



EXPERT SEGMENT OF THE 2013 SPECA ECONOMIC FORUM “Regional Meeting on Promotion and Financing of Innovative Green Technologies”

Almaty, 19-20 Novembre 2013





UNITED NATIONS
ECONOMIC COMMISSION
FOR EUROPE

UNDA PROJECT



“Building the capacity of SPECA countries to adopt and apply innovative green technologies for climate change adaptation”

Two interrelated components:

- **innovation- how to facilitate the generation and diffusion of relevant technologies**
- **PPP – how to mobilise the necessary financing**



Main activities



- Seminars and stakeholder meetings in Bishkek (November 2012), Ashgabat (May 2013) and Astana (October 2013)
- Double aim:
 - To increase knowledge on the use of innovation policy and PPP to address environmental challenges among participating policymakers
 - To facilitate discussions among a wide range of stakeholders to identify problems and opportunities and how to address them
- Around 150 participants have been engaged in these activities
- This regional meeting is a platform to share lessons and identify areas for cooperation





Project legacy



- Networks of participants
- Training materials (in Russian)

How can we use these resources ?





Types of innovation



New or significantly improved?



World

Country

Firm

- **Product, process, marketing, organisational**
- **Technological, non-technological**
- **Radical, incremental innovation**





What is eco-innovation?



Any type of innovation that

- benefits the environment
- reduces the environmental impact of economic activities

Eco-innovation may be non-technological and take place in non-environmental areas





Green technologies

Potential to significantly improve environmental performance relative to other technologies

