Ex-Ante Evaluation (for Japanese ODA Loan)

South Asia Division I, South Asia Department
Japan International Cooperation Agency

1. Name of the Project

(1) Country: India
(2) Project: Project for Strengthening Tertiary Healthcare Delivery, Medical Education System and Nursing Education System in Maharashtra (I)
(3) Loan Agreement: March 24, 2026

2. Background and Necessity of the Project

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

The Government of India, under the National Health Mission, which oversees public health policy , is working to strengthen the public healthcare system and support medical services for the low income people in order to achieve economic growth and balanced social development. However, key health indicators such as the under-five mortality rate (32 per 1,000 live births, 2020, Ministry of Health and Family Welfare, India) and the maternal mortality ratio (113 per 100,000 live births, 2021, National Institution for Transforming India Aayog (NITI Aayog)) remain higher than both Japan's current levels (2 and 4 respectively in 2022, UNICEF) and the SDGs targets for 2030 (25 and 70 respectively). This highlights the urgent need to address weaknesses in the healthcare system, primarily caused by shortages in medical personnel and infrastructure. For example, the number of hospital beds (0.5 per 1,000 people, 2017, World Bank (WB)) is significantly below the global average (2.9 per 1,000 people, 2017, WB), and the number of physicians (0.9 per 1,000 people, 2019, OECD) falls short of the WHO's minimum indicator of 1 per 1,000. India continues to face challenges in achieving UHC, which ensures that all individuals can access essential health services, including health promotion, prevention, treatment, and rehabilitation, at an affordable cost.

In Maharashtra State, the target area of the Project, the under-five mortality rate (22 per 1,000 live births, 2021, NITI Aayog) and maternal mortality ratio (46 per 100,000 live births, 2021, NITI Aayog) have met the target. However, the incidence of tuberculosis (183 per 100,000 population, 2021, NITI Aayog) exceeds the national average (177 per 100,000 population in 2021, NITI Aayog). Moreover, despite the state accounting for only 9.3% of India's total population, Maharashtra recorded the highest number of COVID-19 deaths, accounting for

approximately 28% of the national total as of March 2023.

These challenges are largely due to two factors: insufficient development of medical personnel and inadequate healthcare infrastructure.

Regarding healthcare personnel, the number of doctors per 1,000 population in the state is 0.96 (2022, National Medical Commission (NMC)), which falls below the WHO standard of 1.0. In terms of staffing at state-run medical institutions, only 4,261 doctors are currently employed out of the 8,818 required (2025, Medical Education and Drugs Department (MEDD), Government of Maharashtra (GoM)). Similarly, the number of nurses per 1,000 population is 1.30 (2022, Maharashtra Nursing Council), and only 21,487 nurses are employed out of the 29,417 needed in state-run facilities (2025, Public Health Department, GoM). Given this situation, existing medical colleges alone cannot produce enough healthcare professionals to meet demand, especially as the population continues to grow. The state government estimates that the annual number of newly certified doctors must increase from 3,950 in 2023 to 6,050 by 2035. To achieve this, the establishment of new medical colleges and nursing schools is deemed necessary.

Regarding healthcare infrastructure, many districts in rural areas lack tertiary medical facilities —comprehensive hospitals or specialized institutions directly managed by the central or state government that provide advanced medical care. Out of the 36 districts in the state, 11 do not have such facilities, resulting in limited access. Consequently, residents are often forced to seek medical service at private hospitals, which impose a heavier financial burden compared to public hospitals, or in some cases, forgo medical services altogether (Asian Development Bank (ADB), 2022). Furthermore, cardiovascular diseases have become increasingly serious in the state in recent years. For example, in Mumbai, a major city in Maharashtra, approximately 23,000 out of 94,500 deaths in 2022 were attributed to heart disease.

In response to these circumstances, the Government of Maharashtra is planning to establish medical college affiliated hospitals, which will be tertiary medical facilities, in each district, alongside the development of the aforementioned medical colleges.

The Project aims to improve access and quality of medical care in the state of Maharashtra by strengthening the healthcare system through the construction of tertiary care facilities, college hospitals, medical colleges, and nursing schools, thereby contributing to the promotion of Universal Health Coverage (UHC) in

India, which is positioned as a key initiative within the country's health sector.

