailored for mountainous and seismic regions, optimizing water resource utilization through innovative technologies. Meanwhile, in Kyrgyzstan, the concept of artificial glaciers has been implemented as an innovative solution to address water scarcity and mitigate the impacts of climate change on agriculture and livelihoods. These artificial glaciers, also known as ice stupas, are large mounds of ice and snow constructed during the winter months using a simple gravity-fed pipeline system.

• From the supply side, there are notable advantages in fostering collaboration among small-holder farmers such as farmer’s union, to enhance access to technologies, markets, and financial resources. By facilitating collective action, farmers can leverage economies of scale, share knowledge, and access resources more efficiently. This collaborative approach enables the adoption of innovative technologies and practices, improves market access, and enhances financial viability,
contributing to the sustainable development of agriculture.

POLICY RECOMMENDATIONS

• Reforming institutions and policies such as supporting smallholder farmers and facilitating the introduction of innovative business practices are recommended to facilitate the transformation and integration of modern technologies in the agriculture sector. Governments can help target investments to smallholder farmers, enabling them to access and adopt modern technologies effectively. One solution according to an expert is to repurpose existing subsidies for smallholder farmers. For instance, cereal subsidies can be repurposed to subsidize the production of foods with high nutritional value and low-carbon emissions, to enhance nutritional outcomes and promote green, low-carbon development, as suggested by an expert.

• Comprehensive capacity-building initiatives should be prioritized by governments. There is an urgent need to prioritize investments in building the capacity of farmers and relevant stakeholders to enhance the understanding and adoption of agriculture mechanization technologies and ensure they have access to the latest advancements in agricultural mechanization. Specific support from the government includes organizing workshops to upskill farmers, including aging farmers, on the operation and maintenance of modern farm equipment; providing financial assistance to aging farmers to invest in modern agricultural machinery and equipment; creating agricultural extension services that offer guidance on the adoption of mechanization technologies and sustainable farming practices.

• It is recommended to leverage innovative technologies across agricultural practices through a combination of investments in the underlying infrastructure, capacity building and financial support to target groups. In some cases, this requires leveraging technologies that have been accessible worldwide for approximately three decades, but with a modernized and adapted implementation approach. For example, governments can allocate funding for research and development (R&D) initiatives aimed at adapting and modernizing existing agricultural technologies, develop education and training programs to familiarize farmers and agricultural workers with existing technologies and their applications, provide financial incentives and tax breaks, to farmers who adopt existing technologies that promote greener and more sustainable agricultural practices, and invest in infrastructure improvement projects that support the integration of existing technologies into agricultural operations. By revamping existing infrastructure and incorporating proven technologies in innovative ways, agriculture can evolve towards greener practices that are both efficient and environmentally sustainable.

• Regional cooperation in climate adaptation strategies at international, regional, and sub-regional levels should
be further reinvigorated to enable progress towards climate-smart agriculture. To this end, governments in North and Central Asia can implement a wide range of measures, including by (i) creating joint task forces or working groups to develop regional climate adaptation strategies and action plans, (ii) harmonizing policies and regulations related to climate adaptation and agriculture to create a conducive regulatory environment for sustainable farming practices, (iii) organizing capacity building workshops and training programs focused on climate-smart agricultural practices that target farmers and policymakers, and lastly (iv) implementing cross-border demonstration projects to showcase successful climate-smart agriculture practices and technologies.

- Additionally, facilitating collaboration across countries to exchange best practices is necessary to address climate and agriculture related challenges effectively. Within this framework, the Regional Technical Platform (RTP) established by FAO, as mentioned by an expert represents an effective knowledge-sharing mechanism that provides a knowledge repository and links intra- and inter regional networks of experts. The three components of the Regional Technical Platform on Green Agriculture are: to share successful experiences, enhance regional and interregional technical networks, and create a knowledge repository focusing on FAO’s and its partners’ normative work and initiatives in relevant technical areas.