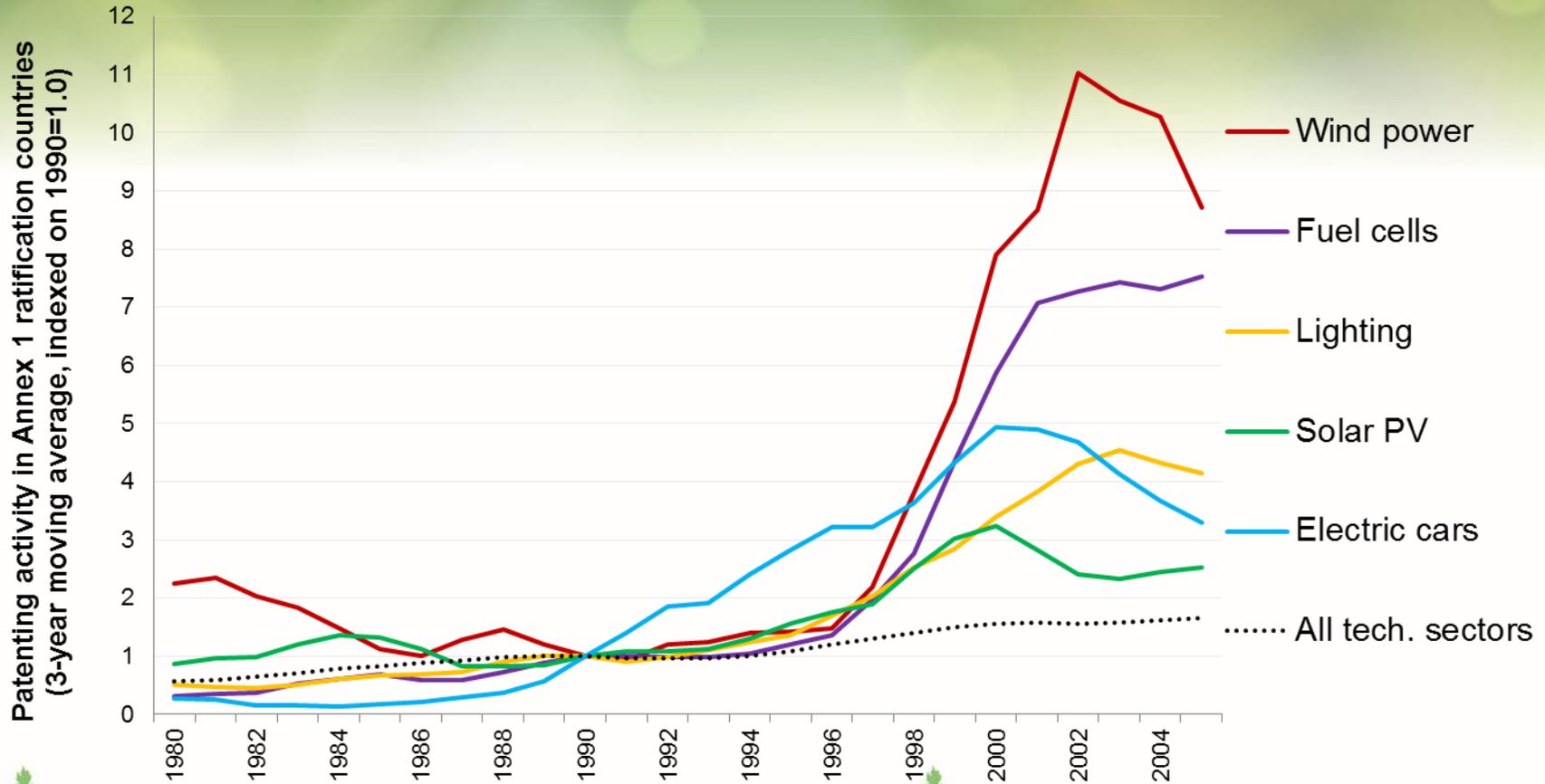
Related terms

- Environmentally-sound technologies
- Low-carbon technologies
- Climate-smart technologies





Eco-innovation has taken off





Innovation impacts

Environmental benefits may emerge in many areas relevant for climate change adaptation and mitigation:

- energy efficiency
- greenhouse gas reduction
- improved water use
- waste minimisation
- air, water and soil pollution
- new materials...

Generic (non-environmental technologies)





Agriculture

- Adaptation to climate change variability and long-term climate change impacts
- Development of drought-resistant and less water-intensive crops
- New land management technologies





Water sector

- Rehabilitation of irrigation and drainage system (very high water losses)
- Rehabilitation of water supply and sewerage systems
- Increase re-use of water in industry
- Install modern water saving and water treatment technologies



