Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 05-Dec-2019 | Report No: PIDC26480

BASIC INFORMATION

A. Basic Project Data

Country	Project ID	Parent Project ID (if any)	Project Name
Uzbekistan	P170206		Uzbekistan Science Commercialization Project (P170206)
Region	**Estimated Appraisal Date**	**Estimated Board Date**	**Practice Area (Lead)**
EUROPE AND CENTRAL ASIA	Mar 30, 2020	Jul 15, 2020	Finance, Competitiveness and Innovation
Financing Instrument	**Borrower(s)**	**Implementing Agency**	
Investment Project Financing	Ministry of Finance	Ministry of Innovative Development	

Proposed Development Objective(s)

The Project Development Objective is to contribute to the innovation performance of Uzbekistan by enabling the commercialization of research performed in pubic research organizations and the introduction of new process and products by the corporate sector.

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	50.00
Total Financing	50.00
of which IBRD/IDA	50.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	50.00

Environmental and Social Risk Classification	Concept Review Decision
Moderate	Track II-The review did authorize the preparation to

	continue

Other Decision (as needed)

B. Introduction and Context

Country Context

Uzbekistan is Central Asia's most populous country, with a population of over 33 million people. The demographic structure is heavily skewed toward the young cohorts, with children under the age of 16 years accounting for 35% of the population and 60% of the population being under the age of 30 years. Slightly more than half of the population lives in urban areas (51%). Uzbekistan is a multi-ethnic country with more than 100 ethnic groups. Ethnic Uzbeks comprise about 80% of the population.

The country launched a process of market-oriented reforms in late 2016, following the first leadership change since the country gained independence in 1991. President Shavkat Mirziyoyev embarked upon an economic modernization program to reinvigorate equitable growth, strengthen and modernize public institutions and increase the role of the private sector in the economy. In February 2017, the Government of Uzbekistan (GoU) announced a broad market-oriented National Development Strategy for 2017-2021 (NDS), targeting five priority policy areas: (i) enhancing state and public institutions; (ii) securing the rule of law and reform of the judicial system; (iii) promoting economic development; (iv) fostering social development; and (v) ensuring personal and public security through inter-ethnic and religious tolerance and constructive foreign policy. Among the key priorities are promoting the growth of the private sector through privatization of state-owned enterprises (SOEs) and public-private partnerships (PPPs), improving the investment climate, encouraging entrepreneurship and investment in modern technology and innovation.

In January 2019, the GoU adopted an ambitious Reform Roadmap, developed with World Bank Group (WBG) support. The Reform Roadmap outlines reform actions across all strategic areas to achieve the objective of becoming an upper-middle-income country by 2040. The Reform Roadmap foresees the development of a National Innovation Strategy for the Uzbek economy, and the mobilization of financial resources for research grants to create partnerships with the private sector and foreign universities. The development of a research and innovation strategy is consistent with the transition towards an upper-middle income country, as illustrated, for example, by the cases of Korea. The challenge is to carefully craft the policy mix to meet the dual goals of meeting the current country’s needs and enable a gradual development of more innovative, knowledge-intensive firms. This will require, for example, fostering technology diffusion, including managerial capabilities, while enabling firms gradually to invest more systematically in knowledge, including through R&D investments. In parallel, public research organizations (research institutes and higher education institutions) will also need to transition towards more meritocratic and market-friendly policies. A case to keep in mind is the reform of sector-specific institutes, as for example in agriculture – which, if properly done, can have an important impact on technology diffusion and agricultural productivity.

Sectoral and Institutional Context

One way to look at the relationship between research and growth is through the lenses of ‘national innovation systems’

(NIS). Well-functioning NIS are those who have the right institutional and market conditions in place to transform investments in knowledge (e.g. investments in R&D), by the public and the private sector, into innovation, productivity gains and, thus, firm growth. Because of market and institutional failures, those conditions often need to be built by deliberate policies and reforms. In the case of transition economies, the legacy of the soviet times implies that institutional reforms to bring a meritocracy and market-friendly policies – for example, to foster collaboration between science and industry and to foster research commercialization – will be necessary. Reforms of NIS, in turn, need to go hand in hand with structural reforms that will unleash a dynamic market-based economy where firms can profit from their investments in knowledge and innovation.

