

Democratic Socialist Republic of Sri Lanka

FY2016 Ex-Post Evaluation of Japanese ODA Loan Project

“Emergency Natural Disaster Rehabilitation Project”

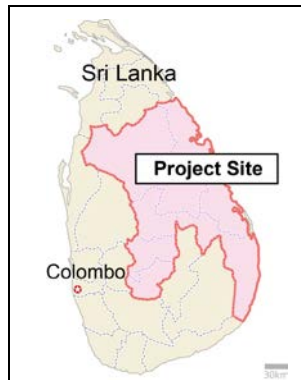
External Evaluator: Keishi Miyazaki, OPMAC Corporation

0. Summary

The objective of this project was to recover its previous level of function for the road and irrigation infrastructure in disaster-affected areas in the Central, North Central and Eastern Provinces of Sri Lanka by the rehabilitation of flood damaged roads and irrigation facilities, thereby contributing to the prompt recovery of economic and social activities, the improvement in the safety of residents, and the prevention of further damage and loss. The relevance of the project is high, as the objective was consistent with Sri Lanka’s development policies and development needs as well as with Japan’s ODA policies. Each function has been recovered. The annual average daily traffic on the rehabilitated national and provincial roads by the project, benefited areas, cultivated areas and the volume of rice production where there were irrigation schemes have all reached, or overtaken the pre-disaster level. The safety level in the surrounding areas has improved due to improvements in road safety and decrease in traffic accidents. Meanwhile, there has been an enhancement in the capacity of reservoirs as well as improvements in flood control since implementation of this project; therefore, the project has contributed to the safety assurance of the residents in the disaster-affected areas to some extent. Decreased transportation costs for agricultural products, decreased time for road closure during floods, reduced risks of water shortage as the result of the improvement in reservoir capacity, recovery of business activities, recovered livelihoods, restored health and educational services were all observed. Therefore, it is considered that the project has contributed to the prompt recovery of the economic and social activities of the disaster-affected areas. No negative impact on the natural environment was observed, and no land acquisition was executed. However, 26 households were resettled for the irrigation component of the project, and the resettlement was executed according to related Sri Lankan domestic laws. Therefore, the effectiveness and impacts of the project were high. The efficiency of the project was high as the project cost and project period were both within the plan. On the other hand, a minor problem was observed in the institutional and financial aspects of the operation and maintenance system. Therefore, the sustainability of the project effects is evaluated to be fair.

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

1. Project Description



Project Location



National Road (Deegavapi Temple Road) in Ampara District, Eastern Province rehabilitated by the project

1.1 Background

Severe rainstorms hit five Sri Lankan provinces, the Northern, North Central, Central, Eastern and Uva provinces, during December 2010 and February 2011, and this was reported to be the greatest disaster since the Indian Ocean earthquake in December 2004. One million two hundred thousand people were killed or listed as missing, and more than 50,000 houses were completely or partially destroyed. In particular, the Central, North Central and Eastern provinces had some regions that experienced their annual rainfall capacity (1,600 mm) in two weeks, and were severely damaged. From February to March of 2011, the government of Sri Lanka conducted needs assessment for recovery targeting mainly the rehabilitation of damaged public infrastructure and the results revealed that the great flood damaged approximately 18,237 km of roads and 1,752 agricultural and irrigation facilities, as well as the agricultural lands that were responsible for one-third of national rice production. The lives and the livelihoods of residents in the area were greatly affected. According to the estimate of the above needs assessment, the total recovery cost was 85,400 million yen (approximately 110,000 million Sri Lankan rupees), which was roughly 2% of Sri Lanka's GDP.

The government of Sri Lanka formed an emergency / mid-to-long term rehabilitation program based on the above needs assessment, and requested funding for rehabilitation from donors including the Japan International Cooperation Agency (JICA). JICA agreed to this request for the provision of rehabilitation of most affected and high urgency roads and irrigation facilities as a particularly high priority.

1.2 Project Outline¹

The objective of the project was to recover to its previous level the function of road and irrigation infrastructure in disaster-affected areas in the Central, North Central and Eastern Provinces of Sri Lanka by the rehabilitation of flood damaged roads and irrigation facilities, thereby contributing to the prompt recovery of economic and social activities, the improvement in the safety of residents, and the prevention of further damage and loss.

