
Regional Meeting: “Making innovation work for the SDGs”

9th session of the SPECA Working Group on Knowledge-Based Development

Knowledge generation and innovation support institutions; industry-science linkages; innovative entrepreneurship and financing

Main findings, conclusions and recommendations

Dr. Thomas Stahlecker

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Objective of the chapter

Overview of the main aspects of knowledge generation and innovation support institutions, industry-science linkages and innovative entrepreneurship and financing:

- Legal framework and policy priorities to promote generation of new knowledge in public and private sectors;
- Public financing of education, science and R&D; policy priorities, and related financing mechanisms;
- Roles of universities and research centres, intramural R&D in the business sector; absorption of foreign technology, including through FDI;
- The roles of business services in supporting innovation including innovation support institutions such as techno-parks and other intermediaries;
- Mechanisms for interaction between public research institutions and enterprises and their effectiveness;

Objective of the chapter

- Legal provisions and institutional mechanisms concerning intellectual property regulations; barriers to industry-science linkages;
- Policy initiatives on public-private partnerships; incentives for collaboration and the role of public procurement;
- New policy conclusions and recommendations.

Overall Conclusions

- *Many changes and reforms in the legal framework* in the last couple of years with the aim to promote knowledge generation and exploitation (legislative framework contains of 14 laws as well as corresponding norms and codes – Civil Code, Criminal Code, Customs Code and on administrative liability).

- *Positive developments and “success stories”:*
 - Establishment of Kyrgyzpatent as the central Agency of Intellectual Property and Innovation support
 - Identification of key scientific priority areas; considerable increase of scientific R&D budget between 2009 and 2013 (66%)
 - Quite large base of teaching and research institutions
 - NAS can rely on a few physical-technical institutes which are quite active in innovation activities and reseatch cooperation with the private sector
 - Considerable high-technology exports (from pharmaceutical and computer industry)

Overall Conclusions

- *Positive developments and “success stories”:*
 - Promising, meanwhile small and fragmented approaches to strengthen business cooperation by single universities
 - Regarding entrepreneurship support promising approaches have been implemented by private companies like Ololohaus, KG Labs and Ideagrad
 - Plans and concepts to develop innovation supporting institutions (e.g. Technoparks)
- *BUT:* Kyrgyzstan’s RTDI activities and the economy as a whole are on a quite low level of performance as many indicators show:
 - Low and decreasing R&D intensity (in 2014: 0,12% of GDP)
 - Research mainly carried out at institutes of the NAS (primary basic research); scientific output measures by publications quite low
 - Given the size of the country, research base too large resulting in “mini-institutes” and a lack of scientific competence centers with a “critical mass” of researchers

Overall Conclusions

- No significant R&D and innovation activities in the business sector; innovative SMEs underrepresented (manufacture sector dominated by light industries)
- “Business oriented” system of higher education (80% of the budget come from tuition fees) results in a complete absence of R&D activities at universities
- Absence of real growth centers with the potential to generate knowledge and cluster effects (“lack of critical mass” in specific industries)
- Limited potential of private companies to absorb foreign technologies (focus on domestic or local markets; exports primarily from light/low-tech industries)
- Very little activities regarding science-business linkages due to an underdeveloped business sector and very little incentives of the government to address these linkages
- Low level of entrepreneurship and start-up intensity; private investors in the form of institutional venture capital or business angels are more or less absent; general entrepreneurial attitude among students or the society as a whole not very well developed

Overview of recommendations:

- ✓ Incentives for innovation activities in the business sector including the support of intramural R&D and internationalisation
- ✓ Strengthening and restructuring the Kyrgyz science sector to become an integral part of the national innovation system
- ✓ Development and implementation of a systematic and programmatic approach to support entrepreneurial activities and new firm formation
- ✓ Improvement of the education system and human resources development taking into account the specific needs of the business sector
- ✓ Improvement of business services for supporting innovation including the technical infrastructure (e.g. Technoparks)

Recommendations I

Incentives for innovation activities in the business sector including the support of intramural R&D and internationalisation

