

Ex-Ante Evaluation (for Japanese ODA Loan)

South Asia Division 1, South Asia Department

Japan International Cooperation Agency

1. Name of the Project

Country: India

Project: Assam Health System Strengthening Project

Loan Agreement: March 31, 2022

2. Background and Necessity of the Project

- (1) Current State and Issues of the Health Sector/Assam and the Priority of the Project in India

The Government of India is pursuing policies to improve social services and achieve economic development and a balanced social development, but there are various issues in the health sector preventing the achievement of universal health coverage (hereinafter referred to as "UHC") where everyone has access to health care services. The neonatal mortality rate (24 per 1,000 live births; World Health Organization (WHO), 2017) and maternal mortality rate (113 per 100,000; World Bank, 2017) are both significantly behind Japan (0.8 per 1,000 and 3.3 per 100,000, respectively; Ministry of Health, Labour and Welfare, 2021) and the SDG indicator targets for 2030 (12 per 1,000 and 70 per 100,000, respectively). India has the second largest number of cumulative COVID-19 infections in the world, with over 35 million people infected, and the third largest number of COVID-19 deaths in the world with over 480,000 deaths (as of January 6, 2022). During the second wave in April and May 2021, the healthcare system collapsed in many cities due to a shortage of medical oxygen and hospital beds, exposing the vulnerability of the healthcare system.

This vulnerability is mainly due to a lack of healthcare infrastructure, healthcare human resources, and the management of healthcare services. The number of hospital beds (0.9 beds per 1,000 people; Fitch, 2019) is significantly lower than the global average (2.9 beds per 1,000 people; World Bank, 2017). The number of doctors (0.86 doctors per 1,000 people) is also below the WHO's standard of ensuring at least one doctor per 1,000 people (WHO, 2018). In addition, in order to provide appropriate medical services, it is essential to develop a management system to effectively utilize medical resources, but India has a wide range of challenges, such as appropriate maintenance and management of medical equipment, strengthening of referral systems, and efficient management of patient information at each hospital. In addition, India's weak healthcare financing

is laid behind these challenges. Since the mid-2000s, the Government of India has strengthened its healthcare policies several times, and increased the share of healthcare spending to 3.4% of all government spending (World Bank, 2019), but it remains below the average for lower middle-income countries (about 5.5%).

Assam, the target of this project, is the largest state in northeastern India in terms of area (78,438 km²) and population (about 31.2 million in 2011), and yet it falls below the national average for the country's primary social indicators. The state's healthcare system is one of the most vulnerable in India and ranked the lowest among all Indian states in terms of the achievement of SDG 3 (health and well-being for all; NITI Aayog, 2020). Basic health indicators, such as maternal and child health indicators (neonatal mortality rate (33 per 1,000 live births; Government of India, 2015) and maternal mortality rate (215 per 100,000; World Bank, 2017)), are also worse than India's average.

In order to improve this situation, it is important that Assam people have access to, at least, a minimum level of health care services. However, few can use costly private healthcare services in this state where the poverty rate (32%) is higher than the Indian average (22%; Government of India, 2019). Meanwhile, public healthcare institutions handle 70.9% of all inpatient cases in the state (Ministry of Statistics and Programme Implementation, India (MOSPI), 2018) and provide free healthcare services to the local population. The Government of Assam set the improvement of public healthcare services as one of the priority areas for budget allocation and has been promoting the development of primary care facilities and the training of medical personnel, focusing on countermeasures against infectious diseases and the improvement of maternal and child health, based on the National Health Mission led by the central government. Adding to its existing eight medical college hospitals, the government has also started building eight new medical college hospitals with its own funds to increase the capacity for Bachelor of Medicine and Bachelor of Surgery (MBBS) students to 1,200 and is working to expand its human resource development system. In addition, the construction is underway for Guwahati campus of the national All India Institute of Medical Sciences (AIIMS), a top referral hospital. Nevertheless, the system of public healthcare institutions in Assam still has the following serious vulnerabilities.

Firstly, the medical infrastructure is inadequate. Among the eight tertiary care facilities (medical college hospitals) in Assam, there are only two Super Specialty Hospitals that provide highly specialized medical care and train medical

specialists. The existing facilities have inadequate or outdated medical equipment and do not have the capacity to cope with the increasing number of patients. In addition, most of the secondary care facilities have insufficient or outdated basic facilities and equipment for diagnosis and treatment, and primary care facilities lack the materials and equipment for basic first aid and diagnosis, so patients are concentrated in higher medical institutions.