The main stakeholders of the National Innovation System (NIS) of Uzbekistan are universities (70 universities), the National Academy of Sciences (consists of 28 entities, including 27 SRIs), the Ministry of Innovative Development (MID, established in December 2017), as well as SRIs under the Ministry of Agriculture and Water – 11, under the State Committee on Land Resources – 1, under State Veterinary Committee – 1, under State Forestry Committee – 1, under Ministry of Health - 6. Combined, they employ 16,700 R&D personnel.

Uzbekistan has made some progress in the development of its National Innovation System (NIS) over the past two years. The main drivers of this process are the strategic vision of the Government and high-level political support: the Uzbek authorities have declared an ambitious goal of entering the ranks of top-50 in the Global Innovation Index by 2030 . To achieve this goal, the government adopted a roadmap that envisages (i) quadrupling gross (public and private) spending on R&D from the current 0.2% of GDP to 0.8% of GDP by 2021, (ii) improving scientific excellence, and (iii) strengthening the links between education, science and industry.

The Ministry of Innovative Development (MID) has begun reforming the science funding system. Prior to 2018, the government would fund R&D projects initiated by the scientific community once a year through a cumbersome procedure. Now it is a competitive selection of R&D proposals on a rolling basis (calls for proposals are announced online every 2 months) and are based on the priorities and needs of the national economy. Before the establishment of MID, R&D projects would receive more funding incrementally and mainly to cover researchers' salaries. The Ministry has stepped up funding (the average size of grants tripled and reached US$80K) and at least 50% of allocated funds are now used by beneficiaries to purchase R&D equipment. MID has also increased the available funding for field expeditions and laboratories in regional universities in order to diversify the subject areas of R&D and expand the geographic coverage of science facilities. This implies increased funding of institutions outside of the National Academy of Science.

The government has also launched short-term (3-month) foreign internships for researchers. A total of 40 researchers went abroad in 2018, and 300 more will be sent in 2019. The Ministry has also launched calls for proposals for joint research in cooperation with German, Chinese and Turkish research institutes and universities.

Since 2017 the GoU has increased its financial support for science and research institutes and universities. While increased public financial support is very welcome, funds distribution mechanisms, commercialization and industry-science collaboration incentives would benefit from substantial further improvement. There are examples of successful commercialization of past research efforts (e.g., number of locally produced medicines are the results of SRI research), however companies face difficulties introducing new or improved products that require significant modification or introduction of new production lines because it entails disruption of ongoing production process or significant investments into new equipment.

Among those broad reforms of Uzbekistan's NIS, promoting research commercialization is among the most challenging. Research commercialization – the process through which academic knowledge (and more specifically research results) – is transferred from public research organizations to the enterprise sector, is a potential source of ideas for innovation from existing firms or the startup of knowledge-based enterprises. Developed countries have recognized this potential and tried tapping into it in many ways, as reflected for instance in the emphasis of European Union (EU) countries in the so-called 'third mandate' of universities. Yet, research commercialization is not an automatic process. Rather, transitioning

from research result to a patent or a spillover is a process that faces many market and institutional failures. Funding for early stages of research commercialization, such as the preparation of proof of concept, prototyping, etc. – is underprovided by the private sector. Scientific career development rules often discourage allocation of time towards commercialization efforts. Uncertainty over the ownership of the intellectual property reduces the incentives for researchers to allocate time for research commercialization and increases the risks of early-stage investors. Finally, the expertise needed for this type of activity is still evolving and hardly available. Technology transfer offices are one common attempt to address this last challenge, but without the right incentives and appropriate access to funding and expertise may easily become bureaucratic organizations. Those challenges are not specific to Uzbekistan but are becoming more acute with the ongoing transition of Uzbekistan's NIS. The proposed project will attempt to address some of those challenges.