**Closing**

In her closing remarks, Ms. Michiko Enomoto, Deputy Head, Subregional Office for North and Central Asia, ESCAP, reaffirmed the importance of collaboration between government, academia, and the private sector, emphasizing the need for an enabling innovation ecosystem supported by public policies and financing. Ms. Enomoto highlighted the vital role of human resource development in harnessing science, technology, and innovation to address real-world challenges. She stressed the need for regional cooperation in unlocking digitalization’s potential for low-carbon transport and the necessity of mechanization, other forms of innovation and appropriate financing to improve climate-smart agriculture. Ms. Enomoto concluded her remarks by encouraging participants to continue exchanges of best practices and collaboration in harnessing technology for green transformation.
ANNEX I: Program

26-27 March 2024
Almaty and online

AGENDA

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<td><strong>Opening Remarks</strong> by Mr. Nikolay Pomoshchnikov, Head, Subregional Office for North and Central Asia, ESCAP</td>
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<td><strong>Keynote Statement</strong> by H.E. Mr. Askar Zhambakin, Vice-Minister, Ministry of Digital Development, Innovations and Aerospace Industry, Kazakhstan</td>
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<td>09:40 – 10:40</td>
<td><strong>Session 1: The Role of Science, Technology, and Innovation in Addressing Development Challenges in North and Central Asia</strong></td>
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<td><strong>Moderator:</strong> Mr. Nikolay Pomoshchnikov, Head, Subregional Office for North and Central Asia, ESCAP</td>
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<td>• <strong>Presentation</strong>, “A Productivity Push, Digitalization, and a New Wave of (Green) Electrification for the CAREC Region”, Mr. Hans Holzhacker, Chief Economist, Central Asia Regional Economic Cooperation (CAREC) Institute</td>
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<td>• <strong>Presentation</strong>, “Unleashing North and Central Asia’s Innovation Potential for Sustainable Development”, Ms. Michiko Enomoto, Deputy Head, Subregional Office for North and Central Asia, ESCAP</td>
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<td>• <strong>Presentation</strong>, “The Role of Science, Technology and Innovation in Solving Development Problems in Uzbekistan”, Mr. Farkhod Djumaev, Director General of National Office of Innovations, Uzbekistan</td>
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<td>11:10 – 12:10</td>
<td>• <strong>Presentation</strong>, Mr. Sanat Zholdykhan, Chairman of the Board, JSC National Agency for Innovation Development “QazInnovation”, Kazakhstan</td>
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<td>• <strong>Presentation</strong>, “Georgia’s Innovation and Technology Agency”, Ms. Ani Vashakmadze, Head of International and Donor Relations Department, Georgian Innovation and Technology Agency</td>
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<td>• <strong>Presentation</strong>, “Innovative Activities of KyrgyzPatent: Innovations Change the World for the Better”, Mr. Aidar Aymbekov, Director of State Institution “Innovation Centre” under the State Agency of Intellectual Property and Innovation, the Kyrgyz Republic “Kyrgyzpatent”</td>
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| 14:00 – 15:00 | **Session 2: Fostering Digitalization and Emerging Technologies in North and Central Asia**  
**Part I**  
**Moderator:** Ms. Michiko Enomoto, Deputy Head, Subregional Office for North and Central Asia, ESCAP  
**Speakers:**  
- Presentation, “Leveraging ICT for Climate Action in North and Central Asia”, Ms. Aida Karazhanova, Economic Affairs Officer, Information and Communications Technology and Disaster Risk Reduction Division, ESCAP  
- Presentation, “Digital Transformation in Russia”, Mr. Timofei Shtakhov, Attache, Ministry of Foreign Affairs, Russian Federation  
- Presentation, “Central Asia as a Digital Hub: From Connectivity to AI”, Mr. Andrew Beklemishev, Vice President for CIS Region, International Data Corporation, Kazakhstan  
**Q&A Session** |  
| 15:00 – 15:30 | Coffee break                                                           |  
| 15:30 – 16:15 | **Presentation, “Digitalization and Emerging Technologies in Kazakhstan”, Mr. Talgat Amanbayev, Chief Innovation Officer, Astana International Financial Centre, Kazakhstan  
**Presentation, “Unlocking Innovation”, Mr. Mariam Torosyan, Chief Specialist, Digitalization Department, Ministry of High-Tech Industry, Armenia**  
**Q&A Session** |  
| 16:15 – 17:15 | **Part II**  
**Moderator:** Ms. Ani Vashakmadze, Head of International and Donor Relations Department, Georgian Innovation and Technology Agency  
**Speakers:**  
- Presentation, “Generative AI and Jobs: A Global Analysis of Potential Effects on Job Quantity and Quality”, Mr. Pawel Gmyrek, Senior Researcher, International Labour Organization  
- Presentation, “Regional Information System of ICWC: Achievements and Challenges for the Future”, Ms. Dinara Ziganshina, Director, Scientific Information Center of Interstate Commission for Water Coordination in Central Asia, Uzbekistan  
**Q&A Session** |  
| Day 2, 27 March 2024 | **Presentation “How to Transform Government Services with Artificial Intelligence”, Mr. Karl Mehta, Chairman, Mehta Trust, United States** |
### Session 3: Emerging Technologies to Advance Green Transformation of Transport Sector in North and Central Asia

