

## Ex-Ante Evaluation(for Japanese ODA Loan)

**1. Name of the Project**

Country: India

Project: Campus Development Project of Indian Institute of Technology, Hyderabad (Phase 2)

Loan Agreement: January 28, 2014

Loan Amount: 17,703 million Yen

Borrower: The President of India

**2. Background and Necessity of the Project****(1) Current State and Issues of the Education Sector in India**

In recent years Indian economy has been growing rapidly with its population growth. There is urgent need to create employment through further promotion of manufacturing industry where technical innovation is required. In this circumstance, it has become increasingly necessary to expand and improve technical institutions of higher education who play a leading role in research and development of technological innovation and contribute to training and development of human resources with required knowledge and skills for the industry. The gross enrollment ratio (GER) at institutions of higher education in 2010 in India was 17.9%, which is lower than the world average of 29.1% and 23.5% among low- and middle-income countries. The low GER is one of the major concerns which may hinder future economic growth of the country. Understanding the importance of expanding and improving institutions of higher education, 30 public universities, eight Indian institutes of technology (IIT) and seven Indian graduate schools of business administration were newly established as a part of the Eleventh Five-Year plan (April 2007 to March 2012). While expanding institutions of higher education quantitatively, to maintain and keep improving the quality of research and education in the institutes is also important. Therefore innovation of world's cutting edge technology and development of related academic facilities are urgent challenge in this sector.

**(2) India's Development Policies for the Education Sector and the Role of the Current Project**

The Government of India aims to improve the GER at higher education to 25.2% by the end of the Twelfth Five-Year plan (April 2012 to March 2017) to offer higher quality education to more people. In 2007, the Government of India requested the Government of Japan to support one of eight newly established IIT for the enhancement and expansion of human resources development in the field of science and engineering. The Japan-India joint statement released in August 2007 declared Japan's intention of supporting establishment of IIT. Thereafter Japan agreed to support establishment of IIT Hyderabad (IITH) in the joint statement of "the Roadmap for New Dimensions to the Strategic and Global Partnership between Japan and India" in October 2008. In the government mission in January 2009, it was confirmed that the Government of Japan, Japanese private sectors and Japanese universities would support the establishment together by the means of ODA.

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

The Country Assistance Programs for India formulated by the Government of Japan (May 2006) defines the expansion and enhancement of human resources development and human resources exchange as a priority area. It says that existing human resources training and exchange programs including those between universities will be strengthened and intellectual exchange in the natural sciences, social sciences and humanities will be promoted comprehensively. The Working Paper for Project Planning for India (June 2011) advocates assistance for promotion of academic exchange in science and engineering as a priority area. The Project is regarded as a core project in the area. JICA's Country Analytical Work (March 2012) also clarify its intention of supporting higher education of India based on the

recognition of higher education in science and engineering as an important sector for development of human resources which supports the development of the country and the significance of enhancement of the industry-university network between Japan and India for strengthening the bilateral relationship. JICA assisted guiding of quality control and production control for IIT Kanpur in 2006 as a technical assistance project as well as Visionary Leaders for Manufacturing project from 2007 to 2011. For IITH, JICA has implemented "Information Network for Natural Disaster Mitigation and Recovery Project (technical cooperation to tackle the global challenges) (2010 to 2015) and "Campus Design Project for IIT-H through Academic Exchange and Interdisciplinary Collaboration" (project supplementary to ODA loan) (2011 to 2014) and dispatched 6 experts. JICA also launched "Preliminary survey on the Improvement of the Hyderabad Indian Institute of Technology" in 2011 and "Project for Future Researchers at IITH to Enhance Network Development with Scholarship of Japan to support the promotion of academic exchange between IITH and Japanese universities" (project supplementary to ODA loan) (2012 to 2020) .

#### (4) Other Donors' Activities

Former Soviet Union and UNESCO: assisted establishment of IIT Bombay in 1958

US: A consortium formed by nine US universities assisted establishment of IIT Kanpur in 1959.

