PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE

Report No.: PIDA10424

Project Name	Kazakhstan: Fostering Productive Innovation Project (P150402)
Region	EUROPE AND CENTRAL ASIA
Country	Kazakhstan
Sector(s)	General industry and trade sector (100%)
Theme(s)	Other Private Sector Development (100%)
Lending Instrument	Investment Project Financing
Project ID	P150402
Borrower(s)	Ministry of Finance
Implementing Agency	Ministry of Education and Science
Environmental Category	B-Partial Assessment
Date PID Prepared/Updated	17-Sep-2014
Date PID Approved/Disclosed	25-Sep-2014
Estimated Date of Appraisal Completion	19-Sep-2014
Estimated Date of Board Approval	31-Oct-2014
Decision	

I. Project Context

Country Context

1. Kazakhstan is an upper middle-income resource-rich economy with significant but quite narrowly focused R&D and human capital endowments. Its main natural resource assets are in mineral (oil, gas, ferrous and non-ferrous metals) and agricultural sectors.

2. Kazakhstan’s economic growth increased from five percent in 2012 to six percent in 2013 driven by stronger private consumption and investment. At the same time, weaker external demand led to a deficit in the current account in 2013 and to a sharp devaluation of the local currency in February 2014. Despite short-term vulnerabilities accentuated by an uncertain global and regional economic outlook, Kazakhstan's medium-term prospects are positive with strong growth on the back of the expanding oil sector and structural reforms envisioned by the comprehensive long-term “Kazakhstan-2050 Vision” (”The Vision").

3. The Vision foresees the country’s transition to the knowledge economy within 10-15 years and joining the top 30 most developed countries by 2050. Having implemented a number of successful strategic reforms during the last five years, the country has been focusing on diversifying away from the resource-based growth through a major industrialization and innovation support program and a number of SME development activities. Structural reforms described in the Vision

indicate strong commitment to building a knowledge economy that would drive growth, diversification, and global competitiveness by improving the country's key factor endowments—human capital, infrastructure, and institutions.

4. The Vision highlights seven priority areas for action by the government, including the need to improve science potential. Financing of science is set to reach three percent of GDP, with an objective to increase scientific capacity, accelerate knowledge and technology transfer through FDI, and to improve efficiency of the National Innovation System (NIS). Productive innovation is seen as a key growth factor pervading and effectively linking all areas of economy and society. Understanding of context and use of innovation is very important because the current level of Kazakhstan's economic development limits its ability to translate new-to-the-world technologies into economic returns and increase the country's competitiveness in the global market. Therefore, adapting and efficiently using existing global knowledge and practice would be most cost- and time-effective at this stage, and would boost innovative capacity to the level of critical mass generating a culture of innovative competition in all sectors of the economy and society.

Sectoral and institutional Context

The National Innovation System (NIS)

1. An innovation system consists of a network of organizations, rules, and procedures that affects how a country acquires, disseminates and uses knowledge and technology. National innovation systems (NIS) are complex and interactive with many independent actors whose actions need to be coordinated and aligned with strong reinforcing incentives if they are to work well together. Commonly models of the national innovation system stress the interaction of six major components: industrial system, infrastructure, intermediaries, education and research system, framework conditions and political system. Some of components in the NIS of Kazakhstan are only beginning to emerge and fragmentation (lack of interaction between actors) remains a key priority to address. Persistent weaknesses that need to be addressed if Kazakhstan is to achieve the breakthrough changes associated with being an advanced innovative economy relate most notably to:

i) Coordinated execution of related activities;
ii) Connectivity between the research base and productive enterprises;
iii) Skills in the area of technology transfer and commercialization;
iv) Decision making regarding research grant allocations; and
v) Linking into international sources in both research and technology sourcing analysis.

Key challenges facing the NIS

2. Lack of horizontal linkages in the NIS. The key remaining task for the authorities is now to set the conditions for the NIS to operate effectively and efficiently. So far, public interventions have been focused mainly on the institutional build-up of the NIS, while systemic issues such as linkages between its components have been somewhat neglected. The proliferation of the initiatives in the innovation area has stressed the need for coordination across policy actions and institutions. Consistency at the level of the overall program goals, mechanisms for coordination of development initiatives, and implementation remain weak. The effectiveness of public intervention is also often limited by the underdevelopment of innovation services and intermediaries, and market

infrastructure. There is a need to further develop the NIS, emphasizing linkages between its elements, including those going beyond the primary focus on technological forms of innovation. This area should remain in the focus of policy makers for the foreseeable future.

