

The Regional Environmental Centre for Central Asia

EXPERTISE FOR BETTER ENVIRONMENT



Role of knowledge, technology and innovation in addressing regional challenges

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- A videoclip plays -

<https://www.youtube.com/watch?v=QpEFjWbXog0>

Working smarter rather than working harder!

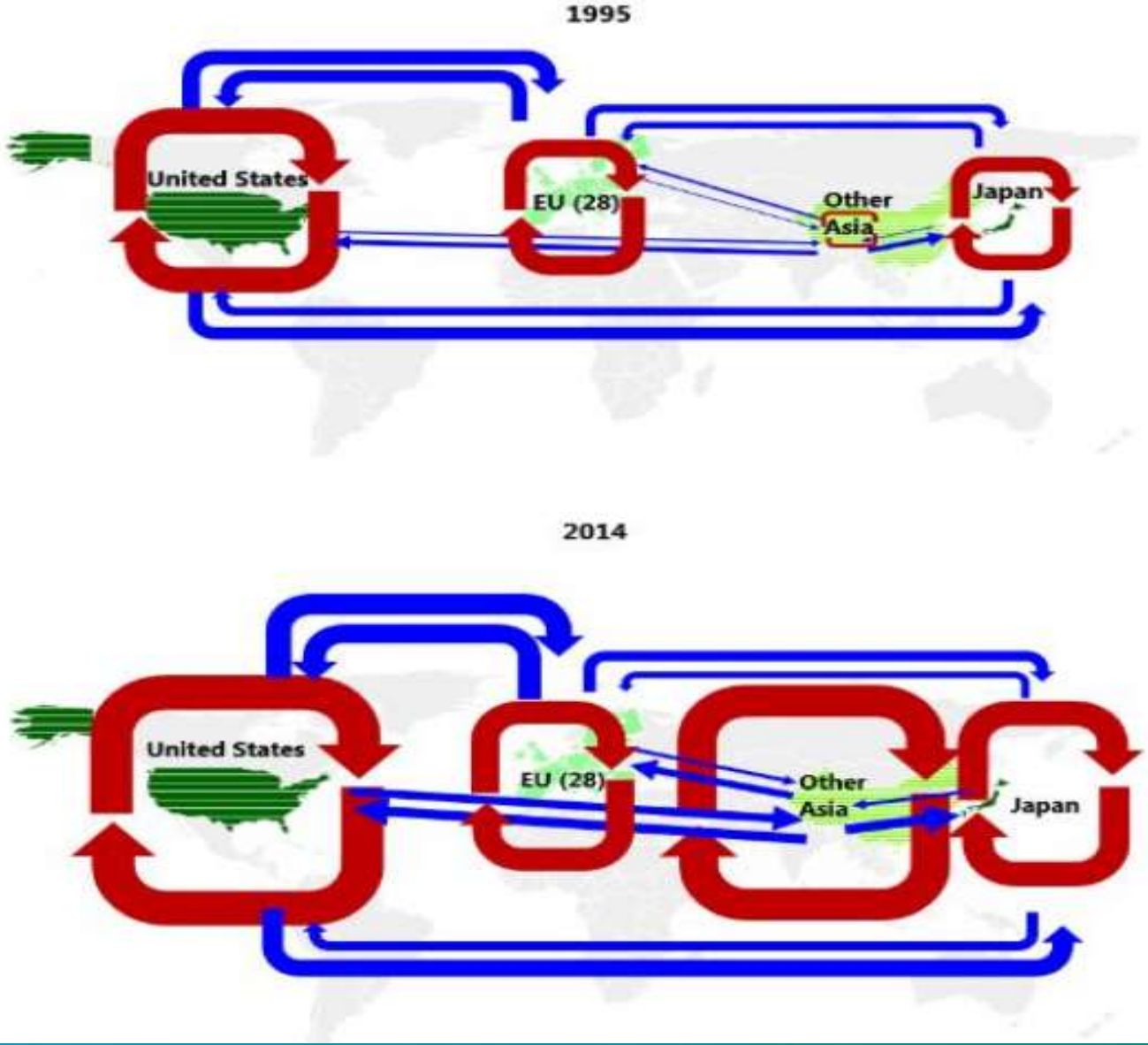
“Over the next 15 years, progress in science, technology and innovation will be key to delivering on all the SDGs – from poverty eradication to agriculture and food security, to energy, to water and sanitation, and climate change”.