Secondly, there are serious issues in the doctor training system and distribution of doctors. The number of physicians in the state (0.56 per 1,000 people) is far below the WHO standard and national average, and there are issues regarding the expertise and quality of the physicians being trained. In Assam's medical education system, there are only 29 seats in specialized courses for training highly specialized doctors in two medical colleges with highly specialized hospitals. Most of the doctors trained in the state are generally at the basic medical level. With the prevalence of non-infectious diseases and the demand for advanced medical care expected to increase, the construction of a system for providing specialized healthcare services is urgently needed. In addition, many doctors prefer to work at large urban hospitals and private medical institutions where there are many opportunities to acquire new skills and the facilities and equipment are relatively well equipped. As a result, a shortage of doctors at primary and secondary care facilities in rural areas in Assam where the system is inadequate has become the norm, with vacancy rates of 35.4% at primary care facilities, 34.6% at secondary care facilities, and 22.7% at tertiary care facilities in 2020 (JICA Survey Team).

Thirdly, even if a certain amount of resources, such as healthcare infrastructure and human resources, are available, there is no sufficient management system in place to utilize them effectively. For example, medical information such as patient medical records are not properly recorded and consolidated, hindering their utilization. The design of patient flow lines and hygiene management systems is also inadequate, with much room for improvement in terms of appropriate and efficient hospital management. In addition, there are still issues to be addressed in the patient transport and referral system, as well as in the systematic coordination among regional hospitals regarding medical resources such as human resources, equipment, and expertise.

In these circumstances, the residents of Assam seek at least somewhat higher quality medical services and concentrate in tertiary care facilities in urban areas, regardless of the severity of their symptoms, and only 21% of patients visiting

tertiary care facilities are referred from secondary care facilities (JICA Survey Team). This excessive concentration of patients at tertiary care facilities has caused problems such as delays in the provision of medical services to patients requiring advanced medical care.

This project tackles the above challenges by improving the quality of medical services for the residents of the target areas in the state of Assam. It will comprehensively promote the development of public medical institutions (mainly secondary and tertiary care facilities that will serve as core medical centers), boost the capacity of medical personnel, and improve the management of medical services. It is therefore positioned as an important project in the health sector of Assam.

(2) Japan's and JICA's Policy Cooperation Policy and Operations in the Health Sector/Assam

North East India is the area where Japan's Free and Open Indo-Pacific foreign policy and India's Act East policy converge. Support for this region is therefore critical in a diplomatic view. The Country Assistance Policy for India (March 2016) formulated by the Government of Japan establishes the support of sustainable and inclusive growth as a priority area and states its support for the health and sanitation sector as a part of it. Additionally, the JICA Country Analysis Paper for India (March 2018) mentions inclusive rural growth as a major development issue and analyzes the need for further expansion of health services to improve the living conditions of the poor. This project is consistent with these policies and analysis. It is also in line with some of the effort to "establish and strengthen systems for infectious disease diagnosis and treatment" as a part of the "JICA's Initiative for Global Health and Medicine" supporting former Prime Minister Suga's speech at the United Nations General Assembly on September 25, 2020.

Furthermore, the project will contribute to the achievement of SDG 3 (ensure healthy lives and promote well-being for all at all ages). Therefore, JICA's support for the implementation of the project is highly necessary.

(3) Other Donors' Activities

The World Bank presented a policy that emphasizes boosting healthcare services and promoting UHC, and it approved a total of 1.42 billion USD for the healthcare sector in India in January 2022. It is conducting a Mizoram Health System Strengthening Project (2021 to 2026) in Mizoram and a Nagaland Health Project (2017 to 2023) in Nagaland to strengthen regional healthcare systems, but has not yet launched any such assistance projects in Assam.

The WHO has set the acceleration of UHC development in India as a priority area. It has an office in Guwahati, the largest city in Assam, and has been providing surveillance assistance to monitor the spread of COVID-19 there.

With the continued spread of COVID-19, the Government of India announced a COVID-19 Emergency Response and Health Systems Preparedness Package as a roughly 2 billion USD healthcare sector policy, and the World Bank and the Asian Development Bank (ADB) have pledged 1 billion USD and 500 million USD, respectively, towards the package.

