

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country: The Republic of Indonesia

Project: Development of World Class University with Socio-Entrepreneurial Spirit
at Universitas Gadjah Mada

Loan Agreement: November 15, 2017

Loan Amount: 8,309 million yen

Borrower: The Republic of Indonesia

2. Background and Necessity of the Project

(1) Current State and Issues of the Higher Education Sector in the Republic of Indonesia

Although the Republic of Indonesia has achieved high economic growth in recent years, primary products still account for approximately 40 percent of its exports, making the development of high value-adding industries a priority.¹ To this end, the Government of Indonesia is promoting the development of the private sector, the local development of high value-added products and the like. There is also a strong demand in the industrial sector for highly qualified human resources who possess sufficient knowledge and capacity. Thus, it is essential to improve the quality of the country's higher education and further supply highly qualified human resources who can contribute to Indonesia's industrial development.

Founded in 1949, Universitas Gadjah Mada, the target of the project, is the third-ranked Indonesian university in the World University Rankings 2016, and has approximately 56,000 students, 18 faculties and two schools (Vocational School and Postgraduate School). Universitas Gadjah Mada has produced many human resources who play pivotal roles in economics and politics in Indonesia. Through joint research with private-sector enterprises, the university has been also actively developing mechanical, processed agricultural and other products. Recent years have seen the university and private-sector enterprises jointly start an increasing number of new businesses in the IT and pharmaceutical sectors. In comparison to the Jakarta Special Capital Region and East Java, which are areas that contain other high-ranked universities such as Universitas Indonesia and Institut Teknologi Bandung, the Special Region of Yogyakarta, the site of Universitas Gadjah Mada, has a poverty rate of 13.02%, which is above the national average. In this respect, the Government of Indonesia expects that implementation of this project will contribute to efforts to promote industry in the region.

¹ Please see Japan Center for International Finance (2016), *Comprehensive Evaluation Report: Indonesia (Second Half of 2016)*.

(2) Development Policies for Indonesia's Higher Education Sector and Project Positioning

In the National Medium-Term Development Plan of the Government of Indonesia (RPJMN 2015–2019), higher education is positioned as one of the most important sectors, and specifies food, medicine and resources as research and development priority areas. In addition, the government has been striving to upgrade the nation's education, evidenced by the fact that in the constitutional reform of 2002 and the Revised Act on Educational System of 2003 it is stipulated that the government shall allocate 20% of its budget to education. The national educational strategy plan (RENSTRA 2012–2017) does not only stipulate better access to higher education courses and improvement to the quality of education. Principal national universities are bolstering their research functions and contributing to the development of high value-added products through collaboration with industry and local communities, in addition to delivering education opportunities. The project is aimed at improving educational quality, promoting research and product development, and promoting locally relevant industry-academia collaboration. Therefore, the project aligns with the above-mentioned development plan.

(3) Japan and JICA's Policy and Operations in the Higher Education Sector

Japan's Country Assistance Policy for Indonesia (April 2012) specified the “development of highly-qualified human resources” as one of the priority areas for “aiding further economic growth.” The JICA Country Analysis Paper on Indonesia (March 2012) as well concluded that, to stimulate the country's economy and achieve advanced industrialization in the country, it was crucial to develop human resources through the expansion of higher-education institutions and vocational schools. The project aligns with that policy and analysis conclusion. Moreover, Indonesia, which is targeted by the project, is among the priority countries for the Industrial Human Resource Development Cooperation Initiative (2015) launched by the Japanese government. This initiative positions the development of human resources driving Asia's industrial development as being important. JICA continues to promote local research activities and helps to bolster university-industry-community partnership through Japanese ODA loans, technical cooperation projects and the like. They have included, among others, the Gadjah Mada University Development Project (Japanese ODA loan) and the Project for Improving Higher Education Institutions through University-Industry-Community Links (Hi-Link) in Gadjah Mada University (technical cooperation project). In addition to improving Indonesian universities' functions, JICA has been contributing to efforts to grow local economies and industries, raise the level of local human resources and create a network with Japanese universities.

(4) Other Donors' Activities

Through the Project for Managing Higher Education for Relevance and Efficiency (from 2009 to 2012), the World Bank provided higher education sector entities with

assistance aimed at creating an environment that enables higher education institutions to reform their autonomy and to build an effective aid system intended to raise the quality, relevance, efficiency and fairness of higher education.

