

**Ex-Post Project Evaluation 2021
Package IV-3 (Mongolia, India)
Evaluation Reports**

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Mongolia

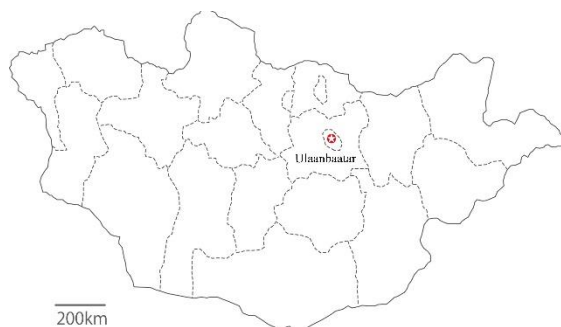
FY 2021 Ex-Post Evaluation Report of Japanese ODA Loan Project
“Fiscal, Social and Economic Reform Development Policy Loan”

External Evaluator: Tomoyuki Sho, IC Net Limited

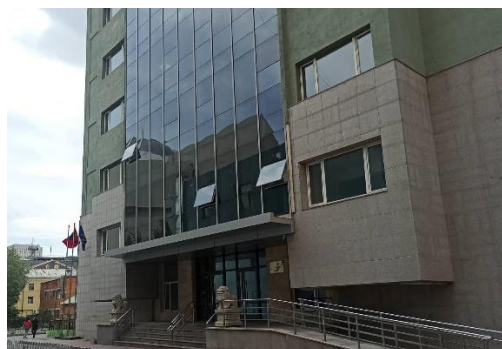
0. Summary

The Project has been implemented to support the Mongolian government’s policy reform efforts in fiscal, social, and economic areas through financial support and policy dialogue. It aimed to achieve stable macroeconomic management, promotion of helping the socially vulnerable, and enhancing economic growth, so as to enable fiscal, social, and economic stabilization in Mongolia. Through co-financing with other development partners, the Project supported reforms in the areas above, such as fiscal and financial policy, social protection, and industrial development, and thus has been consistent with the development policy and needs of Mongolia. The Project’s plan and approach were also appropriate. Moreover, the Project has been consistent with Japan’s ODA policy and internally coherent with JICA’s other related projects. Furthermore, external coherence is recognized through close coordination and complementarity with other development partners. Therefore, its relevance and coherence are very high. The Project contributed greatly to helping Mongolia avert a debt default. In addition, with the implementation of the Project, such undertakings as reducing expenditures, mobilizing revenues, consolidating state budgets, as well as enhancing fiscal discipline, have all gained ground, which in turn helped advance fiscal stabilization, public debt reduction, and foreign exchange reserve accumulation. Although part of the reforms has been since suspended or reversed for the sake of combating COVID-19, the Project has helped promote Mongolia’s macroeconomic stability significantly. During the reform period, poverty decreased modestly as sufficient funding had been allocated for social protection, including that for the Food Stamp Program, for protecting the vulnerable from the adverse effects of fiscal and monetary policy tightening. Whereas continuous support based on a long-term perspective will be essential for improving the investment climate and diversifying the economy, certain positive outcomes can be observed in the development of industrial human resources and infrastructure. Therefore, the effectiveness and impacts of the Project are high.

1. Project Description



Project Location (Mongolia as a Whole)



Ministry of Finance Building

1.1 Background

The Mongolian economy is heavily dependent on exports of mining resources such as coal and copper. Exports to China account for 90% of those exports. As a result, the Mongolian economy tends to be greatly affected by external factors, such as the fluctuation of mineral commodity prices and China's economic cycle. Thus, when the Chinese economy slowed down and mineral commodity prices fell sharply in 2015 and 2016, Mongolia's real economic growth rate dropped, and the country's fiscal balance deteriorated, resulting in a budget deficit of 15.3% of nominal GDP in 2016. In addition, a worsened balance of payments due to sluggish exports, as well as reduced inflows of foreign direct investment into mining development, led to a fall in foreign exchange reserves. Consequently, the Mongolian government had become unable to redeem a huge amount of government bonds and government-guaranteed notes, whose maturities were approaching in 2017 and 2018,¹ and faced the prospect of default.

Under these circumstances, the Executive Board of the International Monetary Fund (IMF) approved the Extended Fund Facility (hereinafter referred to as "EFF") of approximately 430 million US dollars (USD) in May 2017 for the purposes of not only avoiding Mongolia's default but also implementing fiscal reform, bolstering foreign exchange reserves, restoring debt sustainability, and restructuring the financial sector, whereas also having assembled an international aid package of a total of approximately USD 5.6 billion anchored to the EFF, together with the World Bank, Asian Development Bank (ADB), Japan, China, and South Korea. Japan pledged up to USD 850 million to support Mongolia to strengthen its response to the financial and economic crisis, and JICA had initially planned to implement one third each of that support through three different project phases. This Project corresponds to the first phase.

¹ Since 2012, the Mongolian government had issued a large amount of US-dollar-denominated government bonds, as well as government-guaranteed Development Bank bonds, in international markets to raise funds for infrastructure development projects.

1.2 Project Outline

The objective of the Project is to achieve stable macroeconomic management, promotion of helping the socially vulnerable, and enhancing economic growth by supporting the Mongolian government's policy reforms in the fiscal, social, and economic fields through financial support and policy dialogue, thereby contributing to fiscal, social, and economic stabilization in Mongolia.

Loan Approved Amount/ Disbursed Amount	32,000 million yen/32,000 million yen
Exchange of Notes Date/ Loan Agreement Signing Date	December 2017/December 2017
Terms and Conditions	Interest Rate 0.8% Repayment Period 20 years (Grace Period 6 years) Conditions for Procurement General Untied
Borrower/Executing Agency	Government of Mongolia/Ministry of Finance
Project Completion	December 2017
Target Area	Throughout Mongolia
Main Contractor(s) (Over 1 billion yen)	None
Main Consultant(s) (Over 100 million yen)	-
Related Studies (Feasibility Studies, etc.)	None
Related Projects	<p><u>Technical Cooperation:</u></p> <ul style="list-style-type: none"> • Data Collection Survey on the Development Policy and Public Investment (Oct. 2016–Feb. 2017) • Project for Enhancing Tax Collection Operation and International Tax Issues of Mongolian Tax Administration (Phase 1: Nov. 2013–Oct. 2016, Phase 2: Jan. 2017–Jan. 2020) • Capacity Development Project for Internal Audit (Phase 1: Jan. 2012–Jul. 2014, Phase 2: Sep. 2014–Aug. 2017) • Project for Strengthening Post-graduate Training for Health Professionals in Primary and Secondary Level Health Facilities (May 2015–May 2020) • Project for the Establishment of Hospital

	<p>Management and Medical Services at the Mongolia-Japan Teaching Hospital (Mar. 2017–Mar. 2022)</p> <ul style="list-style-type: none"> • Project for Improvement of Capacity for Implementation of Ulaanbaatar Master Plan (Sep. 2014–Dec. 2018) • Capacity Development Project for Air Pollution Control in Ulaanbaatar City (Phase 1: Mar. 2010–Mar. 2013, Phase 2: Dec. 2013–Jun. 2017) • Project for Capacity Building of Capital Market in Mongolia (Phase 1: Jul. 2014–Jun. 2017, Phase 2: Mar. 2019–Feb. 2022) • Project for Enhancement of the Fair Competition Environment in Mongolia (Phase 1: Sep. 2015–Sep. 2018, Phase 2: Jan. 2020–Dec. 2022) • Project for Enhanced Function of Mongolia-Japan Center for Human Resources Development for Capacity Development and Networking of Business Persons (Apr. 2015–Apr. 2020) • Data Collection Survey on Business Environment and Investment Promotion (Nov. 2015–Mar. 2017) • Data Collection Survey on Agriculture and Livestock sector (Dec. 2016–Jun. 2017) • Project for Strengthening the Government Capacity of Public Investment Plan (Feb. 2019–Feb. 2023) <p><u>ODA Loan:</u></p> <ul style="list-style-type: none"> • New Ulaanbaatar International Airport Construction Project (Phase 1: May 2008 L/A, Phase 2: Apr. 2015 L/A) • Higher Engineering Education Development Project (Mar. 2014 L/A) • Social Sectors Support Program (Phase 1: Jun. 2009 L/A, Phase 2: Mar. 2012 L/A) <p><u>Grant Aid:</u></p> <ul style="list-style-type: none"> • Project for Construction of Mongolia-Japan Teaching Hospital (May 2015 G/A) <p><u>Other Donors:</u></p> <ul style="list-style-type: none"> • International Monetary Fund (IMF), Extended Fund Facility (EFF) (May 2017, board approval) • World Bank, Economic Management Support Operation, (Nov. 2017, board approval) • Asian Development Bank (ADB), Banking Sector Rehabilitation and Financial Stability Strengthening Program (May 2017, board approval), Social Welfare Support Program (Oct. 2015, board approval), Social Welfare Support Program Phase 2 (May 2017, board approval) • People’s Bank of China, three-year extension of the deadline (Aug. 2017) of the currency swap agreement with the Bank of Mongolia (Jul. 2017, official agreement)
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2. Outline of the Evaluation Study

2.1 External Evaluator

Tomoyuki Sho, IC Net Limited

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: December 2021–December 2022

Duration of the Field Study: February 20–March 4, 2022 and May 15–27, 2022

2.3 Constraints during the Evaluation Study

As the Project is a program loan, the main evaluation criteria examined are Relevance, Coherence, Effectiveness, and Impact. Efficiency was neither analyzed nor evaluated because it is difficult to make a quantitative comparison between inputs (costs) and outputs (results). As for Sustainability, analysis was done only for the sub-sections of “Policy and Systems,” “Institutional/Organizational Aspect,” and “Preventative Measures to Risk,” where meaningful evaluation was possible. This is because the development policy loan (hereinafter referred to as “DPL”), which consists of a wide range of policy actions, does not necessarily fit into the evaluation framework that was created on the assumption of being applied to the implementation of a specific project. Sub-ratings are given only for “Relevance/Coherence” and “Effectiveness and Impacts,” and no overall rating has been given.

In relation to the Project, Phase 2 and Phase 3 were originally planned to be implemented in 2018 and in 2019, respectively, but they were not implemented. For details, see “(4) Why IMF Review Went Off-Track and Its Consequences” (p. 20). Whereas the policy matrix² set out “Main Actions to be monitored (Triggers for Next DPL2)” (hereinafter referred to as “Policy Actions (Triggers for DPL2, narrative summary)”) and their indicators, the targets of these indicators had been set on the premise that the subsequent phases of the Project would be implemented. Moreover, due to the spread of coronavirus disease 2019 (COVID-19), the conditions have changed significantly since 2020 from the assumptions at the time when the targets were set. Thus, to analyze whether the indicators are achieved, it is necessary to consider that no subsequent phases have been implemented, as well as the influence of COVID-19. In evaluating the Effectiveness and Impact of the Project, therefore, it was avoided to evaluate the Project outcomes based solely on whether the targets had been met. Instead, the outcomes were comprehensively examined primarily on the basis of the achievement status of the Policy Actions (Triggers for DPL2, narrative summary), whereas the analysis of the achievement/progress on the targets of the indicators was also added to the judgement.

² The policy matrix summarizes all the conditions, triggers, indicators, and targets that constitute the reform program supported by the DPL.

3. Results of the Evaluation

3.1 Relevance/Coherence (Rating: ④³)

3.1.1 Relevance (Rating: ④)

3.1.1.1 Consistency with the Development Plan of Mongolia

At the time of the appraisal, *Mongolia Sustainable Development Vision 2030* (February 2016), the government's long-term development policy document, set economic policy objectives such as reducing the state budget deficit and debt, accumulating foreign exchange reserves, and establishing a favorable business and investment environment. It also set social development goals of providing social welfare services for vulnerable households and ensuring state budget expenditures for the social services in accordance with the needs of the target population. In line with that long-term development policy, the *Action Program of the Government of Mongolia for 2016–2020* (September 2016) listed measures to overcome economic difficulties within a short period of time, such as stopping off-budget spending and limiting unnecessary spending, implementing the reform on the Development Bank and the tax reform, and improving the balance of payments. On top of these, to push forward with these measures, the *Economic Recovery Program* (November 2016), which specifically mentions “the borrowing of low-interest, long-term funds from partner countries and international financial institutions,” had been formulated.

At the time of the ex-post evaluation, *Vision 2050* (June 2020) set out the objectives of promoting macroeconomic stability through reducing the debt burden, increasing the foreign exchange reserves, and creating a favorable environment for foreign investment. It also set the objectives of social welfare reform, such as providing adequate social welfare assistance to targeted vulnerable households and citizens. The *Action Program of the Government of Mongolia for 2020–2024* (August 2020) follows the basic policies of the *Action Program of the Government of Mongolia for 2016–2020*, although it put in front special measures to overcome the challenges caused by the COVID-19 pandemic. The *New Revival Policy* (December 2021) aims to remove impeding factors for economic growth to overcome the negative social and economic impacts caused by the pandemic and to ensure and develop conditions necessary for the achievement of *Vision 2050*.

As seen above, from the time of the appraisal to the time of the ex-post evaluation, the Mongolian government has consistently held policy objectives on macroeconomic management, such as reducing fiscal deficit, proper debt management, building foreign exchange reserves, and improving the balance of payments, as well as improving the investment climate and enhancing social welfare services. Therefore, the Project is consistent with the development policy of the Mongolian government.

³ ④: Very High, ③: High, ②: Moderately Low, ①: Low

3.1.1.2 Consistency with the Development Needs of Mongolia

At the time of the appraisal, the Mongolian government had extremely high financing needs. At the end of 2016, its public debt reached an equivalent of 102% of GDP (including a swap line between the Bank of Mongolia (hereinafter referred to as “BOM”) and the People’s Bank of China, which was an equivalent of 16% of GDP), of which external debt amounted to an equivalent of 62% of GDP. As foreign exchange reserves plummeted to the level that was sufficient to cover less than 2.4 months of imports, the maturities of the government-guaranteed notes of USD 580 million issued by the Development Bank of Mongolia (hereinafter referred to as “DBM”) and the government notes of USD 500 million (Chinggis bonds) were approaching in March 2017 and January 2018, respectively. It was estimated that the financing needs for the public sector would reach USD 2,320 million (23% of GDP) in 2017 and USD 2,260 million (21.8% of GDP) in 2018.⁴ Thus, there was a serious concern that, without the timely formulation of an international aid package anchored to the IMF’s EFF, the default would lead to devastating economic difficulties. However, it would not have been possible to put up an international aid package of this size without the participation of Japan. Therefore, the Project was vital in helping Mongolia fill its financing gap on the verge of the crisis.

Even after avoiding default, the Mongolian government has continued to have high financing needs for financing state budget sustainably, improving fiscal space and foreign exchange reserves, and building adequate buffers against external shocks. Yet, thanks to its efforts for fiscal consolidation and debt reduction, as well as a recovery in mineral commodity prices, the country’s fiscal balance and the balance of payments had improved, and its foreign exchange reserves have recovered to healthy levels. Therefore, despite that the IMF’s EFF review became off-track after November 2018 and its funds were not disbursed, and the subsequent phases of the Project were not implemented, the Mongolian government still could successfully maintain its international credibility and has thus prevented pressure on the cost of serving its external debt from building up. However, as shown in Table 1, the maturities of large amount of debt are approaching once again in 2022 and 2023. At the time of the ex-post evaluation, foreign investors’ willingness to hold Mongolian government bonds has not changed; therefore, there is no major concern regarding the rollover of the maturing bonds.⁵ Still, if China’s zero-COVID policy and/or the war in Ukraine continue(s), the adverse effects on the Mongolian economy will be of major concern. As the importance of building resilience to external shocks has been getting increasingly elevated, the financing needs for the Mongolian government remain high at the time of the ex-post evaluation.

⁴ Mongolian Ministry of Finance, JICA-provided materials.

⁵ Interview with the IMF Mongolia Office (June 2022).

Table 1: Bonds Issued by the Government of Mongolia

Issuer	Year of Issuance	Maturity	Period	Coupon Rate	Currency	Amount (Balance*)	Note
Government	Dec. 2012	Dec. 2022	10 years	5.125%	USD	1 billion (137 million)	Chinggis bond
Government	Nov. 2017	May 2023	5.5 years	5.625%	USD	800 million (533 million)	Gerege bond
DBM	Oct. 2018	Oct. 2023	5 years	7.25%	USD	500 million	Rollover of a USD 580 million-government bonds that matured in March 2017
DBM	Dec. 2013	Dec. 2023	10 years	1.52%	JPY	30 billion	Samurai bond
Government	Mar. 2017	Mar. 2024	7 years	8.75%	USD	600 million	Khuraldai bond

Sources: Mongolian Ministry of Finance, JICA-provided materials

Note: Balance (*) is the amount of maturity that has not been rolled over. The Government of Mongolia issued Nomad bonds (USD 6 billion) in 2020 and Century bonds (USD 500 million for 6-year bond and USD 500 million for 10-year bond) in 2021 in order to roll over parts of the Chinggis bonds and others. The maturity balance due in 2022 is planned to be repaid from the government budget. The maturity balance due in 2023 is expected to be repaid from the rollover or government budget, in accordance with the *Government Debt Management Strategy 2023–2025*.⁶

Moreover, as demonstrated in *Sustainable Development Vision 2030*, the *Action Plan of the Government of Mongolia for 2016–2020*, and the *Economic Recovery Program*, the Mongolian government, at the time of the appraisal, had a strong mandate to implement continuous reform in the fiscal and banking sectors so as to restore and maintain the confidence of the international society. At the same time, to mitigate the adverse effects of these fiscal and financial sector reforms on the socially vulnerable, it had become necessary to ensure sufficient welfare benefits and improve the living environment for the socially vulnerable, while also enhancing the efficiency of the social protection system. Furthermore, to address the vulnerable economic structure that is strongly affected by the fluctuation of mineral commodity prices from a long-term perspective, there had been strong needs for developing human resources and improving technical capacities for the diversification of industry, as well as developing legal systems and infrastructure for the improvement of the investment climate.

After the implementation of the Project, all the Policy Actions (Triggers for DPL2, narrative summary) regarding the reforms in the fiscal/financial, social, and industry sectors had been once evaluated in early 2019 and judged to have been all achieved. The Mongolian government, however, continues to have needs for steadily implementing the financial, social, and economic reforms to build adequate buffers against external shocks and thus maintain the confidence of the

⁶ Interview with the Mongolian Ministry of Finance (May 2022).

international community. Therefore, the Project has consistently met the development needs of Mongolia.

3.1.1.3 Appropriateness of the Project Plan and Approach

(1) Parallel Co-Financing

The Project was implemented as parallel co-financing, in which each development partner coordinated complementarily under the shared goal of supporting policy reform in Mongolia. As shown in Table 2, it was believed at the time of the appraisal that a total loan of more than USD 5.6 billion would be required to rescue Mongolia from the default crisis. As it would not have been possible to put up an international aid package of this size without the cooperation of JICA and other development partners, it was logical that the Project had been conducted through co-financing. Moreover, each development partner had a wealth of experience in providing technical advice and assistance in Mongolia. Therefore, it was also appropriate that the Project adopted the parallel co-financing, through which the development partners supported the reform by leveraging the strengths in their respective policy areas of priority – contrary to the joint co-financing, in which development partners jointly manage a common policy matrix.

Table 2: International Aid Package

Unit: million USD

Donor	Initially Planned Amount	Final Agreed Amount	Actual
JICA	850	850	283.3
IMF	430	430	221.4
World Bank	600	440	220
ADB	900	600	540
China (Extension of currency swap)	Approximately 2,200 (CNY 15,000 million)	Approximately 2,200	Approximately 2,200
South Korea	700*	60	60
Total	5,680	4,580	3,524.7

Sources: Mongolian Ministry of Finance, JICA-provided materials

Note: South Korea's initially planned amount (*) includes project financing.

(2) Formulation Process and the Logic of the Policy Matrix

As the Project was a parallel co-financing scheme, all the development partners except JICA formulated and managed the policy matrices in accordance with the principle of avoiding duplication of policy actions across different development partners. JICA, on the other hand, created a comprehensive policy matrix by adopting policy actions in the fiscal, semi-fiscal, and fiscal discipline areas from those of the IMF and the World Bank, policy actions in the banking sector from those of the IMF and ADB, and a policy action on the targeted social welfare to the socially vulnerable from that of the World Bank, respectively (for details, see *Appendix. Status of*

Achievement of Policy Matrix). This is probably because JICA had pledged financial support of up to USD 850 million, which was larger than that of the IMF or the World Bank. Thus, JICA apparently preferred to monitor the policy actions regarding the fiscal, quasi-fiscal, and fiscal discipline, as well as those regarding the banking sector and the targeted social welfare to the vulnerable, on its own, by incorporating these policy actions into JICA's policy matrix, as these actions constitute the core of the reform program. Given the size of JICA's ODA loan amount, this decision was reasonable especially considering it from an accountability point of view. Regarding the monitoring of these policy actions on the fiscal/financial sector reform and the targeted social welfare, it was also realistic and appropriate that JICA planned to make use of reporting from other development partners, who have in-depth knowledge and extensive expertise in the relevant fields.

(3) Coordination with Other JICA Projects

The Project tried to link the policy-level reforms with the project outcomes of field-level activities, by incorporating the activities of ongoing related JICA projects in Mongolia into the policy matrix. As it takes considerable time and work to diversify industry and improve the investment climate under the "Enhancing economic growth" pillar, taking the approach of ensuring continuous support to reform and its monitoring through day-to-day activities of related projects, such as technical cooperation on the developments of industrial human resources and legal systems, is reasonable and appropriate, as JICA has strengths in these areas. By integrating related JICA projects into the policy matrix, it was also expected that incentives for related JICA projects to achieve their project goals would be enhanced and their activities would be promoted. Although this approach has room for improvement regarding design and implementation,⁷ making a linkage with related JICA projects has achieved certain positive outcomes in the development of human resources and infrastructure.

(4) Logic of the Project Design

JICA's comprehensive policy matrix comprises the three pillars of 1) direct measures against the financial and economic crisis (Stable macroeconomic management), 2) measures to mitigate the adverse effects of the measures against the financial and economic crisis on the vulnerable (Promotion of helping the socially vulnerable), and 3) mid- to long-term measures to improve the structural vulnerability of the Mongolian economy that was the root cause of the financial and

⁷ JICA's policy matrix is not fully in accordance with the approach, as it includes some policy actions that have no related JICA projects at all even in its own part of the matrix (such as Tax Treaty and Economic Partnership Agreement). In addition, some of the related projects included are not directly relevant to the policy reforms in the policy matrix (such as project for strengthening post-graduate training for health professionals, land readjustment and air pollution control projects in the ger area). Moreover, although it is inevitable, many of the related projects had not been ongoing continuously from the policy matrix formulation stage at the time of the appraisal to the policy action monitoring stage at the time of the ex-post evaluation. The related projects often had been completed halfway through the DPL, or there had been significant time lags before the next phases started.

economic difficulties (Enhancing economic growth). The overall logic of its results chain is appropriate, and the policy matrix is consistent with Mongolia's long-term development policy. Furthermore, the results chain of each policy action to a higher outcome is logical and basically appropriate, although there is a commonly observed problem of a mismatch between the time frame required for policy reform and the Project monitoring period, which all DPL projects inevitably face.

Therefore, the plan and approach of the Project are appropriate.

As seen above, the implementation of the Project has been highly relevant to the development policy and needs of Mongolia, and its plan and approach have also been appropriate. In addition, the linkage with related JICA projects gives suggestions for similar DPL projects.

3.1.2 Coherence (Rating: ③)

3.1.2.1 Consistency with Japan's ODA Policy

The Project falls into the Japanese government's following two priority areas of the assistance, which were identified in the *Country Development Cooperation Policy for Mongolia* (May 2012): One is "provide assistance directed toward engraining the administration system, drafting the relevant law, improving its implementation capability, educating high skilled professionals, strengthening the financial management and capability and improving the transparency of administrative potentiality" and the other is "provide support for increasing employment based on small and medium enterprises by diversifying industries to create employment." The Project was also in accordance with the *Japan-Mongolia Mid-term Action Plan for a Strategic Partnership*, which specifically states that "The Government of Japan appreciates the international aid package formulated under the International Monetary Fund (IMF) and will cooperate with the Government of Mongolia to help it overcome economic and financial difficulties and achieve medium- to long-term economic growth and stabilization." Furthermore, JICA's *Country Analysis Paper for Mongolia* (September 2017) has set the "strengthening of sound macroeconomic management and governance," "development of the environment friendly and balanced economic growth," and "development of the inclusive society" as priority issues. Therefore, the Project is consistent with Japan's ODA policy at the time of the appraisal.

3.1.2.2 Internal Coherence

As mentioned above, the Project adopted the approach of linking the policy-level reforms with the project outcomes of field-level activities. As a result, technical cooperation projects, such as the *Project for Enhancing Tax Collection Operation and International Tax Issues of Mongolian Tax Administration*, the *Project for Capacity Building of Capital Market in Mongolia*, and the

Project for Enhancement of the Fair Competition Environment in Mongolia, have enabled the continuous support to reform efforts through the developments of human resources and legal systems. Furthermore, loan and grant projects, such as the *New Ulaanbaatar International Airport Construction Project*, have contributed to the improvement of the investment climate, and created, to a certain extent, a synergy effect with the Project. Thus, the Project is internally coherent.

3.1.2.3 External Coherence

The Project was a parallel co-financing scheme, under which development partners coordinated closely, and formulated complementary and mutually coherent policy matrices. JICA created a comprehensive policy matrix by adopting policy actions on the fiscal, quasi-fiscal, fiscal discipline areas, as well as those on the banking sector and the targeted social welfare to the socially vulnerable, from other development partners' matrices. For diversifying industry and improving the investment climate, on the other hand, JICA incorporated a number of policy actions on the developments of human resources and legal systems, in which JICA has strengths, in the “Enhancing economic growth” pillar. The World Bank and ADB acknowledge that close coordination among the development partners, including JICA, have ensured complementarity and coherence in their policy matrices.⁸

In summary, the implementation of the Project is consistent with Japan's ODA policy and internally coherent with related JICA projects. Moreover, external coherence is recognized through close coordination and complementarity with other development partners.

In light of the above, the relevance and coherence of the Project are very high.