Loan Approved Amount/ Disbursed Amount	7,000 million Yen / 6,987 million Yen
Exchange of Notes Date/ Loan Agreement Signing Date	September 2011 / September 2011
Terms and Conditions	Interest Rate 0.01% Repayment Period 40 years (Grace Period 10 years) Conditions for Procurement General untied
Borrower / Executing Agency(ies)	Democratic Socialist Republic of Sri Lanka/ Ministry of Finance and Planning (current Ministry of National Policies and Economic Affairs)
Project Completion	June 2014
Main Contractor(s) (Over 1 billion yen)	—
Main Consultant(s) (Over 100 million yen)	—
Feasibility Studies, etc.	—
Related Projects	[Technical Cooperation] Disaster Management Capacity Enhancement Project Adaptable to Climate Change (2010-2013)

2. Outline of the Evaluation Study

2.1 External Evaluator

Keishi Miyazaki (OPMAC Corporation)

¹ The project objective mentioned in the ex-ante evaluation summary sheet (2011) was “to promptly recover economic and social activities and to prevent further damage and losses in the damaged areas by rehabilitating damaged roads and irrigation facilities in Central, North Central and Eastern Provinces of Sri Lanka, thereby contributing to the recovery of safety and the livelihood of residents together with rehabilitation of the post-disaster economy and society”. However, the ex-post evaluation re-examined the explanation of the project objective by considering assumed steps for achieving the project objectives based on the logical relationship sequence of “Input-Output-Outcome”. The explanation was then modified as shown in 1.2 Project Outline.

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted as follows:

Duration of the Study: September 2016 – October 2017

Duration of the Field Survey: January 5 – February 4, 2017, May 1 – May 13, 2017

3. Results of the Evaluation (Overall Rating: A²)

3.1 Relevance (Rating: ③³)

3.1.1 Consistency with the Development Plan of Sri Lanka

At the time of project appraisal (2011), the government of Sri Lanka had established a Presidential Task Force for flood rehabilitation of damage in the five provinces, the Northern, North Central, Central, Eastern and Uva Provinces, which had been caused by the rainstorms of December 2010 and February 2011. Under the said Task Force, the Department of National Planning and the Ministry of Finance and Planning (as it was at that time) implemented needs assessment targeting the rehabilitation and reconstruction of damaged public infrastructure, identified the damage situation and planned an emergency / mid- to long-term rehabilitation program. The government of Sri Lanka then requested rehabilitation funding for this rehabilitation project plan.

At the time of the ex-post evaluation, *the Ten-Year Development Plan (2006-2016) (Mahinda Chintana)* aimed at doubling per-capita income, and the development of road infrastructure to activate economic activities is set as an important development agenda for the achievement of this goal. In *the Public Investment Program (2017-2020)* established in February 2017, 20% of the total investment budget in the three years is to go to the road sector which accounts for the largest share. The irrigation sector accounts for 9.3% which has the third highest percentage among all sectors. This means that the road and irrigation sectors are positioned as important sectors in Sri Lanka. *The Comprehensive Disaster Management Programme (2014-2018)* prepared by the Ministry of Disaster Management referred to the “securing [of] Sri Lanka's safety thorough reduction of potential disaster risk and reduction of disaster impact on human life, property, and economy” as its disaster management policy.

3.1.2 Consistence with the Development Needs of Sri Lanka

At the time of project appraisal, the North Central, Central and Eastern Provinces, which were the target areas of the project, had been damaged by rainstorms which occurred during December 2010 and February 2011. Prompt recovery of the infrastructure of the affected areas was therefore an urgent task for the recovery of the livelihoods of local residents and

² A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory.

³ ③: High, ②: Fair, ①: Low.

the rebuilding of the lives of farmers affected, who rely on agriculture, and the recovery of regional economic activities, as described in *1.1 Background*. In addition, there was an urgent need for the rehabilitation of the access roads and irrigation facilities in the disaster-affected areas at least to the situation that they were in previous to the disaster in order to protect human lives and property from further damage.