(5) Necessity of the Project

The project is intended to contribute to the improvement of the levels of industry-backbone human resources, which is a high priority under the Indonesian Government's development policies and consistent with Japan's aid policy, as well as to technological innovation in Indonesia. It is highly necessary and relevant for JICA to help implement the project since it will contribute to efforts on Sustainable Development Goal (SDG) 9, namely to "build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation."

3. Project Description

(1) Project Objective(s)

The project objective is to enhance the quality of education and to promote research and product development in Universitas Gadjah Mada by improving and constructing buildings for education, research, and university-industry collaboration, thereby contributing to high-quality industrial human resources and industrial development in the Republic of Indonesia.

(2) Project Site/Targeted Areas: Yogyakarta City and Kulon Progo Regency, Yogyakarta Special Province (Universitas Gadjah Mada campus and land related to the university)

(3) Project Components

- 1) Construction of education, research and vocational training facilities (10 facilities)
- 2) Procurement of equipment (composition analysis equipment, microscopes, dental chairs, drones, software, industrial robots, processing devices for manufacturing prototype products, etc.)
- 3) Consulting service (overall project administration, basic design, detailed design, tender assistance and construction management)

(4) Estimated Project Cost (Loan Amount)

9.792 billion yen (out of which yen loan amount is 8.309 billion yen)

(5) Schedule

From November 2017 to December 2022 (62 months in total). The project will be deemed complete on the date on which the facilities begin to be made available (January 2022).

(6) Project Implementation Structure

- 1) Borrower: The Republic of Indonesia
- 2) Guarantor: None
- 3) Executing Agency: Ministry of Research and Technology and Higher Education

and Universitas Gadjah Mada

- 4) Operation and Maintenance System: Educational and research facilities constructed in the project, as well as relevant equipment, will be owned and managed by the Universitas Gadjah Mada Secretariat.
- (7) Environmental and Social Considerations/Poverty Reduction/Social Development
 - 1) Environmental and Social Considerations
 - (i) Category: C
 - (ii) Grounds for Categorization: The project is judged as having only a minimal level of undesirable effect on the environment in light of the JICA Guidelines for Environmental and Social Considerations (proclaimed in April 2010).
 - 2) Promotion of Poverty Reduction

The implementation of the project is aimed to vitalize local communities in the target area and promote local industries, which is expected to have the effect of raising the income of target area residents and reducing poverty.
 - 3) Promotion of Social Development (e.g. Gender Perspectives, Consideration for People with Disabilities, etc.)

In designing facilities and conducting civil engineering works, the project staff will consider physical accessibility for citizens with diverse needs, such as people with disabilities. When designing the outline of the facilities, the staff will consider gender issues with respect to female changing rooms and toilets. The allocation of staff will take into account gender issues in the form of encouraging active female participation in the project implementation and operation-maintenance systems.
- (8) Collaboration with Other Donors: None

4. Target Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicators)

Indicator	Baseline (Recorded in 2015)			Target (2025) (3 years after completion) (*2)		
	Faculty	Master's	Doct orate	Faculty	Master's	Doct orate
Number of post graduate students (master's/doctorate) (persons)	Law	1,528	150	Law	2,292	225
	Pharmacy	209	58	Pharmacy	314	87
	Dentistry	288	22	Dentistry	432	33
	Forestry	102	73	Forestry	153	110
	Agriculture	280	133	Agriculture	420	200
	Animal Science	83	31	Animal Science	125	47
	Engineering	1,513	260	Engineering	2,270	390
	Breakdown of post	Diploma 3	Diploma 4	Applied Master's	Diploma 3	Diploma 4

graduate vocational students (%) (*1)	90%	10%	0%	10%	70%	20%
Learning area per student (square meters)	Faculty/school			Faculty/school		
	Law	3.32		Law	4.73	
	Pharmacy	7.68		Pharmacy	12.03	
	Dentistry	8.30		Dentistry	9.50	
	Forestry	8.81		Forestry	10.98	
	Agriculture	7.07		Agriculture	8.56	
	Animal Science	16.62		Animal Science	19.22	
	Engineering	7.52		Engineering	10.26	
	Vocational	7.65		Vocational	9.50	
Number of international publications (Scopus index)	541			2,000		
Number of prototype products made by all faculties (TRL (technical readiness level) 6 and above)	11			20		
Full time employment rate of students from all faculties (waiting period: 0-12 months) (%)	68.1%			70.0%		