3.2 Effectiveness and Impacts⁹ (Rating: ③)

3.2.1 Effectiveness

3.2.1.1 Policy Matrix and Evaluation Framework

The Project was to support the implementation of policy reforms in the fiscal, social, and economic areas. As shown in Table 3, for monitoring the progress of the reforms effectively, the policy matrix, which includes 10 policy actions for the “Stable macroeconomic management” pillar, five actions for the “Promotion of helping the socially vulnerable” pillar, and nine actions for the “Enhancing economic growth” pillar (with a total of 24 policy actions), has been created. The policy matrix is composed of the “Policy Actions (Triggers for DPL2, narrative summary)”

⁸ *Program Document for Economic Management Support Operation/Mongolia Development Policy Loan*, World Bank, October 2017, Washington (pp.35-36); *Completion Report--Mongolia: Banking Sector Rehabilitation and Financial Stability Strengthening Program*, ADB, July 2020, Manila, (p.4, p.8); *Completion Report--Mongolia: Social Welfare Support Program Phase 2*, ADB, August 2020, Manila (p.3, p.5, p.11)

⁹ When providing the sub-rating, Effectiveness and Impacts are to be considered together.

part and their indicators, as well as the “Main Prior Actions (already taken)” (hereinafter referred to as “prior actions”) part. And both Japanese and Mongolian sides agreed at the time of the appraisal that all the Policy Actions (Triggers for DPL2, narrative summary) should be achieved by the end of March 2018. The target achievement of the indicators was originally planned to be assessed two years after the completion of the Project (December 2019). The achievement of the prior actions, which had been pre-conditions for this loan, were all confirmed by the time of the appraisal.¹⁰

Table 3: Policy Matrix of the Project (Excerpts)

Policy Cluster	Main Prior Action (already taken)	Main Action to be Monitored (Trigger for next DPL2)/ Status of Achievement*	Indicator/ Status of Achievement*	Baseline (Dec. 2016)	Target (Dec. 2019)
Stable Macroeconomic Management					
Medium-term fiscal framework	Passage of a 2017 supplementary budget and a medium-term budget framework	Passage of a 2018 budget in line with the program’s fiscal path/ Achieved	Fiscal Deficit to GDP/ Partially Achieved	17.0%	6.9%
Expenditure review	Termination of the Promissory Note Program, to prevent using deferred payments to finance capital expenditure	Cabinet approval of the Public Investment Rationalization Guideline/ Achieved	Capital expenditure to settle the Promissory Note Program/ Achieved	MNT 672 billion	MNT 0 billion in 2017-19
Revenue mobilization	Increase the personal income tax rates on high income groups and the excise taxes on alcohol and tobacco	Streamline tax exemptions/ Achieved	Aggregate tax revenues from Personal Income Tax and excise tax on alcohol and tobacco to GDP/ Partially Achieved	3.3%	3.7%
Reform of the Development Bank of Mongolia	Termination of DBM’s financing to capital expenditure	Implement a comprehensive external special review on the DBM and its disclosure/ Achieved	DBM’s financing to capital expenditure/ Achieved	MNT 252 billion	MNT 0 billion
Reform of the Central Bank of Mongolia	Discontinue net financing to the Housing Mortgage	Reconstruct Housing Mortgage Program in a	Net financing to the Housing Mortgage Program by the	MNT 404 billion	MNT 0 billion

¹⁰ As DPLs provide funds subject to the ex-ante evaluation of prior actions, the ex-post evaluations of similar DPL projects often put greater emphasis on the achievement of prior actions when analyzing and evaluating the Effectiveness of the project. However, the policy matrix of the Project, and the prior actions in particular, had been set under the circumstances where an international aid package had to be formulated urgently to avoid default. Thus, the assessment of the achievement of prior actions has been for reference purposes in this evaluation.

Policy Cluster	Main Prior Action (already taken)	Main Action to be Monitored (Trigger for next DPL2)/ Status of Achievement*	Indicator/ Status of Achievement*	Baseline (Dec. 2016)	Target (Dec. 2019)
	Program by the BOM	more cost-effective way/ Achieved	BOM/ Partially Achieved		
Establishment of the Fiscal Council		Revise the relevant budget laws to establish the Fiscal Council/ Achieved	Establishment of the Fiscal Council/ Achieved	Not established	Established
Strengthening budget control by Ministry of Finance		Revise the Integrated Budget Law to prevent from expenditure expansion pressure by the Parliament/ Achieved	Revision of the Integrated Budget Law to prevent from expenditure expansion pressure by the Parliament/ Partially Achieved	Not revised	Revised, and fiscal deficit is decreased
Addressing Non-Performing Loan	Establish the interagency working group to support creation of the legal and institutional framework of an Asset Management Company	Transparent NPL resolution progress/ Achieved	Establishment of the Asset Management Company/ Not Achieved	Not established	Established
Strengthening of bank supervision and regulatory framework	BOM proposes steps to rehabilitate the banking sector	BOM implements rules for capital regulation and early intervention and bank resolution in line with international best practices/ Achieved	Implementation of rules for capital regulation and early intervention and bank resolution in line with international best practices/ Partially Achieved	Not introduced	Introduced, and unachieved banks are consolidated
Strengthening banks' governance	The Parliament approves the Economic Recovery Program that will outline steps to improve the financial sector's governance	Adopt the Mongolian financial market development - 2025 program / Achieved	Adoption of the Mongolian financial market development - 2025 program / Partially Achieved	Not adopted	Adopted, and foreign banks enter into market
Promotion of Helping the Socially Vulnerable					
Targeted social welfare to the vulnerable people	Maintain budget allocation for the poverty-targeted Food Stamp Program	Increase the budget provisions for the poverty-targeted Food	- Number of Household to receive Food Stamp Program - Amount of	- 26,000 households - MNT 45,500 per household	Expansion in both the coverage and monthly benefit from baseline

Policy Cluster	Main Prior Action (already taken)	Main Action to be Monitored (Trigger for next DPL2)/ Status of Achievement*	Indicator/ Status of Achievement*	Baseline (Dec. 2016)	Target (Dec. 2019)
	in the 2017 Supplementary budget	Stamp Program in line with MTFF (Medium-term fiscal framework) allocations / Achieved	Food Stamp Program per household / Achieved		
Strengthening of the social service delivery system	Confirm the necessary governmental procedures for policy and guiding principal on health facilities, workshop on training of trainer for medical educator	Authorize the policy and guiding principle on workshop on training of trainer for medical educator / Achieved	Workshop on training of trainers for medical educators / Achieved	The draft proposal for the policy and guiding principal is discussed by the working group	Workshop on training of trainer for medical educators is continuously implemented
	Share the necessity of the collaboration work for the future post-graduate training at Mongolian National University of Medical Sciences	Confirm the process for their collaboration to strengthen the implementation framework of post-graduate training program for professionals working in health facilities / Achieved	Framework of post-graduate training program for professionals working in health facilities / Achieved	Not existed	Establish framework to implement
Enhancing the quality of life of the vulnerable people	Approve the action plan of Master Plan including ger area development	Select a model site for a land readjustment project/ Achieved	Selection and development of a model site for a land readjustment project/ Achieved	Not selected	Selected, and its infrastructure is developed
	Approve National Environment and Air Pollution Program	Transfer energy from inefficient coal firing in ger area/ Achieved	Air quality/ Partially Achieved	PM2.5 – 256µg/m3 PM10 – 279µg/m3 SO2 - 89µg/m3	Improved from baseline
Enhancing Economic Growth					
Promoting FDI	Agree to achieve the conclusion of the tax treaty for the elimination of double taxation and the prevention of tax evasion and avoidance	Progress is made towards the conclusion of the tax treaty for the elimination of double taxation and the prevention of tax evasion and	Conclusion of Tax Treaty between Japan and Mongolia/ Not Achieved	Not concluded	Concluded (in 2021)

Policy Cluster	Main Prior Action (already taken)	Main Action to be Monitored (Trigger for next DPL2)/ Status of Achievement*	Indicator/ Status of Achievement*	Baseline (Dec. 2016)	Target (Dec. 2019)
	which enhances the robust investment and economic exchanges between the two countries	avoidance which enhances the robust investment and economic exchanges between the two countries while recognizing the importance of the international standards on tax transparency/ Achieved			
	Effectuate Economic Partnership Agreement between Japan and Mongolia	Increase of FDI through improving investment issues/ Achieved	Number of Japanese companies registered in Mongolia/ Achieved	557 companies (as of 2015 August)	More than 557 companies
Improving the investment climate and diversifying the economy	Start concession contract negotiation for New Ulaanbaatar International Airport operation	Provide support for successful negotiation of the concession contract for New Ulaanbaatar International Airport operation and expedite the completion of related facilities / Achieved	- New Ulaanbaatar International Airport - Number of annual passenger - Contribution to the GDP by tourism / Partially Achieved	- Not opened - 1.0 million people - 1% (in 2015)	- Opened - 1.2 million people - 1.2%
	Approve a revised Guideline for Risk-Based Supervision of Securities Companies	Renovate a capacity development system of the capital market / Achieved	Number of Certified Securities Broker Representatives / Achieved	0 people	100 people
	Hold seminars leading to the drafting of Competition Law amendment and establish a working group	Submit the amendment of Competition Law for parliament discussion and start preparation of related regulations and guidelines / Not Achieved	Amendment of Competition Law / Not Achieved	Not drafted	Execute amended laws, related regulations, and guidelines
	Dispatch foreign (Mongolian) students to National Institutes of	Develop engineering human resources for economic diversification /	Number of Foreign (Mongolian) students dispatched to National	24 people	70 people

Policy Cluster	Main Prior Action (already taken)	Main Action to be Monitored (Trigger for next DPL2)/ Status of Achievement*	Indicator/ Status of Achievement*	Baseline (Dec. 2016)	Target (Dec. 2019)
	Technology in Japan	Achieved	Institutes of Technology in Japan / Achieved		
	Develop Mid-Term Operation Plan of Mongolia-Japan Center for Human Resources Development including projects strengthening business human resources	Increase SMEs which take business courses at Mongolia-Japan Center for Human Resources Development / Achieved	Number of SMEs which take business courses at Mongolia-Japan Center for Human Resources Development / Achieved	468 companies by 2015	600 companies by 2019
	Hold business environment seminars for Japanese companies in Japan and Mongolia. Issue Mongolia Business Guidebook and Yellow-Page	Hold a follow-up seminar in Mongolia and strengthen business matching activity/ Achieved	Number of companies which attend seminars in Mongolia/ Not Achieved	30 companies	100 companies by 2019
	Mongolian Government delegation visits Japan to discuss future cooperation project in agricultural sector	Establish a working group to formulate Technical Assistance project in agricultural sector/ Achieved	New Project in agricultural sector/ Achieved	Not formulated	Approved and started

Source: *JICA Ex-Ante Evaluation*

Note: The status of achievement (*) has been added by the evaluator.

Note that, in analyzing and evaluating Effectiveness and Impacts, the policy actions of the “Stable macroeconomic management” pillar, which are the measures taken against the fiscal and debt difficulties, have been regarded as direct outcomes related to Effectiveness. On the other hand, the policy actions of the “Promotion of helping the socially vulnerable” pillar, which are to alleviate the adverse effects of the fiscal and financial sector reforms on the vulnerable, and those of the “Enhancing economic growth” pillar, which are to address the root cause of the Mongolian economy’s vulnerability, have been both treated as indirect outcomes related to Impacts.

(1) Status of Achievement of the Policy Actions (Triggers for DPL2, Narrative Summary)

At the time of the ex-post evaluation, it was confirmed that 23 out of the 24 Policy Actions

(Triggers for DPL2, narrative summary) have been achieved (for details, see *Appendix. Status of Achievement of Policy Matrix*). As mentioned above, because these policy actions had been pre-conditions for the phase 2 loan, both the Japanese and Mongolian sides had agreed at the time of the appraisal that all these actions should be achieved by the end of March 2018. The appraisal mission for Phase 2 of this Project, which took place in January 2019, then confirmed that all the 24 policy actions (triggers for DPL2, narrative summary) had been met. However, the policy action regarding the submission of the amended Competition Law to the Parliament under the “Enhancing economic growth” pillar later turned out not to have been achieved as the amendment was reverted. At the time of the ex-post evaluation, the amendment of the Competition Law has not been re-submitted to the Parliament.

(2) Status of Achievement of the Indicators of the Policy Actions

At the time of the ex-post evaluation, 20 out of the 24 policy actions (83.3%) achieved or partially achieved the targets of the indicators (see Table 4). However, the establishment of an Asset Management Company in the “Stable macroeconomic management” pillar (Addressing non-performing loans), the conclusion of a Tax Treaty in the “Enhancing economic growth” pillar (Promoting FDI), and the amendment of the Competition Law in the “Enhancing economic growth” pillar (Improving the investment climate and the diversification of the economy) have not achieved their targets.

Table 4: Status of Achievement of Policy Action Indicators

Unit: Number of Cases

Pillar	Achieved	Partially Achieved	Not Achieved	Total
Stable Macroeconomic Management	3	6	1	10
Promotion of Helping the Socially Vulnerable	4	1	0	5
Enhancing Economic Growth	5	1	3	9
Total	12	8	4	24

(3) Status of Achievement of the “Stable Macroeconomic Management” Pillar

Out of the 10 policy actions, nine achieved or partially achieved the targets of their indicators. In the fiscal area, the fiscal balance, which was a deficit of 15.3% of GDP in 2016, turned into a surplus in 2018, and the size of the deficit became 2.0% of GDP in 2019, which accomplished the target deficit of 6.9% easily. Regarding expenditure review, thanks to the termination of the Promissory Note Program, the capital expenditure for settling the Promissory Note Program, which reached about 260 billion Mongolian tugrik (MNT) in 2016, has been reduced to zero since 2017. On revenue mobilization, tax reforms had been implemented, and the revenues from the

personal income tax and the alcohol and tobacco tax in 2019 exceeded the target of 3.7% of GDP.¹¹ In the quasi-fiscal area, in addition to the termination of the capital expenditure by the DBM, the financing to the Housing Mortgage Program by the BOM has been brought under a range of the past mortgage repayment amount, and thus the consolidation of state budgets has advanced. Furthermore, in fiscal discipline, the Fiscal Council was established, and the Integrated Budget Law was amended to reduce pressure from the Parliament for increasing spending. As for the banking sector, there has been a certain progress toward the introduction of early intervention and bank resolution measures, which are in line with international best practices. Moreover, a long-term financial market development program was adopted, and the regulatory framework for strengthening bank supervision and governance has been developed. Therefore, at the time of the ex-post evaluation, it is fair to say that the indicators in the “Stable macroeconomic management” pillar have largely achieved the targets.

One of the indicators of the banking sector, the establishment of an Asset Management Company (AMC), has not been achieved partly because no consensus had been formed among major development partners and the BOM about the AMC’s role in the handling of non-performing loans (NPLs). While ADB had pushed for the establishment of the AMC, the IMF had prioritized the recapitalization and restructuring of banks owing to concerns over issues such as (1) the occurrence of moral hazard, (2) funding sources required for the establishment of the AMC, and (3) its governance.¹² ADB’s Independent Evaluation Department concluded in the Validation Report of the *Banking Sector Restructuring and Financial Stability Strengthening Program* that the program was “less than successful” because the AMC had not been established and the resolution of NPLs had not made much progress.¹³

Key macroeconomic indicators related to the “Stable macroeconomic management” pillar show that the Mongolian economy had steadily recovered since 2017 when the Project was implemented. Before the COVID-19 pandemic, the real economic growth rate was 5.6% in 2017, 7.7% in 2018, and 5.5% in 2019, respectively. Meanwhile, the fiscal balance had significantly improved, and fiscal surplus was achieved in 2018. Furthermore, foreign exchange reserves increased from an equivalent of 5.3% of external debt in 2016 to 13.8% in 2019, and buffers against external shocks had been bolstered (see Table 5). Although the COVID-19 pandemic sent the economy back into negative growth, and the fiscal balance turned into a large deficit again, the foreign exchange reserves have been maintained at nearly three times the level when the Project was implemented, thanks to the buffers built between 2017 and 2019, and there has been

¹¹ *Staff Report--Mongolia: 2019 Article IV Consultation*, IMF, September 2019, Washington, D.C.

¹² Interviews with the IMF Mongolia Representative Office, the ADB Mongolia Resident Mission, and the Bank of Mongolia (June 2022, March 2022, and March 2022, respectively).

¹³ *Validation Report--Mongolia: Banking Sector Restructuring and Financial Stability Strengthening Program*, ADB, March 2021, Manila.

no serious concern regarding the ability to serve external debt.¹⁴

Table 5: Data on “Stable Macroeconomic Management” over Time

Indicator	2016	2017	2018	2019	2020	2021
Real GDP Growth (%)	1.5	5.6	7.7	5.5	▲4.4	1.4
Overall Fiscal Balance (% of GDP)	▲15.3	▲6.4	0.1	▲2.0	▲12.0	▲8.8
Current Account (% of GDP)	▲6.3	▲10.1	▲14.4	▲15.2	▲5.1	--
Public Debt (% of GDP)	87.6	84.7	72.6	68.4	77.3	79.5
Total Reserves (Months of imports)	2.38	4.41	4.21	4.67	6.10	--
Total Reserve (% of external debt)	5.3	10.8	11.9	13.8	13.7	--

Source: IMF, World Bank, Mongolian Ministry of Finance

For the status of achievement of the policy action indicators for the “Promotion of helping the socially vulnerable” and “Enhancing economic growth” pillars, see the next section “3.2.2 Impacts.”

(4) Why IMF Review Went Off-Track and Its Consequences

The subsequent phases of the Project have never been implemented. This is because EFF had become off-track and IMF’s support had been discontinued, whereas the policy matrix specifically mentions that “EFF is on-track by IMF’s review” as a precondition for the phase 2 implementation. Regarding the policy actions on the strengthening of bank regulation and supervision, the IMF had been requesting the BOM to conduct an Asset Quality Review (hereinafter referred to as “AQR”), and then recapitalize or nationalize banks that have not met the capital requirements (in the case of five largest systemically important financial institutions) or consolidate and restructure them (in the case of small and medium-sized banks). However, owing to delays in the reforms, the IMF took its EFF review off-track after the fifth one (October 2018). When it comes to the strengthening of bank capital regulation, the IMF seems to have held concerns about the financial sector’s governance.¹⁵ Although the banking sector reform has stagnated since then partly owing to the COVID-19 pandemic, the BOM amended the Banking Law in February 2021 to strengthen bank capital and reduce shareholder concentration, and required the five largest banks to convert their ownership structures to joint stock companies and make initial public offerings (hereinafter referred to as “IPO”) by the end of June 2022. The BOM also announced the restrictions on shareholding that require all commercial banks to limit individual shareholder ownership up to 20% by the end of 2023. While acknowledging the BOM’s reform efforts, the IMF requested the BOM to postpone the deadline for the IPOs during a meeting in May 2022, citing the importance

¹⁴ Interviews with the IMF Mongolia Representative Office and the Mongolian Ministry of Finance (June 2022, February and May 2022, respectively).

¹⁵ Interview with the IMF Mongolia Representative Office (June 2022)

of conducting a new AQR first, and the BOM agreed to delay the deadline for the IPOs by one year.

During the phase 2 appraisal, the Mongolian government repeatedly requested the Japanese side to implement phase 2 of the Project for building buffers against external shocks. However, because the foreign exchange reserves had recovered to healthy levels after the implementation of this Project, the Mongolian government was able to prevent pressure on the cost of servicing its external debt from building up, although the IMF's EFF review became off-track and the subsequent phases of the Project were not implemented.

Regarding the monitoring of the policy matrix, however, incentives for checking the status of achievement of the policy actions on a continuous basis have been lost for both the Japanese and Mongolian sides, owing to the calling-off of the subsequent phases. At the time of the ex-post evaluation, there were several ministries and organizations that had absolutely no idea on the status of achievement of the relevant policy action indicators, because of the issues such as personnel changes that took place after the implementation of the Project.

3.2.1.2 Qualitative Effects (Other Effects)

(1) Contribution to Default Avoidance

At the time of the appraisal of the Project (November 2017), the danger of default had already been averted, as the prospects of being able to roll over the government-guaranteed notes and government bonds, whose maturities were approaching in March 2017 and January 2018, respectively, had improved. The objective of the Project, therefore, does not include the avoidance of default. Yet, Mongolia's credibility was restored only after international financial markets had come to expect as a certainty that an international aid framework would be formed around the IMF. Whereas the IMF had considered the participation of Japan as a crucial condition for putting together the aid package of up to USD 5.6 billion, Japan's participation in the international aid framework was made through this Project's implementation. As it would have been impossible to formulate the international aid package without the financial commitment of the Project, it is fair to say that the Project greatly contributed to the avoidance of Mongolia's default and enormous fiscal and economic difficulties. The funds provided by the Project, which amounted to 3.1% of GDP, was transferred to Mongolia's national treasury and used for budget support, and they significantly contributed to fiscal stabilization.

3.2.2 Impacts

3.2.2.1 Intended Impacts

(1) Status of Achievement of the "Promotion of Helping the Socially Vulnerable" Pillar

Out of the five policy actions, all the five achieved or partially achieved the targets of the

indicators (see Tables 3 and 4). As for the targeted social welfare for the socially vulnerable, adequate budgets have been ensured to protect the socially vulnerable from the adverse effects of the fiscal reform, as the number of households that received the Food Stamp Program benefits increased more than 70% over the period of 2016–2019, from 26,076 households in 2016 to 45,458 in 2017, 47,311 in 2018, and 44,801 in 2019. The average (monthly) benefit per household also increased by 23% from MNT 45,500 in 2016 to MNT 56,000 for 2017–2019. As a measure against COVID-19, the average benefit per household was even raised to MNT 112,000 temporarily in 2020. Regarding the strengthening of the social service delivery system, workshops on the training of trainers for medical educators have been conducted continuously, and the curriculum of the post-graduate program for professionals working in health facilities has been updated. Moreover, on enhancing the quality of life of the vulnerable people, two ger districts of Chingeltei and Sukhbaatar had been selected as model districts for a land readjustment project, and the model districts of approximately 420 households in total, which are equipped with water and heating systems, have been developed. Meanwhile, Ulaanbaatar City has, in principle, banned the use of crude coal since May 2019 for reducing air pollution. Consequently, the concentration of particulate matter (PM2.5 and PM10) in the air has been dramatically decreased.¹⁶ Therefore, the indicators in the “Promotion of helping the socially vulnerable” pillar have largely achieved the targets.

Regarding the targeted social welfare to the vulnerable people, ADB’s Independent Evaluation Department rated in the Validation Report of the *Social Welfare Support Program Phase 2* that the program was “successful,” partly because the welfare benefit expenditures to the socially vulnerable had been maintained even during a period of fiscal consolidation.¹⁷ The IMF, on the other hand, evaluates Mongolia’s social safety nets as inefficient, citing a lack of effective targeting toward the poor and the vulnerable.¹⁸ Although the World Bank has not yet released the evaluation report of its *Economic Management Support Operation*, it appreciates that the safety nets for the socially vulnerable had been maintained and even expanded during the fiscal reform. Yet the World Bank is also concerned that targeted social assistance had shrunk during the COVID-19 pandemic and that the accuracy of the proxy means test (PMT¹⁹), which has been used for the targeting of the Food Stamp Program, needs improvement.²⁰

¹⁶ However, the concentration of sulfur dioxide (SO₂) in the air has risen, probably owing to a dramatic increase in traffic volume.

¹⁷ *Validation Report--Mongolia: Social Welfare Support Program Phase 2*, ADB, January 2021, Manila.

¹⁸ *Staff Report--Mongolia: 2021 Article IV Consultation*, IMF, November 2021, Washington.

¹⁹ Statistical method that estimates household incomes based on household characteristics and the attributes of household members, which are strongly correlated with household incomes (such as household size, type of dwelling, ownership of durable goods and livestock, and age of household head).

²⁰ Interview with the World Bank Mongolia Country Office (March 2022). To improve the accuracy of the PMT, the Ministry of Labor and Social Protection has been updating the household database used for targeting and improving the PMT model.

Mongolia’s poverty headcount rate improved by 1.2 percentage points over a period of 2016–2018, during which the fiscal reform reduced government expenditures. Poverty declined particularly in rural areas, and the income share held by the bottom 20% of the population did not decrease significantly, either. From 2018 to 2020, the poverty headcount rate also improved slightly (see Table 6).

Table 6: Data on “Promotion of Helping the Socially Vulnerable” over Time

Indicator	2016	2018	2020
Poverty headcount (%)	29.6	28.4	27.8
Poverty headcount, Urban (%)	27.1	27.2	26.5
Poverty headcount, Rural (%)	34.9	30.8	30.5
Income share held by highest 20% (%)	40.6	40.9	--
Income share held by lowest 20% (%)	8.0	7.9	--
Gini coefficient	33.1	34.0	--

Source: World Bank

(2) Status of Achievement of the “Enhancing Economic Growth” Pillar

Out of the nine policy actions, six achieved or partially achieved the targets of the indicators. On promoting FDI, 84 Japanese companies newly registered in Mongolia from 2017 to 2020. As for improving the investment climate and diversifying the economy, the New Ulaanbaatar International Airport opened in July 2021, thanks to Japan’s assistance. In addition, with the support of related JICA projects, 286 new securities broker representatives were certified by 2021, and 177 Mongolian students were sent to the National Institutes of Technology in Japan. The number of small- and medium-sized enterprises that took business courses at the Mongolia-Japan Center for Human Resources Development has reached a cumulative total of 1,098. Meanwhile, several new JICA projects have already been approved and started in the agriculture and livestock sector. In light of the above, there have been certain positive outcomes in the developments of industrial human resources and infrastructure; therefore, it is fair to say that the indicators in the “Enhancing economic growth” pillar have largely achieved the targets at the time of the ex-post evaluation. However, many of these indicators are field-level indicators, and they are more directly to do with related individual projects’ activities. As explained later, the achievement of these policy action indicators has not yet been translated into the achievement of sector-level outcomes.

Among the policy actions of the “Enhancing economic growth” pillar, the indicator regarding the conclusion of the Tax Treaty of the promoting FDI policy cluster, as well as those on the amendment of the Competition Law and the number of companies that attend a seminar in Mongolia, which are both in the improving the investment climate and diversifying the economy cluster, have not been achieved. Regarding the Tax Treaty, the Mongolian government revoked some of the treaties it had concluded in the past, claiming that the tax treaties had been abused by international corporations as tax measures and, as a consequence, a huge amount of revenues had

flowed out of the country. Since then, the Mongolian government appears to have been cautious about making new tax treaties and has not concluded new bilateral tax treaties with any countries including Japan.

The draft amendment of the Competition Law was submitted by the Deputy Prime Minister to the Parliament in December 2019. Owing to amendments to the Mongolian Constitution, however, the parliament resolution that requests the revision of the draft amendment according to the amended Constitution was passed, and the amendment of the Competition Law was rejected. After the 2020 parliamentary elections, the Standing Committee on Innovation and e-Policy and the Standing Committee on Industrial Policy in the Parliament, as well as the Ministry of Culture, were established. As a result, it has also become necessary for any draft amendment of the Competition Law to be discussed in these Standing Committees and the new ministry. Although a new draft amendment of the Competition Law was put together in July 2021, the Ministry of Justice and Internal Affairs and the Ministry of Finance both opposed the submission of the draft amendment to a Cabinet meeting on the ground that their comments had not been fully reflected in the final draft. Accordingly, the draft amendment has never been submitted to the Parliament.