3. Project Description

(1) Project Objective

The objective of the Project is to improve the quality of medical services for the residents of the target areas in the state of Assam by comprehensively promoting the development of public medical institutions, mainly secondary and tertiary medical facilities that will serve as core medical centers, the capacity development of medical personnel, and improvement of the management of medical services, thereby contributing to achieve UHC in the state.

(2) Project Site/Target Area

State of Assam (Population: approximately 31.20 million (2011))

(3) Project Components

- i. Development of medical care facilities (construction of new buildings (advanced specialized hospitals) and upgrading of medical equipment at existing tertiary care facilities; construction of new buildings and upgrading of medical equipment at existing secondary care facilities; and upgrading of medical equipment at primary medical facilities that can serve as a model)
- ii. Consulting services ((1) Bidding assistance, equipment procurement and work supervision, assistance with environmental and social considerations and other related activities, (2) Formulation of plans concerning capacity building of medical personnel and running of training programs, and (3) Formulation of plans to improve the management of healthcare services and running of training programs)

(4) Estimated Project Cost

58,106 million yen (Japanese ODA loan: 45,605 million yen)

(5) Schedule

03/2022-04/2029 (86 months)

Project Completion is defined as that all package of buildings and equipment are

installed and become in use.

(6) Project Implementation Structure

1) Borrower: President of India

2) Guarantor: None

3) Executing Agencies: Health and Family Welfare Department (HFWD), Government of Assam

4) Operation and Maintenance Agency: Same as above

(7) Collaboration and Sharing of Roles with Other Donors

1) Japan's Activity: N/A

2) Other Donors' Activity: N/A

(8) Environmental and Social Consideration/Cross-Sectoral Issues/Gender Categories1) Environmental and Social Consideration

① Category: B

② Reason for Categorization: The project is not located in a sensitive area, nor has sensitive characteristics, nor falls into sensitive sectors under the JICA guidelines for environmental and social considerations (April 2010), and its potential adverse impacts on the environment are not likely to be significant.

③ Environmental Permit: An Environmental Impact Assessment (EIA) report for this project may be required for one of the new facilities in accordance with procedures in India. The state's Environment Impact Assessment Authority will decide if one is needed during the specific design stage.

④ Anti-Pollution Measures: Dust control measures with water sprinkling, limitations on construction vehicle speed, and other mitigation measures will be taken to ensure that the air quality, water quality, noise, vibrations, and waste levels meet India's emission standards during the work. After the commencement of services, medical wastewater will be treated at wastewater treatment facilities and waste liquid treatment facilities implemented as units by each facility, and the wastewater and waste liquid will be released into the regular sewer system after detoxification. Waste from medical facilities will be separated and stored according to laws and regulations, collected by a designated contractor, and treated at a medical waste disposal site designated by the Government of Assam.

⑤ Natural Environment: Target sites for the project do not correspond to national parks or other areas that are easily affected or nearby areas, and negative effects on the natural environment are expected to be minimal.

- ⑥ Social Environment: In this project, only existing hospital grounds and state-owned land (HFWD) will be used, so no land acquisition or involuntary resettlements will be required. A survey has been conducted on residents living near the project site to confirm that no one has any special oppositions to the project.
- ⑦ Other: Contractors will monitor air quality, water quality, noise, vibrations, waste, and other factors during construction, and the executing agencies will monitor those factors after the commencement of services.

2) Cross-Sectoral Issues

- ① Climate Change: N/A
- ② Poverty Measures/Poverty Considerations: The project will contribute to poverty reduction by improving access to public medical services for the poor.
- ③ Measures to Prevent Infectious Diseases Including AIDS/HIV: As a program to prevent the spread of COVID-19, the executing agencies agreed to implement a list of measures (36 items) when developing and implementing the project. This list clarifies the activities to be taken, such as preparing communicable disease control equipment, developing the work environment including informing workers of the code of conduct, supervising the work, and raising awareness. JICA will receive quarterly reports of the status of execution from the executing agencies to monitor whether attention is being given to the effects of COVID-19 and whether the executing agencies are handling situations flexibly and appropriately throughout the project stages. During the construction work stage, the construction contractor will implement HIV/AIDS prevention measures for the construction workers.

3) Gender Category

■Gender Informed (Significant) (Gender activity integration project)

<Details of Activities/Reason for Categorization> In this project, the executing agencies have agreed to install toilets, changing rooms, and separate waiting rooms for men and women when developing the facilities to ensure women's safety and reflect gender needs. The executing agencies have also agreed to ensure equal learning and employment opportunities and use equipment that is well suited to women healthcare professionals in terms of needs and ease of use. In addition, the primary care facilities that are being developed in this project will be equipped with equipment for maternal and child health and provide related

services.