Germany: Assisted establishment of IIT Madras in 1959

UK: Assisted establishment of IIT Delhi in 1961; promoted collaboration with universities in UK

#### (5) Necessity of the Project

India needs to develop excellent human resources in science and engineering with sufficient knowledge and skills for its sustainable growth. Seven IITs were established as top-ranking institutions of higher education in science and technology by the 1960s and they have contributed to discoveries and development of human resources in India and provided them to India and overseas. IITH was newly established in 2008 with the mission to develop excellent human resources who will contribute to development of the country in the field of education and research with enrollment of 1,065 students (total of undergraduate and graduate schools) in FY2012. In 2028, which marks the 20<sup>th</sup> anniversary, it is expected to have a total of approx. 28,000 that includes enrollment of 20,000 students and 2,500 teaching staff and researchers. The Government of India secured a 20,000-km<sup>2</sup> lot in the suburb of Hyderabad for new campus and gradual transfer to the new campus is planned to begin at the end of 2014. According to the master plan of the new campus development formulated by IITH, it will have the capacity of 30,000 people in the future. The Government of India regards the Project as a high priority project to serve as a model of development of institutions of higher education. The Project is to implement construction of facilities and provision of equipment for IITH that plays a national-level role for human resources development in science and engineering. Since it is in line with the development policy of the Government of India and assistance policy of the Government of Japan and JICA, it is highly necessary and relevant for JICA to provide assistance in implementing this project.

### **3. Project Description**

#### (1) Project Objective

The Project is to help upgrade IITH's education and research environment, in the suburb of Hyderabad in Andhra Pradesh State in southern India, to improve the educational and research environment, thereby promoting research cooperation between India and Japan, and improving human resources development capacity for high level knowledge and technology in India.

#### (2) Project Site/Target Area

Medak district in the suburb of Hyderabad in Andhra Pradesh State

(3) Project Components

- 1) Construction of Technology & Incubation Park, Convention Center, Knowledge Center, Research Center Complex, and other facilities in the campus
- 2) Procurement and installation of equipment related to the facilities
- 3) Procurement and installation of research equipment for comprehensive research center and department buildings
- 4) Consulting service (detailed design, support for tender, construction supervision, etc.)

(4) Estimated Project Cost (Loan Amount)

20,938 Million Yen (Loan Amount: 17,703 Million Yen)

(5) Project Implementation Schedule

January 2014 to March 2018 (51 months in total). The project completion is defined as the provision of the facilities.

(6) Project Implementation Structure

- 1) Borrower: The President of India
- 2) Executing Agency : Indian Institute of Technology, Hyderabad
- 3) Operation and Maintenance System: Same as 2)

(7) Environmental and Social Considerations/Poverty Reduction/Social Development

1) Environmental and Social Consideration

- (i) Category: B
  - (ii) Reason for Categorization: The Project does not fall in the category of projects in sensitive sectors or with sensitive characteristics or projects located in or near sensitive areas provided in the **Guidelines for Confirmation of Environmental and Social Considerations** of Japan Bank for International Cooperation (released in April 2002) and thus it is not considered to have significant adverse impact on the environment.
  - (iii) Environmental Permit: An environmental impact assessment (EIA) report on the project is required to be compiled under an Indian law and it was approved by the State Environment Impact Assessment Authority (SEIAA) in August 2012.
  - (iv) Anti-Pollution Measures: Such measures to reduce dust as water spraying and covering on loading platform, proper wastewater treatment and reuse, and proper selection and management of vehicles and heavy machinery are taken against air, water, noise, soil and vibration pollution during the construction and installation period. Monitoring of waste, wastewater, water, air and noise is conducted after the project completion to take proper measures to ease such pollution as necessary. Monitoring report is properly disclosed to local stakeholders.
  - (v) Natural Environment: The Project is not in such sensitive areas as a national park or in its surroundings and thus it is likely to have the least adverse impact on the environment.
  - (vi) Social Environment: Although the Project construction site is on the premises of IITH, part (6acres) of the site needs to be newly acquired. The arrangement for the acquisition will made in accordance with national laws.
  - (vii) Other / Monitoring: The executing agency plans to conduct monitoring of air, water, noise and vibration during the construction and installation period and waste, wastewater, air and noise after the project completion.
- 2) Promotion of Poverty Reduction: None in particular
- 3) Promotion of Social Development (e.g. Gender Perspective, Measures for Infectious Diseases Including HIV/AIDS, Participatory Development, Consideration for Persons with Disability, etc.): The facility is planned to

be designed to be barrier free in consideration of persons with disabilities. Measures for AIDS for construction workers and local residents are also planned to be implemented in the construction stage.

