



Mongolia: Research University Sector Development Program

Project Name	Research University Sector Development Program								
Project Number	52013-002								
Country	Mongolia								
Project Status	Proposed								
Project Type / Modality of Assistance	Loan								
Source of Funding / Amount	<table border="1"><tr><td colspan="2">Loan: Strengthening Research-Based Universities</td></tr><tr><td>Ordinary capital resources</td><td>US\$ 22.00 million</td></tr><tr><td colspan="2">Loan: Research University Sector Development Program</td></tr><tr><td>Ordinary capital resources</td><td>US\$ 8.00 million</td></tr></table>	Loan: Strengthening Research-Based Universities		Ordinary capital resources	US\$ 22.00 million	Loan: Research University Sector Development Program		Ordinary capital resources	US\$ 8.00 million
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Strategic Agendas	Environmentally sustainable growth Inclusive economic growth								
Drivers of Change	Governance and capacity development Knowledge solutions Partnerships Private sector development								
Sector / Subsector	Education - Tertiary Industry and trade - Industry and trade sector development Information and communication technology - ICT infrastructure								
Gender Equity and Mainstreaming	Effective gender mainstreaming								
Description	<p>To overcome regulatory, governance, and financing constraints on university research, especially interdisciplinary applied research, and inter-university and university industry collaborative research, the proposed program will support the government's agenda of reforms to develop research universities and strengthen university research through a set of policy actions, capacity development, and physical investments. The program will have three outputs: (i) governance and regulatory mechanisms for developing research universities and strengthening university research established; (ii) diversified funding mechanisms for research universities, university research, and graduate students established; (iii) clusters of research universities with shared research and development (R&D) facilities developed. These outputs will result in the following outcome: R&D capacity of clusters of research universities enhanced. The program will be aligned with the following impact: innovation and technological change to boost productivity and employment in the business sector promoted.</p> <p>The Asian Development Bank's (ADB) assistance will add value by facilitating access to expertise and international good practices related to (i) graduate education and university research, (ii) funding mechanisms for universities, and (iii) cost-effective measures such as collaborative procurement and the sharing of R&D facilities and equipment. It will also add value by promoting collaboration and coordination within government, with development partners, and between government agencies, universities, research institutes, companies, and industries through its ongoing support for the formulation of an education sector master plan and an STI investment plan, and cofinancing with development partners.</p>								

Project Rationale and Linkage to Country/Regional Strategy

Mongolia's economy has been slow to diversify into other industries than mining. In fact, the share of the mining industry in the country's gross domestic product (GDP) has remained the largest since 2005. For the economy to further diversify and increase productivity and employment, the ability of non-mining businesses to adapt new technologies and develop new products and services needs to be enhanced. This would require increased industrial research and development (R&D), which Mongolia has seriously neglected since it transitioned from a centrally planned to a market-based economy. Between 1990 and 2016, gross domestic expenditure on R&D as a percentage of GDP shrank from 1.00% to 0.18%. The number of R&D personnel also declined from 3,102 in 1995 to 2,211 in 2016. Against this background, the government plans to increase R&D human resources, financing, and infrastructure in the medium term.

Historically, the government has dominated R&D in Mongolia in terms of performance (68.8% in 2016) and financing (86.3%). Major government R&D institutions are the Academy of Sciences and its 10 specialized research institutions, which employ about 60% of R&D personnel in the country, mostly trained abroad. The publicly funded research, however, has a poor track record of commercialization because it focuses mainly on basic research. By contrast, the role of business in R&D has been insignificant (performance: 3.8%, financing: 4.9%). The R&D role of higher education is only marginally better (performance: 27.3%, financing: 3.7%), and just a handful of its institutions are engaging in significant R&D. Consequently, university-industry collaboration in R&D has also been limited, as reflected in Mongolia's ranking in the Global Competitiveness Index (127th out of 137 countries in 2018). More human resources capable of conducting interdisciplinary applied research linked to industrial R&D need to be developed at higher education institutions in collaboration with industry.