Relationship to CPF

The proposed Project is in line with all 3 focus areas of the FY16-20 Performance and Learning Review of the Country Partnership Framework (Report 126078-UZ dated May 29, 2018) – 1) Sustainable Transformation Towards a Market Economy; 2) Reform of State Institutions and Citizen Engagement; and 3) Investing in People.

C. Proposed Development Objective(s)

The Project Development Objective is to contribute to the innovation performance of Uzbekistan by enabling the commercialization of research performed in pubic research organizations and the introduction of new process and products by the corporate sector.

Key Results

1. Number of scholarships or support to research conducted abroad
2. Number of applied R&D projects conducted jointly by research institutes and firms financed
3. Number of firms creating new or improved products and services

D. Concept Description

The proposed project will include the following three components.

1. **Component 1** - Applied R&D and Commercialization Program (ARD, US$20 million). The component will support introduction of new instruments to spur applied R&D that promotes both excellence and relevance research, i.e., rigorous selection based on technical merit and commercial application potential. Such approach would help investing scarce resources more strategically and help to strengthen the potential for private and corporate co-investments. Projects fostering collaboration science-industry will be emphasized. In addition, the component will also encourage the internationalization of Uzbek science by exposing talented young scientists and students to the international R&D environment and by facilitating the participation of the Uzbek diaspora in applied R&D projects.

2. The Program will finance (i) applied R&D project grants with Uzbek scientists and young researchers motivated to conduct applied R&D at international standards, and (ii) scholarships for students and scientists to study or conduct research abroad or both. The proposals will be selected competitively using the following criteria: (i) potential for conducting world-class applied R&D, i.e. scientific merit; and (ii) relevance of research for the current or future scientific, economic and industrial development of Uzbekistan, including the possibility of forging research partnerships with local or foreign R&D or business organizations; and (iii) potential for and interest in conducting collaborative research with leading international research organizations, or the private sector or both.

4. **Component 2** – Enterprise Innovation Program (EIP, US$16 million). The Enterprise Innovation Program aims to spur enterprise-level innovation focused on the development of new or improved products, technologies or processes by Uzbek enterprises for both domestic and export markets. It will provide matching grants to companies for generating proof of concept, prototyping, R&D and commercialization as well enhancing the investment readiness or a co-investment program. The companies could conduct R&D in-house or buy externally in the country or abroad. Beneficiaries will be incorporated entrepreneurs, innovative startups, micro, small and medium enterprises (MSMEs) from all industry sectors, with majority Uzbek private sector ownership, that have a technological innovation or potential for developing new or improved products (including services) with a competitive global and domestic position and a clear market need. The Program will provide matching grants to cover up to 70% of project costs, with a maximum of US$200,000 for projects of up to 24 months' duration. Applicants will need to provide required co-financing from their own resources in cash (no in-kind contribution), existing or potential private investors, venture capital, private equity and private sector debt financing, and excludes any other financing from any public-sector-funded programs.

5. While the activities of Component 1 would support high-quality applied R&D with commercial potential, realizing that potential requires specialized entrepreneurial and startup expertise that scientists normally do not possess. Even if Uzbekistan improves the quality and relevance of its research output, the R&D results will not generate the expected economic benefits unless they are connected to domestic and global entrepreneurial markets. The Government recognizes that many companies find it difficult to arrange significant financial investments associated with the development cycle and the high cost of translating research into a commercially viable product. This program is designed to help such companies upgrade their innovation capabilities, establish collaboration with strategic private sector investors and R&D partners, attract investors and bring their innovations to the market.