At the time of the ex-post evaluation, Sri Lanka had been experiencing floods every year, even after 2011, due to the effects of global warming. These have been damaging domestic roads and irrigation facilities, and therefore the importance of designing and building roads and irrigation infrastructure, which are resistant to natural disasters has increased. On the other hand, the rehabilitation and improvement of roads with some focus on disaster prevention, such as anti-landslide measures (construction work to prevent landslides) on high-risk roads in mountain and hilly areas, require a significant amount of additional budget. Therefore, it would not be easy to upgrade all road and irrigation infrastructure to be disaster resistant using only a limited government budget. It is, however, important and necessary to continue to rehabilitate the socio-economic infrastructure that has been affected by natural disasters and to take measures for disaster prevention. JICA's related technical cooperation project, "The Disaster Management Capacity Enhancement Project Adaptable to Climate Change (2010-2013)" (DiMCEP Technical Cooperation Project) created a Disaster Impact Assessment Checklist and provided a training program for the Road Development Authority (RDA) staff. Currently, the RDA utilizes this checklist and introduces appropriate techniques for road design that take into account the aspects of disaster prevention.

3.1.3 Consistency with Japan's ODA Policy

At the time of the appraisal, one of the priority issues of *Japan's Country Assistance Program for Sri Lanka* (established in April 2004) was "assistance that is in line with the country's mid- to long-term vision for development", in which the "development of economic infrastructure" was promoted. *JICA's Country Assistance Strategy for Sri Lanka* (established in March 2009) put priority on "development of economic infrastructure", and emphasized that JICA should promote disaster management and assist vulnerable people affected by natural disasters from the viewpoint of adaptation to climate change. Since this project was aimed at the restoration and development of the road and irrigation infrastructure as it was basic to the livelihoods of local people affected by natural disasters, this project was consistent with the above Japan ODA policy.

In this way, this project has been highly relevant to Sri Lanka's development plan and development needs, as well as to Japan's ODA policy. Therefore, its relevance is high.

3.2 Efficiency (Rating: ③)

3.2.1 Project Outputs

The project outputs were implemented as planned. As for the road components, the actual output was 390.5 km against the planned output of 330.5 km, which was more than in the original plan. For the irrigation components, the actual output was 248 subprojects (the targeted irrigation scheme was 220 areas) against the planned output of 244 subprojects (the targeted irrigation scheme was 216 areas), which was again more than the original plan (Table 1). Because this project was the implementation of the emergency rehabilitation of flood affected roads and irrigation facilities, which did not require a high level of construction skills, there was no need to hire a consultant in charge of procurement support and construction management.

Table 1: Project Output (Plan/Actual)

Item	Plan	Actual	Gap
1. Rehabilitation of Roads			
(1) National Roads	Total length: 71.7 km	Total length: 92.0 km	+20.3 km
(2) Provincial Roads	Total length: 216.1 km	Total length: 253.6 km	+37.5 km
(3) Rural Roads	Total length: 42.7 km	Total length: 44.9 km	+2.2 km
2. Rehabilitation of Irrigation Facilities			
(1) Large and Medium-scale Irrigation Schemes	No. of subprojects: 167	Same as planned	—
(2) Small-scale Irrigation Schemes	No. of subprojects: 77	No. of subprojects: 81	+4

Source: JICA, National Planning Department, MNPEA

Note 1: In the ex-ante evaluation summary sheet of this project, it was mentioned that the total length of the target roads was approximately 1,018 km. However, this was the total length of candidate roads. The specific target roads were to be identified by the commencement of the project. For this reason, this ex-post evaluation deemed the planned output of this project should be the total length of national, provincial and rural roads mentioned in the first quarterly progress report in 2012. There was no modification in the planned outputs for irrigation facilities.

Note 2: According to the definitions of the Irrigation Department of the Ministry of Irrigation and Water Resource Management (MIWRM), (i) a large-scale irrigation scheme has more than 1,000 acres (approximately 404 hectares) of benefitted area, (ii) a medium-scale irrigation scheme has more than 200 acres (approximately 81 hectares) but less than 1,000 acres of benefitted area, and (iii) a small-scale irrigation scheme has less than 200 acres of benefitted area. On the one hand, the Department of Irrigation, MIWRM is responsible for irrigation schemes with more than 200 acres (more than medium-scale), on the other hand, the Provincial Irrigation Departments of each province are in charge of small-scale irrigation schemes with less than 200 acres.