Why public policies are essential?



- **Innovation is complex- many sectors are involved and coordination is required**
- **Market failures are widespread – appropriate valuation of environmental costs and benefits is lacking (short-term/long-term)**
- **Focus beyond financial resources – strategic guidance**
- **Financing problems**
- **Maximise impact – emphasis on dissemination**



Is there a conflict with economic development?



- **Eco-innovation can reconcile environmental targets with increasing economic efficiency**
- **Eco-innovation is seen in many countries as a component of strategies seeking to enhance competitiveness and support growth**
- **But a conflict may emerge between different environmental targets**





How innovation emerges?



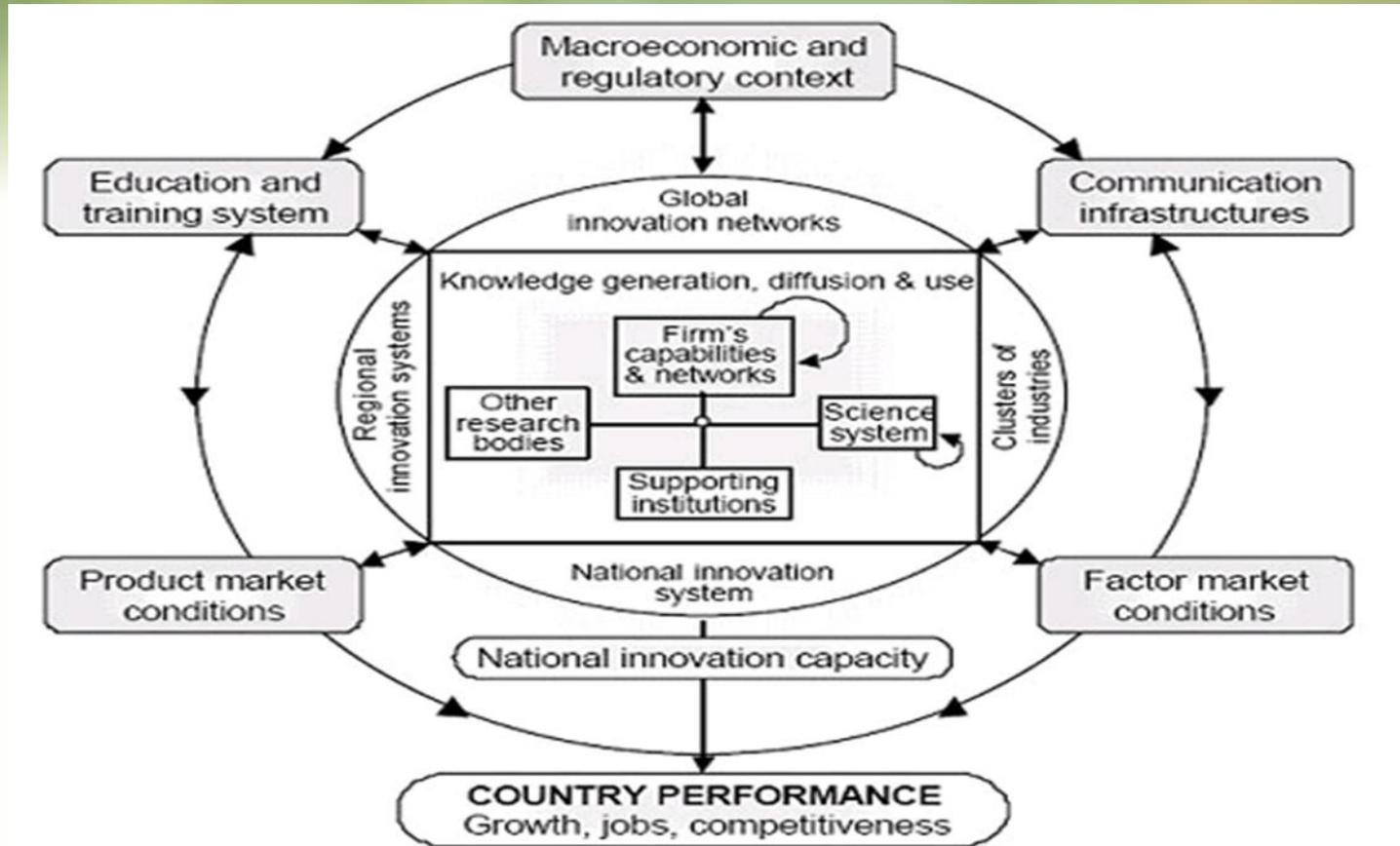
Innovation is a complex process: emerges from a continuous interaction between