Ban Ki-moon
Former Secretary-General of the United Nations

know how & technology sharing evolution

- ❑ **Early wave - North-South transfer (90s)** - transfers from developed and industrialized nations—the North—to underdeveloped and poor nations—the South— to accelerate economic, industrial and social development.
- ❑ **Current wave – multidimensional (nexus)** - value added supply chains. Geographically fragmented production processes and international division of labor or exploitation of comparative advantages.
- ❑ **Future wave** – Focus on domestic human capital and production based on 3D and AI technologies on location.

knowledge, technology & innovation flow



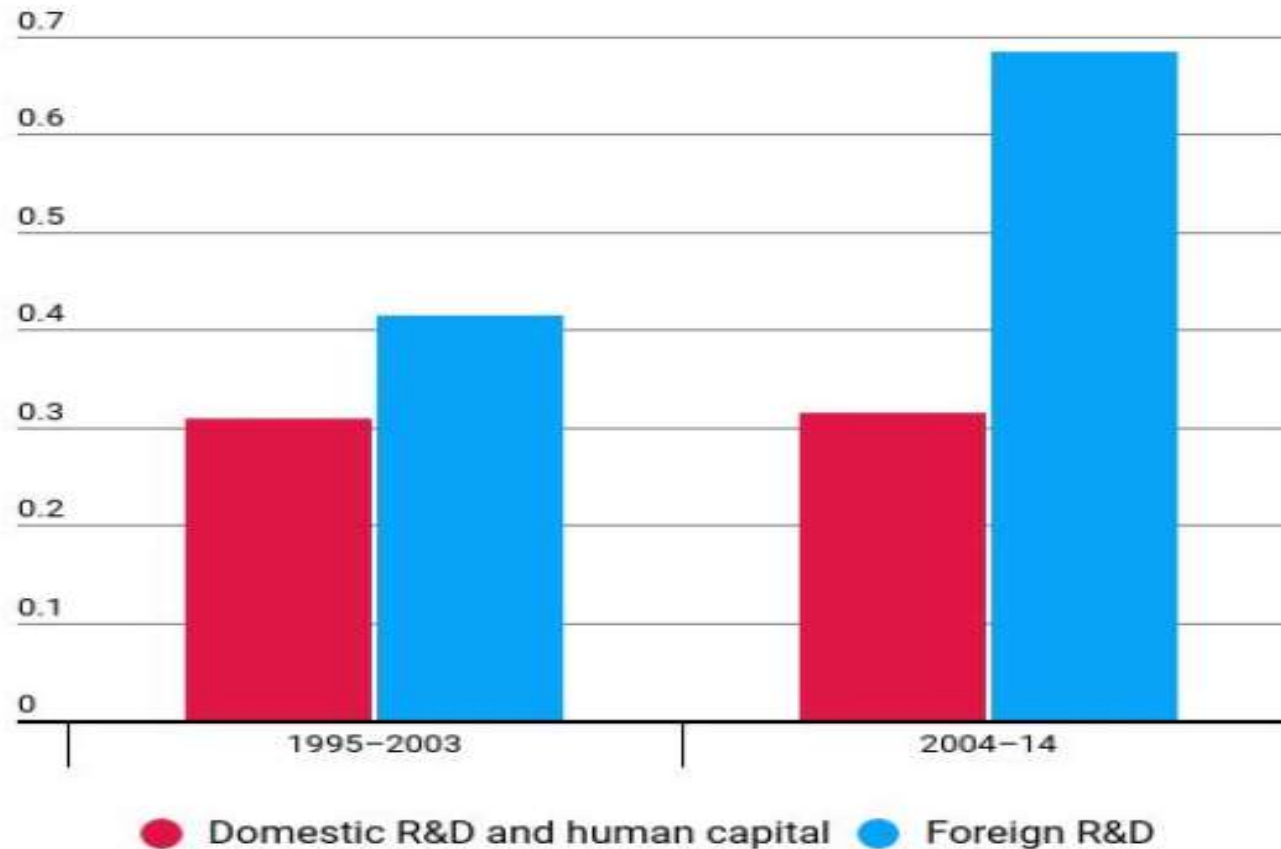
Source: IMF report

knowledge, technology & innovation flow cont..

Boosting productivity

Emerging market economies have used available foreign knowledge to boost domestic productivity growth by about 0.7 percentage point per year.