Furthermore, although the signing date of the loan agreement was September 29, 2011, but start of eligibility was adjusted retroactively to August 22 in 2011. This was a pledge date, and if there was any construction for which the bidding evaluation had been completed by then and which met the subproject selection criteria⁴ of the project, it became eligible for

⁴ At the first stage, the candidate subprojects were to be selected according to the following seven criteria: (i) Damaged by the natural disasters (floods, landslides, etc.) that occurred during December 2010 and February 2011, (ii) Had a need for rehabilitation, (iii) Not included in any other foreign funded programmes/projects, (iv) Exclusion of projects which are classified as “Category A” under JICA’s Guidelines for Environmental and Social Considerations, (v) No land acquisition, (vi) No involuntarily resident resettlement, and (vii) Contractors to be procured in compliance with local competitive bidding. At the second stage, the target subprojects were to be finally selected by the each implementing agency from among the candidate projects of the first selection which were chosen according to needs and priorities of the target areas.

the loan. In addition, the subprojects were scattered in the target provinces and there were many of them; each payment amount was small and it was very likely that many payments would be made. Therefore, the Special Account Procedure applying Statement of Expenditure (SOE) method was employed in order to simplify the process of voucher submission and verification, and to make loan disbursement smoothly. In order to conduct procurement support and project implementation promotion for the above retroactive parts of the project, experts from JICA in charge of procurement and audit were sent to the Project Management Unit (PMU) and the Project Implementation Unit (PIU) (See Column below).

Meanwhile, at the time of project appraisal, JICA' DiMCEP Technical Cooperation Project was ongoing in Sri Lanka. At the beginning of the project, the plan assumed that the disaster prevention technical experts of the said project would have provided a direction in design techniques that could have given a consideration of disaster prevention in the design of the project target roads and irrigation schemes that was taking place. However, the period of the design of the project target facilities and the dispatch of the disaster prevention experts did not overlap due to a delay in the dispatch of the disaster prevention experts. The original plan for cooperation between this project and the DiMCEP Technical Cooperation Project therefore was not realized.

Roads and Irrigation Facilities rehabilitated by the Project (Examples)



National Road in Kandy District, Central Province (Gelioya-Embakka Road)



Provincial Road in Batticaloa District, Eastern Province (Beach Road)



Provincial Road in Polonnaruwa District, North Central Province (D1 North Channel Band Road)



Rural Road in Trincomalee District, Eastern Province (Origant Bridge West Cross Road)



Tank Bund in Ampara District, Eastern Province (Namal Oya Irrigation Scheme)



Anicut in Ampara District, Eastern Province (Sagama Irrigation Scheme)



Tank Bund in Batticaloa District, Eastern Province (Kadukamunai Kulam Irrigation Scheme)



Tank Bund in Polonnaruwa District, North Central Province (Kambukunawale Irrigation Scheme)

3.2.2 Project Inputs

3.2.2.1 Project Cost

The actual project cost amounted to 8,085 million yen against the planned cost of 8,254 million yen. There was an increase of scope in the actual project outputs (Table 2), nevertheless this was within the plan (equivalent to 98% of the original plan).

Table 2: Project Cost (Plan/Actual)

Item	Plan			Actual		
	Foreign Currency	Local Currency	Total	Foreign Currency	Local Currency	Total
	(Mill. Yen)	(Mill. Yen)	(Mill. Yen)	(Mill. Yen)	(Mill. Yen)	(Mill. Yen)
Civil Works (Road)	0	4,550	4,550		5,904.50	5,904.50
Civil Works (Irrigation)	0	1,135	1,135		1,242.10	1,242.10
Price Escalation	0	946	946			0.00
Contingency	0	332	332			0.00
Interest during construction	2	0	2	2.19		2.19
Commitment charge	35	0	35		14.57	14.57
Administration cost	0	0	418	155.92		155.92
Tax and duties	0	0	836		765.78	765.78
Total	37	6,963	8,254	158.11	7,926.95	8,085.06

Source: JICA, National Planning Department, MNPEA

Note: The exchange rate used for planned project cost is 1 rupee = 0.786 yen (as of May 2015). The exchange rate used for actual project cost is 1 rupee = 0.729 yen (average between 2011-2014).

3.2.2.2 Project Period

The planned project period was 37 months (September 2011-September 2014) against the actual project period of 35 months (September 2011-July 2014) which was within the plan (equivalent to 94.6% of the original plan) (Table 3).