- **firms**
- **suppliers and buyers**
- **knowledge institutions like universities or research and development (R&D) organizations**
- **Government policies**

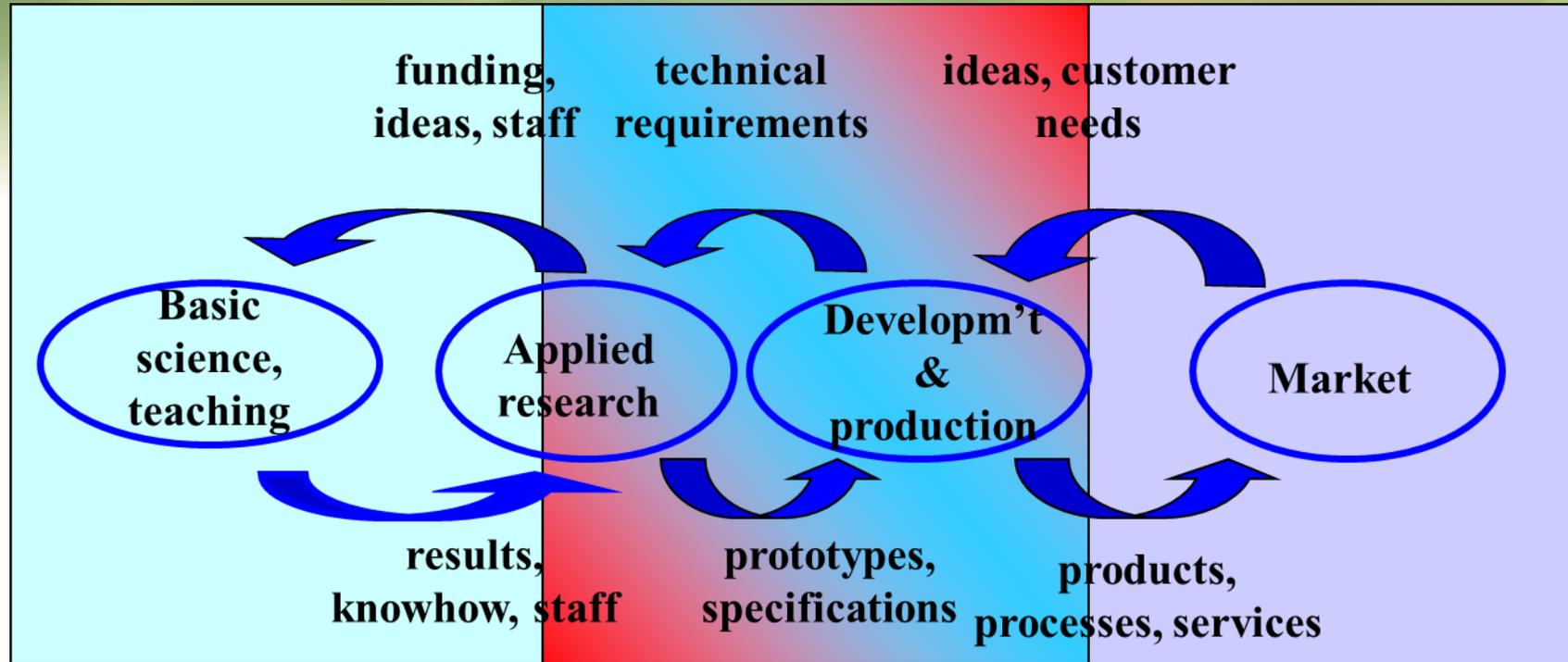
International dimension



NATIONAL INNOVATION SYSTEM



Interactive innovation



Research org's



SMEs



Big firms



Customers





Cooperation is key

- Sharing risk and information makes possible projects that could not be undertaken in the absence of cooperation
- PPP is not the only form of cooperation between the public and the private sector:
 - industry-university cooperation
 - running business incubators and S&T parks
 - research consortia



Common problems

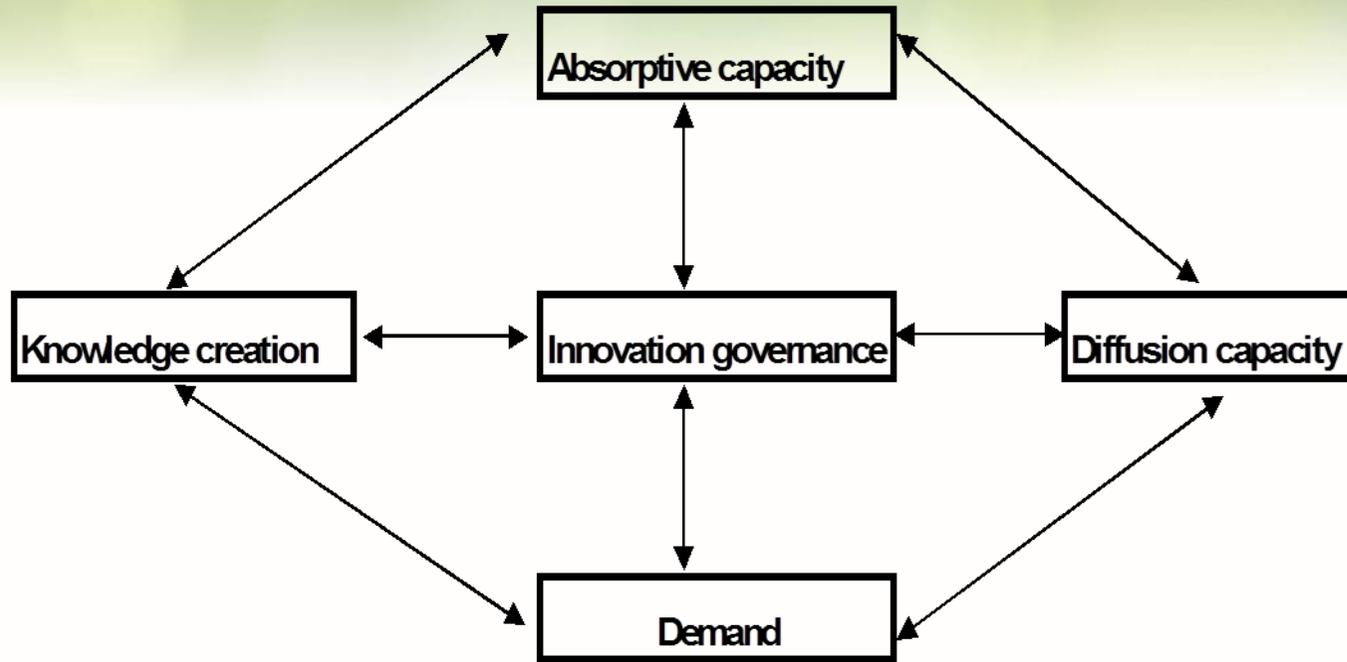


- Only a few large enterprises innovate
- The share of innovative SMEs is very small
- Poor linkages between research and business
- Innovation policy success limited by framework conditions.