The target number of companies that attend in seminars in Mongolia has not been achieved because no follow-up seminars have been held in Mongolia. However, the Japan-Mongolia Business Forum held in Tokyo in December 2019 was attended by more than 200 delegates from Japanese companies and government agencies, and more than 40 delegates from Mongolia. Moreover, the Mongolia-Japan Business Forum was held online in May 2021, and over 400 Japanese and Mongolian delegates attended the forum.

As mentioned above, the macroeconomic indicators, which are used as a reference, show that the real economic growth rate before the COVID-19 pandemic was 5.6% in 2017, 7.7% in 2018, and 5.5% in 2019. It fell to negative 4.4% in 2020 but recovered to 1.4% in 2021 (see Table 5). The net inflow of foreign direct investment turned from an outflow of 37.2% of GDP in 2016 to an inflow of 13.0% in 2017. It further increased to 14.8% in 2018 and 17.2% in 2019. On improving the investment climate, however, Mongolia’s ranking in the World Bank’s Doing Business report (Ease of Doing Business rankings) fell by 25 places from 2016 to 2020. Similarly, Mongolia’s ranking in the World Economic Forum’s Global Competitiveness Index 4.0 slipped gradually over the period of 2017–2019 (see Table 7). Financial system development, in particular, has received low ratings.

Table 7: Data on “Enhancing Economic Growth” over Time

Indicator	2016	2017	2018	2019	2020
Foreign direct investment, net inflows (current million USD)	▲ 4,156	1,494	1,952	2,443	1,719
Foreign direct investment, net inflows (% of GDP)	▲37.2	13.0	14.8	17.2	12.9
World Bank Doing Business Rank	56	64	62	74	81

Indicator	2016	2017	2018	2019	2020
Global Competitiveness Index 4.0 Rank (World median)	--	95 (69)	99 (70)	102 (71)	--
Industrial composition of GDP/value-added by agriculture, forestry, and fishing (% of GDP)	12.5	11.0	11.3	11.5	12.8
Industrial composition of GDP/value-added by mining and quarrying (% of GDP)	20.7	25.8	26.4	25.8	24.1
Industrial composition of GDP/value-added by industry (% of GDP)	15.1	14.6	14.6	15.1	16.1
Industrial composition of GDP/value-added by services (% of GDP)	51.7	48.6	47.7	47.6	47.0

Source: IMF, World Bank, World Economic Forum, National Statistics Office of Mongolia

(3) Achievement of the Qualitative Effect Indicators

At the time of the appraisal, the following two qualitative effect indicators had been selected for the measurement of the Project outcomes.

- Strengthening policy setting and its implementation capacity of the Government of Mongolia
- Promoting private investment

It appears that strengthening the government’s policy setting and implementation capacity had been expected to be achieved on the foundation of human resources development and capacity building under the Enhancing economic growth pillar, aiming to address the root cause of the Mongolian economy’s vulnerability. Likewise, promoting private investment must have been expected to be accomplished on the foundation of the improved investment climate only after it has been developed under the same pillar, which is classified as Impacts in this evaluation. Thus, these qualitative effect indicators are also treated as indirect outcomes related to relatively long-term Impacts.

With regard to strengthening the government’s policy setting and implementation capacity, the *Project for Capacity Building of Capital Market in Mongolia* has helped enhance the supervisory capacity of the Financial Regulatory Commission (hereinafter referred to as “FRC”) by supporting the FRC’s supervision and regulation of securities companies using the risk-based approach and drafting concept papers on self-regulatory organizations. The *Project for Enhancement of the Fair Competition Environment in Mongolia* has supported the Authority for Fair Competition and Consumer Protection by training its inspectors and providing comments and recommendations on draft amendments of the Competition Law and other relevant regulations.²¹ In the fiscal area, the *Project for Enhancing Tax Collection Operation and International Tax Issues of Mongolian Tax Administration* has trained tax officers who would play

²¹ *Evaluation of Japan’s ODA to Mongolia: Third Party Evaluation Report 2020*, Ministry of Foreign Affairs of Japan, March 2021, Tokyo.

key roles in the field of international taxation. Moreover, the project's support for implementing the second taxation reform has been highly appreciated by Ministry of Finance officials. Although the *Project for Strengthening Capacity of Macroeconomic Policy and Planning* is not included in the policy matrix, it has developed and operationalized macroeconomic forecasting/statistical models, and helped make policy discussions between the Ministry of Finance officials and development partners more fruitful by improving the ability to analyze and formulate policies based on rigorous simulations of macroeconomic trends. Although continuous efforts based on a long-term perspective will be essential for improving human resources development and capacity building, the Project, therefore, has made a certain contribution to the strengthening of the capacity of the Government of Mongolia on policy planning and implementation by coordinating closely with other related technical cooperation projects.

Promoting private investment has not yet achieved its outcome as improving the investment climate, which is a prerequisite for the outcome, has not made sufficient progress. Although the Project has helped lay the groundwork for improving the investment climate through developing human resources and legal systems, there has yet been little increase in private sector investment, or those in non-mining sectors owing in part to the COVID-19 pandemic. For promoting private investment, a fair, transparent, and predictable legal system would need to be operated for the creation of an enabling business environment, in addition to continuous reform efforts.²²

Incidentally, the policy matrix includes support for the successful negotiation of a concession contract for the operation of the New Ulaanbaatar International Airport, as well as support to expedite the completion of related facilities. The concession agreement on the operation of the airport was acquired by a Japan-Mongolia joint venture in July 2019. Because the construction of the airport had also been done by a consortium of Japanese companies with financial assistance from a Japanese ODA loan, the airport, which opened in July 2021, has become a case in which a consortium of Japanese companies had implemented all its phases from construction to operation.

3.2.2.2 Other Positive and Negative Impacts

The Project has been categorized as a gender activity integrated case on the ground that “since food stamps are mainly used by women in households, it can be said that the Project supports women's economic activities.” The poverty headcount rate in 2018 shows that poverty was 27.6% among the population with male heads of households, whereas it was 31.7% among those with female heads of households, suggesting that poverty is higher among those with female heads of households. Because 80.7% of the total population lived in male-headed households, however, only 21.5% of the poor lived in female-headed households.²³ Although data on the percentage of

²² Interview with the Mongolia-Japan Center for Human Resources Development (May 2022).

²³ *Mongolia Poverty Update 2018*, National Statistics Office of Mongolia, World Bank, 2020, Ulaanbaatar.

female-headed households among the Food Stamp recipient households could not be obtained, the percentage of women among all individual Food Stamp recipients was 53% (2020),²⁴ which is not significantly different from the male-female ratio of the total population. Interviews with people familiar with the issue confirmed no evidence that the Food Stamp Program had been primarily made use of by women in households.²⁵

Summing up the effectiveness and impacts, 23 Policy Actions (Triggers for DPL2, narrative summary) out of a total of 24 have been achieved at the time of the ex-post evaluation. In addition, 20 policy actions have achieved or partially achieved the targets of the indicators. Thus, it can be said that progress had been made in fiscal balances and foreign exchange reserves under the Stable macroeconomic management before the COVID-19 pandemic. Although the fiscal balance has been negative since then, there has been no serious concern regarding the government's ability to serve external debt, thanks to the buffers built against external shocks. Regarding the "Promotion of helping the socially vulnerable" pillar, adequate budgets have been ensured to protect the socially vulnerable, and certain progress, albeit limited, has been made toward strengthening the social service delivery system and enhancing the quality of life of the vulnerable people. Mongolia's poverty headcount rate improved continuously throughout 2016–2020 while income inequality had not increased. Moreover, even in the Enhancing economic growth pillar, where continuous support based on a long-term perspective is required, certain positive outcomes can be observed in the development of industrial human resources and infrastructure. Furthermore, through the formulation of the international aid package, the Project contributed greatly to the avoidance of Mongolia's default and enormous fiscal and economic difficulties.

In light of the above, the Project has achieved most of its objectives. Therefore, the effectiveness and impacts of the Project are high.

3.3 Sustainability

3.3.1 Policy and System

The Mongolian government had implemented measures for reducing expenditures, mobilizing revenues, consolidating state budgets, and enhancing fiscal discipline, and consequently had made progress in fiscal stabilization, public debt reduction, and foreign exchange reserve accumulation. Since 2020, however, various special measures have been put in place to cope with the COVID-19 pandemic,²⁶ and in 2021 the Fiscal Stabilization Law was temporarily revised. In addition, the

²⁴ *Main Aspects of the Food Stamp Program* (analytical report for ADB research), Bayarkhuu Tsookhuu, 2021, Ulaanbaatar.

²⁵ The Mongolian government is concerned that the expansion of social protection benefits, such as the Food Stamp Program and the Child Money Program, during the COVID-19 pandemic has been reducing the female labor force participation rate. (Interview with the World Bank Mongolia Country Office (March 2022)).

²⁶ The measures include the following: tax exemptions on several imported food and medical items; increase of Child Money allowance and unemployment benefits; increase of Food Stamp benefits; exemptions/reductions on personal income tax, corporate income tax and social security contributions; exemption of rent income tax; and an increase in

complete withdrawal of the BOM from the Housing Mortgage Program has been postponed by the Anti-Pandemic Law (April 2020) until the end of 2023. The targeting of welfare recipients and the efficiency of the social protection system have also receded as all children became eligible for the Child Money Program from 2020 onward, and its (monthly) allowance was raised fivefold from MNT 20,000 to MNT 100,000. Because most of them were enacted as temporary and time-bound measures under the heightened state of readiness, they are not likely to reduce the sustainability of the Project immediately. Still, the impact of China's zero-COVID policy and the Russian invasion of Ukraine should be watched carefully.

3.3.2 Institutional/Organizational Aspect

At the time of the appraisal, the inter-ministerial working group was established at the Ministry of Finance with its Development Financing Department as secretariat. As the Vice-Minister of Finance presided over the working group, the coordination among various executing and related agencies and the development partners was managed effectively. However, since the Project Completion Report (March 2018) and the appraisal mission for Phase 2 of this Project (January 2019), no systematic monitoring of the policy matrix has been implemented. At the time of the appraisal, the appraisal report specifically stated that “to follow up on the effects of the policy reforms, we request the Development Financing Department of the Ministry of Finance to continue policy discussions and establish a forum to sustain the effects of the policy reforms even after the completion of this project.” Yet, because the subsequent phases of the Project have never been implemented, both Japanese and Mongolian officials, when interviewed at the time of the ex-post evaluation, had no recognition that a new forum had been expected to be formed to sustain the effects of the policy reforms after the project completion.

Note that there was an organizational restructuring between the Ministry of Finance and the Ministry of Economic Development in February 2022 during the ex-post evaluation, and the organizational structure of the Ministry of Finance has been changed.²⁷ The Development Financing Department, the focal point for the Project, has been reorganized into the Development Financing and Investment Department.

3.3.3 Preventative Measures to Risks

Amid growing concerns over the impact of China's zero-COVID policy and the war in Ukraine, the Government of Mongolia formulated the *Government Debt Management Strategy 2023–2025*, which consists of the basic policies of maintaining macroeconomic stability, reducing government debt servicing costs, and supporting domestic bond markets; at the time of the ex-post evaluation,

credit guarantees to SMEs and soft loans from the DBM to cashmere producers.

²⁷ *Resolution of the Government of Mongolia Number 76: Organizational Structure and the Limit of the Number of Officials at Ministry of Finance*, February 2022, Ulaanbaatar.

the strategy has been being debated in the Parliament. By setting clear budget priorities and cutting spending, the government has envisioned a scenario of bringing down the fiscal deficit from 8.8% of GDP in 2021 to 3.6% in 2022.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The Project has been implemented to support the Mongolian government's policy reform efforts in fiscal, social, and economic areas through financial support and policy dialogue. It aimed to achieve stable macroeconomic management, promotion of helping the socially vulnerable, and enhancing economic growth, so as to enable fiscal, social, and economic stabilization in Mongolia. Through co-financing with other development partners, the Project supported reforms in the areas above, such as fiscal and financial policy, social protection, and industrial development, and thus has been consistent with the development policy and needs of Mongolia. The Project's plan and approach were also appropriate. Moreover, the Project has been consistent with Japan's ODA policy and internally coherent with JICA's other related projects. Furthermore, external coherence is recognized through close coordination and complementarity with other development partners. Therefore, its relevance and coherence are very high. The Project contributed greatly to helping Mongolia avert a debt default. In addition, with the implementation of the Project, such undertakings as reducing expenditures, mobilizing revenues, consolidating state budgets, as well as enhancing fiscal discipline, have all gained ground, which in turn helped advance fiscal stabilization, public debt reduction, and foreign exchange reserve accumulation. Although part of the reforms has been since suspended or reversed for the sake of combating COVID-19, the Project has helped promote Mongolia's macroeconomic stability significantly. During the reform period, poverty decreased modestly as sufficient funding had been allocated for social protection, including that for the Food Stamp Program, for protecting the vulnerable from the adverse effects of fiscal and monetary policy tightening. Whereas continuous support based on a long-term perspective will be essential for improving the investment climate and diversifying the economy, certain positive outcomes can be observed in the development of industrial human resources and infrastructure. Therefore, the effectiveness and impacts of the Project are high.

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

It is becoming increasingly important to brace for external conditions such as China's zero-COVID policy and the war in Ukraine. To strengthen support for the socially vulnerable while ensuring fiscal discipline, it is desirable to accelerate the efforts to enhance the efficiency of the social protection system by expanding targeting and consolidating programs. It is also necessary

to steadily implement banking sector reforms to address issues such as strengthening bank supervision and regulation and improving banks' governance.

4.2.2 Recommendations to JICA

Since the completion of the Project, no policy discussions or regular meetings on the monitoring of the policy matrix have been held between the Japanese and Mongolian sides, despite the good communication between JICA and Mongolia's Ministry of Finance. At the time of the ex-post evaluation, there were several ministries and organizations that had absolutely no idea on the status of achievement of the relevant policy action indicators. JICA should have played a more active role in the support and monitoring of the policy reforms.

4.3 Lessons Learned

(1) Reconsider whether to specify the precondition for implementing the next phase in the policy matrix

Implementation of Phase 2 of the Project was automatically called off because the EFF being on-track was specified as its precondition in the policy matrix but the EFF became off-track. Although similar specifications can be seen in similar projects, it should have been possible not to include the precondition in the policy matrix so as to leave room for JICA's discretion to make the final decision on the implementation of the subsequent phase on its own. Though this is a co-financing project under the international aid framework anchored to the IMF's EFF, even in 2019, ADB provided general budget support to Mongolia.²⁸ By deliberately not specifying it in the policy matrix, JICA can also avoid giving the impression that it is a junior partner who just follows IMF's decisions.

(2) Improve the leverage of reform implementation by administering loans in multiple disbursements

In DPLs, it is necessary to set policy actions whose status of achievement can be assessed in a relatively short period of time, although it takes time for the effects of policy reforms to materialize. Thus, it is always a challenge to support and monitor reform implementation, which needs continuous efforts. Through administering loans in multiple disbursements; therefore, it is desirable to use leverage to incentivize the recipient country to implement policy actions speedily and properly. For example, an option would be to divide a loan into multiple phases and sign a loan agreement for each phase (Phase type), as originally planned for the Project, or divide a loan into multiple tranches under a single loan agreement (Tranche type).²⁹

²⁸ ADB disbursed general budget support of USD 30 million and USD 100 million in the third and fourth quarters of 2019, respectively. In addition, South Korea provided a project loan of USD 20 million in the third quarter of 2019.

²⁹ Because a policy matrix is stipulated in a loan agreement, the phase type should be adopted if the matrix needs revising.

(3) Enhance project outcomes by further strengthening linkage with related JICA projects

The Project has made a certain contribution to the development of industrial human resources and infrastructure through collaboration with related technical cooperation, grant, and loan projects. Thus, it is fair to say that this approach could be effective in the support of continuous reform efforts. By applying this approach more actively when formulating a policy matrix, and/or clearly stating in the terms of reference of related JICA projects the support and monitoring of policy actions, the outcomes of DPLs must be further enhanced.

5. Non-Score Criteria

5.1. Performance

5.1.1 Objective Perspective

At the time of the appraisal, the Project had to be formulated urgently through discussions and close coordination with a number of executing and related ministries and organizations, as well as development partners. Although it was a challenging project, JICA's regional department and Mongolia Office had played a key role in compiling and getting approval on the policy matrix, and implemented the discussions and information gathering in an agile manner. Other development partners also appreciate the fact that JICA has helped create mutually coherent policy matrices through exchanging information with each other and assessing macroeconomic conditions and policy issues. During the appraisal mission in May 2017, the JICA team made good coordination with the Ministry of Finance and the inter-ministerial working group beforehand, and devised ways to hold as many meetings with government officials as possible within a limited time, by arranging one-to-one meetings with the executing and related ministries and organizations sequentially in the same Ministry of Finance room.

One of the reasons why JICA was able to make the best of an opportunity like this Project is that JICA Office has long established and maintained good communication with the Ministry of Finance and other ministries and organizations. The JICA Mongolia Office has had an experienced national staff member who is highly proficient in Japanese and has thorough knowledge of JICA projects and local affairs. At the time of the appraisal, this national staff member worked closely with the staff in the regional department, while taking advantage of the knowledge and network that she had built with internal and external stakeholders. This staff member contributed extensively to making efficient coordination possible for compiling and gaining approval on the policy matrix.

5.2. Additionality

JICA has formulated a policy matrix that incorporates the policy actions JICA prioritized in its ODA policy for Mongolia, such as the development of human resources and legal systems in the

“Enhancing economic growth” pillar. As a result, the Project has generated certain positive outcomes in its support for the implementation of the policy reform by demonstrating JICA’s strengths and complementing other development partners’ assistance. In the fiscal area, based on Japan’s experience, the *Project for Enhancing Tax Collection Operation and International Tax Issues of Mongolian Tax Administration* provided support and advice for the human resources development of the staff in international taxation and for tax reform, and thus contributed to the strengthening of revenue mobilization, including the introduction of self-enforcement taxes.

Policy Cluster	Main Prior Action (Action already taken)	Main Action to be Monitored (Trigger for DPL2)	Status of Achievement on Policy Action (Trigger for next DPL) (○=Achieved, △=Partially Achieved, ×=Not Achieved)	Indicator	Baseline (2016/12)	Target (2019/12)	Status of Achievement on the Target of Policy Action's Indicator (○=Achieved, △=Partially Achieved, ×=Not Achieved)				
Precondition	Formulation of international financing package based on IMF' EFF	EFF is on-track by IMF's review									
ure review	terminates the Promissory Note Program, to prevent using deferred payments to finance capital expenditure [WB]	Public Investment Rationalization Guideline [WB]	Public Investment Rationalization Guideline would be approved by the Cabinet by the end of 2018.	expenditure to settle the Promissory Note Program	billion	billion in 2017-19	Parliament Resolution No. 47 of 2016, the government cleared the balance of promissory notes in 2016 and stopped using promissory notes from 2017 to terminate the program.				
Related Project(s): Data Collection Survey on the Development Policy and Public Investment (Oct. 2016 - Feb. 2017)											
					Indicator	2016	2017	2018	2019	2020	2021
					Capital expenditure to settle the Promissory Note Program (MNT billion)	659.5	0	0	0	0	0
Source: Ministry of Finance											
1.3 Revenue mobilization	Increase the personal income tax rates on high income groups and the excise taxes on alcohol and tobacco [WB]	Streamline tax exemptions [IMF/WB]	The Parliament introduced a progressive PIT system in February 2018. The government also increased the excise taxes on alcohol and tobacco by 20% between 2018 and 2020 according to the amendment to the Excise Tax Law, which was made in April 2017. In addition, the government increased taxes on vehicle, while having reduced the tax benefits for hybrid cars, to mobilize the revenue. The second taxation reform (i.e., amendments to the General Law on Taxation,	○ Aggregate tax revenues from Personal Income Tax and excise tax on alcohol and tobacco to GDP	3.3%	3.7%	According to the MOF-provided data, the tax revenue was 3.35% of nominal GDP in 2019 and 3.45% in 2021, and thus the target had not been achieved. The IMF Article IV consultation report (2021), on the other hand, indicates that the tax revenue from the PIT and the excise taxes on alcohol and tobacco was 4.7% of GDP in 2019 and 4.4% of GDP in 2020, and thus the target had been achieved.	△			
Related Project(s): Project for Enhancing Tax Collection Operation and International Tax Issues of Mongolian Tax Administration (Phase1: Nov. 2013 - Oct. 2016, Phase2: Jan. 2017 - Jan. 2020)											

Policy Cluster	Main Prior Action (Action already taken)	Main Action to be Monitored (Trigger for DPL2)	Status of Achievement on Policy Action (Trigger for next DPL) (○=Achieved, △=Partially Achieved, ×=Not Achieved)	Indicator	Baseline (2016/12)	Target (2019/12)	Status of Achievement on the Target of Policy Action's Indicator (○=Achieved, △=Partially Achieved, ×=Not Achieved)		
Precondition	Formulation of international financing package based on IMF' EFF	EFF is on-track by IMF's review							
				Source: Bank of Mongolia					
Fiscal Discipline	1.6	Establishment of the Fiscal Council	Revise the relevant budget laws to establish the Fiscal Council [IMF]	○	Establishment of the Fiscal Council	Not established	Established	The Fiscal Council was established by the Parliament resolution No. 83 of 2017 and now operates under the auspices of the Standing Committee on Budget.	○
	1.7	Strengthening budget control by Ministry of Finance	Revise the Integrated Budget Law to prevent from expenditure expansion pressure by the Parliament [IMF]	○	Revision of the Integrated Budget Law to prevent from expenditure expansion pressure by the Parliament	Not revised	Revised, and fiscal deficit is decreased	The Integrated Budget Law was revised in November 2017. The fiscal balance, which was a deficit of 15.3% of GDP in 2016, turned into a surplus in 2018. The size of the deficit became 2.0% of GDP in 2019, which accomplished the target deficit of 6.9% by a wide margin. To cope with the COVID-19 pandemic, however, the expenditure has increased since 2020, and the fiscal balance became a deficit of 12.0% and 8.8% in 2020 and 2021, respectively.	△
				Related Project(s): Capacity Development Project for Internal Audit (Phase 1: Jan. 2012 - Jul. 2014, Phase 2: Sep. 2014 - Aug. 2017)					
Banking	1.8	Addressing Non-Performing Loan	Establish the interagency working group to support creation of the legal and institutional framework of an Asset Management Company [ADB/IMF]	△	Establishment of the Asset Management Company	Not established	Established	The bill to establish an Asset Management Company (AMC) was submitted to the Parliament in July 2019 but has not been approved. With regard to the AMC's role in the handling of non-performing	×

Policy Cluster	Main Prior Action (Action already taken)	Main Action to be Monitored (Trigger for DPL2)	Status of Achievement on Policy Action (Trigger for next DPL) (○=Achieved, △=Partially Achieved, ×=Not Achieved)	Indicator	Baseline (2016/12)	Target (2019/12)	Status of Achievement on the Target of Policy Action's Indicator (○=Achieved, △=Partially Achieved, ×=Not Achieved)			
Precondition	Formulation of international financing package based on IMF' EFF	EFF is on-track by IMF's review								
			working group was established, and the draft bill to create a corporate debt restructuring committee was prepared. By the end of 2017, PriceWaterhouseCoopers completed an Asset Quality Review (AQR), which covered up to 91 percent of all corporate loans in the banking sector.				loans, no consensus has been formed among major development partners and BOM. While ADB had pushed for the establishment of the AMC, the IMF had rather prioritized the recapitalization and restructuring of banks, mainly out of its concerns over the issues such as (1) the occurrence of moral hazard, (2) funding sources required for the establishment of the AMC, and (3) its governance.			
1.9	Strengthening of bank supervision and regulatory framework	BOM proposes steps to rehabilitate the banking sector [ADB]	BOM implements rules for capital regulation and early intervention and bank resolution in line with international best practices [ADB/IMF]	The new Bank of Mongolia Law was approved by the Parliament in January 2018. The changes were made to establish the Monetary Committee and for introducing a new procedure for making decisions through the Supervisory and Monitoring Committee and the Advisory Council under the Governor of the BOM.	○	Implementation of rules for capital regulation and early intervention and bank resolution in line with international best practices	Not introduced	Introduced, and unachieved banks are consolidated	From 2018 to 2021, a series of amendments had been made to the Bank of Mongolia Law, and rules for early intervention and bank resolution were introduced and enforced for the strengthening of bank supervision and regulatory framework. Although the IMF has been requesting the BOM to conduct an AQR, and to recapitalize/nationalize banks that have not met the capital requirements (in the case of five largest systemically important financial institutions) or consolidate/	△

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Precondition	Formulation of international financing package based on IMF' EFF	EFF is on-track by IMF's review					
							restructure them (in the case of small and medium-sized banks), the BOM has taken the position that Basel II and III regulations should not apply to Mongolia's underdeveloped capital market immediately in a strict manner. The BOM amended the Banking Law in February 2021 to strengthen bank capital and reduce shareholder concentration, and required the five largest banks to convert their ownership structures to joint stock companies and make initial public offerings (IPOs) by the end of June 2022. The BOM also announced the restrictions on shareholding that require all commercial banks to limit individual shareholder ownership up to 20% by the end of 2023. While commending BOM's reform efforts, the IMF requested the BOM to postpone the deadline for the IPOs during a meeting in May 2022, citing the importance of conducting a new AQR first, and the BOM agreed to extend the deadline for the IPOs for

Policy Cluster	Main Prior Action (Action already taken)	Main Action to be Monitored (Trigger for DPL2)	Status of Achievement on Policy Action (Trigger for next DPL) (○=Achieved, △=Partially Achieved, ×=Not Achieved)	Indicator	Baseline (2016/12)	Target (2019/12)	Status of Achievement on the Target of Policy Action's Indicator (○=Achieved, △=Partially Achieved, ×=Not Achieved)				
Precondition	Formulation of international financing package based on IMF' EFF	EFF is on-track by IMF's review					Mongolian market.				
2. Promotion of Helping the Socially Vulnerable											
2.1	Targeted social welfare to the vulnerable people	Maintain budget allocation for the poverty-targeted Food Stamp Program in the 2017 Supplementary budget [WB]	Increase the budget provisions for the poverty-targeted Food Stamp Program in line with MTFF (Medium-term fiscal framework) allocations [WB]	The budget amount increased from MNT 2 billion in 2017 to MNT 3.6 billion in 2018.	○ - Number of Households to receive Food Stamp Program - Amount of Food Stamp Program per household	- 26,000 households - MNT 45,500 per household	Expansion in both the coverage and monthly benefit from baseline	○ The number of households that received the Food Stamp Program benefits increased more than 70% over a period of 2016–2019. The average (monthly) benefit per household also increased by 23% from MNT 45,500 in 2016 to MNT 56,000 for 2017–2019. As a countermeasure against COVID-19, the average benefit per household was temporarily raised to MNT 112,000 in 2020. The decrease in the number of households receiving benefits in 2021 was due to a decrease in the number of households that met the eligibility criteria.			
					Indicator	2016	2017	2018	2019	2020	2021
					No. of households to receive Food Stamp Program	26,076	45,458	47,311	44,801	44,348	31,160
					Avg. monthly benefit per household of five (two adults, three children) (MNT)	45,500	56,000	56,000	56,000	112,000	56,000