Table 3: Project Period (Plan/Actual)

Item	Plan	Actual
1. Signing of Loan Agreement	Sep. 2011	Sep. 2011
2. Procurement and Construction of Road Component	Sep. 2011 – Sep. 2014	Sep. 2011 – July 2014
3. Procurement and Construction of Irrigation Component	Sep. 2011 - Sep. 2014	Sep. 2011 – July 2014
4. Project Completion	Sep. 2014	July 2014
5. Project Period (Entire Period)	Sep. 2011 - Sep. 2014 (37 months)	Sep. 2011 – July 2014 (35 months)

Source: JICA, National Planning Department, MNPEA

Note: The project completion is defined as the completion of procurement and construction for all subprojects.

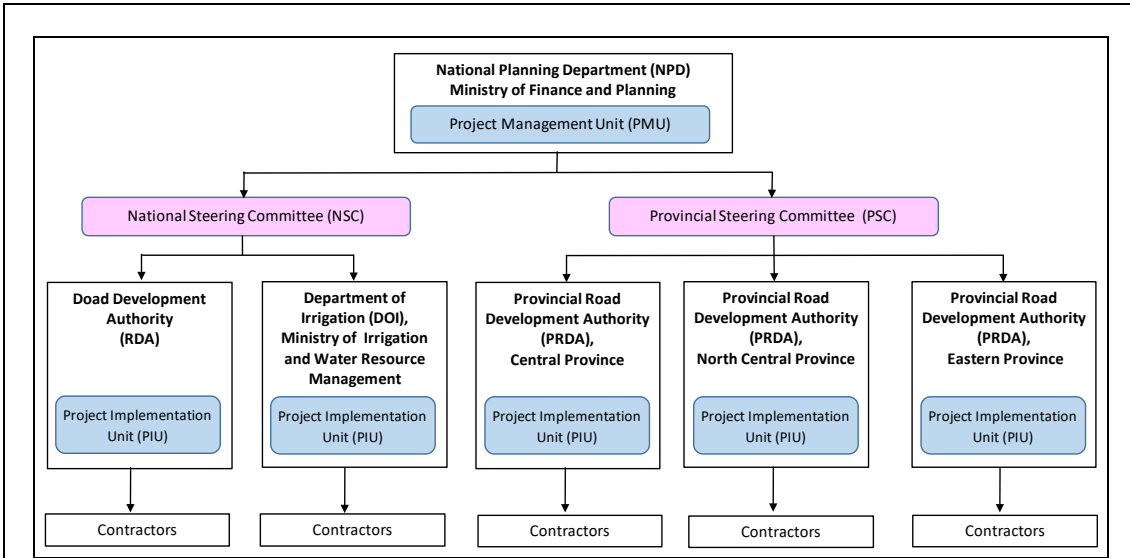
As for recovery construction of large and medium-scale irrigation schemes under the management of the Irrigation Department, Ministry of Irrigation and Water Resources Management (MIWRM), the project was implemented promptly while flexible measures were applied such as allowing the change in procurement rules of the Sri Lankan government as well as the introduction of a direct management method. It was

exceptional made from an emergency perspective, and they are one of the contributing factors to the actual project period being within the plan. For example, the government procurement rule usually requires that orders are to be made by competitive tendering for constructions that exceed 2 million rupees (approximately 1,440,000 yen). However, for construction under the management of the Irrigation Department, the minimum price for competitive tendering was expanded to 5 million rupees (approximately 3.6 million yen). For this reason, it became possible to sign a direct contract with registered contractors without undergoing the tender process if the construction cost was under 5 million rupees. If the construction cost was under 2 million rupees, it was possible to sign a direct contract with a farmers' organization. Because of this exception, the procurement procedure, which normally took about three months, was shortened to about two weeks. Furthermore, due to the introduction of the direct management method, the Irrigation Department designed, estimated the project costs, procured materials, supervised construction, used their own heavy equipment, and resourced workers from the farmers' organization, making it possible to manage small-scale construction promptly. In addition, the introduction of the Special Account Procedure with SOE method contributed to the simplification of administrative procedures.

Meanwhile, other construction works, except for works carried out by the Irrigation Department (e.g. works for national roads for which RDA was responsible, works for small-scale irrigation schemes, provincial roads and rural roads of provincial governments) were implemented in compliance with the usual government procurement rules.