What is required: strong actors AND strong linkages



National Innovation Capacity





Generation of knowledge



- **Increasing R&D**
- **In particular, higher business R&D**
- **Importance of R&D serving to absorb foreign technologies**
- **Non-technological innovation**
- **Users-led innovation**



Absorptive capacity



Most of the **required technologies** for greening economic growth **already exist** in the global markets



Importance of **building absorptive capacities** for the **adaptation of technologies** to local circumstances.



- **Human capital development**
- **Business sector involvement (identification needs)**
- **Role of universities: teaching, research.**
- **International cooperation and openness.**



What are the typical barriers for technology transfer?



- Lack of scientists and researchers (brain drain)
- Small market size
- Lack of infrastructure
- Availability of public finance



What is the potential of regional cooperation to overcome these barriers?



Diffusion of innovation



The effective adaptation to climate change will depend largely on the development and diffusion of innovative and environmentally sound technologies

- New knowledge is not useful if not widely applied
- Double policy dimension: scope of application and pace of diffusion

Importance of linkages:

- The role of partnerships
- Clusters
- Support organisations



Diffusion of innovation



**Hardware
(technology)**



**Knowledge required to facilitate
the transfers (know-how, tacit
knowledge)**

- Attention to context specific technological and cultural requirements
 - Do these technologies serve local needs?
 - What are the existing capacities, skills and assets?
- Education and training



Demand for innovation



- **Environmental policy can create demand for green technologies and (regulation)**
- **Framework conditions**
- **Fiscal support**
- **Public procurement**



Eco-Innovation Roadmaps



- **Balance – A combination of measures (technology-push and market-pull). But supply side instruments tend to prevail)**
- **Two key constraints: size of the market and knowledge base**

What is the potential contribution of regional cooperation?



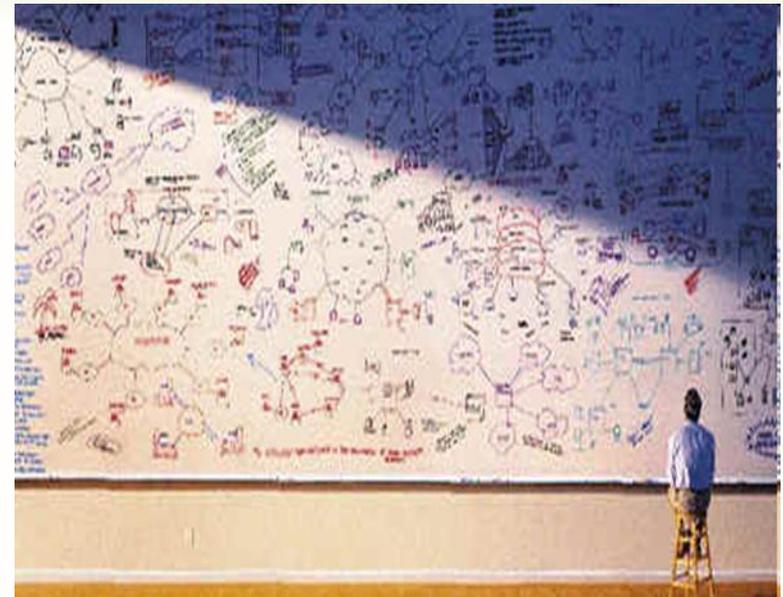


Innovation governance



Governance:

Structure and processes to set priorities, coordinate initiatives of different agencies, monitor and assess results and revise policies accordingly.





Environment and innovation policies

Environmental innovation requires effective policy coordination between ministries and agencies in charge of:

- innovation
- industrial sector development
- environmental protection

Green technology innovations as an integral part of sectoral development strategies





Environment and innovation policies

- Environmental policies create incentives for innovation **(demand pull)**.
- But many other **supply-side** factors influence eco-innovation:
 - Overall capabilities of the national R&D sector;
 - public R&D support;
 - Inward FDI and knowledge flows
 - Extensive international collaboration
 - Access to finance





How to create incentives for innovation?

- Set realistic targets (short-, medium and long-term) for expected environmental performance
- Avoid unanticipated large changes in policy parameters
- Define a predictable policy regime: instability creates investor uncertainty and leads to postponement of investments in innovative activities





The importance of flexibility

Flexible policy regime:

- Focus on environmental outcomes
- Firms should be allowed to identify the best way to meet environmental objectives
- Technology-neutrality

The more flexible the policy regime the greater the scope for innovation



A map into the future



- Policy learning as part of the cycle of policymaking
- Importance of national exchange of experiences