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Precondition	Formulation of international financing package based on IMF' EFF	EFF is on-track by IMF's review							
				Source: Ministry of Finance					
2.2	Strengthening of the social service delivery system	<u>Ministry of Health confirms the necessary governmental procedures for policy and guiding principal on health facilities, workshop on training of trainers for medical educators [JICA]</u>	<u>Ministry of Health authorizes the policy and guiding principle on workshop on training of trainers for medical educators [JICA]</u>	○	Workshop on training of trainers for medical educators	The draft proposal for the policy and guiding principal is discussed by the working group	Workshop on training of trainers for medical educators is continuously implemented	Workshops on training of trainers for medical educators have been firmly rooted in Mongolia. As of November 2019, more than 20 workshops had been held and more than 500 medical trainers had been trained.	○
				Related Project(s): Project for Strengthening Post-graduate Training for Health Professionals in Primary and Secondary Level Health Facilities (May 2015 -May 2020)					
		<u>Ministry of Health and Ministry of Education, Culture, Sports and Science share the necessity of the collaboration work for the future post-graduate training at Mongolian National University of Medical Sciences [JICA]</u>	<u>Confirm the process for their collaboration to strengthen the implementation framework of post-graduate training program for professionals working in health facilities [JICA]</u>	○	Framework of post-graduate training program for professionals working in health facilities	Not existed	Establish framework to implement	The post-graduate training curriculum for medical doctors has been developed based on Japan's medical internship system, and both facilitators who train trainers and trainers have been trained. In October 2018, postgraduate training was conducted at the Regional Diagnostic and Treatment Center of Orkhon Province. The RDTC Orkhon and four other hospitals, including the Third State Hospital, are registered as designated training hospitals.	○
				Related Project(s): ditto, Project for the Establishment of Hospital Management and Medical Services at the Mongolia-Japan Teaching Hospital (Mar. 2017 - Mar. 2022), Project for Construction of Mongolia-Japan Teaching Hospital (May 2015 G/A)					
2.3	Enhancing the	<u>Cabinet approves the action plan of Master</u>	<u>Select a model site for a land readjustment</u>	○	Selection and	Not selected	Selected, and its	Two ger districts of Chingeltei and Sukhbaatar	○

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Precondition	Formulation of international financing package based on IMF' EFF	EFF is on-track by IMF's review						
quality of life of the vulnerable people	<u>Plan including ger area development</u> [JICA]	<u>project</u> [JICA]	March 2018, it was confirmed that analysis and research had been conducted by the Project for Improvement of Capacity for Implementation of Ulaanbaatar Master Plan in selected areas for the land readjustment project.	development of a model site for a land readjustment project		infrastructure is developed	were selected as model districts for the land readjustment project, and the model districts of approximately 420 households in total, which equipped with water (water supply and sewage for Chingeltei and sewage only for Sukhbaatar) and heating systems, have been developed. Approximately 85% of households in Chingertei and 55% in Sukhbaata were connected to water and heating systems. The development of the model districts, however, has not been implemented since then, because of the lack of budget.	
	<u>Related Project(s): Project for Improvement of Capacity for Implementation of Ulaanbaatar Master Plan (Sep. 2014 - Dec. 2018)</u>							
	<u>Cabinet approves National Environment and Air Pollution Program</u> [JICA]	<u>Transfer energy from inefficient coal firing in ger area</u> [JICA]	In January 2018, the Parliament approved the amendments of the Air Law, the Air Pollution Fee Law, and other related regulations.	○ Air quality	PM2.5 - 256µg/m3 PM10 - 279µg/m3 SO2 - 89µg/m3	Improved from baseline	Based on the government resolution adopted in February 2018, Ulaanbaatar City has banned the use of crude coal since May 2019 (excluding some cases where corporations have licenses) and has been promoting the use of more efficient type of coal. According to the data from the National Statistics	△

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Precondition	Formulation of international financing package based on IMF' EFF	EFF is on-track by IMF's review					Office, the annual average concentration of particulate matter, PM2.5 and PM10, in the air has been dramatically decreased since 2019 and 2020. The concentration of sulfur dioxide (SO2) in the air, on the other hand, has risen substantially, probably due to a dramatic increase in traffic volume. (There is another explanation that the quality of gasoline and light oil imported from Russia has deteriorated in recent years.)																												
<p>Related Project(s): Capacity Development Project for Air Pollution Control in Ulaanbaatar City (Phase 1: Mar. 2010 - Mar. 2013, Phase 2: Dec. 2013 - Jun. 2017)</p> <table border="1"> <thead> <tr> <th>Indicator</th> <th>2016</th> <th>2017</th> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> </tr> </thead> <tbody> <tr> <td>PM2.5 (mg/m3)</td> <td>0.070</td> <td>0.069</td> <td>0.062</td> <td>0.088</td> <td>0.043</td> <td>0.042</td> </tr> <tr> <td>PM10 (mg/m3)</td> <td>0.116</td> <td>0.123</td> <td>0.118</td> <td>0.093</td> <td>0.089</td> <td>0.080</td> </tr> <tr> <td>SO2 (mg/m3)</td> <td>0.026</td> <td>0.020</td> <td>0.018</td> <td>0.026</td> <td>0.042</td> <td>0.046</td> </tr> </tbody> </table> <p>Source: The evaluator's estimation based on data from the National Statistics Office of Mongolia Note: The measuring point is West 4 Road Cross.</p>								Indicator	2016	2017	2018	2019	2020	2021	PM2.5 (mg/m3)	0.070	0.069	0.062	0.088	0.043	0.042	PM10 (mg/m3)	0.116	0.123	0.118	0.093	0.089	0.080	SO2 (mg/m3)	0.026	0.020	0.018	0.026	0.042	0.046
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3. Enhancing Economic Growth																																			
3.1	Promoting FDI	Both Japanese and Mongolian governments agree to achieve the conclusion of the tax treaty for the elimination of double taxation and the prevention of tax evasion and avoidance which enhances the robust	Progress is made towards the conclusion of the tax treaty for the elimination of double taxation and the prevention of tax evasion and avoidance which enhances the robust investment and	In consultation with IMF's tax working group, the legal regulation on transparency and free exchange of the information from the banks and financial institutions had been fully reflected in the draft Amendment to the Tax Laws.	○	Conclusion of Tax Treaty between Japan and Mongolia	Not concluded	Concluded (in 2021)	The Tax Treaty has not been concluded. The Mongolian government revoked some of the treaties it had concluded in the past, claiming that the tax treaties had been abused by international corporations as tax	×																									

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Precondition	Formulation of international financing package based on IMF' EFF	EFF is on-track by IMF's review								
3.2. Improving the investment climate and diversifying the economy	<u>Concession contract negotiation for New Ulaanbaatar International Airport operation is started</u> [JICA]	<u>Provide support for successful negotiation of the concession contract for New Ulaanbaatar International Airport operation and expedite the completion of related facilities</u> [JICA]	The cooperation agreement with regard to the concession contract was signed by the Japanese and Mongolian sides in January 2018, and the concession agreement on the operation of the airport was acquired by a Japan-Mongolia joint venture in July 2019.	○ - New Ulaanbaatar International Airport - Number of annual passengers -Contribution to the GDP by tourism	- Not opened - 1.0 million people - 1% (in 2015)	- Opened - 1.2 million people - 1.2%	The opening of the New Ulaanbaatar International Airport, for which a consortium of Japanese companies had carried out all phases from construction to operation, delayed partly because of the COVID-19 pandemic. However, the airport finally opened in July 2021. The number of passengers had already exceeded 1.25 million in 2017 and reached 1.62 million in 2019. However, due to the COVID-19 pandemic, it decreased to less than 450,000 in 2020. Before the COVID-19 pandemic, tourism accounted for 7.2% of GDP in 2019 (World Bank).			
Related Project(s): New Ulaanbaatar International Airport Construction Project (Phase 1: May 2008, Phase 2: April 2015 L/A)										
				Indicator	2016	2017	2018	2019	2020	2021
				No. of international flight passengers	790,459	926,951	1,020,891	1,188,204	285,674	--
				No.	232,586	325,055	401,607	433,367	161,804	--

Policy Cluster	Main Prior Action (Action already taken)	Main Action to be Monitored (Trigger for DPL2)	Status of Achievement on Policy Action (Trigger for next DPL) (○=Achieved, △=Partially Achieved, ×=Not Achieved)	Indicator	Baseline (2016/12)	Target (2019/12)	Status of Achievement on the Target of Policy Action's Indicator (○=Achieved, △=Partially Achieved, ×=Not Achieved)				
Precondition	Formulation of international financing package based on IMF' EFF	EFF is on-track by IMF's review									
				of domestic flight passengers							
				Total	1,023,045	1,252,006	1,422,498	1,621,571	447,478	--	
				Source: National Statistics Office of Mongolia							
	<u>Financial Regulatory Commission approved revised Guideline for Risk-Based Supervision of Securities Companies [JICA]</u>	<u>Financial Regulatory Commission renovates capacity development system of the capital market [JICA]</u>	In December 2017, the <i>Capital Market Textbook</i> was developed.	○	Number of Certified Securities Broker Representatives	0 people	100 people	The Mongolian Securities Dealers Association has been providing training for specialists, such as dealers, brokers, and investment advisors, to certify them. In 2021, 286 securities broker representatives were newly certified, and the total number of the representatives trained reached 969. The interest to obtain the professional certification has been growing. Due to the COVID-19 pandemic, all three training sessions, as well as examinations, were conducted online in 2021.	○		
				<u>Related Project(s):</u> Project for Capacity Building of Capital Market in Mongolia (Phase 1: Jul. 2014 - Jun. 2017, Phase 2: Mar. 2019 - Feb. 2022)							
					Indicator	2016	2017	2018	2019	2020	2021
					No. of Certified Securities Broker Representatives	0	149	180	172	182	286
				Source: Financial Regulatory Commission							
	<u>Authority for Fair</u>	<u>AFCCP submits the</u>	With support of the Fair	△	Amendment	Not drafted	Execute	The amendment of the	×		

Policy Cluster	Main Prior Action (Action already taken)	Main Action to be Monitored (Trigger for DPL2)	Status of Achievement on Policy Action (Trigger for next DPL) (○=Achieved, △=Partially Achieved, ×=Not Achieved)	Indicator	Baseline (2016/12)	Target (2019/12)	Status of Achievement on the Target of Policy Action's Indicator (○=Achieved, △=Partially Achieved, ×=Not Achieved)	
Precondition	Formulation of international financing package based on IMF' EFF	EFF is on-track by IMF's review						
	<u>Competition and Consumer Protection</u> <u>holds seminars leading to the drafting of</u> <u>Competition Law</u> <u>amendment and</u> <u>establishes a working</u> <u>group</u> [JICA]	<u>amendment of</u> <u>Competition Law for</u> <u>parliament discussion</u> <u>and starts preparation of</u> <u>related regulations and</u> <u>guidelines</u> [JICA]	Trade Commission of Japan, advice and assistance had been provided for the draft amendment of the Competition Law. The amendment of the Competition Law was submitted by the AFCCP to Deputy Prime Minister in November 2017, and the Deputy Prime Minister issued a letter to the Ministry of Justice and Internal Affairs and the Ministry of Finance in May 2018 to request the approval of the amendment. However, it had never been discussed and later reverted. Although a new amendment was submitted again in December 2018, the Parliament rejected it by a parliament resolution on the ground that the Constitution of Mongolia had been amended and the amendment to the Competition Law must be revised accordingly.	of Competition Law		amended laws, related regulations, and guidelines	Competition Law has not been re-submitted to the Parliament. After the 2020 Parliamentary elections, the Standing Committee on Innovation and e-Policy and the Standing Committee on Industrial Policy were established in the Parliament, and the Ministry of Culture was established in the Government. As a result, it became necessary for the draft amendment to be discussed again by these standing committees and the ministry. Although a new draft amendment was put together by the AFCCP and submitted to the Ministry of Justice and Internal Affairs and the Ministry of Finance in July 2021 for the approval of having it discussed in a Cabinet meeting, both ministries opposed to the submission of the draft amendment to the Cabinet because their comments had not been fully reflected in the final draft.	
	<u>Dispatch foreign</u>	<u>Develop engineering</u>	At the time of the Project	○ Number of	24 people	70 people	The number of foreign	○
<p><u>Related Project(s):</u> Project for Enhancement of the Fair Competition Environment in Mongolia (Phase 1: Sep. 2015 - Sep. 2018, Phase 2: Jan. 2020 - Dec. 2022)</p>								

Policy Cluster	Main Prior Action (Action already taken)	Main Action to be Monitored (Trigger for DPL2)	Status of Achievement on Policy Action (Trigger for next DPL) (○=Achieved, △=Partially Achieved, ×=Not Achieved)	Indicator	Baseline (2016/12)	Target (2019/12)	Status of Achievement on the Target of Policy Action's Indicator (○=Achieved, △=Partially Achieved, ×=Not Achieved)														
Precondition	Formulation of international financing package based on IMF' EFF	EFF is on-track by IMF's review																			
	<u>(Mongolian) students to National Institutes of Technology in Japan</u> [JICA]	<u>human resources for economic diversification</u> [JICA]	Completion Report in March 2018, it was confirmed that a total of 54 students were studying at National Institutes of Technology.	Foreign (Mongolian) students dispatched to National Institutes of Technology in Japan			(Mongolian) students dispatched to National Institutes of Technology reached a cumulative total of 115 in 2019. It reached 177 as of January 2021. The new target is to dispatch 200 foreign students by March 2024.														
	<u>Related Project(s):</u> Higher Engineering Education Development Project (Mar. 2014 L/A)																				
	<table border="1"> <thead> <tr> <th>Indicator</th> <th>2016</th> <th>2017</th> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> </tr> </thead> <tbody> <tr> <td>No. of foreign (Mongolian) students dispatched to NITs in Japan (cumulative)</td> <td>30</td> <td>56</td> <td>85</td> <td>115</td> <td>149</td> <td>177</td> </tr> </tbody> </table>							Indicator	2016	2017	2018	2019	2020	2021	No. of foreign (Mongolian) students dispatched to NITs in Japan (cumulative)	30	56	85	115	149	177
Indicator	2016	2017	2018	2019	2020	2021															
No. of foreign (Mongolian) students dispatched to NITs in Japan (cumulative)	30	56	85	115	149	177															
	Source: Ministry of Education and Science																				
	<u>Develop Mid-Term Operation Plan of Mongolia-Japan Center for Human Resources Development including projects strengthening business human resources</u> [JICA]	<u>Increase SMEs which take business courses at Mongolia-Japan Center for Human Resources Development</u> [JICA]	At the time of the Project Completion Report in March 2018, it was confirmed that a total of 527 SMEs had taken business courses at the Mongolia-Japan Center for Human Resources Development by the end of February 2018.	○ Number of SMEs which take business courses at Mongolia-Japan Center for Human Resources Development	468 companies by 2015	600 companies by 2019	The number of SMEs that have taken the Mongolia-Japan Center's flagship "regular courses" (SME management diagnosis and hands-on guidance) reached a cumulative total of 843 by the end of 2019 and 1,098 by the end of 2021, respectively. As of 2022, the regular courses, which consist of a six-topic senior management class and a four-topic management class, are being offered twice a year in autumn and winter.														

Policy Cluster	Main Prior Action (Action already taken)	Main Action to be Monitored (Trigger for DPL2)	Status of Achievement on Policy Action (Trigger for next DPL) (○=Achieved, △=Partially Achieved, ×=Not Achieved)	Indicator	Baseline (2016/12)	Target (2019/12)	Status of Achievement on the Target of Policy Action's Indicator (○=Achieved, △=Partially Achieved, ×=Not Achieved)														
Precondition	Formulation of international financing package based on IMF' EFF	EFF is on-track by IMF's review																			
				<p>Related Project(s): Project for Enhanced Function of Mongolia-Japan Center for Human Resources Development for Capacity Development and Networking of Business Persons (Apr. 2015 - Apr. 2020)</p> <table border="1"> <thead> <tr> <th>Indicator</th> <th>2016</th> <th>2017</th> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> </tr> </thead> <tbody> <tr> <td>No. of SMEs which have taken business courses at Mongolia-Japan Center for Human Resources Development (cumulative)</td> <td>542</td> <td>624</td> <td>707</td> <td>843</td> <td>958</td> <td>1098</td> </tr> </tbody> </table> <p>Source: Mongolia-Japan Center for Human Resources Development</p>				Indicator	2016	2017	2018	2019	2020	2021	No. of SMEs which have taken business courses at Mongolia-Japan Center for Human Resources Development (cumulative)	542	624	707	843	958	1098
Indicator	2016	2017	2018	2019	2020	2021															
No. of SMEs which have taken business courses at Mongolia-Japan Center for Human Resources Development (cumulative)	542	624	707	843	958	1098															
	<p><u>Business environment seminars for Japanese companies are held in Japan. Mongolia Business Guidebook and Yellow-Page are issued for Japanese companies [JICA]</u></p>	<p><u>Hold a follow-up seminar in Mongolia and strengthen business matching activities [JICA]</u></p>	<p>In November 2017, the Japan-Mongolia Business Forum (Invest Mongolia Tokyo 2017) was held in Tokyo. In addition, a business seminar was held at JETRO Headquarters in February 2018, and Invest Mongolia Tokyo 2018 was held in November 2018.</p>	○	30 companies	100 companies by 2019	<p>The target has not been achieved because no follow-up seminars have been held in Mongolia. However, the Japan-Mongolia Business Forum (Invest Mongolia Tokyo 2019) held in Tokyo in December 2019 was attended by more than 200 delegates from Japanese companies and government agencies, and more than 40 delegates from Mongolia. Also, the Mongolia-Japan Business Forum was held online in May 2021, and over 400 Japanese and Mongolian delegates attended the forum.</p>	×													
				<p>Related Project(s): Data Collection Survey on Business Environment and Investment Promotion (Nov. 2015 - Mar. 2017)</p>																	

Policy Cluster	Main Prior Action (Action already taken)	Main Action to be Monitored (Trigger for DPL2)	Status of Achievement on Policy Action (Trigger for next DPL) (○=Achieved, △=Partially Achieved, ×=Not Achieved)	Indicator	Baseline (2016/12)	Target (2019/12)	Status of Achievement on the Target of Policy Action's Indicator (○=Achieved, △=Partially Achieved, ×=Not Achieved)
Precondition	Formulation of international financing package based on IMF' EFF	EFF is on-track by IMF's review					
	<u>Mongolian Government delegation visits Japan to discuss future cooperation project in agricultural sector</u> [JICA]	<u>Establish a working group to formulate Technical Assistance project in agricultural sector</u> [JICA]	At the time of the Project Completion Report in March 2018, it was confirmed that a request for the <i>Project for Formulation of Master Plan on Agricultural Value Chain</i> had been submitted to JICA by the Mongolian government.	○ New Project in agricultural sector	Not formulated	Approved and started	R/D for the <i>Project for Formulation of Master Plan on Agricultural Value Chain</i> (December 2020-December 2023) was signed in September 2019. Since 2020, six other projects have been implemented in the agricultural and livestock sector.
○ Related Project(s): Data Collection Survey on Agriculture and Livestock sector (Dec. 2016 - Jun. 2017)							

Note 1: Underlined actions are related to JICA technical cooperation and other projects.

Note 2: [IMF]/[WB]/[ADB] indicate that the policy actions are adopted from the policy matrix of the IMF, World Bank, and ADB, respectively. [JICA] denotes JICA's own policy actions.

India

FY 2021 Ex-Post Evaluation Report of
Japanese ODA Loan

“Andhra Pradesh and Telangana Rural High Voltage Distribution System Project”

External Evaluator: Chie Munemori, IC Net Limited

0. Summary

This Project was implemented to reduce the distribution loss of electric power for agriculture and achieve stable power supply by converting to high voltage distribution systems in rural areas of the southern Indian states of Andhra Pradesh and Telangana.

From the time of the Project appraisal to the ex-post evaluation, the objective of the Project is consistent with the policies of the Government of India and the State Governments of Andhra Pradesh and Telangana. At the time of the ex-post evaluation, the demand for electricity for agricultural use in the states of Andhra Pradesh and Telangana over the past three years showed that there is a need for efficient electricity supply, which is consistent with the development needs of the two states. At the time of the Project appraisal, Japan's ODA policy for India identified "promotion of economic growth" as a priority area, and JICA recognized "support for sustainable economic growth through the development of economic infrastructure" as a priority area. Therefore, the Project is consistent with Japan's ODA policy at the time of the Project appraisal. Thus, its relevance and coherence are high.

Regarding the efficiency of the Project, there was a change in the material and capacity of the distribution transformer (hereinafter referred to as the “DTR”), which is one of the outputs of the Project. This change was made based on a review after the Project started. The material was changed because it was less likely to be stolen and more economical than the originally planned material; thus, this change is deemed to be appropriate. Although the Project cost was within the plan, the Project period was significantly prolonged because of state bifurcation, which was difficult to foresee at the time of the Project appraisal, and re-tendering due to the excessively small scope of the civil works, which resulted in the Project period significantly exceeding the plan. Thus, efficiency of the Project is moderately low.

Regarding the effectiveness, most of the operation and effect indicators were achieved. As the calculation method for the distribution loss at the time of the Project appraisal could not be confirmed, the transition from the time of the Project appraisal to the time of the ex-post evaluation was checked using the calculation method usually adopted by the executing agencies. As for the impact, yields increased for 76% of farmers interviewed because the frequency of irrigation pump failure decreased, which reduced the burden of repair costs, and because it has become possible to use electricity for agriculture in a stable manner. Therefore, effectiveness and impact of the Project are high.

From the sustainability point of view, every executing agency has sufficient knowledge and

experience in the technical aspects. The maintenance of the equipment developed by the Project have also been implemented without confusion after the bifurcation of the Telangana State. Regarding policies and systems, the Government of India has been helping to improve the financial situation of the power distribution companies that were economically affected by COVID-19, and all the executing agencies of the Project have submitted detailed plans for using this assistance and are awaiting approval. The financial situations of the executing agencies has not changed since the time of the Project appraisal. Although they are still in the red and are being financed by the state government, sustainability of the project effect is very high as financial resources for maintenance of the equipment and materials developed by the Project have been secured to date, and there is no expectation of any change in this policy in the future.

In the light of the above, the Project is evaluated to be highly satisfactory.

1. Project Description



Project Locations



Small-Capacity DTR

1.1 Background

The Indian power sector was suffering from chronic power supply shortages. At the time of the Project appraisal (FY 2010), India was experiencing a 10.6% shortfall in power supply and a 12.1% shortfall during peak hours. Another issue was the high transmission and distribution loss¹ caused by aging distribution facilities and power theft. The transmission and distribution loss was estimated at a national average of 25.5% in FY 2010, which was extremely high compared to other developing countries such as China (7.5%) and Indonesia (16.5%). In addition, while many states have adopted an independent accounting system with the unbundling and privatization of state electricity department, and power distribution companies became able to manage themselves at their own discretion to a certain extent, their financial situation has been in deficit because electricity rates were set very low for agricultural and residential use owing to policy and social considerations, as well as because some electricity bills were not being recovered owing to theft

¹Aggregate Technical & Commercial (AT&C) loss. The AT&C loss is a combination of technical loss (technical loss + theft + inefficiency in billing) and commercial loss (default in payment + inefficiency in collection). Commercial loss is not taken into account in the distribution loss, which is one of the Project's operation and effect indicators.

and illegal metering. Such deficits of the power distribution companies were covered by state finances. Moreover, power was supplied to the irrigation pumps by extending low voltage and bare lines through a large capacity transformer, which were vulnerable to electricity theft and resulted in higher distribution losses compared to extending high voltage distribution lines.

1.2 Project Outline

The objective of this Project is to facilitate the reliability and quality of power supply to agricultural services and the reduction of distribution losses by converting to high voltage distribution systems in rural areas of the State of Andhra Pradesh and the State of Telangana,² thereby contributing to securing the stable energy supply in the states and improving the efficiency of agricultural production as well as living standards of the rural population.

Loan Approved Amount/ Disbursed Amount	18,390 million yen / 17,473 million yen
Exchange of Notes Date/ Loan Agreement Signing Date	June 2011 / June 2011
Terms and Conditions	Interest Rate 0.65% Repayment Period 40 years (Grace Period 10 years) Conditions for Procurement General untied
Borrower / Executing Agency(ies)	The President of India/ Telangana State South Power Distribution Company (TSSPDCL), Telangana State North Power Distribution Company (TSNPDCL), Andhra Pradesh South Power Distribution Company (APSPDCL) ³
Project Completion	March 2019
Target Area	16 districts in rural areas of the state of Andhra Pradesh and Telangana ⁴
Main Contractor(s) (Over 1 billion yen)	-

² At the time of the appraisal, the target area was Andhra Pradesh. After the start of the Project, the state of Telangana was separated from Andhra Pradesh, and part of the project area became the state of Telangana.

³ At the time of the appraisal, executing agencies were Andhra Pradesh Central Power Distribution Corporation (APCPDCL), Andhra Pradesh Northern Power Distribution Corporation (APNPDCL), and Andhra Pradesh Southern Power Distribution Corporation (APSPDCL). There was a change in the name of the power distribution companies due to bifurcation of the state of Telangana after the start of the project.

⁴ At the time of the appraisal, the 16 rural districts were in the state of Andhra Pradesh. After the start of the Project, some of the districts became part of the state of Telangana due to its separation.

Main Consultant(s) (Over 100 million yen)	Voyants Solutions Private Limited
Related Studies (Feasibility Studies, etc.)	F/S: Transmission Corporation of Andhra Pradesh Limited (2009)
Related Projects	-

2. Outline of the Evaluation Study

2.1 External Evaluator

Chie Munemori, IC Net Limited

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: December 2021 – December 2022

Duration of the Field Study: March 1 – 20, 2022 and May 15 – 26, 2022

3. Results of the Evaluation (Overall Rating: A⁵)

3.1 Relevance/Coherence (Rating: ③⁶)

3.1.1. Relevance (Rating: ③)

3.1.1.1 Consistency with the Development Plan of India

The *Eleventh Five Year Plan* (April 2007 – March 2012), which was the development plan of India at the time of the Project appraisal, promoted the development of new power sources and identified power sector reform, transmission and distribution facility enhancement, and rural electrification as key issues. The Government of India launched the Accelerated Power Development and Reform Programme (hereinafter referred to as the “APDRP”) in March 2003 and the new APDRP in 2008 to deal with high transmission and distribution losses⁷ and increase efficiency of the distribution sector from the facility and financial point of view. In the *Draft National Electricity Policy* prepared in 2021 at the time of the ex-post evaluation, the development of new power sources and enhancement of power transmission and distribution network facilities were set as policy objectives to meet the rapidly growing electricity demand. In the same year, the Government of India launched the *Revamped Distribution Sector Scheme* (hereinafter referred to as the “RDSS”), which aims to strengthen the supply infrastructure of the distribution utilities to solve Aggregate Technical & Commercial (AT&C) losses across the country.