(contribution of foreign knowledge to labor productivity growth in emerging market economies , annual percent growth across country sectors)



industry 4.0 & AI



“The Fourth industrial revolution is the digital one that is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres”

Klaus Schwab

[World Economic Forum](#)

transfer types



Vertical (internal)

from the area of academic
research to field of
implementation



Horizontal (external)

from one geographic
area, social or business
organization to another

key enablers of technology & know-how transfer

ACADEMIA

Science and R&D are the sources of innovative technologies and new ideas



transfer of new technologies & know-how for better development



POLICYMAKERS

Political landscape should be friendly to technology development and innovation



BUSINESS (industry)

Industries and businesses are users of new technologies

environmental challenges affecting Central Asia

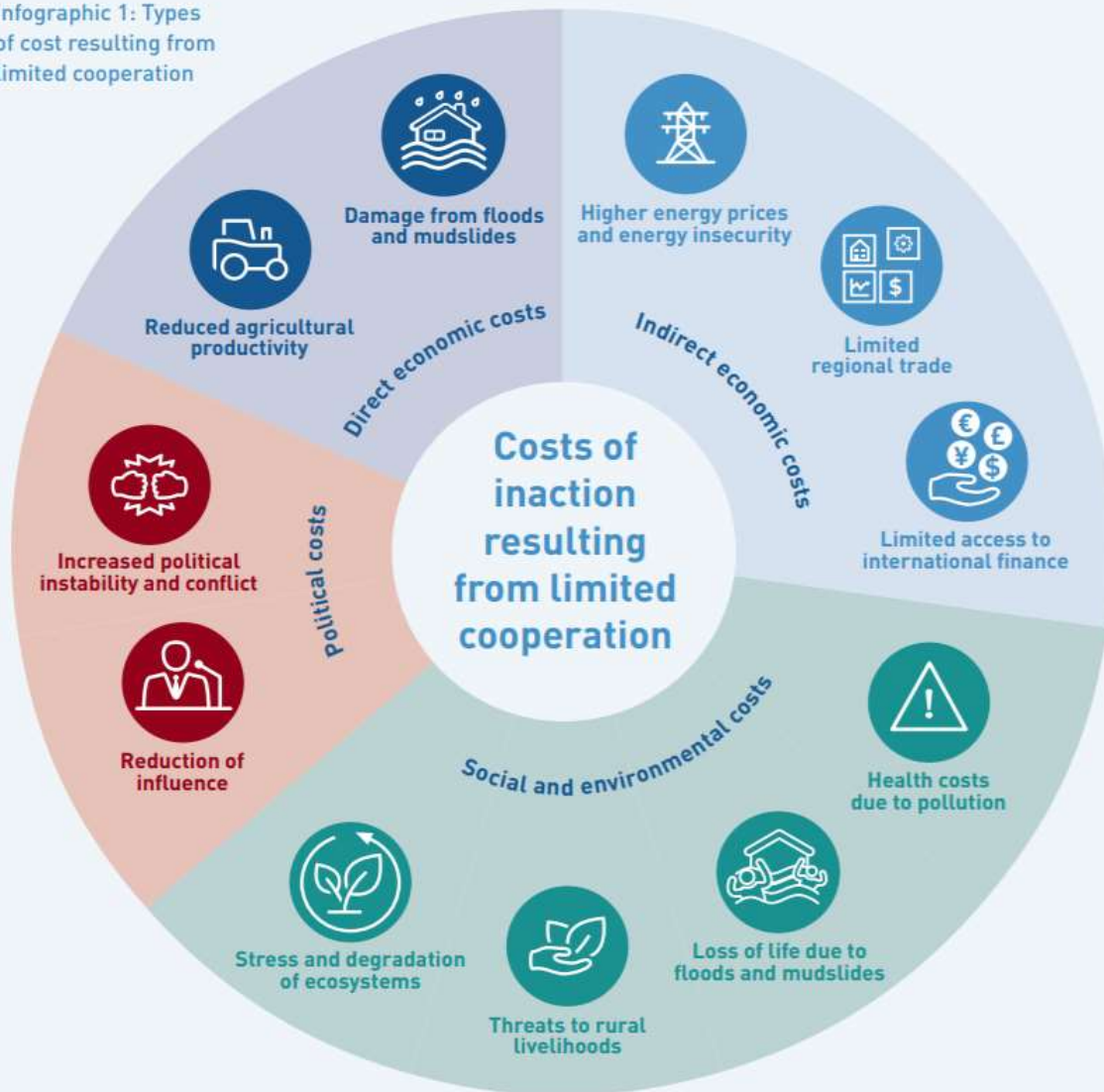
- ❑ **Water challenge:** reduction of *quality and quantity*, growing *competition* for water resources, degradation of water environment and increasing of *frequency of natural disasters* of water nature;
- ❑ **High levels of land degradation:** related to the *over irrigation, salinization, agricultural, industrial* activities of human being. The region's land resources are declining in quality and may further degrade if no proper care is taken;
- ❑ **Reduction of biodiversity, reduced resilience of environmental systems:** Number of species of flora and fauna in Central Asia has been seriously reduced due to long-term human interventions and intensive economic development;
- ❑ **Climate change** will further induce above-listed environmental problems of the region. The countries will face serious challenges due to the higher and longer heat waves, melting of glaciers and increased number of droughts, floods