**Part I**

**Moderator:** Mr. Fedor Kormilitsyn, Economic Affairs Officer, Transport Division, ESCAP

**Speakers:**
- **Presentation,** “Development of Green Transformation of Maritime Transport in Turkmenistan”, Mr. Rovshen Burkazov, Chief Specialist, Agency of Transport and Communications, Turkmenistan
- **Presentation,** “Overview of ESCAP’s Initiatives and Activities on Greening the Transport Sector”, Mr. Fedor Kormilitsyn, Economic Affairs Officer, Transport Division, ESCAP
- **Presentation,** “Asian Development Bank and Emerging Technologies for Green Transport”, Mr. Lloyd Wright, Senior Urban Development Specialist, Asian Development Bank
- **Presentation,** “Global Standardization for Green ITS and Mobility”, Mr. YoungJun Moon, Korea Advanced Institute of Science & Technology

**Q&A Session**

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| 11:00 – 12:00 | **Part II**
  **Moderator:** Mr. Fedor Kormilitsyn, Economic Affairs Officer, Transport Division, ESCAP
  **Speakers:**
  - **Presentation,** “The Role of eTIR in Digital and Green Transition of Transport”, Mr. Vadim Zakharenko, General Delegate to Eurasia, International Road Transport Union (IRU) Moscow
  - **Presentation,** “Contribution of Regional International Organization of ECO into Big Data Processing Revolution”, Mr. Zeinolla Kalymbetov, Program Officer of Transport and Communications, Economic Cooperation Organization
  - **Presentation,** “Transport Digitalization Initiatives within the Framework of TRACECA”, Mr. Goran Andreev, Border Crossing Expert, Permanent Secretariat of Intergovernmental Commission TRACECA

**Q&A Session**

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### Session 4: Leveraging Innovation and Technologies for Sustainable and Climate-Smart Agriculture in North and Central Asia

**Part I**

**Moderator:** Ms. Barbara Janusz-Pawletta, Vice-President for International Cooperation, Kazakh-German University

**Speakers:**
- **Presentation,** “Modern Water and Energy Saving Technologies Adoption in Central Asia”, Mr. Sergey Stefanov, Commercial Director CIS & Turkey, Valley Irrigation, Valmont
- **Presentation,** “Challenges and Solutions for Innovative Agricultural Technologies in North and Central Asia” Mr. Shenggen Fan, Dean of Academy of Global Food Economics and Policy, China Agricultural University
- **Presentation,** “Leveraging Innovation and Technologies for Sustainable and Climate-Smart Agriculture in North and Central Asia”, Mr. Dmitry Kalinin, Project Manager, Climate Change and Food Security,
Global Challenges Division, World Intellectual Property Organization
- **Presentation**, “Leveraging Mechanization-Based Innovation and Technologies for Sustainable and Climate-Smart Agriculture in North and Central Asia”, Mr. Qiang Li, National Programme Officer, Centre for Sustainable Agriculture Mechanization, ESCAP

**Q&A Session**

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<td>15:00 – 16:00</td>
<td><strong>Part II</strong></td>
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<td><strong>Moderator</strong>: Ms. Barbara Janusz-Pawletta, Vice-President for International Cooperation, Kazakh-German University</td>
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<td><strong>Speakers:</strong></td>
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<td>- <strong>Presentation</strong>, “Renewable Energy and Agriculture”, Mr. Amrullo Rahmonov, Head of the Department of Energy Development, Energy Saving and State Regulation of Tariffs, Ministry of Economic Development and Trade, Tajikistan</td>
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<td>- <strong>Presentation</strong>, “Accelerating the Green Transformation in the Agri-Food System”, Ms. Tania Santivanez, Agricultural Officer, Food and Agriculture Organization</td>
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<td>- <strong>Presentation</strong>, “CGIAR Efforts to Accelerate Climate Resilience in the Global Drylands with Digital Augmentation”, Mr. Ajit Govind, Senior Climate Scientist and Systems Modeler / Lead for Digital Actions, International Center for Agricultural Research in the Dry Areas, Egypt</td>
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**Q&A Session**