⁵ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

⁶ ④: Very High, ③: High, ②: Moderately Low, ①: Low

⁷ AT&C loss. For details, refer to footnote 1.

From the time of the Project appraisal to the time of the ex-post evaluation, India has set forth in its policy the strengthening of the power transmission and distribution facilities of the power sector. The Project is consistent with the development plan of India, as the aim of the Project is to develop the high-voltage distribution network, thus reducing the distribution loss and providing stable supply of electricity for agricultural use.

3.1.1.2 Consistency with the Development Needs of India

Agriculture remains the major industry in the states of Andhra Pradesh and Telangana from the time of the Project appraisal to the ex-post evaluation. The share of agricultural electricity consumption in the total electricity supply in the state was high at 30–40% from the time of the Project appraisal to the time of the ex-post evaluation, indicating that the need for efficient and stable electricity supply to irrigation pumps used by farmers is still high.

Before the Project, 20 to 30 irrigation pumps were connected to one DTR at the end of a low-voltage line, which resulted in frequent DTR failures due to overloads and frequent irrigation pump failures caused by voltage fluctuations. When one DTR failed, all the irrigation pumps connected had to stop operation. Prior to the implementation of the Project, the average frequency of irrigation pump failure was about three times a year. Once a breakdown occurred, the irrigation pumps could not be operated for 3 to 7 days during repair, which posed a challenge to the stable supply of electricity for agricultural use.

3.1.1.3 Appropriateness of the Project Plan and Approach

The objective of the Project is to reduce the distribution loss of electricity for agricultural use and to realize a stable supply of electricity by converting to high voltage distribution systems. Interviews with the executing agencies and farmers confirmed that the Project reduced the distribution loss because of the installation of the high voltage distribution systems close to the irrigation pumps, and that the installation of small-capacity DTRs reduced transformer failures, resulting in a more stable supply of electricity to the farmers. Therefore, it is evaluated that the logic of the Project was appropriate.

The selection criteria for the target areas included areas where many irrigation pumps were in use and the areas with many unregistered irrigation pumps. Selection criteria for the feeders to be connected included that they be dedicated to agriculture and that they have a high distribution loss. It is evaluated that these selection criteria were appropriate for achieving the outputs of the Project.

3.1.2 Coherence (Rating: ②)

3.1.2.1 Consistency with Japan's ODA Policy

Japan's ODA Policy for India, formulated in May 2006, set "promotion of economic growth"

as a priority objective. In response, JICA identified "support for sustainable economic growth through the development of economic infrastructure" as one of the priority areas for assistance. The power sector is a major one for JICA's yen loans to India, and stable energy supply was positioned as one of the development issues in this priority area of assistance. To strengthen power generation capacity and transmission and distribution capability in India, where energy demand is expanding, JICA has made the core of its support the development of high-efficiency power supply facilities (power plants and transmission/distribution networks), improvement of the efficiency of existing aging facilities, and reduction of power distribution losses. The Project was in line with these policies.

3.1.2.2 Internal Coherence

Through interviews with the JICA India Office and executing agencies, whether there were linkages and synergies with other JICA projects, including those in other sectors, was inquired. However, none of the agencies indicated that such synergies and linkages were planned or have taken place.

3.1.2.3 External Coherence

Through interviews with the JICA India Office and executing agencies, whether there were linkages and synergies with other donors was inquired. However, none of the agencies responded that there were such synergies or linkages. On the other hand, it was confirmed that Rural Electrification Corporation Limited (hereinafter referred to as the "REC") and the World Bank have been promoting the development of high-voltage power distribution networks in rural areas through their loans. In particular, the REC project implemented by the Telangana Southern State Power Distribution Corporation (hereinafter referred to as the "TSSPDCL") as a previous phase of the Project covered the areas including those covered by this Project. Moreover, although the REC project and the Project were not coordinated for collaboration, the Project may have contributed to accelerating the development of the high voltage power distribution network in the region.

Based on the above, from the time of the appraisal to the time of the ex-post evaluation, the Project was in line with the Indian government's policy for the power sector and consistent with the development needs; thus, relevance is high. On the other hand, no linkage with other JICA projects was confirmed. Although it was confirmed that other projects financed by the World Bank and REC loans are promoting the development of high-voltage power distribution interconnections in rural areas, there was no specific linkage with the Project. Therefore, its relevance and coherence are high.

3.2 Efficiency (Rating: ②)

3.2.1 Project Outputs

The civil works and procured equipment for the Project are as follows.

	Unit	Plan	Actual
Replacement of large-capacity DTR with small-capacity DTR			
16 kVA	number	50,581	1,580
25 kVA	number	43,014	89,952
Conversion of LT line (0.4 kV) to HT line (11 kV) and construction of new HT line			
Conversion of LT to HT line	km	26,957	14,408
Construction of new HT line	km	4,622	2,012
Replacement or new installation of supporters (poles, braces) (added to long span)			
Construction of AB Cable (Ariel Bundled Cable)	km	20,426	15,164
Insertion of intermediate poles and braces	number	97,253	148,575

There is a discrepancy between the planned and actual number of small-capacity DTRs installed. The material of the DTR coils envisioned at the time of the Project appraisal was copper, but copper windings were vulnerable to theft. Thus, aluminum windings were used in the implementation phase. In addition, as the costs of purchasing 16 kVA and 25 kVA DTRs were comparable, and the number of irrigation pumps that could be connected was one or two for 16 kVA DTRs, whereas three or four could be connected to 25 kVA DTRs, the 25 kVA DTRs were primarily installed. As a result, most of the small-capacity DTRs installed were 25 kVA. Moreover, the number of DTRs required to connect to the same number of irrigation pumps is smaller with 25 kVA⁸. Since 25 kVA was the main type of DTR installed by the Project, the total length of HT line required was significantly reduced. The reason for the increase in the number of supports is as follows: after the Project started, the location of the supports was determined to match the site environment, resulting in an increase in the number of supports.

3.2.2 Project Inputs

For details, refer to "Comparison of the Original and Actual Scope of the Project."

3.2.2.1 Project Cost

The total Project cost at the time of the Project appraisal was JPY 27,480 million (foreign

⁸ Example: If 10 irrigation pumps are to be connected, a 16-kVA DTRs would require 5 transformers, whereas a 25-kVA DTRs would require 3 to 4 transformers.

currency JPY 387 million; and local currency JPY 27,093 million), and the Japanese ODA Loan was JPY 18,590 million (all local currency). The actual Project cost was JPY 19,091 million and the ODA Loan portion was JPY 17,473 million. The main reasons for the difference between the planned and actual Project cost are the fluctuation of the foreign exchange rate and the reduction in the cost of interest during construction and consulting services. The exchange rate was JPY 1.88 for INR 1.00 in 2010 at the time of the Project appraisal and it became JPY 1.55 for INR 1.00 in 2019 when the Project was completed. The reduction in consulting services was for the following reasons: bidding assistance, which was originally planned as part of consulting services, was not implemented; moreover, some of the expenditures originally planned to be funded by the ODA Loan were covered by TSSPDCL's own funds. As a result, the total Project cost was reduced to 69% of the planned amount, which was within the plan.

3.2.2.2 Project Period

The Project period was planned to be 56 months from June 2011 to January 2016, but the actual Project period was 94 months from June 2011 to March 2019, exceeding the plan (167% against the plan). The plan at the time of the Project appraisal was for the Project period to be 4 years and 8 months (56 months) from the signing of the L/A to the start of operation of the facilities. With regard to contractor procurement, delays occurred owing to delays in the approval of tender documents by the State Audit Committee. The delay by the Audit Committee was due to the impact of the separation of the state of Telangana in 2014. In Telangana, which separated from the state of Andhra Pradesh, the necessity and significance of the Project had to be explained to newly appointed politicians and had to be understood by them, which took time to explain and gain their understanding.

Another cause of the delay was the re-tendering due to unsuccessful bids. The reason for the unsuccessful bidding was the non-participation of local contractors due to the excessively large civil work package. The package that was re-tendered was the Kamam district package of TSNPDCL. The bid was originally submitted as one package in Khammam district. However, as the bid was unsuccessful, the package was divided into three packages with JICA's consent. The second tender was also unsuccessful; thus, it was decided to divide the contract into eight packages. In addition, civil engineering work coincided with the crop harvesting season, causing delays in construction. As a result, the actual Project period significantly exceeded the plan.

3.2.3 Results of Calculations for Internal Rates of Return (Reference only)

The economic internal rate of return (EIRR) was calculated to be 18.73% at the time of the Project appraisal in FY 2010. The recalculation at the time of the ex-post evaluation resulted in 23%. The parameters used to calculate the EIRR are as follows: the costs were Project expenses and operation and maintenance expenses, and the benefits included reduced distribution losses,

reduced DTR failures, and reduced electricity theft. The Project life was 30 years, and essentially the same parameters were used for the EIRR recalculation for the time of the ex-post evaluation. EIRR is recalculated only for TSSPDCL, as necessary information was obtained from TSSPDCL only.

The financial internal rate of return (FIRR) was not calculated at the time of the Project appraisal, as Project implementation does not directly relate to increase in revenue from electricity charges.

While the Project cost was within the plan, the Project period exceeded the plan drastically. Thus, the efficiency of the Project is moderately low.

3.3 Effectiveness and Impacts⁹ (Rating: ③)

3.3.1 Effectiveness

3.3.1.1 Quantitative Effects (Operation and Effect Indicators)

The Project defined the following as operation and effect indicators: (1) distribution loss, (2) reduction in failure of DTRs, (3) rate of unauthorized irrigation pump sets, (4) improvement in voltage profile, and (5) improvement in efficiency of irrigation pump sets. The concept of each indicator, the target set at the time of the Project appraisal, and the actual data for FY 2021 at the time of the ex-post evaluation are explained below. As the Project was completed in 2019, the actual results for 2021 is confirmed, which is two years after the Project completion.

Table 1: Baseline, target, and actual values for operation and effect indicators

Indicator*	Distribution Company (Current executing agency)	Baseline (FY 2010) (FY 2012 for distribution loss)	Target 2 years after completion (FY 2018)	Actual 2 years after actual completion (FY 2021)
Distribution loss (%)	Central (TSSPDCL)	12.9	11.0	7.7
	North (TSNPDCL)	13.1	10.5	6.8
	South (APSPDCL)	11.2	10.5	8.2**
Reduction in failure of DTRs (%)	Central (TSSPDCL)	9.00	1.0	0.75
	North (TSNPDCL)	9.11	1.0	1.0
	South (APSPDCL)	7.12	1.0	2.00**
Rate of unauthorized pump sets (%)	Central (TSSPDCL)	20.0	0.0	0.0
	North (TSNPDCL)	15.0	0.0	0.0
	South (APSPDCL)	15.0	0.0	0.0
Improvement in voltage profile (%) (reduction in tail-end voltage drop)	Central (TSSPDCL)	12.0	6.0	6.0
	North (TSNPDCL)	14.0	6.0	5.0
	South (APSPDCL)	10.0	6.0	5.0

⁹ When providing the sub-rating, Effectiveness and Impacts are to be considered together.

Improvement in efficiency of irrigation pump sets	Central (TSSPDCL)	80	95	94
	North(TSNPDCL)	80	95	98
	South(APSPDCL)	80	95	95

Source: Executing agencies

*Indicators for the Project area, not for the entire central, northern, and southern regions.

**Note: Figures for Krishna, Guntur, and Prakarasam districts (currently under the jurisdiction of Andhra Pradesh Central Power Distribution Company Limited (APCPDCL) are for the year 2021 only. The evaluator contacted APCPDCL through APSPDCL to confirm the distribution loss for these three districts but was unable to obtain data prior to 2020. The three districts of Krishna, Guntur, and Prakarasam were initially under the jurisdiction of Southern Electricity Distribution Corporation; after the state's separation in 2014, they became under the jurisdiction of APSPDCL. After the separation of APSPDCL and APCPDCL in 2019 after the completion of civil works, they came under the jurisdiction of APCPDCL and are maintained by APCPDCL to date. The two districts of Anantapur and Kurnool were initially under the jurisdiction of Central Distribution Corporation; with the bifurcation of the state of Andhra Pradesh in 2014, the two districts came under the jurisdiction of APSPDCL, but until the civil works were completed, the project was carried out by the TSSPDCL, the successor of the Central Distribution Corporation. Currently, APSPDCL is responsible for the maintenance.

(1) Distribution Loss (%)

As the calculation method at the time of the Project appraisal could not be confirmed, the definition of distribution loss as "(amount of electricity received from substations – amount of electricity actually transmitted and billed)/amount of electricity received from substations," which is the calculation method normally used by executing agencies, was adopted, and confirmed the transition from the time of the Project appraisal (FY 2010) to the target year (FY 2021). At the time of the Project appraisal, the target was set to be at least 80% below the baseline. Even with the distribution loss calculated using the method normally employed by executing agencies, the earliest year available (FY 2012) was compared to the actual figures (FY 2021), and if the actual figures were 80% or below of FY 2012, it was considered the target has been achieved. The distribution loss of TSSPDCL was 12.9% in FY 2012 and 7.7% in the target year FY 2021 (59.7% of FY 2012); for TSNPDCL, 13.1% in FY 2012 and 6.8% in the target year FY 2021 (51.9% of FY 2012); and for APSPDCL, 11.2% in FY 2012 and 8.2% in the target year FY 2021 (73.2% of FY 2012). Since all the figures are below 80%, it could be observed that the targets were achieved.

(2) Reduction in Failure of Distribution Transformers (%)

The method used to calculate the failure of distribution transformer at the time of the Project appraisal was "the number of transformers that failed/total number of transformers installed." Since the failure of a transformer can disrupt the power supply to multiple irrigation pumps connected to it, stable power supply to irrigation pumps can be confirmed by checking the percentage of transformers that failed. APSPDCL's transformer failure rate (2.00%) did not meet the target figure. The reasons for not achieving the target figure were asked to APSPDCL, but no clear answers were obtained. The reason for the current transformer failure was also inquired by interviewing farmers, but there was no answer that it was due to overloading caused by connecting many irrigation pumps to a single transformer, as frequently occurred before the project was implemented. TSSPDCL and TSNPDCL achieved the target figure.

(3) Rate of unauthorized pump sets (%)

Unauthorized irrigation pump sets are defined as pumps that have not applied for electricity use to a power distribution company and have connected irrigation pump wires to low-voltage lines without permission. Unauthorized irrigation pump sets cause many irrigation pumps to be connected to the transformer exceeding its specification, resulting in the transformer being overloaded and leading to transformer failure. Percentage of the unauthorized irrigation pump sets is calculated as "number of unauthorized irrigation pumps/total connected irrigation pumps." By considering percentage of the unauthorized irrigation pump sets, it is possible to check the frequency of transformer overloads caused by irrigation pumps connected to the power lines without permission and transformer failures, which is an indicator to confirm whether the Project contributes to stable power supply. Moreover, this indicator is to check whether the Project contributes to the prevention of power theft and the reduction of distribution losses. Prior to the implementation of the Project, electricity was supplied to irrigation pumps by extending low-voltage bare wires. Because of the low voltage and the bare wires, it was possible for unauthorized individuals to steal power by hooking up irrigation pump wires like hangers. This was one of the reasons for the high distribution loss. The Project has made unauthorized use of power lines difficult and eliminated unauthorized irrigation pumps by converting power lines to high voltage lines and using covered wires for low-voltage lead-in lines. All executing agencies have achieved the target figures.

(4) Improvement in Voltage Profile (% reduction in tail-end voltage drop)

The voltage profile is calculated as "(reference voltage – tail end voltage) / reference voltage." If a voltage drop occurs, a lower voltage than originally required to operate the irrigation pump sets is supplied and leads to irrigation pump set failure. By checking the voltage profile, it is possible to confirm whether the voltage is close to the one required to operate the irrigation pump sets; thus, it is an indicator that can be used to determine whether the Project is contributing to stable power supply. All executing agencies have achieved the target figures.

(5) Improvement in Efficiency of irrigation pump sets

Efficiency of irrigation pump sets is calculated as "actual amount of water lifted out by irrigation pump sets (m^3) / amount of water which is technically possible for an irrigation pump set to lift out according to its specifications (m^3)." A sudden voltage drops to the irrigation pump sets, or an overload of the transformer will cause a malfunction in the operation of the pump sets and reduce the amount of water that can be lifted. By checking whether the pumps can lift an amount of water close to the amount that can be lifted according to the pump specifications, it is possible to confirm whether the irrigation pumps are operating well and, in turn, whether the water supply to farmers is stable. At the time of the Project appraisal, irrigation pumps with 3

horsepower (hp), 5 hp, and 7.5 hp specifications were included. However, as the APSPDCL does not monitor irrigation pump's operating efficiency and the 3 hp irrigation pumps were not in use at the time of the ex-post evaluation, sample data were collected for irrigation pumps with 5 hp and 7.5 hp. TSNPDCL and APSPDCL achieved the target figures.

3.3.1.2 Qualitative Effects (Other Effects)

For details, refer to "Impacts."

3.3.2 Impacts

3.3.2.1 Intended Impacts

The impacts expected to be achieved by the Project were "improvement of living standard of the rural population (e.g., reduced repair costs of irrigation pump sets)," "local economic development," "improvement of the electricity supply and demand situation in the states through improved electricity distribution efficiency in rural areas," and "mitigation of climate change." To confirm the occurrence of these impacts, the following indicators were set, and farmers were interviewed during the site visits. A total of 25 farmers from 12 sites responded. Regarding "mitigation of climate change," it was assumed at the time of the Project appraisal that the Project would contribute to the reduction of greenhouse gas emissions. In fact, as details in "3.3.2.2 Other Positive and Negative Impacts," greenhouse gas emissions were not calculated by the executing agencies and, therefore, could not be confirmed.

Table 2: Indicators for impacts and situation before and after the Project

Indicator	Before the Project	After the Project
Percentage of irrigation pump repair costs in farmers households	<p>① Frequency of repair of irrigation pump set</p> <p>Average (yearly): About 3 times</p> <ul style="list-style-type: none"> • Once a year (2 farmers) • Twice (5 farmers) • 3 times (12 farmers) • 4 times (3 farmers) • 5 times (1 farmer) • 6 times (1 farmer) • Too often to count (1 farmer) 	<p>① Frequency of repair of irrigation pump set</p> <p>Average (yearly): About 0.1 time</p> <ul style="list-style-type: none"> • 0 (23 farmers) • Once (2 farmers)*

	② Repair costs as a percentage of household income Average: 17%	② Repair costs as a percentage of household income Average: 0.3%
Whether water shortage to crops has improved or not	The irrigation pump sets failed about three times a year. Each time, water supply was not available for 3 to 7 days for repair.	About 0.1 times a year, the irrigation pump sets fail owing to defects in parts. The number of days required for repair is unchanged.**
Whether crop yields has increased or not	—	Compared to before the project was implemented, 76% of the respondents increased their yields.***
Local economic development		Since the increase or decrease in the number of companies, the change in the number of electricity consumers by category was checked. Executing agencies have consumers categories according to the use of electricity to ascertain the number of consumers. Comparing the number of commercial customers in 2021 with the number of commercial customers in 2012, after the start of the project, the number of commercial customers increased by 150%.

<p>Improved electricity demand and supply conditions in the target states by increasing the efficiency of electricity distribution in rural areas</p>	<p>Since it was impossible to check electricity demand and supply with breakdown of rural and non-rural areas, state-wide figures from a report by the Central Electricity Authority, Government of India.</p> <ul style="list-style-type: none"> • The state of Andhra Pradesh At the time of the Project appraisal, the supply was 10,428 MW compared to peak electricity demand of 12,018 MW from April to December 2010 (13.2% shortfall compared to demand). • The state of Telangana At the time of state separation, the supply was 6,648 MW compared to peak electricity demand of 7,884 MW from April to December 2014 (15.7% shortfall compared to demand). 	<ul style="list-style-type: none"> • The state of Andhra Pradesh At the time of the ex-post evaluation, the supply was 11,570 MW compared to peak electricity demand of 11,570 MW from April to December 2021 (no shortfall compared to demand). • The state of Telangana At the time of the ex-post evaluation, the supply 13,595 MW compared to peak electricity demand of 13,622 MW from April to December 2021 (0.2% shortfall compared to demand).
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*Two respondents who answered that their irrigation pump sets were repaired "once a year" were asked about the cause of failure. They indicated that the failure was due to a malfunctioning of parts of the irrigation pump set. Both respondents indicated that they do not feel the need for frequent repairs.

**Although water supply shortages due to irrigation pump sets failures rarely occur, the state of Andhra Pradesh still has a limited agricultural power supply of 9 hours per day. Water is not supplied in the remaining 15 hours. In the state of Telangana, there is 24-hours-a-day power supply for agriculture, and irrigation pump set failures have virtually ceased; thus, there are few cases of crops not being supplied with water. Before the Project, the hours of electricity supply for agriculture was 7 hours per day in Andhra Pradesh and 7 to 9 hours per day in Telangana.

*** There are multiple factors that contributed to the increase in crop yields. In addition to the

increased efficiency of irrigation pump sets operation, which has allowed the farmers to have two harvest seasons per year, there are several other factors, such as the increased hours of water supply per day, the growing of mangoes and coconuts, which have higher market value than rice, which has traditionally been grown, and the use of machinery in farming.

3.3.2.2 Other Positive and Negative Impacts

The Project was classified as Category C based on the JBIC Guidelines for the Confirmation of Environmental and Social Consideration (April 2022) as it does not fall into sensitive sectors or have characteristics of significant involuntary resettlement.

At the time of the Project appraisal, registration for the Clean Development Mechanism (CDM) was being considered. The project was also expected to contribute to the reduction of greenhouse gas emissions by 74,666 metric tons/year CO₂ equivalent by improving the efficiency of energy use through a reduction in the power distribution loss. However, no application for CDM registration was made and no GHG emissions were calculated. The reason for not applying for CDM registration was asked to the executing agency and it became clear that, at a performance review meeting with the Government of India, they were urged to adopt electricity using renewable energy sources, and it led to the installation of solar panels, which have less environmental impact than the Project. Therefore, there is no longer any motivation to register the Project under the CDM. There was no resettlement and land acquisition in the Project.

The selection criteria for the target areas included the following: 1) areas with many irrigation pump sets in use, 2) areas with many unauthorized irrigation pump sets, 3) areas with more frequent transformer failures, and 4) areas with no security concerns. The selection criteria for the feeders to be connected included the following: 1) the feeders are dedicated to agriculture, (2) the feeders have a high distribution loss, and 3) a number of years has passes since they had been installed. Therefore, it was not necessary to select beneficiaries considering gender and those who are prevented from participating in society in a fair manner.

Based on the above, the Project has generally achieved the operation and effect indicators of effectiveness. Although executing agencies did not achieve some of the indicators, all of the figures have improved compared to those at the time of the Project appraisal. For impact, among the intended impacts at the time of the Project appraisal, indicators were set at the time of the ex-post evaluation for "improvement of living standard of the rural population (e.g., reduced repair costs of irrigation pump sets)," "local economic development," and "improvement of the electricity supply and demand situation in the states through improved the electricity distribution efficiency in rural areas." Improvement was observed in all indicators. Regarding "climate change mitigation," it was assumed at the time of the Project appraisal that the Project would contribute to the reduction of greenhouse gas emissions. However, the actual GHG emissions could not be

confirmed because they were not calculated by the executing agency. Based on the above, the Project has mostly achieved its objectives. Therefore, the effectiveness and impacts of the Project are high.

3.4 Sustainability (Rating: ③)

3.4.1 Policy and System

At the time of the Project appraisal, the Government of India was working to reform the power sector, promote investment, protect consumer interests, and provide electricity to all citizens through the *New Electricity Act 2003*, which came into effect in May 2003, by introducing the principle of competition. This stance remains unchanged at the time of the ex-post evaluation. In June 2021, the government announced that it would aid worth approximately USD 41 billion over the next five years to rescue the power distribution companies that had been economically hit by the COVID-19 pandemic. The assistance includes funding for smart meters and installation of separate feeders to supply electricity at different feeders for different categories of consumers. The government expects that the use of the assistance will improve the financial situation of the electricity distribution companies. All executing agencies of the Project have submitted detailed plans for the use of the assistance and are awaiting approval. By using this support, once the smart meters are in place, the distribution companies would be able to monitor electricity consumption in real time and plan the distribution of electricity efficiently. Regarding feeders, there are currently cases where the same feeder is used to supply electricity to different categories of customers.¹⁰ In such cases, if the power supply is disrupted owing to a small capacity consumer, the power supply to large capacity consumers using the same feeder will also be disrupted. The disruption in the supply of electricity to large capacity consumers will have a negative impact on the electricity sales of the distribution company. This situation can be remedied by supplying power through different feeders for different customer categories. In the state of Telangana, 24-hours-a-day agricultural power supply was made available in 2017. In the state of Andhra Pradesh, the supply was 9 hours per day (8 a.m. to 5 p.m.) in 2019 and prior to 2019, the supply was 7 hours per day. From the above, policy and system of the Government of India are in place to continue the effects of the Project.

3.4.2 Institutional/Organizational Aspect

TSSPDCL, TSNPDCL, and APSPDCL, all of which were the executing agencies of the Project, are the power distribution companies responsible for the construction, operation, and maintenance of power distribution facilities in their jurisdictions, and this role has not changed even at the time of the ex-post evaluation. The department in charge of operation and maintenance of the

¹⁰ For example, the same feeder is used to supply electricity to commercial category consumers who use large amounts of power and to those who do not.

equipment installed by the Project is the operation and maintenance department in the regional office (called “circle office”) of each distribution company. This has not changed from the time of the Project appraisal. The department is responsible for operation and maintenance of the Project equipment together with the existing equipment. The number of personnel in this department before and after the implementation of the Project is as follows: TSSPDCL decreased by 16%, TSNPDCL increased by 13%, and APSPDCL decreased by 24% after the Project. The significant decrease in APSPDCL is because in 2019 APSPDCL was separated from APCPDCL. Although the number of personnel in each executing agency has changed, it is evaluated that there is no problem as the equipment items of the Project have been properly maintained and managed.

Table 3: The number of personnel working for operation and maintenance department
(Unit: number)

	Before the Project	After the Project
TSSPDCL	8,716	7,361
TSNPDCL	5,465	6,153
APSPDCL	8,457	6,408

Daily maintenance is performed by assistant engineers in the regional offices using manuals. Each assistant engineer has a specific facility (such as transformer, breaker, and meter) for which he or she is responsible for maintenance. When there is a problem with the equipment for which they are responsible, the assistant engineer first takes care of it, and if necessary, the supervising higher-level engineer addresses it. The Director of Operations at the headquarters is ultimately responsible for operation and maintenance.

The staff turnover rate is 0% in all executing agencies. All of them provide training to their staff to maintain their motivation and update knowledge and skills. They have training center within their organizations that plan and conduct training and provide their personnel with opportunities to learn about maintenance and the latest trends in the power sector. Based on the above, it is fair to say that the executing agencies of the Project have an appropriate organizational structure to sustain the effects achieved by the Project.