coordination and cooperation on environment

- ❑ **70 million people** (90 million in 2050)- demographic pressure, & growing economy- total GDP around \$300 billion+ \$2-3 billion annual growth - economic pressure
- ❑ **Resource intensive**- high footprint development mode, **outdated infrastructure & technologies**
- ❑ Current challenges on environment are both **global and progressing (negative)**
- ❑ Scale of both national, regional level efforts on environmental activities are **grandiose**
- ❑ **Multi-layer and multi-partner** activities on environmental sphere make repetitions, un-coordinated activities unavoidable
- ❑ **Cross-sectoral coordination and cooperation** are key for the success of efforts of both national and international players
- ❑ Environmental projects are often **lack scientific ingredients** or have **no link to research**

costs of inaction in water cooperation

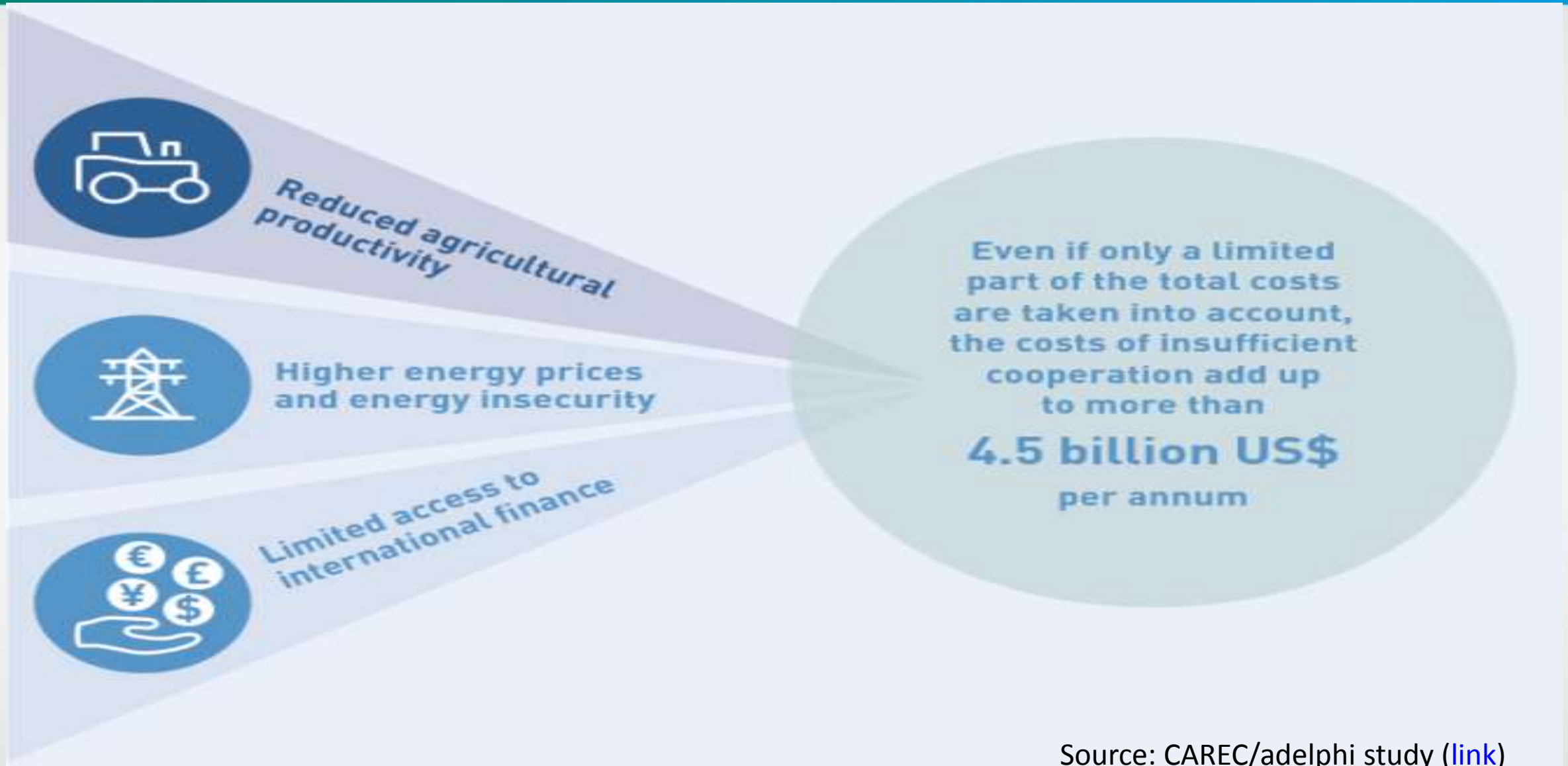
Infographic 1: Types of cost resulting from limited cooperation