(9) Other Important Issues: None

4. Targeted Outcomes

(1) Quantitative Effects

Outcomes (Operation and Effect Indicators)

Indicator	Baseline (Actual value in 2021)	Target (2029) [2 years after project completion]
No. of newly installed bed (in the new SSHs at the targeted 6 MCHs and in the targeted 4 CDHs of Type 1) (beds)	N/A	600 (CDHs) 780 (MCHs)
Bed occupancy rate (average of the new SSHs' beds at the targeted 6 MCHs and at the targeted 4 CDHs of Type 1) (%)	N/A	70~80 (CDHs) 80~90 (MCHs)
No. of OPD patients (total of the targeted 8 MCHs and the 6 CDHs) (persons/year)	2,536,000	2,721,000
No. of angiography (tests and/or catheter interventions) (total of the new SSHs at the targeted 6 MCHs) (times/year)	0	13,500
No. of delivery (including normal delivery and LSCS) (total of the targeted 6 CDHs) (times/year)	15,070	16,171
Cumulative total No. of medical staff who have participated in the training(s) related to patient-centered care, improved internship program and refresher training(s) (persons)	N/A	3,180
Cumulative total No. of staff who have participated in the training(s) and activities of 5S-KAIZEN and Total Quality Management (TQM), training(s) on eHospital and Management Information System	N/A	1,960

(MIS) management (persons)		
Cumulative total No. of trainers to be trained regarding strengthening referral system and promotion of health awareness of local residents to change their medical behavior (persons)	N/A	246

(2) Qualitative Effects

Reduction in the number of outpatients seeking primary health care¹ at tertiary care facilities, enhancement of the inter-hospital referral system, training of high-quality healthcare personnel, increase in patient satisfaction with healthcare services, improvement in the health of local residents, and reduction in poverty through the increased participation in economic activities achieved with improved health

(3) Internal Rate of Return

Based on the assumptions listed below, the economic internal rate of return (EIRR) for the project is 23.1%. Financial Internal Rate of Return (FIRR) is not calculated since many medical services are provided free of charge at the public medical institutions covered by this project.

[EIRR]

Costs: Project, and operation and maintenance costs (excluding tax and duties)

Benefit: Saving the medical expense by patients that would be required at private hospitals if not for the project; economic benefits of participating in economic activities by improving the health of residents; reducing the travel and accommodation costs for hospital visits through the improvement of nearby medical facilities.

Project Life: 36 years

5. External Factors and Risk Controls

- (1) Preconditions: None
- (2) External Factors: Public order in the target areas does not worsen significantly.

6. Lessons Learned from Past Projects

From the ex-post evaluation of the “Rural Health Infrastructure Strengthening Project” for Thailand (evaluated in fiscal 2005), the lessons were learned that the capacity of the medical institutions receiving assistance varies in projects that assist in upgrading equipment at numerous medical institutions. It is therefore effective to boost the capacity of hospital management so that the equipment being upgraded can be utilized effectively. Also, the medical equipment should be selected after thoroughly examining the capacity of hospital staff for maintenance and management and the maintenance and management budget.

Part of the current project will also involve training to enhance hospital operation and management capacity. Also, to ensure the upgraded hospital equipment is used effectively, the capacity of users of the medical institutions where equipment is being upgraded will be thoroughly assessed, and the capacity required for the appropriate operation, maintenance, management methods will be strengthened as a project component. When selecting equipment, the maintenance and management budget allocation will be examined to ensure the right equipment is selected.

7. Evaluation Results

This project is suitable for the development issues and development policies of India, as well as the assistance policies and analyses of Japan and JICA. The objective of the project is to improve the quality of medical services for the residents of the target areas in the state of Assam by comprehensively promoting the development of public medical institutions (mainly secondary and tertiary care facilities that will serve as core medical centers), the capacity development of medical personnel, and the improvement of the management of medical services. Moreover, it will contribute to the achievement of SDG 3 (ensure healthy lives and promote well-being for all at all ages). Therefore, JICA’s support for the implementation of the project is highly necessary.

8. Plan for Future Evaluation

(1) Indicators to be used

As indicated in Section 4.

(2) Future Evaluation Schedule

Ex-post evaluation: 2 years after project completion