3.4.3 Technical Aspect

An engineering degree is required at the time of recruitment as a requirement for personnel of the executing agencies. After being hired, the personnel participate in training programs planned and conducted by the agency's training center to improve their knowledge and skills. The content of the training includes operation and maintenance of power distribution facilities, defect prevention, safety management, and disaster management. The operation and maintenance of the facilities developed by the Project is being implemented in accordance with the manuals and no

major malfunctions have occurred to date. Therefore, it is judged that the company has sufficient technical skills necessary for the operation and maintenance of the Project.

3.4.4 Financial Aspect

The financial status of the executing agencies at the time of the Project appraisal had been in the black since 2006 and steady since then, mainly because of a decrease in the distribution loss. Considering the financial status for the past three years at the time of the ex-post evaluation, all of them have been in the red. TSSPDCL and TSNPDCL's revenues and expenditures have been slightly changing, and APSPDCL's revenues and expenditures have been gradually decreasing since 2018. This is due to the separation of APSPDCL and APCPDCL in 2019. The main cause of the financial pressure on the respective distribution companies is the very low agricultural electricity tariffs, which are 100% compensated by the state government subsidies; thus, at the time of the appraisal, it was considered that there were no problems regarding Project implementation, operation and maintenance, and repayment resources for the yen loan. In the case of a negative balance at the time of the ex-post evaluation, all executing agencies were compensated by the state government subsidies. A breakdown of revenues and expenditures in the financial statements at the time of the ex-post evaluation shows that electricity purchase costs tend to exceed electricity sales costs. This is the reason for the deficit tendency. When the executing agencies were asked about the background of this, they responded that, while the electricity purchase cost by the executing agencies rises each year, the electricity rates paid by consumers do not rise in line with the increase in the cost. Electricity rates are determined by the State Electricity Regulatory Commission as noted below. The commission is reluctant to raise the electricity rates, as it does not want to lose the support of citizens for the state government. Each year, the executing agencies submit to the State Electricity Regulatory Commission the past three years' actual revenues and expenditure and projected revenues for the same year, as well as the electricity rates for each customer category. After the commission approves the submitted actual and forecasted expenditures and revenues, it determines the electricity tariffs for each category of customers. Electricity tariffs are reviewed in some years but not in others. The financial situation remains unchanged from the time of the appraisal as the companies are in the red and the state government is covering the deficit. One prospect for improving the deficit position other than the compensation by the state government is the support announced by the Indian government in June 2021 to improve the financial situation of the power distribution companies that were economically hit by the COVID-19 pandemic. As described in detail in 3.4.1, the executing agencies of the Project plan to use this assistance to develop smart meters and separate feeders for different categories of consumers. This is expected to improve the financial situation of the power distribution companies. As this support is limited to five years, continuous efforts by the executing agencies are required to improve the financial situation over a long period of time. In

addition to the fact that the financial resources necessary for the operation and maintenance of the equipment and materials developed under the Project have been secured to date, and that appropriate maintenance are being implemented, no significant changes in the size of the budget are expected in the future. Thus, it is concluded that there is no problem with the financial situation to ensure the sustainability of the Project.

3.4.5 Environmental and Social Aspect

It was verified during the ex-post evaluation that there were no negative impacts on the natural environment that were not initially anticipated during the Project implementation. It was also confirmed that there were no negative impacts on residents or specific groups that were not anticipated at the time of the Project appraisal. In short, it was confirmed that no negative impacts on the natural environment, residents or specific groups were identified both at the time of the Project appraisal and at the time of the ex-post evaluation.

3.4.6 Preventative Measures to Risk

There were no identified risks at the times of both the Project appraisal and the ex-post evaluation.

3.4.7 Status of Operation and Maintenance

Among the sites developed by the Project, the evaluation team visited 12 sites where small-capacity DTRs, HT lines, and intermediate poles were set up in a concentrated fashion, and verified the status of the facilities' operation and maintenance. The regional offices of the three executing agencies are responsible for the day-to-day operation and maintenance of the facilities and equipment installed by the Project. Interviews with regional office staff during the site visits revealed that the facilities and equipment saw no major problems so far. Interviews with farmers verified the frequency of transformer and irrigation pump set breakdowns, which were found to be infrequent. Questionnaire surveys were also conducted for the target areas that were not physically visited by the evaluator, and it was confirmed that no major problems had occurred to date. Routine maintenance is performed by assistant engineers in the regional offices based on a manual. When a transformer has a problem, farmers are supposed to call the assistant engineer at the regional office and ask the office to address it.

In the event of any problems with the facilities or equipment installed by the Project, the respective power distribution company is responsible for maintenance. The cost will also be borne by the power distribution companies. Irrigation pump sets, which are not included in the scope of the Project, are maintained by the farmers. Thus, it is fair to say that there is no problem in the situation of operation and maintenance to sustain the effects of the Project.

No major issues have been observed in the policy/systems, institutional/organizational, technical, financial, and environmental and social aspects including the current status of the operation and maintenance system, and preventative measures to risk, although there is a minor problem that the financial status of the executing agencies has remained in the red from the time of the Project appraisal to the time of the ex-post evaluation. Therefore, the sustainability of the Project effects is high.

4. Conclusion, Lessons Learned, and Recommendations

4.1 Conclusion

This Project was implemented to reduce the distribution loss of electric power for agriculture and achieve stable power supply by converting to high voltage distribution systems in rural areas of the southern Indian states of Andhra Pradesh and Telangana.

From the time of the Project appraisal to the ex-post evaluation, the objective of the Project is consistent with the policies of the Government of India and the State Governments of Andhra Pradesh and Telangana. At the time of the ex-post evaluation, the demand for electricity for agricultural use in the states of Andhra Pradesh and Telangana over the past three years showed that there is a need for efficient electricity supply, which is consistent with the development needs of the two states. At the time of the Project appraisal, Japan's ODA policy for India identified "promotion of economic growth" as a priority area, and JICA recognized "support for sustainable economic growth through the development of economic infrastructure" as a priority area. Therefore, the Project is consistent with Japan's ODA policy at the time of the Project appraisal. Thus, its relevance and coherence are high.

Regarding the efficiency of the Project, there was a change in the material and capacity of the DTR which is one of the outputs of the Project. This change was made based on a review after the Project started. The material was changed because it was less likely to be stolen and more economical than the originally planned material; thus, this change is deemed to be appropriate. Although the Project cost was within the plan, the Project period was significantly prolonged because of state bifurcation, which was difficult to foresee at the time of the Project appraisal, and re-tendering due to the excessively small scope of the civil works, which resulted in the Project period significantly exceeding the plan. Thus, efficiency of the Project is moderately low.

Regarding the effectiveness, most of the operation and effect indicators were achieved. As the calculation method for the distribution loss at the time of the Project appraisal could not be confirmed, the transition from the time of the Project appraisal to the time of the ex-post evaluation was checked using the calculation method usually adopted by the executing agencies. As for the impact, yields increased for 76% of farmers interviewed because the frequency of, irrigation pump failure decreased, which reduced the burden of repair costs, and because it has become possible to use electricity for agriculture in a stable manner. Therefore, effectiveness and

impact of the Project are high.

From the sustainability point of view, every executing agency has sufficient knowledge and experience in the technical aspects. The maintenance of the equipment developed by the Project have also been implemented without confusion after the bifurcation of the Telangana state. Regarding policies and systems, the Government of India has been helping to improve the financial situation of the power distribution companies that were economically affected by the COVID-19, and all the executing agencies of the Project have submitted detailed plans for using this assistance and are awaiting approval. The financial situation of the executing agencies has not changed since the time of the Project appraisal. Although they are still in the red and are being financed by the state government, sustainability of the project effect is very high as financial resources for maintenance of the equipment and materials developed by the Project have been secured to date, and there is no expectation of any change in this policy in the future.

In the light of the above, the Project is evaluated to be highly satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

It is recommended that efforts to improve the financial situation be accelerated. This includes raising electricity rates. As noted above, electricity rates are determined by the State Electricity Regulatory Commission; thus, the discretion of the executing agencies is limited. However, every year, they submit to the commission their actual expenditure and revenue for the past three years, their projected expenditure for the same year, and their electricity rates for each customer. Through these opportunities, it would be possible to propose an increase in electricity rates to the commission. In addition, it is expected that efforts will be strengthened to prevent the underpayment of electricity charges due to theft and illegal metering. Interviews with the executing agencies during the ex-post evaluation have revealed that, by strengthening routine patrols and examining data to identify areas where electricity losses have occurred, feeders and areas where electricity theft is frequent have been identified, resulting in more efficient detection of electricity theft and a significant reduction in the amount of unpaid electricity.

4.2.2 Recommendations to JICA

None.

4.3 Lessons Learned

Ensuring a sufficient number of days for appraisal missions to scrutinize the size of the civil works package and the project schedule

In addition to the impact of the state separation of Telangana, there were other factors that caused delays in the Project, such as excessively large civil works packages, which resulted in

unsuccessful bids and the need for re-tendering, and the need to coordinate civil works with the crop harvesting timing. At any project's planning stage, the executing agencies and JICA need to consider the size of civil work packages that contractors can easily participate in and create a project schedule that considers the harvesting period of agricultural crops. It is necessary to investigate at the time of the appraisal what kind of civil work package size would facilitate contractor participation, including the form of contract package usually used by executing agencies. As there was no time to conduct such a survey at the time of the appraisal of this Project owing to the short duration of the appraisal mission, it is necessary to ensure a sufficient number of days for the appraisal mission for any future project.

End

Comparison of the Original and Actual Scope of the Project

Item	Plan	Actual
1. Project Outputs	- Number of large-capacity DTRs replaced with small-capacity DTRs: 16 kVA: 50,581 25 kVA: 43,014 -Conversion of LT line to HT line: 26,957 km -Construction of new HT line: 4,622 km -Construction of AB Cable (Ariel Bundled Cable): 20,426 km - Number of inserted intermediate poles: 97,253	- Number of large-capacity DTRs replaced with small-capacity DTRs: 16 kVA: 1,580 25 kVA: 89,952 -Conversion of LT line to HT line: 14,408 km -Construction of new HT line: 2,012 km -Construction of AB Cable (Ariel Bundled Cable): 15,164 km - Number of inserted intermediate poles: 148,575
2. Project Period	June 2011–January 2016 (56 months)	June 2011–March 2019 (94 months)
3. Project Cost		
Amount Paid in Foreign Currency	JPY 387 million	None
Amount Paid in Local Currency	JPY 27,093 million (INR 14,411 million)	JPY 19,091 million (INR 12,873 million)
Total	JPY 27,480 million	JPY 19,091 million
ODA Loan Portion	JPY 18,590 million	JPY 17,473 million
Exchange Rate	INR 1 = JPY 1.88 (As of September 2010)	INR 1 = JPY 1.69 (Average between January 2014 and December 2019)
4. Final Disbursement	October 2019	

India

FY2021 Ex-Post Evaluation Report of

Japanese ODA Loan “Hyderabad Outer Ring Road Project Phase 1 and Phase 2” and
Technical Assistance Project related to Japanese ODA Loan “The Assistance for the
Introduction of ITS Related to Hyderabad Outer Ring Road Construction Project”

External Evaluator: Yumiko Onishi, IC Net Limited

0. Summary

Hyderabad Outer Ring Road (ORR) Project Phases 1 and 2 (the “Project”) was implemented to respond to increasing road traffic demands through the construction of the ORR in the Hyderabad metropolitan area in India’s southern state of Telangana,¹ thereby easing traffic congestion in the city center and promoting regional economic development. Connected to the Project, the Assistance for the Introduction of Intelligent Transportation System² (ITS) Related to Hyderabad Outer Ring Road Construction Project (Technical Assistance Project related to Japanese ODA Loan [TA]) was implemented. Integrated evaluation was conducted for the Japanese ODA Loan and TA projects.

Regarding relevance and coherence, the Project has been consistent with the policies and development needs of the Government of India and the Hyderabad metropolitan area at the times of both the appraisal and the ex-post evaluation. The Project design and approach are also confirmed to be appropriate. The Project was consistent with the ODA policy of Japan at the time of the project appraisal, and there was synergy among projects implemented using JICA schemes. Collaboration with other agencies exist, and some contributions are made in light of an international framework; therefore, relevance and coherence are high. The output of the ODA loan project was almost as planned, and the project cost was within the plan. However, there were delays in project duration because of court cases on procurement of the Toll Management System (TMS), an ITS component under the ODA loan project, and land acquisition. Therefore, the efficiency of the Project is moderately low. On effectiveness and impacts, the operation and effect indicators of the Project were mostly achieved. The project purpose of the TA was also partially achieved. No adverse impact on the natural environment during the construction and after the Project completion has been reported. Regarding land acquisition and resettlement, a compensation guideline was prepared for the Project, and proper compensation was provided according to the guideline. Therefore, effectiveness and impacts are high. On sustainability of the Project, the policy and system regarding the ORR were established. No issues are found in respect to the organizational arrangements and technical aspects of Hyderabad Growth Corridor Limited

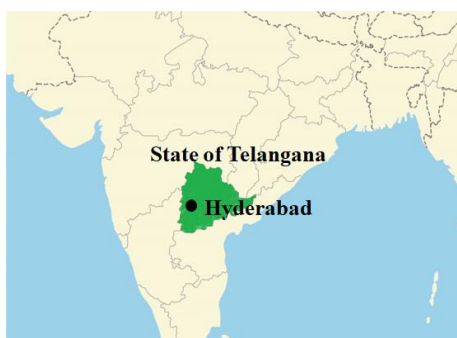
¹ At the time of the project appraisal, it was Andhra Pradesh, but some parts of the state including Hyderabad became Telangana after Andhra Pradesh was bifurcated in 2014.

² ITS consists of the Highway Transport Management System (HTMS) and TMS. TMS includes capturing the data on classification of vehicles passing through toll booths and statistical data on toll collection. HTMS operates automated traffic counters, emergency call boxes, meteorological monitoring, and operation of variable message boards.

(HGCL), the Executing Agency, as well as the contractors. The financial status of HGCL is also sound. No particular risk is identified on environmental and social aspects. Thus, sustainability of the Project effects is very high.

In light of the above, this Project is evaluated to be highly satisfactory.

1. Project Description



Project Location



ORR from the air (Source: HGCL)

1.1 Background

Road transport in India, along with railways, is an important means of transport that supports much of the country's logistics. At the time of the Project appraisal (2008), road passenger and freight traffic have grown by about 60 times over the past 45 years, at a rate of 9% per annum. On the other hand, the growth of road development was only about six times during the same period.

In addition to the increase in automobile traffic, India's urban population has grown from 217 million in 1991 (25.7% of the total population) to 285 million (27.8%) in 2001. Forecasts predicted that the country's total population would increase to 436 million (33.4%) in 2011 and 538 million (37.1%) in 2021.³

In the wake of such rapid urbanization, the number of registered vehicles and motorcycles in India had been growing at an average annual rate of 11% since 1997.⁴ In addition, the share of public transport in urban mobility fell from 69% in 1991 to 55% in 2001.⁵ On the other hand, owing to the lack of progress in the development of public transport infrastructure, traffic congestion due to the increase in vehicles and motorcycles has become a serious problem in India. As people's income continues to rise, it is expected that the number of private vehicles will increase, the ratio of public transportation will decrease, and the shift in ownership from motorcycles to four-wheeled vehicles will occur; thus, prompt action has been required. In

³ Ministry of Urban Development, India.

⁴ Same as above.

⁵ Same as above.

particular, in India's large cities, including Hyderabad, economic losses due to traffic congestion and health issues arising from automobile pollution such as air pollution and noise became problems. Under these circumstances, to ease traffic congestion and prevent automobile pollution, it was necessary to develop large-scale urban transport systems such as mass rapid transit systems and ring roads based on urban development plans.

1.2 Project Outline

The objective of the Project is to respond to increasing road traffic demands through the construction of the northern section of the ORR and radial roads in the Hyderabad metropolitan area in India's southern state of Telangana, thereby easing traffic congestion in the city center and promoting regional economic development.

<Japanese ODA Loan Project>

Loan Approved Amount/ Disbursed Amount	41,853 million yen / 24,807 million yen (Phase 1) 42,027 million yen / 26,188 million yen (Phase 2)
Exchange of Notes Date/ Loan Agreement Signing Date	March 2008 / March 2008 (Phase 1) October 2008 / November 2008 (Phase 2)
Terms and Conditions	Interest Rate 1.2% (main), 0.01% (consulting service) Repayment Period 30 years (Grace Period 10 years) Conditions for Procurement General untied
Borrower / Executing Agency	The President of India / Hyderabad Growth Corridor Limited
Project Completion	March 2017 (Phase 1) March 2019 (Phase 2)
Target Area	Hyderabad metropolitan area, State of Telangana
Main Contractor(s) (Over 1 billion yen)	Somdatt Builders Pvt. Ltd. (India)/Ramky Infrastructure Ltd. (India), KNR Construction Ltd. (India)/GVR Infra Projects Ltd (India), Gayatri Projects Ltd. (India), United Gulf Construction Co. W.L.L (Kuwait), NCC Ltd. (India), Sri Sai Constructions Pvt. Ltd. (India), EFKON AG (Australia)/EFKON India Pvt. Ltd. (India)

Main Consultant(s) (Over 100 million yen)	Egis Bceom International (France)/Egis India Consulting Engineers Pvt. Ltd. (India)/PADECO (Japan), Nippon Koei Co., Ltd. (Japan)/Nippon Koei India Pvt. Ltd. (India)/Aarvee Associates Architects & Consultants Pvt. Ltd. (India), Nippon Koei Co., Ltd. (Japan)/Nippon Koei India Pvt. Ltd. (India), Egis India Consulting Engineers Pvt. Ltd. (India)
Related Studies (Feasibility Studies, etc.)	Feasibility study in August 2006
Related Projects	<Japanese ODA Loan> Delhi Eastern Peripheral Expressway ITS Installation Project (March 2017) <SAPI study> Special Assistance for Project Implementation for Hyderabad ORR Project Phase I (September 2008 – May 2009) Special Assistance for Project Implementation for the Assistance for the Introduction of ITS on Road Network in Hyderabad Metropolitan Area (August 2011–March 2013)

<Technical Assistance Project related to Japanese ODA Loan>

Overall Goal	By responding to increasing road traffic demand through the construction of Outer Ring Road and major radial roads in the Hyderabad metropolitan area in India's southern state of Andhra Pradesh, traffic congestion in the city is eased and regional economic development is promoted.
Project Purpose	For the purpose of contributing toward smooth implementation and enhancing development effect of Hyderabad Outer Ring Road Construction Project, a smooth introduction of effective operation and maintenance (O&M) system and ITS to the relevant organizations are achieved.
Outputs	Output 1 By conducting necessary surveys/ studies regarding the optimal way of toll collection and smooth ITS introduction, problems related to operation & maintenance (O&M) issues and preparation of detailed operation charts are solved.

	Output 2	Setup for the smooth procurement of necessary ITS components are completed.
	Output 3	Institutional setup for optimal operation and management of toll collection system for the ORR is promptly and firmly completed, and preparation for toll collection system is completed.
	Output 4	Trial experiments on ETC are conducted, and necessary proposals regarding full-scale operation of ETC ⁶ are made.
	Output 5	The development of HTMS operational structure is assisted.
Total cost (Japanese Side)		254 million yen
Period of Cooperation		January 2010–October 2013 (extended from June 2011)
Target Area		Hyderabad metropolitan area, State of Telangana
Implementing Agency		Hyderabad Growth Corridor Limited
Other Relevant Agencies/ Organizations		None
Consultant in Japan		ALMEC Corporation NEXCO East
Related Projects		Same as ODA Loan Project above

<Integrated evaluation>

This is an integrated evaluation of the ODA loan project (Phase 1 and Phase 2) and the TA. As both projects share the common objective of responding to the demand for road traffic in the Hyderabad Metropolitan Area, relevance, coherence and sustainability are evaluated together. As for effectiveness, since the inputs, outputs, and expected outcomes of each project are different, the two projects are separately studied. In addition, while evaluating effectiveness and impacts, since the impacts are common to both projects, the extent of the contribution by the TA was considered toward realizing the impacts of the ODA loan project. Regarding efficiency, the ODA loan project and the TA are separately studied; however, the performance of the TA is not taken into account for the sub-rating in accordance with the ex-post evaluation reference.

2. Outline of the Evaluation Study

2.1 External Evaluator

Yumiko Onishi, IC Net Limited

⁶ Electronic Toll Collection system. A toll collection system aimed at alleviating traffic congestion at the toll plaza and improving convenience through cashless payment.

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: December 2021 – December 2022

Duration of the Field Study: February 20 – March 9, 2022, and May 8 – 21, 2022

3. Results of the Evaluation (Overall Rating: A⁷)

3.1 Relevance/Coherence (Rating: ③⁸)

3.1.1. Relevance (Rating: ③)

3.1.1.1 Consistency with the Development Plan of India

To address the urban transport issues mentioned in "1.1 Background," the Eleventh Five-Year Plan (April 2007–March 2012), which was the development plan of the Government of India at the time of the appraisal in 2008, focused on the development of the urban transport sector. In addition to responding to the growing demand for transport accompanying the economic growth in recent years, the plan called for the development of a balanced nationwide road network. Specifically, in addition to the construction of new roads, the plan referred to the necessity of widening and reinforcing existing roads, replacing damaged bridges, strengthening road maintenance and management, introducing the principle of competition and public-private partnerships (PPPs), emphasizing safety, energy efficiency, and social and environmental protection, and aimed to realize smooth and integrated transport by improving access to airports and seaports.

India's National Urban Transport Policy, formulated in 2006 and revised in 2014, points out the importance of newly establishing laws and systems related to traffic management and urban transportation, including the use of ITS. The Hyderabad Metropolitan Development Authority (HMDA) developed a long-term strategy for the transport sector targeting 2041. The strategy calls for further development of road networks and metros, which require an investment of INR 1,758.3 billion. Furthermore, in the State of Telangana, based on the experience of the Project and future demand, the construction of a Regional Ring Road, located outside the ORR and connecting major cities, is planned.

As described above, from the time of the appraisal to the ex-post evaluation, the urban transport sector is regarded as an important area in the development plan of the Government of India. This situation is the same for the Hyderabad Metropolitan Area, and the importance of ITS has been recognized, especially in recent years. Therefore, the Project and the TA, which constructed the ORR and introduced ITS, are consistent with the development policy of India.

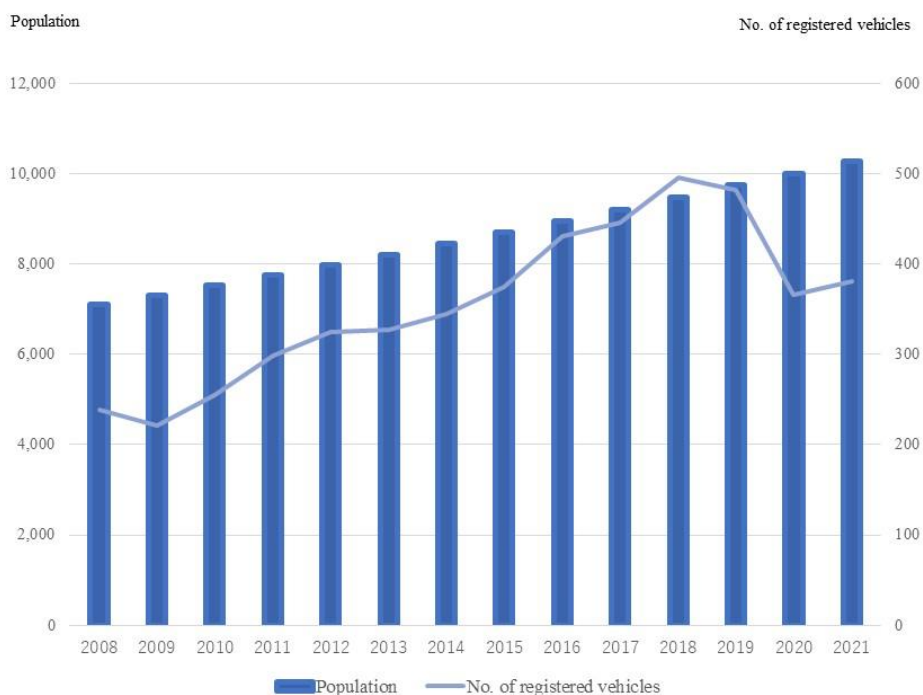
⁷ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

⁸ ④: Very High, ③: High, ②: Moderately Low, ①: Low

3.1.1.2 Consistency with the Development Needs of India

Between 1991 and 2001, the population of the Hyderabad metropolitan area increased from 4.67 million to 6.38 million. As a result, the number of vehicles increased from 590,000 to 1.45 million, and traffic congestion became severe. According to the projections at the time of the appraisal, the population was expected to reach 9.05 million in 2011 and 13.64 million in 2021, with the number of vehicles expected to increase by more than 7% per annum. In addition to the rapid increase in the number of private cars and buses for moving within the city, the city has also National Highway (NH) 7 (a north-south arterial road connecting Bangalore to India's northern parts such as Delhi), NH 9 (an east-west arterial road connecting Mumbai and Chennai in central India), and NH 202 (a highway connecting Hyderabad with Visakhapatnam Port, the largest cargo handling port in India) stretching from the city radially. This meant that the city was the intersection of India's main east-west and north-south highways, triggering serious traffic congestion where an average speed in the city was 12 km/hour.

At the time of the ex-post evaluation, traffic data of Hyderabad over the years were not available. Meanwhile, looking at the changes in Hyderabad's population and the number of registered vehicles since 2008 (Figure 1), the annual increase rate is 7% on average, as expected at the time of the appraisal, although there was a significant decrease in 2020 partly due to the impact of COVID-19.



Source: Population from the World Population Review and number of registered vehicles from the Hyderabad City Traffic Police

Figure 1: Changes in population and number of registered vehicles in Hyderabad

The population of the Hyderabad metropolitan area continues to increase because of inflows from all over India owing to the development of IT, finance, and pharmaceutical industries. As a result, the number of vehicles in the city also continues to increase. Metros and public buses are expanding the city's transport network, making mass high-speed transportation possible. The Project was located on the road network connecting Mumbai and Bangalore; and by developing an ORR, it enabled some vehicles to bypass the city. From the above, the implementation of the Project is in line with the development need of responding to the increasing transport demand in India, especially in the Hyderabad metropolitan area, at the times of both the appraisal and the ex-post evaluation.

3.1.1.3 Appropriateness of the Project Plan and Approach

In this section, the following points are studied: whether appropriate consideration, including alternatives, was given at the time of Project formation; whether the Project was planned with consideration for fair distribution of benefits based on the target beneficiaries as assumed at the time of the appraisal; and who were the actual beneficiaries of the Project.