A global level study by the World Bank from 2016 (b), which used an equilibrium model to examine the overall effects of water governance quality, estimated the difference between good and bad water governance to add up to more than 20% of GDP for Central Asia by 2050.

Source: CAREC/adelphi study ([link](#))

annual cost of inaction in water cooperation



Source: CAREC/adelphi study ([link](#))

regional platforms for promoting cooperation on know-how & technology



process Environment for Central Asia

Layer 1

Regional and inter-regional platforms and initiatives: dealing with environment and SD (Shanghai Cooperation Organization, SPECA, Eurasian Economic Union (Eurasian Bank of Development), CAREC (program), One Belt One Road Initiative, South-South Partnership, etc.) **Interlinkages** and **cooperation**

Layer 2

Interstate (Regional) organizations: **human capacities, technical infrastructure** and hardware, regulations and procedures

Layer 3

Regional Instruments: preparation process, relevance, **R&D**, content and acceptance, implementation, **reporting and monitoring mechanisms**

Layer 4

Commitment from countries: representatives, branches, participation, **informed decisions** and financing

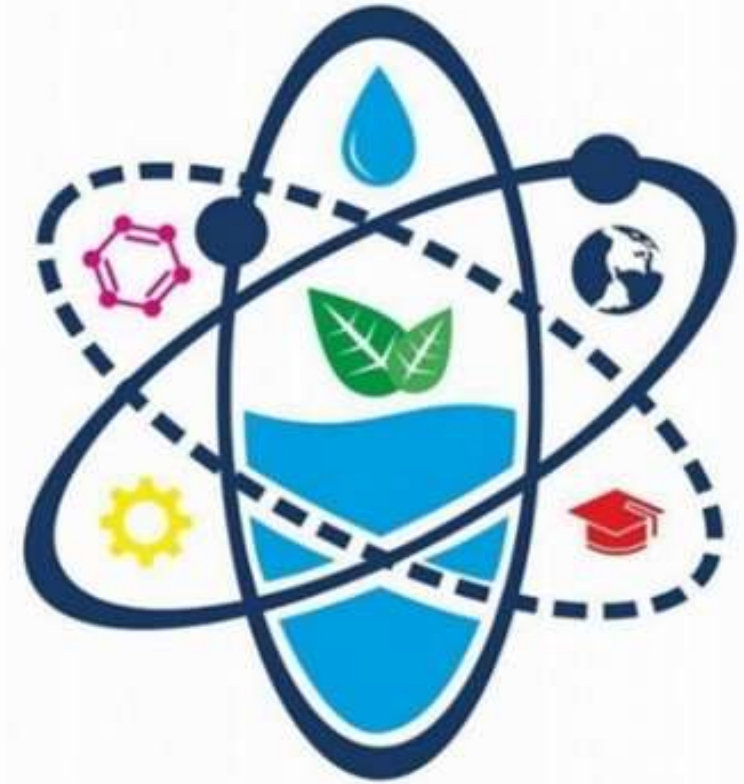
Process
Environ
ment for
Central
Asia

factors to consider in know-how & technology sharing

- ❑ Regional cooperation is important (e.g. development of renewable energy is less expensive compared to the implementation of this approach individually by each country)
- ❑ Technology/know-how absorbing, adapting and operational capacities of countries
- ❑ Regional knowledge and technology sharing centers
- ❑ Focus on R&D at universities and innovation and consistent cooperation among academy, government & industry
- ❑ Start ups
- ❑ Focus on efficiency and operational effectiveness