(2) Japan's and JICA's Policy Cooperation Policy and Operations in the Health Sector/Area (especially in relation to key foreign policies such as the Free and Open Indo-Pacific Partnership (FOIP))

In the Country Development Cooperation Policy for India (November 2023), Japan has identified the "healthcare and sanitation" as part of its efforts toward clean socio-economic development. Furthermore, in March 2023, Prime Minister Kishida announced "The Future of the Indo-Pacific -Japan's New Plan for a Free and Open Indo-Pacific (FOIP)-," in which global health was positioned as one of the cornerstones. Additionally, during Indian Prime Minister Modi's visit to Japan in August 2025, the "Japan-India Joint Vision for the Next Decade: Eight Directions to Steer the Special Strategic and Global Partnership" was announced, which included an agreement to strengthen cooperation on UHC in the health and medical sectors.

According to JICA's Country Analytical Paper for India (March 2025), under the "Health, Medical, and Welfare Services Program" Japan will continue to support both the development of physical infrastructure such as medical facilities and equipment, and the enhancement of soft components such as human resource development and hospital management. Moreover, JICA's Global Agenda for Health emphasizes the importance of building high-quality healthcare systems in core hospitals where everyone can receive treatment with confidence. The Project aligns with these policies and analyses.

Moreover, the project aligns with the development challenges and policies of the Government of India, as well as with the cooperation policies and analyses of the Government of Japan and JICA. It is also expected to contribute to SDGs Goal 3, "Good Health and Well-being."

As of the end of November 2025, Japan has approved a total of six yen-loan projects in the health sector in India, amounting to ¥163.856 billion.

(3) Other Donors' Activities

ADB is currently implementing the Maharashtra Tertiary Care and Medical Education Sector Development Program (Loan Agreement approved in November 2023, approximately USD 500 million, hereinafter referred to as the "ADB Project") in Maharashtra State. This initiative supports the realization of UHC in the state by developing tertiary care facilities, medical colleges, and related infrastructure at four locations, while also enhancing the availability and quality of healthcare personnel.

3. Project Description

(1) Project Objective

The objective of the Project is to improve access and quality of medical care in the state of Maharashtra by strengthening the healthcare system through the construction of tertiary care facilities, college hospitals, medical colleges, and nursing schools, thereby contributing to the promotion of Universal Health Coverage (UHC) in India.

(2) Project Site / Target Area

State of Maharashtra.(Population: 112 million (National Census, 2011))

(3) Project Beneficiaries（Target Group）

a) Direct Beneficiaries

- Medical students enrolled in newly established medical colleges: approximately 1,100 per year
- Nursing students enrolled in newly established nursing schools: approximately 950 per year
- New staff for operation and maintenance of medical colleges, university-affiliated hospitals, and nursing schools: approximately 1,400 per hospital
- New inpatients in the constructed hospitals: approximately 220,000 per year
- Outpatients: approximately 2 million per year

b) Final Beneficiaries

- Approximately 58.93 million residents (20 districts) whose access to tertiary medical services will be improved.

(4) Project Components

a) Construction and expansion of medical colleges, affiliated hospitals (4 locations), and nursing schools (10 locations), as well as procurement of medical equipment.

b) Capacity development for executing agencies such as training, joint research, and improvement of instructors' teaching capabilities.

c) Consulting services for detailed design, bidding assistance, construction supervision, environmental and social considerations support.

(5) Estimated Project Cost

113,072 million Yen (Japanese ODA loan for the 1st Tranche: 62,294 million Yen)

(6) Schedule

March 2026 -July 2034 (101 months)

The provision of commencement for all medical facilities (September, 2032) is considered as the completion of the Project.

(7) Project Implementation Structure

1) Borrower: President of India

2) Guarantor: N/A

3) Executing Agency: Government of Maharashtra, Medical Education and Drugs Department (MEDD)

4) Operation and Maintenance System:

All renovated medical facilities and newly installed medical equipment will be operated and maintained by each hospital in accordance with standard maintenance procedures, under the supervision of MEDD and with its budget allocation. For advanced medical equipment, a comprehensive maintenance contract will be concluded with the supplier to ensure regular servicing and prompt repairs, including the provision of spare parts. To enable routine operation and maintenance of facilities and equipment, MEDD has consistently provided the necessary training to hospital physicians, nurses, and technicians whenever new equipment is introduced. Under the project as well, basic maintenance training for advanced medical equipment, including diagnostic imaging devices, will be conducted through consulting services.