(8) Collaboration with Other Schemes or Donors

Government of Japan established the IITH consortium as the umbrella organization of government, academia, and industry from Japan aiming at promoting collaboration with IITH. A bilateral agreement is concluded on identifying five Academic areas of cooperation and supporting universities in each area between the two countries. Research collaboration framework is examined and joint research and academic exchange is under implementation through projects including, “the Project for Future Researchers at IITH to Enhance Network Development with Scholarship of Japan”. The five Academic Areas of cooperation and main supporting universities are: Environment & Energy (Osaka University), Digital Communication (Keio University), Design and Manufacturing (Waseda University), Nano-technology & Nano-science (University of Tokyo), and Civil Engineering (University of Tokyo).

As part of cooperation in civil engineering by the University of Tokyo, a supplementary project for ODA loan, “Campus Design Project for IIT-H through Academic Exchange and Interdisciplinary Collaboration” (2011-2014) is being carried out. It is formulating conceptual design of the international exchange center and student center that are components of the Project. The university plans to give advice on proper realization of the design in the construction stage as well.

(9) Other Important Issues

None in particular

**4. Targeted Outcomes**

(1) Quantitative Effects

1) Performance indicators (operation and effect indicators)

Indicators	Baseline (Actual Value in 2012)	Target (2019) 【Expected value 2 years after project completion】
Number of regular students (Undergraduate, Masters' and Ph.D)	1,065	7,500
Number of faculty members	94	750
Number of courses	170	350
Occupancy room ratio of Technology & Incubation Park (%)	-	75
Number of visitors of Knowledge Center (annual)	-	100,000
Number of international and national conferences at Convention center (annual)	-	21
Number of research papers published in international journals (including peer review, annual)	84	350
Number of Funded / Joint Research Projects (annual)	31	200
Number of Funded and Joint Research Projects related to Japanese company or University (annual)	4	20

## 2) Internal Rate of Return

Not calculated because it is categorized education projects.

## (2) Qualitative Effects

Human resources development in engineering, science and technology in India, industry promotion and competitiveness enhancement, and promotion of bilateral exchange between Japan and India

## 5. External Factors and Risk Control

Deterioration of political and economic conditions as well as natural disaster in India and areas around the Project site

## 6. Results of Evaluations and Lessons Learned from Past Projects

### (1) Evaluation Results of Similar Projects

The ex-post evaluation of the Mulawarman University Development Project in Indonesia, a project for higher education, concludes the lesson to formulate a comprehensive plan of equipment use, operation and management and promote its effective use. Similarly, it is reported in the ex-post evaluation of the Gadjah Mada University Development Project in Indonesia that use and maintenance of equipment provided in the project was not sufficient because it is difficult to fully understand the detailed needs of equipment in advance and the technological innovation and renewal period of equipment is short.

### (2) Lessons for the Project

Enhancement of the operation system of the executing agency and formulation of specific facility utilization policies is promoted through the supervision consultants and supplementary projects.

## 7. Plan for Future Evaluation

### (1) Indicators for Future Evaluation

- 1) Number of regular students (Undergraduate, Masters' and Ph.D)
- 2) Number of faculty members
- 3) Number of courses
- 4) Occupancy room ratio of Technology & Incubation Park (%)
- 5) Number of visitors of Knowledge Center (annual)
- 6) Number of international and national conferences at Convention center (annual)
- 7) Number of research papers published in international journals (including peer review, annual)
- 8) Number of Funded / Joint Research Projects (annual)
- 9) Number of Funded and Joint Research Projects related to Japanese company or University (annual)

### (2) Timing

Two years after the project completion