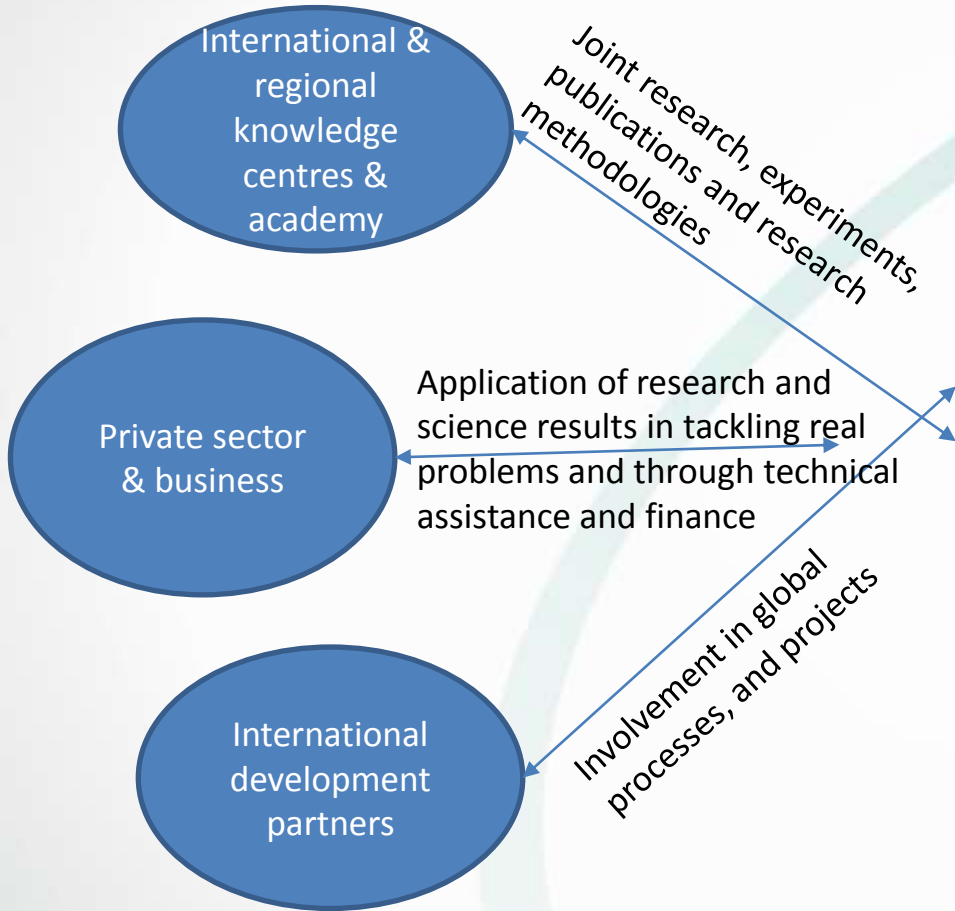
Innovations & Scientific Research Cluster on water

- ❑ *Opened on 8 June, 2018 in Tashkent, Uzbekistan & aims to:*
- ❑ Increase the role of science in decision-making, in education and development of the water sector;
- ❑ Ensure the transfer of the results of education and science to solve practical and production problems;
- ❑ Create conditions for young scientists to introduce innovative ideas through start-ups and business projects; establish new scientific schools and a pleiad of leading scientists;
- ❑ Strengthen the interaction of development projects and the scientific community and enhance synergy between science, technology and innovation



**INNOVATIONS
AND SCIENTIFIC RESEARCH
CLUSTER**

PARTNERSHIPS



INNOVATIONS
AND SCIENTIFIC RESEARCH
CLUSTER

IMPACT & OUTCOME



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- ❑ Environmental challenges have no boundaries – they can only be solved through joint regional action & this is the most efficient way to do it
- ❑ CAREC intends to facilitate and coordinate the efforts of all environmental innovation and R&D centers in Central Asia
- ❑ Assist to strengthen scientific research capacity of them by linking to on ground environmental projects – that will affect the know-how & technology absorbing capacities of countries
- ❑ Building bridge between Central Asia and international development organizations in the field, and raising funds for innovative projects, and also involve business community
- ❑ Capacity building trainings and seminars
- ❑ Establish environmental innovation clusters in all CA countries and initiate regional technoparks

“Opinion and behavior are more homogeneous within than between groups, so people connected across groups are more familiar with alternative ways of thinking and behaving”. - Ronald S. Burt, ‘Structural Holes and Good Ideas’



**Thank you
for attention!**

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