Operating and maintenance costs will be covered by MEDD's annual budget. Confirmation has also been obtained from the State Finance Department that the required budget allocation for this project will be provided.

(8) Collaboration and Sharing of Roles with Other Donors

a) Japan's Activity: None specifically.

b) Other Donors' Activity: Among the 36 districts in the State of Maharashtra, 11 districts do not have a medical college or an affiliated teaching hospital. With support from the Asian Development Bank (ADB), facilities will be constructed in 4 districts; the Project will cover another 4 districts; and the remaining 3 districts will be financed by the state government. Thus, this project and the ADB project are complementary. In addition, under the ADB project, support is being provided to the Public Service Commission, which oversees the personnel system for faculty members of medical colleges in the state, to improve the system for securing physicians, nurses, and faculty staff for public hospitals. The same personnel system will be applied to the medical colleges and teaching hospitals to be established under the Project.

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

Category

1) Environmental and Social Consideration

① Category: B

② Reason for Categorization: The Project does not fall under the sectors or characteristics prone to significant environmental or social impacts, nor is it located in areas vulnerable to such impacts, as defined in the “JICA Guidelines for Environmental and Social Considerations” (January 2022). Therefore, it is assessed that the Project will not cause any significant adverse environmental impacts.

③ Environmental Permit: Although the Environmental Impact Assessment (EIA) report for this project is not mandated under Indian domestic laws, environmental clearance by the State Level Environment Impact Assessment Authority is required. As the procedures for obtaining the necessary permits will be carried out during the detailed design stage in accordance with local regulations, the clearance is expected to be obtained prior to the commencement of construction works.

④ Anti-Pollution Measures: During construction phase, mitigation measures will be implemented to comply with national standards for air quality, water quality, noise and vibration, and waste management. These measures will include dust control through water sprinkling, installation of wastewater treatment systems, and restrictions on construction activities during nights and holidays. During operation phase, medical wastewater will be treated within each facility through dedicated wastewater and liquid waste treatment units, and only after neutralization will it be discharged into the public sewerage system. Waste generated from medical facilities will be segregated and stored in accordance with relevant laws and regulations, collected by authorized contractors, and treated or disposed of at medical waste treatment facilities designated by the state government.

⑤ Natural Environment: The project sites are not located within or adjacent to national parks or other environmentally sensitive areas, and therefore the adverse impacts on the natural environment are expected to be minimal. As tree cutting will occur at each site, the exact number of trees and related details will be confirmed during the detailed design stage, and necessary measures will be taken in accordance with the Maharashtra Felling of Trees (Regulation) Act, Amendments, 1964 and

the Maharashtra (Urban Areas) Preservation and Protection of Trees Act, Amendments, 2023.

⑥ Social Environment: The Project will be implemented entirely within the premises of existing facilities and government-owned land and therefore will not involve any land acquisition or involuntary resettlement. No significant objection related to the Project was raised during stakeholder meetings.

⑦ Other/Monitoring: During the construction phase, the contractor will conduct monitoring of air quality, water quality, noise and vibration, waste management, and related parameters. During the operation phase, the executing agency will carry out monitoring of these same items.

2) Cross-Sectoral Issues

Climate Change & Biodiversity: The Project will contribute to the reduction of greenhouse gas (GHG) emissions by lowering electricity consumption through measures such as the introduction of LED lighting and the incorporation of heat-insulation features. The estimated climate-change mitigation effect of the Project is approximately 16,254 tons of CO_2 equivalent per year. The Project is also consistent with the Nationally Determined Contribution (NDC) under the Paris Agreement, which commits to reducing GHG emissions by 45% from 2005 levels by 2030.