- Identify and address sector specific R&D and innovation potentials in the form of supporting the modernisation of technical equipment and machines and with regard to initiating specific R&D and innovation projects
- Address financial constraints concerning R&D and innovation investments in general and with regard to small enterprises in particular; implement a large, self-standing innovation fund or programme to compensate for the lack of private investments in R&D
- Identify the “driving factors” of successful companies, try to learn from these cases with a view to increase innovation oriented framework conditions and think about an awareness campaign demonstrating the benefits of innovation for the society and welfare of the country

Recommendations I

- Think about a systematic approach to attract foreign technologies or technology oriented firms by pointing out the country`s unique potentials in terms of already operating firms, societal needs and challenges and scientific potentials
- Actively support export-oriented companies in their marketing and commercialisation activities
- Help innovation oriented companies to find adequate technologies abroad and with a view to their adoption and adaption

Recommendations II

Strengthening and restructuring the Kyrgyz science sector to become an integral part of the national innovation system

- Improve the framework conditions for scientific research in the university and research sector by increasing institutional funding and competitive funding; applied research for companies could be rewarded by additional grants from the government
- Authorities could further think about implementing a system of incentives and performance criteria and increase their outputs and improve their processes
- Reduce the legal impediments regarding the commercialization of scientific results, incl. the possibility to generate start-ups from scientific institutes
- Think about reducing the number of different research institutes and universities (53) to larger and more focussed units; "mini-institutes" with only a few researchers should be merged with other institutes to achieve a "critical mass" of competencies

Recommendations II

- The future university landscape could be differentiated into a group of research oriented universities (with possible linkages to the business sector) and teaching universities; the funding mechanism should be reconsidered; a situation where universities engage in activities outside their core mission (=teaching and possibly research) to compensate for the lack of government funding should be avoided
- Promising (but currently small and fragmented) approaches of single universities and institutes to cooperate with the company sector could be strengthened by the government (identification and awarding “pilot projects”, for instance at the International University of Technology and Innovation); in addition to research, cooperation could also be supported in the area of internships for students;
- Consider business contacts and international business activity of university professors or teachers in the course of their appointment;
- Financial support could be provided for the creation of central units responsible for any business contacts and internal support of scientists with a view to their inventions and IPR issues (e.g. patent exploitation departments)

Recommendations III

Development and implementation of a systematic and programmatic approach to support entrepreneurial activities and new firm formation

- Introduce a start-up programme for innovative companies, incl. the necessary infrastructure (e.g. establishment of incubators at research institutes), improvement of financing conditions for new companies and advisory services;
- Create a culture of entrepreneurship in the business sector, science sector and the administration; motivate local investors to be open for new technologies and innovations;
- Strengthen the already existing and successful operating private initiatives (like OLOLO or KG Labs) by supporting their specific approaches and models;
- Think about the role of the Kyrgyz diaspora in terms of possible investors and business contacts abroad;
- Support teaching and research institutes in implementing entrepreneurship education in their curricula.

Recommendations IV

Improvement of the education system and human resources development taking into account the specific needs of the business sector

- Human resources development and qualification on all levels need to be improved and considered as a top-priority of the Kyrgyz policy
- Education of engineers and technical disciplines at universities should be enlarged, quantitatively and qualitatively
- The establishment of business schools at single universities to receive a second additional education should be considered as a measure to complement a technical degree (Kyrgyz National University as a model?)
- Improve vocational training both regarding the consistency of the acquired skills with the requirements of the business sector and the overall lengths and intensity of the training (two months in Kyrgyzstan compared to two years in advanced countries)
- Continue to cooperate with foreign institutions in the area of vocational training (e.g. Germany) and adapt “good practices”

Recommendations V

Improvement of business services for supporting innovation including the technical infrastructure (e.g. Technoparks)

- Provide the necessary legal and financial base for creating Technoparks at selected universities or research centers (identify those universities where business linkages or commercialization activities are already well established);
- The Free Economic Zones should be supported to become innovation centers rather than focussing on production and export; support should be provided in the form of additional management/organisational capacities and related to establishing functional links to domestic research institutes;
- Existing plans to establish incubators at universities (e.g. at the Turkish Manas University) should be strengthened and transferred to other research institutes;
- Complementary innovation supporting institutions, like technology transfer centers, start-up centers or a (private) venture capital or business angles culture should be initiated as well, (see plans of the Eurasian Development Bank to establish a Technopark for ICT).

Thank you!

thomas.stahlecker@isi.fraunhofer.de