2) Supplementary Indicators

Indicator	Baseline (Recorded in 2015)	Target (2025) (3 years after completion) (*2)
QS World University Rankings (*3)	551	400

*1: Diploma 3 denotes completion of Year 3 of specialized higher education; Diploma 4 denotes completion of Year 4 of specialized higher education.

*2: Set the indicator target for a date three years after the project completion in consideration of course years, namely two years for a master's course and three years for a doctorate course.

*3: An international university ranking metric determined according to total scores given for six evaluation criteria comprising: review by scholars of different countries (40%); evaluation by the employer (10%); student-to-faculty member ratio (20%); number of citations for each faculty member (20%); foreign faculty member ratio (5%) and international student ratio (5%).

(2) Qualitative Effects: Effect of inducing corporate production activities along with the developing of highly qualified human resources; improvement in higher education, and increased research and development activities; effect of creating jobs through the spread of production techniques

(3) Internal Rate of Return

Economic internal rate of return (EIRR) is set at 9.1%, based on the following assumptions: No financial internal rate of return (FIRR) is calculated in consideration

of the fact that the project's objective attaches importance to social significance, although it is forecast that there will be operating revenue such as tuition fees and contract research service fees.

[EIRR]

Costs: Operating costs, and operation and maintenance expenses (excluding taxes)

Benefit: Income growth for graduates

Project life: 56 years

5. External Factors and Risk Control

None

6. Lessons Learned from Past Projects and Application to the Project

(1) Lessons Learned from Past Projects

- 1) The ex-post evaluation (2010) of the Gadjah Mada University Development Project, Japanese ODA loan program for Indonesia, pointed out that it was necessary to take flexible action to procure equipment that meets the latest needs of staff, and to gather during the project period information and data required for project assessment.
- 2) The ex-post evaluation (2004) of the Development Project of the Institute of Technology in Bandung (II), a Japanese ODA loan program for Indonesia, referred to the need to develop an institute-wide maintenance and management system, given that the state of maintenance and management of facilities and equipment varied from one faculty to another.
- 3) The ex-post evaluations (in each of 2004 and 2000) of the Bogor Agricultural University (IPB) Development Project (II), a Japanese ODA loan program for Indonesia, and the Can Tho University Faculty of Agriculture Improvement Project, a grant program for the Republic of Vietnam, stated that it is effective to create curricula that reflect local labor market demand in the private sector, as well as to provide technical cooperation along with facilities and equipment that the project makes available.

(2) Lessons Applied to this Project

- 1) It was agreed that, learning from the Gadjah Mada University Development Project, officials would accept flexible equipment changes to reflect user needs, and set as indicators information that is updated annually and easy to obtain.
- 2) Learning from the Development Project of the Institute of Technology in Bandung (II), officials will not only perform maintenance and management on a faculty-by-faculty basis, but also establish a unit that will manage the institute's assets in an integrated manner and build an asset-management database, thereby appropriately engaging in maintenance and management activities.

- 3) In consideration of the lessons learned by the Bogor Agricultural University (IPB) Development Project (II) and the Can Tho University Faculty of Agriculture Improvement Project, officials are now considering using the facilities to be developed through the project to form a technical cooperation project. The aim of that project is to create an education and training program designed to strengthen and improve each facility's management, and add value to products and services.

7. Plan for Future Evaluation

(1) Indicators to Be Used for Future Evaluation

- 1) Number of post graduate students (master's/ doctorate)
- 2) Breakdown of post graduate vocational students (%)
- 3) Learning area per student (square meters)
- 4) Number of international publications (Scopus index)
- 5) Number of prototype products made by all faculties (TRL (technical readiness level) 6 and above)
- 6) Full time employment rate of students of all faculties (waiting period: 0-12 months) (%)
- 7) Economic Internal Rate of Return (EIRR) (%)

(2) Timing of the Next Evaluation

Three years after project completion

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