3) Gender Category: GI (S) Gender integrated project

<Details of Activities/Reason for Categorization>

It was confirmed that women face challenges in maintaining continuous career development due to factors such as childbirth and childcare. Accordingly, under the soft components of this project, it was agreed to implement activities aimed at improving the career development environment, including reasonable accommodation to support women in continuing their careers. In addition, the executing agency has confirmed that facility development will incorporate safety measures and design features that reflect the needs of women, such as the provision of gender-responsive toilets, changing rooms, and waiting areas, as well as the separation of access routes to dormitories, and the enhancement of on-site safety measures (e.g., corridor and pathway lighting, deployment of security staff). Furthermore, it has been confirmed that the executing agency will promote initiatives to raise interest among female students in specialized departments that address women-specific health issues (such as obstetrics and gynecology). On

construction sites, the agency will also ensure strict prohibition of nighttime work for female workers, secure appropriate living spaces for laborers, and provide dedicated toilets for women.

(10) Other Important Issues: None specifically.

4. Targeted Outcomes

(1) Quantitative Effects

1) Outcomes (Operation and Effect Indicators)

Indicator	Baseline (Actual value in 2022)	Target (2034) [2 years after project completion]
Number of newly admitted inpatients developed under this project (persons/ day)	0	800
Number of outpatients developed under this project (persons/ day)	0	8,000
Bed occupancy rate at hospitals developed under this project (%)	0	75
Number of surgeries performed at the hospital developed under this project (cases /year)	0	13,520

Number of student enrollment capacity of the medical colleges to be established under this project (persons /year)	0	400
Number of student enrollment capacity of the nursing colleges to be established under this project (persons /year)	0	950
Number of doctors per 1,000 population in Maharashtra State (persons)	0.96	1.25
Number of nurses per 1,000 population in Maharashtra State (persons)	1.29	1.68

*To assess the medium- to long-term outcomes of the soft components, the following indicators will also be monitored.

Monitoring indicator: Vacancy rate of physicians at state-run tertiary medical facilities (baseline: 40% in 2025; target: 20% in 2040)

(2) Qualitative Effects: Improvement of medical access within the state, enhancement of the system for developing medical professionals within the state, improvement of employment and career development environments for medical personnel with gender considerations within the state, strengthening of the framework for medical education through academic exchange, improvement of patient and family satisfaction with medical services, and proper management of medical equipment, enhancing the attractiveness of the working environment of tertiary healthcare facilities (university-affiliated hospitals).

(3) Internal Rate of Return

Based on the assumptions listed below, the economic internal rate of return (EIRR) for the Project is 22.9%, and the financial internal rate of return (FIRR) is not calculated for this project, as it is not intended to generate commercial revenue.

【EIRR】

Cost：Project cost and operation & maintenance cost (both excluding taxes)

Benefit：(a) the reduction of patients' medical expenses that would otherwise be incurred at private hospitals if the project were not implemented; (b) economic gains resulting from increased participation in economic activities through improved health among residents; and (c) economic effects derived from higher lifetime earnings of students graduating from the medical and nursing universities.

Project Life：40 years

5. External Factors and Risk Control

(1) Preconditions: None specifically

(2) External Factors: None specifically

6. Lessons Learned from Past Projects

In the Japanese ODA loan project "Development of Faculty of Medicine and Health Sciences of UIN (Universitas Islam Negeri Jakarta)" for the Republic of Indonesia (evaluation year: 2015), both hard and soft components were implemented with the aim of expanding access to higher medical education for rural and low-income populations and increasing the supply of doctors, nurses, and other medical personnel to rural areas. The ex-post evaluation identified issues such as the low proportion of students originating from rural areas and the lack of data on the share of graduates employed in rural medical facilities. Recommendations included revising the admission system, improving scholarship schemes, and strengthening the tracking of graduates' career paths.

In the Project, medical colleges and nursing schools will also be established in rural areas; however, securing students and ensuring the retention of medical personnel may pose challenges. It has therefore been confirmed that the soft components will include support for strengthening human resource management systems.

7. Evaluation Results

Thie Project is aligned with the development challenges and policies of

the Government of India, as well as with the cooperation policies and analytical frameworks of the Government of Japan and JICA. It is also expected to contribute to SDGs Goal 3, “Good Health and Well-being” Therefore, the necessity of supporting the implementation of this project is considered to be high.

8. Plan for Future Evaluation

(1) Indicators to be Used

As indicated in Sections 4.