6. **Component 3** – Policy and Capacity Building Support (US$12 million). Uzbekistan has undertaken broad-based economic and institutional reforms and will need significant technical assistance (TA) to design and implement such reforms, including strategy and diagnostic studies, and capacity building. This component will provide such support and including some of the following activities.

a) Technology Transfer Office (TTO). Uzbekistan does not have the necessary commercialization institutions that can assist early-stage entrepreneurs and scientists to bring their ideas to the market. The project will support the establishment of a central Technology Transfer Office to provide a wide range of complementary technology commercialization services and expertise required to link Uzbek science with the domestic and international markets. This will include the financing of office equipment, consultants, trainings and operating costs, etc., but no civil works. The TTO will work initially with the research groups established under components 1 and 2. Later, this TTO could expand its activities to work with other SRIs and universities for R&D commercialization as well as helping them set up their own TTOs, depending on their needs and appetite for R&D commercialization.

b) Uzbek Diaspora. As in many countries, the particularly successful migrants tend to be motivated to put something back into the development of their home countries, to the extent the political and economic situation allows them. One major challenge has been to move on to a new level where the diaspora asset is used more systematically and generates a sustainable systemic benefit rather than relying on personal motivations and initiatives. Therefore, the project would support the active engagement of reputable diaspora scientists and entrepreneurs in all project activities, signaling new opportunities to invest in Uzbekistan's science and technology. The project will finance TA and grants to local scientists and entrepreneurs and the Uzbek diaspora to engage with each other.

c) International Expert Board (IEB). The project will support the establishment and operation of an International Expert Board that will, among other things, guide the evaluation of project proposals and decision about financing for competitive grants under Components 1 and 2. A new selection mechanism following international practice will be implemented, possibly involving a two-stage evaluation process – an initial evaluation by 2-3 independent professional peer reviewers, followed by the expert assessment and implementation progress oversight by the IEB. Subject to further

review, the IEB will include five distinguished individuals - 2 scientists, 2 commercialization experts and 1 successful tech-entrepreneur or financier from different parts of the world. The IEB will represent the fields of scientific and commercial expertise that are of strategic importance for Uzbekistan, from a variety of technologically advanced countries. The project will finance the cost of engaging peer reviewers and IEB members, such as fees, travel costs, etc.

d) Research Institutes Reform Plan. The project will support TA for the design of a Reform and Modernization Program for Uzbek R&D Institutions (RDIs), including external assessment of the current institutions. Support to the restructuring of specific research institute (s) will be considered during the appraisal phase.

e) Technical assistance and advisory services for policy and institutional reforms. The project will seek to support the design and implementation of ongoing (and planned) reforms, policies, laws, rules and regulations to cover, inter alia, the legal and regulatory framework for R&D, innovation financing, technology commercialization, protecting intellectual property, as well as design (and monitoring) of the impact of programs, Specifically, it is envisaged that the project will support the preparation of a strategy to upgrade the Uzbek national innovation and entrepreneurship ecosystem.

f) Capacity building programs (including training and study tours) for relevant staff of the MID, SRIs and other institutions and the Uzbek scientific community to close the existing knowledge gaps and improve policy or project design and implementation.

7. **Component 4** – Project Management and Monitoring and Evaluation (US$2 million). This component will support project implementation activities, including the following:

a) Operations of a Project Management Unit (PMU) responsible for the day-to-day implementation of project activities, ensuring the disbursement of Loan proceeds in compliance with applicable World Bank rules, and rigorous monitoring of project indicators. The Project will have a Project Steering Committee (PSC) to be led by high-level government officials and include representatives of all key stakeholders.

b) Fiduciary activities, including procurement, financial management, environmental and social compliance, reporting citizen engagement, project audits, etc.

c) Maintenance and update of the project web-portal that will include systems for online application for grant programs, feedback collection and grievance management, etc.

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

Summary of Screening of Environmental and Social Risks and Impacts

CONTACT POINT

World Bank

Paulo Guilherme Correa
Adviser

Borrower/Client/Recipient

Ministry of Finance

Implementing Agencies

Ministry of Innovative Development
Ibrokhim Abdurakhmonov
Minister
ibrokhimabdurakhmonov@hotmail.com

FOR MORE INFORMATION CONTACT

The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 473-1000
Web: http://www.worldbank.org/projects

APPROVAL

Task Team Leader(s):	Paulo Guilherme Correa

Approved By

Practice Manager/Manager:		
Country Director:		