3. Constraints in R&D collaboration. Kazakhstan needs to find its own way for competitive integration into global value chains by building on its unique set of endowments. While there are examples of excellent R&D, scientific capacity is scattered in different small research teams that do not collaborate. R&D funding is mostly public and is neither sufficient nor contains incentives for building larger and stronger research teams. This bears at least two risks to long-term development of innovative production in the country. Firstly, the dispersion of research workers across large number of independent entities may lead to lack of academic collaboration and loss of institutional knowledge. Secondly, as fundamental sciences do not produce immediate commercial outcome, rational private sector tends to concentrate on applied research. This, in turn, jeopardizes development of NIS of Kazakhstan in the long term as the pipeline of innovative ideas for innovative production will be limited to results of existing fundamental research and existing technologies. So there exists a need to expand knowledge base for innovation in Kazakhstan. Current public R&D funding system lacks focus on areas of strategic relevance for Kazakhstan that could be addressed by collaborative effort of larger number of players including corporate/ multinationals through larger funding and other incentives to engage strategic partners.

4. Incomplete R&D financing cycle. In 2013 the private sector spent KZT 18.2 bln on internal R&D. Of this sum, only about 2.2% (KZT 405 million) were financed by bank loans and 1.6% (KZT 290 million) were financed by non-bank entities. Of those KZT 405 million, only about 10% (KZT 41 million) were in form of privileged loan. This implies that majority of bank loans on R&D are charged existing high market interest rates, which makes financial sector in Kazakhstan useless tool for development of NIS. Also, Kazakhstan's system of competitive grant financing of R&D does not set any requirements regarding commercialization of research results. As a consequence, the development of prototypes without good prospects for commercialization continues. To compound the problem, Kazakhstan lacks important elements of providing financial instruments and solutions suitable to different stages of startup company development. As a result, many technology startups fall below the radar of the few venture capitalists present in Kazakhstan. In other words, there is a problem of creating critical mass of R&D capacity that could have enough spillover effects to generate missing productive innovation linkages and start bridging the described gap.

5. Priority challenges to focus on. To respond to this key challenge of economic growth would mean addressing the following two key challenges:

(a) Lack of productive sector involvement. More than a half of (quite small) R&D expenditures are executed by public research institutes and universities. Backward linkages from extracti ng industries and metallurgy are very limited. There is little history of collaborative projects between enterprises of the productive sector, research institutes and higher education. The persistent lack of trust between these three major stakeholders of the NIS constitutes a vicious cycle. Nevertheless, enterprises of the productive sector are pragmatic and at least some of them are interested in collaborating with national research organizations in order to solve technological problems. In other words, they are interested in problem-solving. The science establishment has been encouraged to collaborate with industry but has little knowledge of how to do it. One needs a capable intermediary to broker a joint collaborative effort, particularly of a longer-term nature.

(b) Underdeveloped and fragmented commercialization cycle. Kazakhstan science and related government support policies still build on a linear model of commercialization of R&D results that does not relate to market needs up until the prototype is developed. As a result, several Kazakh scientists and research institutes have accumulated a number of inventions that are not of interest to the market. Due to the same linear approach, existing public technology commercialization support tools do not match the needs and capabilities of new technological enterprises.

II. Proposed Development Objectives

The Project Development Objective (PDO) is to promote high-quality, nationally relevant research and commercialization of technologies.

III. Project Description

Component Name

Development of the Knowledge Base for Innovation

Comments (optional)

Component Name

Technology Consortia for Inclusive Innovation

Comments (optional)

Component Name

Consolidation of the Technology Commercialization Cycle

Comments (optional)

Component Name

Innovation Council

Comments (optional)

Component Name

Project Implementation

Comments (optional)

IV. Financing *(in USD Million)*

Total Project Cost:	110.00	Total Bank Financing:	88.00
Financing Gap:	0.00		

For Loans/Credits/Others	**Amount**
Borrower	22.00
International Bank for Reconstruction and Development	88.00
Total	110.00

V. Implementation

1. The proposed Project will be implemented by the Ministry of Education and Science (MOES) (the Implementing Agency). The Science Fund – a legally independent entity created by the Science Committee of the MOES - will be the Implementing Entity responsible for strategic oversight and technical aspects of project implementation. A Project Steering Committee to be chaired by the Vice-Ministerwithin MOES will be established for strategic project management by the Ministry. The existing Project Management Unit (PMU) of the MOES for the TCP will be integrated with the Implementing Entity and be responsible for day-to-day project and grant administration. The International Science and Commercialization Board (ISCB) will provide scientific guidance related to all scientific matters associated with the project.

VI. Safeguard Policies (including public consultation)

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	×	
Natural Habitats OP/BP 4.04		×
Forests OP/BP 4.36		×
Pest Management OP 4.09		×
Physical Cultural Resources OP/BP 4.11		×
Indigenous Peoples OP/BP 4.10		×
Involuntary Resettlement OP/BP 4.12		×
Safety of Dams OP/BP 4.37		×
Projects on International Waterways OP/BP 7.50		×
Projects in Disputed Areas OP/BP 7.60		×

Comments (optional)

VII. Contact point

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