Consideration for alternatives at the time of Project formulation

According to a Hyderabad metropolitan area official, at the time of Project formulation, it was decided to develop the ORR based on the urban plan so that Hyderabad could develop radially. As for the alignment of the ORR, three options were studied, and the current alignment was selected considering the topography and the scale of land acquisition. Thus, sufficient consideration was given.

Target beneficiaries

The beneficiaries of the Project were ordinary citizens and commercial road users from the outset; no specific population was targeted. However, at the time of the appraisal, it was assumed that buses, and two- and three-wheelers would be allowed on the ORR. Nevertheless, after the Project's commencement and the commercial opening of the ORR, buses, and two- and three-wheelers on the ORR became restricted. This was because the speed limit on the ORR was high, which could cause accidents. As a result, the use of the ORR is limited to private cars and trucks. Although beneficiaries differ from those envisaged at the time of the appraisal, there are service roads on the ORR, and two- and three-wheelers can safely travel on the service roads; thus, they are indirectly benefiting from the construction of the ORR.

3.1.2 Coherence (Rating: ③)

3.1.2.1 Consistency with Japan's ODA Policy

In the Country Assistance Program for India formulated by the Japanese government, "promotion of economic growth" was set as a priority goal. In response, JICA focused on the following: a) supporting sustainable economic growth through the development of economic infrastructure; b) providing assistance for economic growth with employment; c) assistance for poverty alleviation; and d) support for environmental and climate change measures. The Project is in line with these policies, and thus, consistent with Japan's ODA policy at the time of the appraisal.

3.1.2.2 Internal Coherence

In the Project, synergy effects between the ODA loan and the TA were expected. In addition, two SAPI studies were conducted and ITS experts were dispatched. Of the two SAPI studies, one that started in 2011 formulated a master plan for ITS to improve the transportation system in Hyderabad, as ITS was being introduced in the Project.

In this way, to introduce and operate ITS smoothly on the ORR, JICA's cooperation schemes were used from various aspects, and indispensable support was provided for the achievement of the project goals. The synergy between the ODA loan project and the TA is described in the Effectiveness and Impacts section.

3.1.2.3 External Coherence

The Project falls under SDG 11, which is "Make cities and human settlements inclusive, safe, resilient and sustainable." As described in "3.3.2.1 Intended Impacts," the Project contributed to reducing traffic volume in Hyderabad and delivering widely the benefits of economic development to the Hyderabad metropolitan area.

In the Hyderabad metropolitan area, the Unified Metropolitan Transport Authority (UMTA) was established in 2008 to coordinate among various modes of transportation. As a result, collaboration and coordination were made for plans and development of route networks that would eventually allow people to travel to the radial road bound for the ORR using the metro, from where they would be able to transfer to the suburbs by using buses.

In addition, the ORR was made possible with funding from ODA loans, PPPs, and the Telangana State government, depending on the section. As different funds were used to complete one project, it is fair to say that there was coherence.

At the times of both the appraisal and the ex-post evaluation, consistency with the policies and development needs of the Government of India and the Hyderabad metropolitan area regarding

urban transportation are confirmed. Appropriateness of the project plans and approaches were also confirmed. The Project is also in line with Japan’s ODA policy at the time of the appraisal, and there has been synergy effects among the multiple types of support brought by the JICA schemes. There was collaboration with other agencies as well, and some contribution was made in light of an international framework. Therefore, the Project’s relevance and coherence are high.

3.2 Efficiency (Rating: ②)

3.2.1 Project Outputs

ODA Loan

Of the ORR whose total length is 158 km, Phase 1 (ID-P 193) of the ODA loan covered 38 km of Legs 4–6, and Phase 2 (ID-P 198) covered 33 km of Legs 7–9. Legs 1–3 were funded by the state government (borrowed from commercial banks), and Legs 10–12 by PPP, and both were opened in stages between 2008 and 2012. Generally, as the ORR project as a whole, Legs 1–3 that are not part of the ODA loan project is referred to as Phase 1, and the other sections are referred to as Phase 2. To avoid confusion with the name of the ODA loan project, Phase 1 of the ODA loan project will be referred to as ID-P 193 and Phase 2 as ID-P 198 in this report. The sections of the ORR implemented by each project are shown in the figure below along with the major national highways. The ODA loan sections of the ORR were commercially opened in stages from 2013 to 2016.

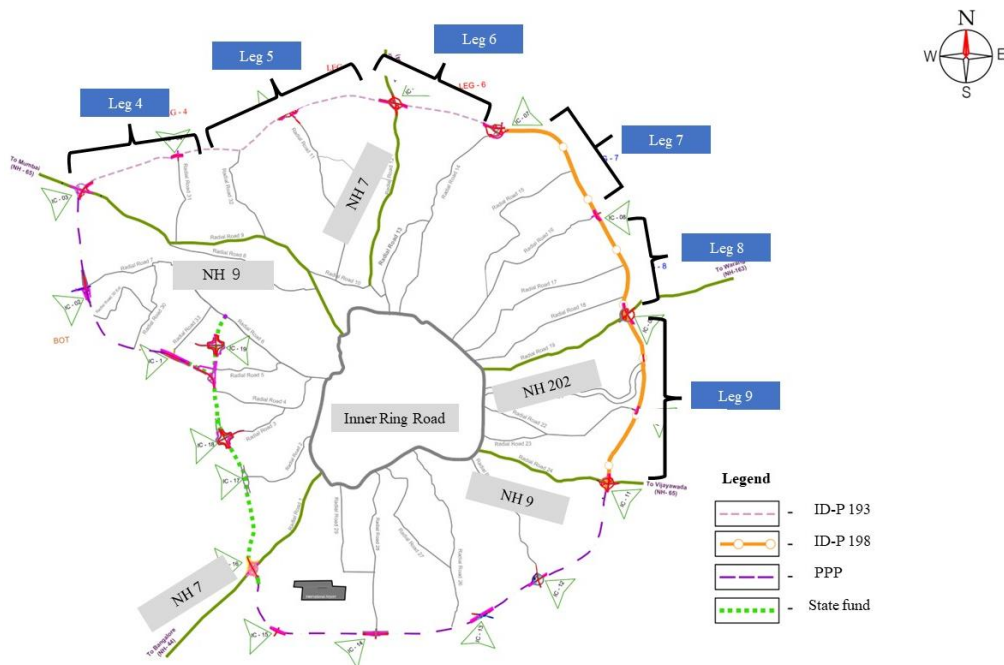


Figure 2: Overview of Hyderabad ORR

In addition to the construction of the ORR, the Project scope included service roads, interchanges, toll booths, introduction of ITS equipment, and the development of radial roads. Moreover, the scope covered HIV/AIDS prevention activities at construction sites and consulting services.

Changes in the scope of the ODA loan project from the plan included the design of the interchanges, underpasses, the number of toll booths, and the cancellation of bus bays. As for the interchanges, mainly rotary interchanges were originally planned, but the changes were made because a SAPI study proposed the double trumpet type as kilometer-based toll collection had not been taken into account. Regarding the bus bays, it was originally assumed that buses would also use the ORR; however, since only long-distance buses use the ORR, bus bays were removed from the scope. Such changes in the scope appear to be appropriate, mainly based on proposals from the SAPI study and considering the situation on the ground after the Project began. According to interviews with HGCL, the Executing Agency, there was no significant impact on Project costs and the implementation period due to these changes. Moreover, as described in "3.2.2.1 Project Cost," there was a significant amount of unused funds in the Project. To make good use of such funds, additional radial roads, city ITS,⁹ construction of toll administrative buildings, illumination on non-ODA loan sections, and greening of the median were added. Moreover, the consulting services were executed as planned.

Measures taken during construction

In the Project, strict safety at the construction sites and HIV/AIDS prevention activities for the workers were planned during the construction.

a) Safety measures

Safety measures during construction were included as obligations in the contracts of the consultants and contractors. To protect the safety and health of workers and people living nearby, the contractors had to formulate a project safety plan for each site; and based on the plan, they were required to take such measures as assigning safety engineers, conducting safety management training, safety inspections, and reporting accidents. Although thorough safety plans were in place, there were two fatal accidents in the Project.¹⁰ After the accidents, instead of increasing the number of new initiatives and inspections, existing measures were followed through more strictly to prevent future accidents. Moreover, the Project included construction in close proximity to

⁹ Although preparations were made for procurement in the Project, it took time to complete the tendering process. As a result, the city traffic police procured it with its own funds, and it was eventually removed from the scope of the Project.

¹⁰ One accident occurred when a rebar collapsed during the installation. The accident may have been triggered by the ground loosened by the rain on the previous day. The other incident occurred at a pipe culvert construction site when an embankment collapsed.

operational railway lines. In this regard, in coordination with Indian Railways, the risk was reduced by working outside of business hours.

b) HIV/AIDS prevention activities

The Project was a large-scale construction project where many construction workers including migrant workers living alone would gather in one place, raising the risk of HIV/AIDS infection. Therefore, it was planned to hire an NGO and implement occupational health and safety measures for the workers, including HIV prevention activities, in cooperation with the health department. Cooperation with HIV prevention activities was included in the consultant’s work and the contractors’ contracts. Social development experts from the consultant team prepared a concept paper on HIV prevention activities, based on which activities such as peer education, distribution of condoms, introduction of HIV and sexually transmitted disease testing and counselling services, and advocacy were implemented. In HIV prevention activities, there were issues such as contractors not being proactive and activities not continuing due to trained peer educators changing their jobs or their contracts expiring. At the same time, the experience revealed that not only construction workers but also site staff of contractors are similarly at risk, and it is important to include peer educators in the scope of activities and to regularly recruit peer educators.

TA Project

The TA project provided support to establish operational arrangement and procurement of ITS, the system procured by the ODA loan. To achieve the following outputs, related activities were planned (see “3.3.1 Effectiveness” for details on achievement of the outputs). Table 1 presents the activities related to each output and changes during the TA project.

Table 1: Activities of the TA Project

Output	Activity	Change
By conducting necessary surveys/ studies regarding the optimal way of toll collection and smooth ITS introduction, problems related to operation & maintenance (O&M) issues and preparation of detailed operation charts are solved.	1-1. To conduct surveys and fix the appropriate toll rate 1-2. To review the ITS components to be introduced 1-3. To review the status of ITS trials conducted by the Ministry of Road Transport & Highways, the Government of India 1-4. To proposed effective ways of promoting Touch & Go ¹¹ and ETC 1-5. To provide assistance on the preparation of detailed operation process of ITS introduction 1-6. To prepare and conduct seminar in Japan for Indian officials and staff regarding the toll collection and ETC	Activity 1-6 was added after the commencement of the TA.

¹¹ Contactless IC card for toll payment.

Setup for the smooth procurement of necessary ITS components are completed.	<p>2-1. To provide assistance for preparing tender documents including evaluation for procurement of ITS contractor</p> <p>2-2. To supervise TMS implementation on the southern section of ORR</p> <p>2-3. To provide assistance for preparing tender documents including evaluation for ITS consultants to supervise implementation of ITS</p> <p>2-4. To provide assistance for preparing tender documents including evaluation for O&M of ITS system</p> <p>2-5. To provide assistance and deliver lectures on capacity building related to technical evaluation of ITS contractor</p> <p>2-6. To provide assistance and deliver lectures on capacity building related to technical evaluation of ITS consultant</p>	Activity 2-2 was cancelled while 2-5 and 2-6 were added in 2013.
Institutional setup for optimal operation and management of toll collection system for the ORR is promptly and firmly completed, and preparation for toll collection system is completed.	<p>3-1. To conduct additional survey on institutional setup for optimal operation and management of toll collection system and HTMS for the ORR including southern and western areas</p> <p>3-2. To provide assistance for establishment of toll collection system for the ORR (including Touch & Go and ETC)</p> <p>3-3. To prepare operation manual for toll collection (including ETC)</p> <p>3-4. To supervise TMS implementation on the southern section of ORR</p> <p>3-5. To conduct monitoring and evaluation of toll collection</p>	Activities 3-4 and 3-5 were cancelled in 2010. They were added again in 2011, but cancelled in 2013.
Trial experiments on ETC are conducted, and necessary proposals regarding full-scale operation of ETC are made.	<p>4-1. To prepare and conduct trial experiments of ETC</p> <p>4-2. To promote understanding on the introduction of ETC by relevant organizations</p> <p>4-3. To distribute OBU and T&G cards for the trial experiment and to manage overall installation operation</p> <p>4-4. To monitor and evaluate ETC trial experiment</p> <p>4-5. To present necessary proposals regarding full-scale introduction and operation of ETC</p>	Activities 4-1 and 4-3 were cancelled in 2010. They were added again in 2011 and cancelled in 2013. Activities 4-4 and 4-5 were deleted in 2013.
The development of HTMS operational structure is assisted.	<p>5-1. To prepare HTMS operation manual</p> <p>5-2. To support selection of HTMS operators (preparation of bid documents)</p> <p>5-3. To propose organizational setup among agencies related to HTMS operation</p> <p>5-4. To propose for information exchange with City ITS</p>	All the activities related to this output were added in 2013.

Source: Materials provided by JICA.

In the TA, activities aimed at smooth introduction of ITS, which was to be procured through the ODA loan project, were planned. Therefore, the progress of such activities depended on the progress of the ODA loan project, and 3-4, 3-5, 4-1, and 4-3 among them were once removed

from the TA's activity plan in 2010, but the cooperation period was extended by adding them again in the following year. However, in response to the delay in the procurement of TMS in the ODA loan project, these activities were removed again in 2013 along with 2-2, 4-4 and 4-5, and activities related to supporting the establishment of an HTMS operation system were added (the delay in TMS procurement is explained in "3.2.2.2 Project Period").

In the TA, adding training in Japan after the start of the cooperation provided a valuable opportunity for Indian stakeholders to understand the importance of ITS and practical cases.

The flexible changes in the contents of the TA according to the progress of the ODA loan seems to have been appropriate in providing lateral support to the ODA loan project.

3.2.2 Project Inputs

(Refer to “Comparison of the Original and Actual Scope of the Project” for details at the end of the report)

3.2.2.1 Project Cost

Table 2 presents the planned and actual costs of each project.

Table 2: Planned and Actual Project Costs

	Plan	Actual	Achievement
ID-P 193	Total project cost JPY 54,165 million, of which JPY 41,853 million is ODA loan (JPY 3,947 million in foreign currency and JPY 37,906 million in local currency)	Total project cost JPY 40,851 million, of which JPY 24,807 million is ODA loan (JPY 380 million in foreign currency and JPY 27,253 million in local currency)	Total project cost 75%, ODA loan 59%
ID-P 198	Total project cost JPY 54,046 million, of which JPY 42,027 million is ODA loan (JPY 7,297 million in foreign currency and JPY 34,730 million in local currency)	Total project cost JPY 39,590 million, of which JPY 26,188 million is ODA loan	Total project cost 73%, ODA loan 62%
TA	JPY 190 million	JPY 254 million	134%

The actual Project cost of the ODA loan was within the plan. The main reason why it remained at about 70% of the plan was the impact of the appreciation of the yen during the Project period. The exchange rates for ID-P193 and ID-P198 at the time of the appraisal were JPY 2.85 and JPY 2.54 per INR 1; but in 2010, the average exchange rate was already below JPY 2 against INR due to the appreciation of the yen. In response, as mentioned above in the Output section, HGCL made several requests for additional scope to use the unused ODA loan, and a portion of the requests was included in the Project. According to an interview with HGCL, there were no problems with the financing and flow of funds on the Indian side.

The actual project cost of the TA was 134% compared to the plan, mainly owing to the increase in the person-month of experts arising from the extension of the project period and the increase in travel expenses along with it.

3.2.2.2 Project Period

The planned and actual project periods are indicated in Table 3.

Table 3: Planned and Actual Project Periods

	Plan	Actual	Achievement
ID-P 193	March 2008 (L/A signing)–February 2013 (5 years 0 month, 60 months)	March 2008 (L/A signing)–March 2017 (9 years 1 month, 109 months)	182%
ID-P 198	November 2008 (L/A signing)–August 2013 (4 years 10 months, 58 months)	November 2008 (L/A signing)–March 2019 (10 years 5 months, 125 months)	215%
TA	January 2010–June 2011 (1 year 6 months, 18 months)	January 2010–October 2013 (3 years 10 months, 46 months)	256%

As mentioned above, the Project periods of the ODA loan significantly exceeded the plan. The definition of completion of an ODA loan is the completion of construction work and consulting services (including the defect liability period). In the Project, some scope were added as described above during the implementation, but no delay was caused by these scope. The main reasons for the delays and the approximate period of each delay are as follows:

- Litigation over the selection process of a TMS contractor (42 months)
- Re-tendering due to the non-performance of a contractor (36 months)
- Disputes related to land acquisition (24 months)
- Procedures for the reallocation of ODA loan funds for ITS consulting service contracts (approximately 12 months)

Since this Project was a large-scale construction, in addition to taking time to acquire the land, the tender related to the installation of TMS resulted in a lawsuit and caused significant delays.¹² Therefore, considering the output, it is difficult to say that a significant extension of the Project period was necessarily appropriate.

¹² One of the technically disqualified bidders filed a lawsuit to appeal the results of the evaluation. In the meantime, another bidder who was also disqualified requested for a re-evaluation of technical proposals. At the direction of the high court, the technical proposals were re-evaluated. As a result, both of these litigant companies cleared technical evaluation, and a third bidder filed a case over the opening of the financial bid. Eventually, the financial proposal was opened at the direction of the high court.

The cooperation period of the TA was also significantly extended. The project added and removed activities through multiple contract amendments, but the main reason for the extension of the cooperation period was not an increase in the content of the activities, but an impact on related activities owing to disputes over the selection process of a TMS contractor.

3.2.3 Results of Calculations for Internal Rates of Return (Reference only)

At the time of the appraisal, the financial internal rates of return (FIRR) and economic internal rates of return (EIRR) for ID-P 193 and ID-P 198 were calculated. However, due to the lack of details on the calculation of the internal rates of return at the time of appraisal and the information at the time of ex-post evaluation, both the FIRR and EIRR cannot be recalculated for ID-P 193. The EIRR of ID-P 198 cannot be recalculated due to a lack of information at the time of ex-post evaluation. Although there is information on the FIRR of ID-P 198 at the time of ex-post evaluation, the internal rates of return of the Project should be considered integrally in the entire section of the Project, not only in the target section of ID-P 198. Considering that it is not helpful to show the FIRR of only a part of the section. Accordingly, the report does not recalculate the FIRR and EIRR of ID-193 and ID-198.

To summarize the efficiency of the Project, the output of the ODA loan project was almost as planned. Although the Project costs were within the plan owing to the appreciation of the yen, there was a significant delay in the Project period caused by the litigation related to TMS procurement and land acquisition. Therefore, the efficiency of the Project is moderately low.

3.3 Effectiveness and Impacts¹³ (Rating: ③)

3.3.1 Effectiveness

3.3.1.1 Quantitative Effects (Operation and Effect Indicators)

In the ODA loan project, having a certain amount of traffic volume and saving on travel time were set as operation and effect indicators. The explanation on and the extent of achievement for each indicator are presented below.

Operation indicator: annual average daily traffic

For this indicator, the target values set at the time of the appraisal were revised. The values used as targets at the time of the appraisal were based on the estimates made at the time of the detailed project report in 2006. When the values were studied in the ex-post evaluation, it was found that the traffic volume of the ORR was overestimated in the first place assuming that it would not be a toll road. After the Project began, the inappropriateness of adopting the estimates

¹³ When providing the sub-rating, Effectiveness and Impacts are to be considered together.

for the Project was pointed out. In 2008, the Indian Institute of Technology at Chennai (IIT Chennai) recalculated the future traffic volume, and the validity of its calculation was recognized by HGCL and in a SAPI study of JICA. Therefore, after consulting with HGCL and the JICA India Office during the ex-post evaluation, IIT Chennai's forecast value was taken as the target value. The target values in Table 4 are the revised figures.

Table 4: Achievement of Annual Average Daily Traffic¹⁴

Annual average daily traffic (PCU ¹⁵ /day)	Target value (Two years after Project completion)	Actual value (2021)	Achievement value
ID-P 193			
Leg 4 (Patancheru –Narsapur)	23,026	68,138	296%
Leg 5 (Narsapur – Medchal)	37,509	50,712	135%
Leg 6 (Medchal – Shamirpet)	40,927	55,340	135%
ID-P 198			
Leg 7 (Shamirpet – Keesara)	51,244	41,505	81%
Leg 8 (Keesara – Ghatkesar)	55,362	41,478	75%
Leg 9 (Ghatkesar – Amberpet)	58,170	44,610	77%

Source: HGCL

The traffic volume is measured at the mid-block point of each section (leg). The actual figures show the traffic volume in 2021, which is two years after the completion of the Project. The actual values of all sections achieved more than 70%. In 2020 and 2021, the impact of the lockdown due to COVID-19 and the restrictions on movement was significant, and it is estimated that traffic was reduced by about 15%; without the impact of COVID-19, it is likely that the actual traffic volume would have exceeded 80% in all the sections. In addition, while Legs 4 to 6 recorded the traffic volume exceeding the target values, Legs 7 to 9 is only 70 to 80% of the target value. The probable reasons for this are as follows: the area around Legs 4 and 5 is economically developing as an industrial area while in Legs 7 to 9, it was initially expected that cargo trucks from distant places would enter the Hyderabad metropolitan area using NH 202, but the development of roads outside the metropolitan area progressed, and the road network connecting regional cities made it possible to travel without passing through the ORR from NH 202.

Table 5 shows the actual traffic volume from 2019 to April 2022 and a forecast for the sections of the ORR under the ODA loan. As mentioned earlier, there are sections that had less traffic than

¹⁴ There is no baseline value because the ORR was newly constructed.

¹⁵ Passenger car unit. It is the number equivalent to the one of passenger cars.

in 2020 and 2021 than 2019 because of COVID-19. The traffic volume is expected to increase at an annual rate of 5% based on the growth rate of the number of registered vehicles in the Hyderabad metropolitan area.

Table 5: Actual Traffic Volume and Forecast (PCU/day)

	Leg 4	Leg 5	Leg 6	Leg 7	Leg 8	Leg 9
2019	65,936	61,614	49,159	36,870	38,204	44,261
2020	50,026	41,722	40,029	30,022	29,467	34,838
2021	68,138	50,712	55,340	41,505	41,478	44,610
2022	73,108	56,808	61,045	45,784	46,705	54,599
2023	76,763	59,649	64,097	48,073	49,040	57,329
2024	80,601	62,631	67,302	50,476	51,492	60,196
2025	84,631	65,763	70,667	53,000	54,067	63,205
2026	88,863	69,051	74,200	55,650	56,770	66,366
2027	93,306	72,503	77,910	58,433	59,608	69,684
2028	97,971	76,128	81,806	61,354	62,589	73,168
2029	102,870	79,935	85,896	64,422	65,718	76,826
2030	108,013	83,932	90,191	67,643	69,004	80,668

Source: HGCL

Effect indicators: saving on travel time

This indicator compares the travel time of three road sections defined at the time of the appraisal wherein traveling through the city before the Project and travel using the ORR after the Project. As for the pre-Project routes, it targeted NH 9 Junction (Jct) – NH 7 Jct via BHEL – Miyapur – Bachupally – Mysamma Temple, NH 7 Jct – NH 202 Jct via Bowenpally – Tarnaka – Uppal Cross Road – Boduppal, NH 202 Jct – NH 9 Jct via LB Nagar and Uppal Cross Road.

Table 6: Achievement in Travel Time Saving

Travel time saving (min)	Target value (Two years after Project completion)	Travel time before the Project (2008)	Travel time after the Project (2022)	Actual value ¹⁶ (travel time saving)	Achievement value ¹⁷
NH 9 Jct – NH 7 Jct	60	80	22	58	97%
NH 7 Jct – NH 202 Jct	60	76	22	54	90%
NH 202 Jct – NH 9 Jct	30	38	11	27	90%

Source: HGCL

¹⁶ Calculated by subtracting the travel time required after the Project from the travel time required before the Project is implemented.

¹⁷ Calculated by dividing the actual value by the target value of the travel time saving.

The above actual values are for 2021. Based on the difference in time required (shortened time) before and after the implementation of the Project, the degree of achievement is 90% or more in all three sections. When the target values were set at the time of the appraisal, the speed limit of the ORR was set at 120 km/h; however, since it is 100 km/hour now, this could be the reason the actual time saved is slightly less than the initial target.

<Column 1> Promoting the use of the ORR

HGCL has taken various measures to bring more traffic on the ORR. Here are a few examples.

- Introduction of appropriate toll policies: The fare structure initially considered by the TA was first based on the idea of inducing traffic volume rather than business profitability.
- Systematic development of radial roads: To connect the ORR with the inner ring road, the widening and rehabilitation of 33 radial roads is being implemented in stages.
- Urban development plan around the ORR: The 1 km on both sides of the ORR is designated as a growth corridor according to the government’s notification, and development for multi-purpose use such as commerce and residential areas is being promoted in conjunction with the development of a grid road.
- Other measures: Free distribution of ETC cards; prohibition of trucks driving into the city (during the day); emergency systems and patrols are provided to make it comfortable to use the ORR. In the future, the improvement of the ORR’s service areas is also planned.

3.3.1.2 Qualitative Effects (Other Effects)

TA

The TA was expected to smoothly introduce the effective operation system for the toll collection system (TMS) and the highway traffic control system (HTMS). By realizing the smooth introduction of the Intelligent Transportation System (ITS), the Project Purpose was expected to be achieved. Table 7 shows the Project Purpose and the Outputs, as well as their achievement status.