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<td>16:00 – 16:15</td>
<td>Evaluation Questionnaires</td>
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<td><strong>Closing Remarks by</strong> Ms. Michiko Enomoto, Deputy Head, Subregional Office for North and Central Asia, ESCAP</td>
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ANNEX II: List of participants

Member states delegations and Government

Azerbaijan
1. Mr. Igor Ovcharenko, Chief Innovations Officer, Innovations and Digital Development Agency of the Republic of Azerbaijan

Armenia
2. Ms. Mariam Torosyan, Chief Specialist, Digitalization Department, Ministry of High-Tech Industry of Armenia

Georgia
3. Ms. Ani Vashakmadze, Head, International and Donor Relations Department, Georgian Innovation and Technology Agency

Kazakhstan
4. H.E. Mr. Askar Zhambakin, Vice-Minister, Ministry of Digital Development, Innovations and Aerospace Industry, Kazakhstan

5. Mr. Sanat Zholdykhan, Chairman of the Board, JSC National Agency for Innovation Development “QazInnovation”

6. Mr. Askar Sembin, Advisor to General Director, TechGarden

7. Ms. Botagoz Kassabek, Advisor, Kazaerospace

Kyrgyzstan
8. Mr. Aidar Aymbekov, Director, State Institution “Innovation Centre” under the State Agency of Intellectual Property and Innovation, the Kyrgyz Republic “Kyrgyzpatent”

9. Ms. Aisuluu Mustapakulova, Head of Innovation and Strategic Development Department, State Agency of Intellectual Property and Innovation, the Kyrgyz Republic “Kyrgyzpatent”

Russian Federation
10. Mr. Timofei Shtakhov, Attache, Ministry of Foreign Affairs of the Russian Federation

Tajikistan
11. Mr. Amrullo Rahmonov, Head, Department of Energy Development, Energy Saving and State Regulation of Tariffs, Ministry of Economic Development and Trade of Tajikistan

Turkmenistan
12. Mr. Rovshen Burkazov, Chief Specialist, Agency of Transport and Communications of Turkmenistan

Uzbekistan
13. Mr. Farkhod Dumaev, Director General, National Office of Innovation of the Republic of Uzbekistan

14. Mr. Jakhongir Saparov, Head of the Department of International Cooperation, National Office of Innovation of the Republic of Uzbekistan

15. Mr. Ismoil Nigmanov, Head of the Department for work with universities and research institutes, National Office of Innovation of the Republic of Uzbekistan

16. Mr. Erkin Yuldashov, Head of the Investment Department, National Office of Innovation of the Republic of Uzbekistan

17. Mr. Murodjon Vakilov, Head of the Regional Relations Department, National Office of Innovation
of the Republic of Uzbekistan
18. Mr. Shahboz Umarov, Specialist, Department of International Cooperation, National Office of Innovation of the Republic of Uzbekistan
19. Ms. Maftuna Ismoilova, Specialist, Department of International Cooperation, National Office of Innovation of the Republic of Uzbekistan
20. Mr. Behzod Komilov, Specialist, Department of International Cooperation, National Office of Innovation of the Republic of Uzbekistan
21. Mr. Muhriddin Jabborov, Specialist, Department for work with universities and research institutes, National Office of Innovation of the Republic of Uzbekistan
22. Mr. Sunnatullo Muqumov, Specialist, Investment Department, National Office of Innovation of the Republic of Uzbekistan

International and regional organizations
Asian Development Bank (ADB)
23. Mr. Lloyd Wright, Senior Urban Development Specialist
Central Asia Regional Economic Cooperation (CAREC) Institute
24. Mr. Hans Holzhacker, Chief Economist
Economic Cooperation Organization
25. Mr. Zeinolla Kalymbetov, Program Officer of Transport and Communications
European Business Angel Network
26. Mr. Janne Jormalainen, President
Food And Agriculture Organization
27. Ms. Tania Santivanez, Agricultural Officer
28. Ms. Aizhan Karabayeva, Project Coordinator
29. Ms. Saltanat Bayeshova, Project manager
30. Ms. Darina Ostrikova, National Consultant
31. Ms. Timea Abueisa, Regional Priority Programme 3 and Science and Innovation Programme Specialist
International Labour Organization
32. Mr. Pawel Gmyrek, Senior Researcher
Interstate Commission for Water Coordination in Central Asia
33. Ms. Dinara Ziganshina, Director, Scientific Information Center
International Data Corporation
34. Mr. Andrew Beklemishev, Vice President for CIS Region
International Road Transport Union (IRU)
35. Mr. Vadim Zakharenko, General Delegate to Eurasia
International Center for Agricultural Research in the Dry Areas (ICARDA)
36. Mr. Ajit Govind, Senior Climate Scientist and Systems Modeler / Lead for Digital Actions
Permanent Secretariat of Intergovernmental Commission TRACECA
37. Mr. Goran Andreev, Border Crossing Expert
World Intellectual Property Organization
38. Mr. Dmitry Kalinin, Project Manager, Climate Change and Food Security, Global Challenges Division
World Food Programme
39. Mr. Ilhom Safarov, Programme Policy Officer
40. Mr. Rustam Ermatov, Project manager
41. Ms. Zhyldyz Asanbaeva, Senior Programme Associate