The weak ability of Mongolian universities to develop R&D human resources and conduct research stems from the higher education system inherited from the former Soviet Union—universities focused primarily on teaching, whereas the Academy of Sciences and its specialized research institutions, which were not part of the higher education system, conducted research. As a result, research functions and graduate programs and schools are underdeveloped at Mongolian universities. Even at key state universities, faculty members with doctoral degrees account for only about 40%, and the share of graduate students is considerably smaller than those at top universities in other middle-income countries. Unmeritocratic staffing practices further exacerbate the lack of highly qualified faculty members. Moreover, heavy teaching responsibilities (the teacher-student ratio is about 1:29) make it difficult for many faculty members to carry out research, especially interdisciplinary applied research linked to industrial R&D. Under the circumstances, teaching at universities rarely incorporates latest developments in the field, and students are provided little opportunities to take part in research. Relatedly, the code of academic and research ethics is not well established, and the quality of graduate degrees awarded by different universities is uneven because systems for evaluating research are lacking.

Although many new technologies, systems, and problems have become increasingly complex, requiring multidisciplinary knowledge, Mongolian universities remain highly specialized rather than being comprehensive. This organizational characteristic of Mongolian universities, inherited from the former Soviet Union, stifles interdisciplinary applied research, and university-industry and inter-university research collaboration, which would be needed to deal with the government-defined priority areas for science, technology, and innovation (STI). It also results in considerable overlap between specialized R&D facilities and equipment installed at key state universities, as well as underutilization despite the high costs of investment. The failure to foster collaborative research environments constrains the ability of Mongolian universities to attract highly qualified researchers and teaching staff domestically and internationally. International research collaboration is limited, which is a missed opportunity for enriching the quality and outputs of research and teaching.

The current funding mechanisms for universities, university research, and graduate students are inadequate to foster high-quality research in the priority areas. Tuition fees have been the primary source of funding for universities since the early 1990s, which leaves them severely underfunded. State universities are particularly constrained because they lack the autonomy to raise funds, generate and reinvest revenues, and set tuition fees. Given the lack of investment, research as well as information and communication technology infrastructure at universities has become obsolete and inadequate for cutting-edge research. Moreover, apart from funding available from national programs for STI or projects funded by development partners, no competitive grants exist that would systematically support interdisciplinary applied research, as well as university-industry and inter-university research collaboration, and would be linked to a system for assessing the quality of the research funded. Currently, scholarships with small award amounts (Student Development Loan Fund) are provided to all graduate students without considering intellectual merit, poverty and other disadvantaged conditions, or clear objectives.

To strengthen the links between teaching, research, and industry partnerships, and the contribution to a diversified and knowledge-based economy, the Ministry of Education, Culture, Science and Sports (MECSS) launched a national program on research universities (2018-2022). It is also drafting amendments to the package of education laws, the Innovation Law, and related laws to support the program. MECS is further developing an STI human resource development plan and STI investment plan to accompany the revamped State Policy on Science and Technology approved in 2017.

The Asian Development Bank (ADB) has provided support to all the subsectors of education in Mongolia since the country's transition from a centrally planned to a market-based economy in the early 1990s. In the higher education subsector, ADB's assistance contributed to better research infrastructure of key state universities and competitive research grants, and the preparation of the national program on research universities and the STI investment plan. Other development partners also support the subsector, such as the Japan International Cooperation Agency and other bilateral donors. ADB's engagement in the subsector is fully in line with its country partnership strategy for Mongolia, 2017-2020, and Strategy 2030.

Impact

Innovation and technological change to boost productivity and employment in the business sector promoted

Outcome	Research and development (R&D) capacity of clusters of research universities enhanced
Outputs	Governance and regulatory mechanisms for developing research universities and strengthening university research established Diversified funding mechanisms for research universities, university research, and graduate students established Clusters of research universities with shared R&D facilities developed
Geographical Location	Nation-wide

Safeguard Categories

Environment	B
Involuntary Resettlement	A
Indigenous Peoples	B

Summary of Environmental and Social Aspects

Environmental Aspects
Involuntary Resettlement
Indigenous Peoples

Stakeholder Communication, Participation, and Consultation

During Project Design
During Project Implementation

Responsible ADB Officer	Maruyama, Asako
Responsible ADB Department	East Asia Department
Responsible ADB Division	Urban and Social Sectors Division, EARD
Executing Agencies	<i>Ministry of Education, Culture, Science & Sports Government Building-III, Suite # 514, Baga toiruu-44, Sukhbaatar district Ulaanbaatar, Mongolia</i>

Timetable

Concept Clearance	03 Dec 2018
Fact Finding	18 Mar 2019 to 18 Mar 2019
MRM	18 Apr 2019
Approval	-
Last Review Mission	-
Last PDS Update	05 Dec 2018

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