Table 7: Achievement Status of the Project Purpose of the TA

Project Purpose/Output	Indicator	Achievement Status
Project Purpose: Smooth introduction of effective operation system (TMS and HTMS)	Smooth introduction of ITS is actualized.	Partially achieved: Although ITS was not introduced within the cooperation period, the preparation for the procurement of ITS and operational management system were established

		after the project.
Output 1: By conducting necessary surveys/ studies regarding the optimal way of toll collection and smooth ITS introduction, problems related to operation & maintenance (O&M) issues and preparation of detailed operation charts are solved.	<ul style="list-style-type: none"> a) The preparation necessary for operational management system is completed. b) The preparation necessary for the introduction of ITS is completed. 	Both a) and b) achieved: Fare structure was determined based on a willingness-to-pay survey conducted in April and May 2010. ITS components were studied and the basic plans for TMS and HTMS were set. A detailed schedule for introduction of ITS was made.
Output 2: Setup for the smooth procurement of necessary ITS components are completed.	<ul style="list-style-type: none"> a) The preparation for the procurement (including tender document and evaluation) of toll collection concessionaire, ITS consultant, and ITS contractor is completed. b) The preparation for the supervision of the implementation of toll collection system is completed. 	a) was achieved while b) was partially achieved: By the time of Project completion, the preparation for the procurement of ITS components was made, including TMS and HTMS installation and operation, and a HTMS contractor. After the Project, an ITS consultant was hired in July 2015, and ITS for the ORR was established.
Output 3: Institutional setup for optimal operation and management of toll collection system for the ORR is established, and preparation for toll collection system is completed.	<ul style="list-style-type: none"> a) Establishment of toll collection system (including Touch & Go and ETC) is completed. b) All operation manual for the operation of toll collection (including ETC) is completed. c) Toll collection staff become capable to work properly based on the results of training. 	a) and c) were not achieved while b) was achieved: Although the tendering process for TMS started, the procurement process was not completed within the Project duration owing to court cases. However, a TMS operation manual was prepared, and the TMS contractor was selected in December 2014.
Output 4: Trial experiments on ETC are conducted, and necessary proposals regarding full-scale operation of ETC are made.	The preparation for full-scale operation of ETC is completed.	Achieved: The TA introduced ETC system and T&G technologies to HGCL along with technical advice for operationalizing. A trial of ETC was omitted from the Project because TMS contractor had yet to be selected. The trial was conducted thereafter in August 2018 and the toll operation started in December 2018.
Output 5: The development of HTMS operational structure is assisted (added in 2013).	No indicator	Achieved: An HTMS operation manual was prepared and institutional arrangements were proposed. In September 2016, an HTMS contractor was selected in accordance with the

		above. The Project also made suggestions in information exchange mechanism between the ORR and City ITS.
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In the introduction of ITS, Outputs 2 and 3 were only partially achieved owing to difficulties in the TMS procurement procedure. Therefore, the achievement of the Project Purpose within the TA's duration was partial. The TA made it possible to smoothly introduce ITS later by establishing procurement procedures and operation systems. As can be seen in the use of HTMS and TMS described in <Column 2>, the use of safe and comfortable roads is being promoted and an efficient toll collection system is in place, thus responding to the increasing demand for road traffic.

The TA was designed in such a way that it would contribute to achieving the objective of the ODA loan project. In addition, through training in Japan and daily communication, the TA contributed to deepening the understanding of the importance of ITS among those involved in implementing ITS and led to the smooth operation of ITS.

ODA Loan

The qualitative effects of the Project were expected to be a) improvement of safety and comfort of road traffic, and b) improvement of convenience by ensuring punctuality of movement. For the former, in addition to providing information using HTMS, for an accident or emergency on the ORR, an emergency call box for SOS is installed every 1 km, and road users can contact ambulances and patrol teams through the call center. A trauma care center is attached to each interchange of the ORR, where road users can receive first aid and be transported to nearby hospitals. The trauma center is operated in partnership with a major hospital in India.



Emergency call box installed on the ORR



Inside the Trauma Care Center

Initially, motorcycles were allowed to travel on the ORR and the speed limit was 120 km; thus, accidents were frequent. To reduce accidents, two- and three-wheelers were subsequently banned and the speed limit was lowered to 100 km in 2018. In addition, the installation of lighting at night

has significantly reduced the number of accidents.¹⁸ In this way, safety is promoted on the roads. For details, refer to <Column 2>.

With regard to improving convenience by ensuring the punctuality of movement, the ORR does not cause a situation in which the travel time cannot be foreseen owing to heavy traffic congestion, as in the case of the city road network, and the travel time has been reduced. When the residents and business establishments around the ORR were interviewed during the ex-post evaluation, most of the respondents who regularly travel to other areas within the Hyderabad metropolitan area said that the travel time became shorter than before.¹⁹ Some of them stated that, although a toll fee must be paid to use the ORR, since there was no traffic jam and the travel time to the destination would be predicted fairly accurately, some people would use the ORR for daily travel rather than the general roads. Thus, it seems fair to say that the ORR has led to the improvement of convenience.

¹⁸ In 2016 and 2017, there were more than 1,500 accidents per year; however, since 2018, the number of accidents has been 600 to 700 per year.

¹⁹ In the qualitative survey, interviews were conducted with 20 residents and 10 business establishments around the ORR.

<Column 2> Application of ITS

Use of HTMS: Through the variable message system (VMS), road users are reminded of accidents on the ORR and safe driving. VMS also disseminates information on bad weather such as heavy rain and dense fog. The ORR itself is rarely congested with traffic. According to HGCL's ITS personnel, the information on vehicles on the ORR is obtained from automated traffic counters. This information apparently is used for road maintenance and management.

Use of TMS: Information on vehicles is collected lane-wise at the toll plazas. There are two types of toll collection: cash and FASTag (ETC card) payment using RFID (contactless automatic reading). By promoting the use of ETC, the time taken for transaction at each toll booth is reduced. Problems with ETC card payments have also been detected, and the introduction of TMS has made it possible to prevent fraud and non-collection of tolls.



Toll plaza



VMS

3.3.2 Impacts

3.3.2.1 Intended Impacts

The expected impact of the Project was to reduce traffic congestion in the city center and contribute to the development of the regional economy. The Project was also expected to alleviate traffic pollution by easing traffic congestion. Although there is no quantitative information on easing traffic congestion in the city center, the population and the number of registered vehicles in the city are increasing each year. Under these circumstances, since it has become possible to bypass the city by using the ORR, the Project is considered to be contributing in no small part to reducing traffic congestion in the city center. Thus, by preventing a certain influx of traffic into the city, it is fair to say that the Project is contributing to the mitigation of air pollution in the city.²⁰

As for the development of the regional economy, between 2017 and 2021, 603 new residential,

²⁰ Based on an interview with HGCL.

commercial, and industrial permits were issued solely within the growth corridor along the ORR. Revenues from these new registrations amounted to INR 7.8 billion.²¹ With the construction and opening of the ORR, development has been observed in many areas. However, the degree of development varies from region to region, and although there have been significant changes from the northwest to the north section of the ORR under the ODA loan, the advance of industry in the northeast is limited. Because of its proximity to the airport, the western part of the city was developed as a financial district, turning into a business district with a concentration of finance and IT companies. In the north, there is a warehouse and medical equipment industrial zone, which was developed in conjunction with the construction of the ORR. The region-wise changes revealed from interviews with residents and business establishments (qualitative surveys) are shown in Table 8.

Table 8: Changes in the Regional Economy of Hyderabad

Region	Summary of finding
Northwest (along NH 9)	Owing to NH 9 heading toward Mumbai, the area has more traffic than before. The construction of the ORR further increased traffic and caused more dust. At the same time, the number of stores and offices increased. Employees of IT companies have moved into newly constructed apartments and residences.
North (along Radial Road 11)	With the construction of the ORR, the traffic volume of Radial Road 11 increased. The traffic most likely consists of commuters from the suburbs to the city. Many shops and residences were established. As the population of the area grew, so did the number of customers and businesses; thus, business profits increased.
Northeast, Yadagappally village (between Shamirpet and Keesara)	Along with the construction of the ORR, the Institute for Defense Studies and Research was established nearby, which gave many people in the village employment opportunities. Staff from the institute have moved into the village. Previously, there was much traffic with vehicles using the roads in the village as a bypass, but this was reduced with the coming of the ORR. Although there was no economic development similar to other areas, rising land prices led to a trend for villagers to sell part of their land and build permanent housing.

Owing to the construction of the ORR, the land prices along the road have increased. In the qualitative survey, many people said that the land price became fivefold before and after the

²¹ HMDA

construction of the ORR, and in some areas it became 20 to 40 times. Even in undeveloped areas along the ORR, based on expectations of future economic development, real estate agents setting up offices on vacant plots were visible. Interviews with residents and business establishments indicated that the construction of the ORR and the accompanying rise in land prices were largely well received.

3.3.2.2 Other Positive and Negative Impacts

1) Impacts on the Natural Environment

The Project was classified as Category A because it was in the road sector and had the characteristics that are likely to have an impact as listed in the Japan Bank for International Cooperation's "Guidelines for Confirmation of Environmental and Social Considerations" (April 2002).

Environmental monitoring during the implementation of the Project was included in the work of the project management consultant. Moreover, Jawaharlal Nehru Technical University in Hyderabad was commissioned to regularly monitor air and water quality (surface and underground) at nine locations falling under the ODA loan sections. Wastewater was not monitored because there was no contaminated water discharge from the construction sites. Other compliance conditions set out in the Environmental Monitoring Plan such as providing camps and fuel for the workers and measures to prevent soil erosion were taken. As the construction sites were far from residential areas, soundproof walls were not required, and thus not installed.

After the completion of the ORR, HMDA has been conducting monthly environmental monitoring at 21 locations along the ORR to monitor air and water quality. In addition, if any parameters are exceeding the permissible level, a notice is issued to the business establishments that are the source of contamination.

In the course of the Project, 3,379 trees were felled. Since the land acquisition for the Project included forest land, alternative land was prepared in Nalgonda District outside the Hyderabad metropolitan area, and compensatory afforestation was implemented in the alternative site and the ORR (see the next section on land acquisition for the size of the land acquired). Two trees were planted for each tree felled. Vegetation of alternative plantation sites was confirmed through Google Earth; before 2008–2011, the plots were degraded or had sparse vegetation, but they are now in a state where the existence of trees can be confirmed. Trees planted for greening along the ORR road are not counted in compensatory afforestation.²²

Appropriate measures were taken for environmental monitoring and compensatory afforestation during the Project and up to the present. No objections or complaints have been confirmed thus far from NGOs or civil society groups concerned about the impact on the

²² The number of trees planted along the ORR (the ODA loan sections) is 2,647,771, including trees planted in the road median and interchanges.

environment.

2) Resettlement and Land Acquisition

Initially, the scale of the land acquisition for the Project was set at a total of 1,064 ha, including ID-P193 and ID-P 198. At the end, the total area of 1,345 ha was acquired. The actual size of land acquisition increased owing to slight changes in ORR alignment after the start of the Project. Moreover, the acquisition of adjacent land was not initially included in the land acquisition by the Project, but some adjacent lands were acquired together as the pieces of land belonged to the same owner. Table 9 summarizes the planned and actual number of resettled households required. Fifty-seven households lost their homes for the Project, and were relocated to other places.²³

Table 9: Scale of Resettlement (households)

Village	Plan	Actual
Ramapallydayara	1	0
Yadagarpally East	53	42
Dilwaruguda	5	0
Kistareddyped	20	15
Total	79	57

For Yadagarpally East, an alternative site (R&R Layout) was prepared nearby, and project affected people (PAP) were assigned plots in R&R Layout. However, because it took time to prepare R&R Layout, PAP did not set up new houses there, but secured another land or residence in the village with the compensation, and still live there. PAP have kept the allotted land as an asset.

Fifteen households in Kistareddyped were to be provided with land and funding for housing at a nearby location by another government housing scheme for low-income families. However, at the time of the ex-post evaluation, it was found that, although the plots had been allocated from the housing scheme, there was a complaint on the part of the PAP regarding insufficient funds for the construction of the house. Thus, house construction has not been started, and the relocation is not yet complete.²⁴ These 15 households are still living in the original location. Thus, it is necessary to coordinate among the relevant agencies and complete the relocation at the earliest.

²³ To confirm the reason for the number of PAP decreasing from the plan, the records of land acquisition was checked at the time of the ex-post evaluation. It seems that barns and sheds were included at the time of the appraisal instead of buildings such as residence.

²⁴ Although resettlement is not complete, service roads have been completed and are in use, except for some short distance. Currently, people who need to use service road must take a detour. Given the current traffic volume, there are no problems with the use of the service road; however, when the traffic increases in the future on the service road, it may become inconvenient for the road users. The service road in question is not part of the ODA loan.

The land to be relocated is about 200 meters from the current place of residence, and risks such as affecting livelihoods are not assumed.

During the ex-post evaluation, three households that had lost only their land²⁵ and two households in Yadagarpally East who had lost their homes were interviewed. The interviews revealed that a prior consultation with PAP was organized by the Project, and that the PAP were generally satisfied with the contents of the compensation. There was also no economic damage to households from the land acquisition, and there were no reports of a decline in income. In particular, many households that had lost only their land had been living in central Hyderabad or outside the Hyderabad metropolitan area even before the land acquisition.

A compensation guideline dedicated to the Project were issued by the government order in 2006.²⁶ The guideline divides the types of land acquired by the Project into four categories, and stipulates compensation by category.²⁷ The land needed for the ORR is usually just a portion of any owned land, and it has been many years since the construction of the ORR was announced and the land price has already risen, and the compensation package reflects these situations. Thus, consideration was given so as not to create unfavorable conditions for the PAP. All PAP, with the exception of those in Kistareddyped, were given plots in the R&R Layout prepared by HMDA. Furthermore, by presenting an attractive compensation package in the Project, a mechanism to speed up the land acquisition was created. If the compensation package is not accepted and the case turns into court cases, a compensation above the market price will no longer be applied. In the case of land acquisition in large-scale public works projects in India, it is not uncommon to have appeal against the amount of compensation in the court; however, the measures discussed above in the Project made it possible to avoid unnecessary litigations.

On the other hand, with regard to R&R Layout, the same guideline states that the plots are to be handed over to the PAP within two years along with the development of basic infrastructure. However, in reality, it took time to secure the land for R&R Layout, and the handing over is still in process at the time of the ex-post evaluation.

To summarize the effectiveness and impacts, regarding operation and effectiveness indicators, the expected effects of the Project were largely achieved. The Project Purpose of the TA was also partially achieved, and measures such as improving the safety and comfort of road traffic were taken. No adverse impact on the natural environment of the Project was confirmed during road construction or after the completion of the Project. With regard to land acquisition and resettlement, a compensation guideline for the Project was prepared and appropriate

²⁵ Land owners of Koheda, Bonguluru, and Celebrity Colony.

²⁶ The guideline applies to the entire portion of the ODA loan and part of the non-ODA loan sections. Land acquisition for other sections had already been completed at the time of the notification of the guideline.

²⁷ Categories are as follows: a) agricultural land, b) HUDA approved plot, c) assigned land, and d) houses and institutional land.

compensation seems to have been provided in accordance with the guideline. As described above, the Project has mostly achieved its objectives. Therefore, effectiveness and impacts of the Project are high.

3.4 Sustainability (Rating: ④)

3.4.1 Policy and System

The Government of India updated *National Urban Transport Policy* in 2014 and demonstrated the importance of traffic management, including the application of ITS, and the development of laws and structures related to urban transport. This is a sign of political commitment in the urban transport sector. Given the multiple laws and agencies involved in the sector, as well as the overlap and lack of adequate coordination between the roles, the policy recommends the establishment of an organization responsible for comprehensive development of the urban transport sector. In response, India's first UMTA was established in Hyderabad in 2008. UMTA is involved in planning, policy development, coordination among agencies responsible for various modes of transport, and promoting the use of non-motorized vehicles such as bicycles. It is also striving to integrate bus and metro networks.

One kilometer on both sides of the ORR is designated as a growth corridor, and development is being implemented in accordance with land use regulations. Regarding the toll fee for the ORR, the Telangana State government issued a notification in 2012 that the toll would be reviewed every year, and the toll has been revised systematically.

3.4.2 Institutional/Organizational Aspect

HGCL is a special-purpose vehicle established in December 2005 under the Companies Act of India (1956) with the capital from the Hyderabad Urban Development Authority²⁸ (HUDA) and the Andhra Pradesh Infrastructure Development Corporation for the construction and operation of the ORR including the section of the Project.

As expected at the time of the appraisal, HGCL is in charge of the operation and maintenance of the ORR after its opening. The collection of tolls for the use of the ORR, the maintenance of the road, and the ITS are outsourced. The radial roads are managed by the Road and Building Department of the Telangana State government.

As of February 2022, HGCL has 58 employees. Led by the Managing Director, an Indian Administrative Service member, the senior management is staffed by HMDA employees. Others are on deputation from other government organizations or contracted employees. The term of deputation is usually five years, and the contract staff are sent from a national institution specialized in construction management and research, and there are no vacancies in HGCL. Although HGCL is a lean organization, its departments are divided into fields such as ITS and

²⁸ In 2008, HUDA was restructured and became HMDA.

civil work, and duties are segregated.

Toll collectors for the ORR have a wealth of experience in toll collection operations in other cities in India. By securing more personnel than necessary, the operator is able to cope with sudden staff absences or an increase in traffic volume on holidays. In addition, by hiring staff from the vicinity of each toll plaza, it has made it convenient for female employees to commute to work and can take necessary measures in the event of an emergency.

For outsourcing road maintenance, TMS and HTMS, the structure and personnel are in place as specified in each contract. In particular, with regard to ITS, based on the proposals of the TA, ITS consultants and HTMS operation system were established.

Thus, the organization in charge of operation and maintenance has not changed from the time of the appraisal, and there are no problems regarding institutional arrangements and personnel within HGCL or among the contractors.

3.4.3 Technical Aspect

HGCL does not have a regular training system, and employees on secondment and contract are trained at their parent organization to improve their knowledge and skills. The staff involved in operation and maintenance are from organizations in charge of such tasks as road maintenance, and have academic background and qualifications mainly in engineering. In TMS and HTMS, there is a clause on training in the contract, and the contractor conducts training for HGCL and its staff according to the contract. For example, in the case of HTMS, training on system operation includes courses such as system management, emergency call box operation, CCTV operation, traffic control and other systems. Regarding toll collectors, monthly training is provided to the staff of the toll plazas in order to train new recruits and ensure that the existing employees are fully aware of the contents of their work.

For operation and maintenance, a TMS manual, a HTMS manual, and a toll collection system manual are available. The toll collection system manual is updated annually. According to interviews with HGCL and contractors, the manual was used appropriately and no issues were reported.

Inspection and maintenance records are also kept. If there is an abnormality during the inspection of the road, it can be reported to the concerned parties using WhatsApp along with a photograph.

The technical level of the staff of both HGCL and the contractors seems to be appropriate for conducting the operation and maintenance. Various manuals have also been prepared and updated as necessary, and there are no particular technical issues.

3.4.4 Financial Aspect

Table 10 shows the balance sheets of HGCL from fiscal year (FY) 2016 to 2020.

Table 10: Balance Sheets of HGCL

Unit: INR million

FY	2016	2017	2018	2019	2020
Revenue	1,100	1,918	3,162	2,916	2,299
Expenditure	86	274	175	271	220
Balance	1,014	1,644	2,987	2,645	2,079

Source: HGCL

All HGCL revenues consist of toll collection, without budget allocations from the central or state governments. The toll collection for the ORR has been steadily increasing since the opening, and the revenue from it has been sufficient to cover the cost of operation and maintenance. As mentioned above, the toll fee structure is reviewed every year. Toll fees are revised based on the Consumer Price Index. Current toll fees are determined by the type of vehicle and travel distance.

According to interviews with HGCL and contractor engaged in toll collection, there has been a temporary decline in toll revenue owing to the suspension of economic activity and movement restrictions due to COVID-19. Since the contractors pay HGCL a fixed amount every month based on the revenue from the toll collection agreed at the time of the contract, there was no significant impact of COVID-19 on HGCL's revenue.

3.4.5 Environmental and Social Aspect

The environmental monitoring plan recommended the following measures to prevent and mitigate any adverse impact on the natural environment and surrounding areas after the opening of the ORR.

- Planting and maintaining roadside plantation to reduce air pollution and noise
- Formulation of development plans and enforcement of regulations on activities along the ORR to prevent unplanned development
- Removal of labor camps set up on construction sites after the completion of the Project
- Traffic accident monitoring
- Installation of an appropriate number of road signs
- Installation of soundproof walls in sections where noise is a concern

When confirmed during the ex-post evaluation, everything except the installation of soundproof walls was complied with. As for soundproof walls, they were not found necessary because there were no residences in the area within 150 m from the ORR, which was designated as a buffer zone.

Status of land acquisition and PAP are presented in "3.3.2.2 Other Positive and Negative

Impacts." Interviews with residents and business establishments revealed that economic development accelerated in the areas around the ORR. The degree to which the areas have benefited from economic development varies, but no negative impact has been confirmed.

3.4.6 Preventative Measures to Risks

Although the existence of any unexpected risks was checked with HGCL during interviews and the field survey, there were no risks to the operation and maintenance of the ORR or to the surrounding areas.

3.4.7 Status of Operation and Maintenance

During the field survey, the entire ORR, including the non-ODA loan sections, was driven to confirm the status of use and maintenance of motorways, service roads, interchanges, toll plazas (including toll administrative buildings), and radial roads. There was no damage to the roads or other facilities, and they were kept in good condition to this day. The roads are cleaned daily and inspected through patrols. Road structural assessments are also conducted regularly, and maintenance is carried out based on the assessment results. Overlay work on the roads is to be carried out every six years, and the sections constructed by the ODA loan are to be re-paved in the future.

Thus far, there have been no major problems with the ORR. For accidents that occur on the road on a daily basis, a system is in place for patrol teams and the traffic police to rush to the scene. As mentioned above, to be able to respond in the event of an emergency, a trauma care center equipped with an ambulance is attached to each toll plaza.

With regard to ITS, the systems in the HTMS and TMS sections established in the traffic control center at the HGCL headquarters, as well as in the toll administrative building at each toll plaza were checked. Both HTMS and TMS were running normally. The maintenance of HTMS and TMS is included in the contract with a third party, and the contractor takes appropriate measures.

To summarize sustainability, the policies and systems concerning the ORR have been established, and there are no problems with the institutional arrangements and technical aspects of HGCL and contractors including ITS. HGCL's financial status is also not a problem. In addition, there are no environmental and social risks. Sustainability of the Project effects is very high.

4. Conclusion, Lessons Learned, and Recommendations

4.1 Conclusion

Regarding relevance and coherence, the Project was consistent with the policies and development needs of the Government of India and the Hyderabad metropolitan area both at the times of the appraisal and the ex-post evaluation. The Project design and approach were also

confirmed to be appropriate. The Project was consistent with the ODA policy of Japan at the time of the project appraisal, and there was synergy among the projects implemented using JICA schemes. Collaboration with other agencies existed, and some contributions were made in light of an international framework; therefore, relevance and coherence are high. Output of the ODA loan project was almost as planned, and the project cost was within the plan. However, there were delays in project duration because of court cases on procurement of TMS and land acquisition. Therefore, the efficiency of the Project is moderately low. On effectiveness and impacts, the operation and effect indicators of the Projects were mostly achieved. The project purpose of TA was also partially achieved. No adverse impact on the natural environment during the construction and after the Project completion has been reported. Regarding land acquisition and resettlement, a compensation guideline was prepared for the Project, and proper compensation was provided according to the guideline. Therefore, effectiveness and impact are high. On sustainability of the Project, the policy and system regarding the ORR were established. No issues are found in respect to organizational arrangements and technical aspects of HGCL as well as the contractors. The financial status of HGCL is also sound. No particular risk is identified on environmental and social aspects. Therefore, sustainability of the Project effects is very high.

In light of the above, this Project is evaluated to be highly satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

Continuation of safety management during construction

In the Project, as a safety measure during construction, safety management obligations were clearly stated in the contracts of the consultants and contractors. Moreover, a project safety plan was formulated, engineers in charge of safety were assigned, and both safety management training and safety inspections were conducted. In the event of an accident, an accident investigation was conducted, and recommendations for subsequent preventive measures were made. In addition to practicing daily safety management at construction sites, it is fair to say that many accidents were most likely prevented by confirming that such safety management was thoroughly implemented through regular monitoring, and by establishing a response system (accident reporting, investigation, future preventive measures) for accidents. As new interchanges will be built on the Hyderabad ORR in the near future, it is recommended that accidents be prevented in the same way by thoroughly implementing the safety management measures at the construction sites during the implementation of the Project.

Coordination for completing resettlement

Although the land acquisition for the Project and the compensation for the PAP were completed, 15 households living in Kistareddyped have not completed resettlement that was to take place

under other schemes. To complete the resettlement, funding for the construction of housing is necessary. HGCL needs to coordinate with housing corporations and the local administration to secure the necessary funding and work to complete the resettlement at the earliest possible opportunity.

4.2.2 Recommendations to JICA

None

4.3 Lessons Learned

Development of a clear compensation guideline with compensation packages to accelerate land acquisition

Although the Project was a large-scale infrastructure development project, considering its sheer scale, there were relatively few complaints and lawsuits related to the land acquisition. There are two factors contributing to this. One is that the scope and content of compensation were clarified according to the classification (land use) of the land to be acquired, and the government issued the guideline for compensation. As a result, the compensation guideline became clear to the parties concerned and transparency was ensured. Second, the compensation was made more attractive on the condition that PAP agreed to a compensation package presented under the guideline, thereby preventing lawsuits as much as possible. If a case went to the court, it would take a significant amount of time to settle it. Thus, taking these steps allowed the Project to expedite the process of land acquisition (especially in the case of India, where some people take frivolous legal action in an attempt to increase compensation). Furthermore, providing R&R Layout with basic infrastructure near the ORR made the PAP understand that the value of R&R Layout will increase in the future, and it is reasonable to conclude that many PAP agreed to the compensation as a future asset.

Comparison of the Original and Actual Scope of the Project

Item	Plan	Actual
1. Project Outputs	<p>a) Civil and electric work and equipment for road construction (highway, service road, interchange, toll plaza, introduction of ITS [ID-P 198 only]) and radial roads</p> <p>b) Social development (HIV/AIDS prevention activities)</p> <p>c) Consulting services (construction supervision, support for strengthening the O&M system)</p>	<p>As planned</p> <p>As planned</p> <p>As planned</p>
2. Project Period	<p><u>ID-P 193</u> March 2008–February 2013 (60 months)</p> <p><u>ID-P 198</u> November 2008–August 2013 (58 months)</p>	<p><u>ID-P 193</u> March 2008–March 2017 (109 months)</p> <p><u>ID-P 198</u> November 2008–March 2019 (125 months)</p>
3. Project Cost	<p><u>ID-P 193</u></p> <p>Amount Paid in Foreign Currency JPY 6,282 million</p> <p>Amount Paid in Local Currency JPY 47,883 million (INR 16,801 million)</p> <p>Total JPY 54,165 million</p> <p>ODA Loan Portion JPY 41,853 million</p> <p>Exchange Rate INR 1 = JPY 2.85 (As of October 2007)</p> <p><u>ID-P 198</u></p> <p>Amount Paid in Foreign Currency JPY 9,496 million</p> <p>Amount Paid in Local Currency JPY 44,550 million (INR 17,539 million)</p>	<p><u>ID-P 193</u></p> <p>JPY 2,918 million</p> <p>JPY 37,933 million (INR 21,431 million)</p> <p>JPY 40,851 million</p> <p>JPY 24,807 million</p> <p>INR 1 = JPY 1.77 (Average between January 2008 and December 2019)</p> <p><u>ID-P 198</u></p> <p>JPY 1,867 million</p> <p>JPY 37,723 million (INR 21,312 million)</p>

<p>Total ODA Loan Portion</p> <p>Exchange Rate</p>	<p>JPY 54,046 million</p> <p>JPY 42,027 million</p> <p>INR 1 = JPY 2.54 (As of June 2008)</p>	<p>JPY 39,590 million</p> <p>JPY 26,188 million</p> <p>INR 1 = JPY 1.77 (Average between January 2008 and December 2019)</p>
<p>4. Final Disbursement</p>	<p>March 2016 (ID-P 193)</p> <p>February 2020 (ID-P 198)</p>	