Business and academia
Almaty Management University
42. Mr. Alberto Frigerio, Professor
Astana International Financial Center (AIFC)
43. Mr. Talgat Amanbayev, Chief Innovation Officer
44. Mr. Yedige Adilkhanov, Senior Manager, AIFC Tech Hub
“Azerbaijan Railways” CJSC
45. Mr. Orkhan Ahmadzada, Head, Innovation Analysis and Implementation Division
46. Mr. Anar Imamverdiyev, Specialist, Division of Work with International Organizations of International Relations Department
47. Mr. Farid Mendiyev, Head, Division of Work with International Organizations of International Relations Department
Center For Scientific, Technical and Financial Research
48. Mr. Aset Durmagambetov, Science Director
Changzhou Muyuan Landscape Engineering Co. Ltd
49. Mr. Junxian Pan, General Manager
China Agricultural University
50. Mr. Shenggen Fan, Dean of Academy of Global Food Economics and Policy
Kazakh-German University, Kazakhstan
51. Ms. Barbara Janusz-Pawletta, Vice-President for International Cooperation
Korea Advanced Institute of Science & Technology
52. Mr. YoungJun Moon, Professor
K Consulting
53. Ms. Kyeongrim Ahn, Representative
Mehta Trust
54. Mr. Karl Mehta, Chairman
University of International Business
55. Ms. Assel Izekenova, Associate Professor
VALMONT
56. Mr. Sergey Stefanov, Commercial Director CIS & Turkey, Valley Irrigation

Non-government organizations
Public Foundation “JIPAR”

57. Ms. Asel Dunganaeva, Co-founder

**United Nations Entities**

**UNECE**

58. Ms. Ekaterina Guznova, Policy Analyst, Innovative Policies Development Section, Economic Cooperation and Trade Division

United Nations Office for Disaster Risk Reduction (UNDRR)

59. Ms. Elena Pronina, Disaster Risk Reduction Consultant

United Nations Economic and Social Commission for Asia and The Pacific (ESCAP)

60. Mr. Nikolay Pomoshchnikov, Head, Subregional Office for North and Central Asia

61. Ms. Michiko Enomoto, Deputy Head/Senior Economic Affairs Officer, Subregional Office for North and Central Asia

62. Ms. Aida Karazhanova, Economic Affairs Officer, Information and Communications Technology and Disaster Risk Reduction Division

63. Mr. Fedor Kormilitsyn, Economic Affairs Officer, Transport Division

64. Mr. Qiang Li, National Programme Officer, Centre for Sustainable Agriculture Mechanization

65. Ms. Elvira Mynbayeva, Programme Management Officer, Subregional Office for North and Central Asia

66. Ms. Natalja Wehmer, Social Affairs Officer, Social Development Division

67. Ms. Chiara Amato, Economic Affairs Officer, Subregional Office for North and Central Asia/ Macroeconomic Policy and Financing for Development Division

68. Mr. Shaotong Zhang, Associate Economic Affairs Officer, Subregional Office for North and Central Asia

69. Mr. Zishuai Yu, Programme Facilitator, Centre for Sustainable Agricultural Mechanization

70. Ms. Ainur Dyussyubekova, Administrative Assistant, Subregional Office for North and Central Asia

71. Ms. Adina Alibayeva, Programme Management Assistant, Subregional Office for North and Central Asia

72. Mr. Rauan Zainov, Team Assistant, Subregional Office for North and Central Asia

73. Mr. Arman Grants, Consultant, Subregional Office for North and Central Asia