(2) Future Evaluation Schedule

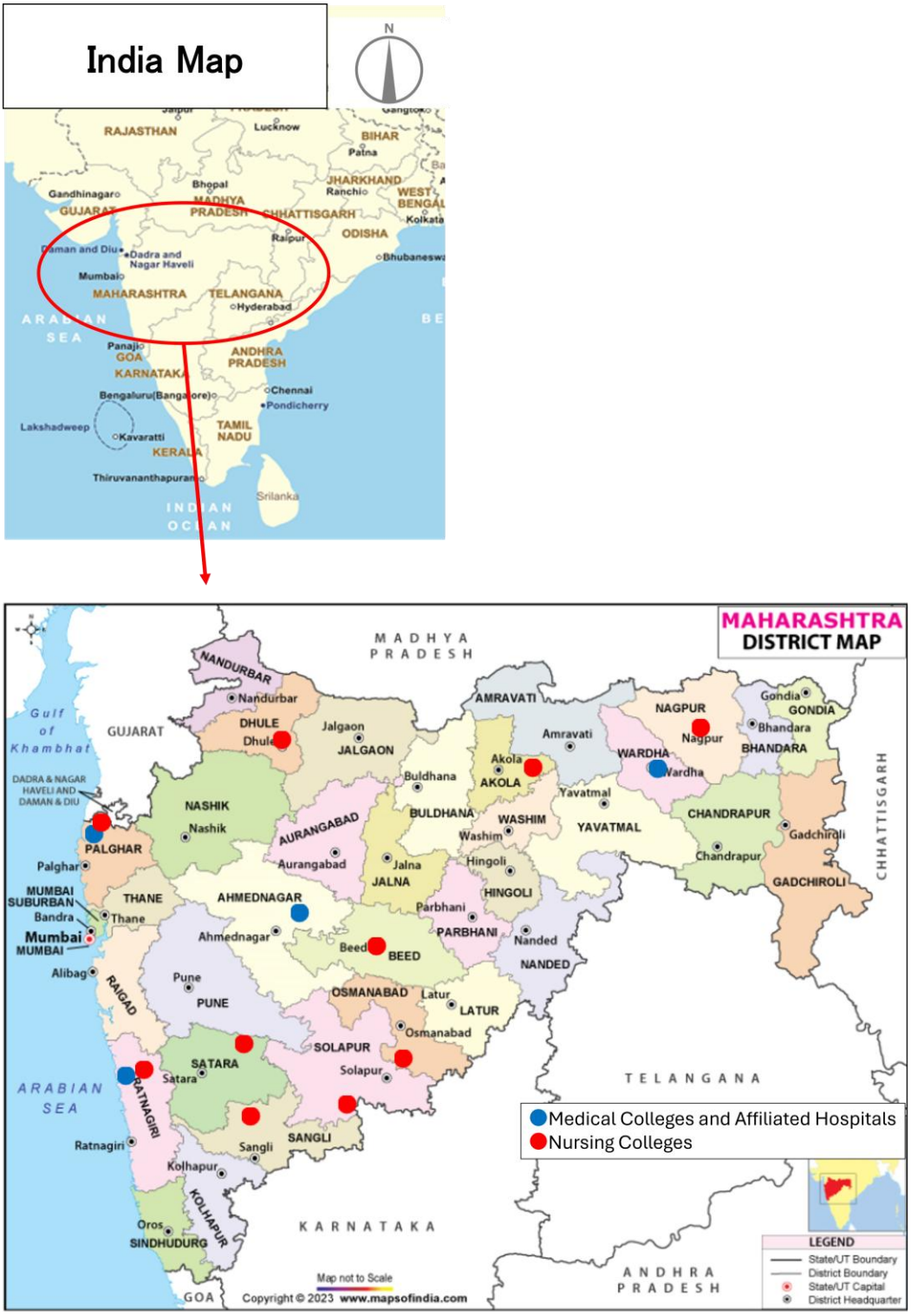
Ex-post evaluation: 2 years after the project completion

END

Appendix: Map of Project for Strengthening Tertiary Healthcare Delivery, Medical Education System and Nursing Education System in Maharashtra (I)

Appendix

Map of Project for Strengthening Tertiary Healthcare Delivery, Medical Education System and Nursing Education System in Maharashtra (I)



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