Box: The Project Implementation Schemes

The implementing agency of this project was the Department of National Planning, Ministry of Finance and Planning, (current Ministry of National Policies and Economic Affairs). However, the implementation of each subproject had different agencies depending on the component. National roads were managed by RDA, provincial and rural roads by the Provincial Road Development Authority (PRDA) of each province, large and medium-scale irrigation schemes by the Irrigation Department, MIWRM, and small-scale irrigation schemes by the Provincial Irrigation Department (PID) of each province, respectively. For this reason, the project established the Project Management Unit (PMU) within the Department of National Planning, and a Project Implementation Unit (PIU) within each implementing agency. The PMU gave advice and coordinated with the PIU, and was responsible for the overall implementation of the project, such as fund management and project monitoring. The PIU was responsible for detailed design, procurement procedures, construction supervision for each subproject, and for submitting a monthly progress report to the PMU. On the other hand, people who were involved in the project were spread across national and provincial administrative levels and the sites of the subprojects were wide spread. For this reason, a National Steering Committee (NSC) consisting of representatives from related agencies was established at the national level, and a Provincial Steering Committee (PSC) was established at the provincial level in order to implement the project smoothly. Meetings were organized every three months and two months respectively to monitor the project (Figure 1). Thus, coordination among the related agencies was smoothly carried out.



Source: Prepared by the evaluator based on the JICA’s project documents.

Figure 1: Project Implementation Schemes

3.2.3 Results of Calculations for Internal Rates of Return (As a reference only)

This project was an emergency natural disaster rehabilitation assistance and due to its characteristics, the Internal Rates of Return were not calculated at the time of the appraisal. Therefore, there was no recalculation of the Internal Rates of Return at the time of the ex-post evaluation.

In the light of the above, the project cost and the project period were within the plan; therefore, the efficiency of the project is high.

3.3 Effectiveness⁵ (Rating: ③)

3.3.1 Quantitative Effects (Operation and Effect Indicators)

(1) Function of the Rehabilitated Roads and Irrigation Facilities

At the time of appraisal, “quantitative data which show the function of the rehabilitated roads and irrigation facilities have recovered to their previous level” were set as an indicator to measure the quantitative effects of the project, and it was “essentially comparable to the design specification of the target facilities”. The design specifications of some provincial roads of the North Central and Eastern Provinces and irrigation facilities in the North Central Province were checked as samples, and they showed that the design of the rehabilitated roads and irrigation facilities was improved and that they were functioning above the pre-disaster level. Specifically, roads were widened and the surface was improved (from macadam to asphalt pavement, and from gravel to concrete pavement), and drainage was newly built or

⁵ Sub-rating for Effectiveness is to be evaluated together with Impact.

improved. The function of these rehabilitated roads has improved compared to the pre-disaster level. As for the irrigation facilities, the project not only rehabilitated damaged facilities, but also improved them (e.g. the raising of damaged embankments), and the function of these rehabilitated irrigation facilities has improved compared to the pre-disaster level.

However, when the local offices of the implementing agencies (district offices, regional offices) were visited at the time of the ex-post evaluation, not all of them were ready to store and provide browsing of the design specifications of the project target facilities. Therefore, the above sample check had to be carried out within a limited range⁶. In addition, none of the implementing agencies had records of the pre-disaster design specifications and therefore they could not be checked directly. On the other hand, based on the results of interviews with the directors and chief engineers at each local office of the implementing agencies where the design specification could not be confirmed, it was revealed that the rehabilitated roads and irrigation facilities were improved compared to the pre-disaster level and that conditions were better than pre-disaster.

(2) Traffic Volume

The objective of this project was the emergency rehabilitation of road and irrigation infrastructure affected by a natural disaster and therefore project formulation and appraisal were not based on feasibility studies as it was for other usual infrastructure development projects. For this reason, at the time of the appraisal, operational and effect indicators with pre-project baseline values and post-implementation target values were not set. On the other hand, at the time of the ex-post evaluation, it was considered necessary to confirm whether or not the volume of road traffic had recovered to the pre-disaster level and therefore data for pre and post traffic volume of the project target national roads and provincial roads were collected to the extent available and the condition of their recovery was analyzed.

A comparison was made of the annual average daily traffic on the Kekirawa-Thalawa section (the project target section was 9km) from the North Central Province and the Ampara-Uhana Mahaoya section (the project target section was 13km) from the Eastern Province using data from RDA prior to project implementation (before 2013) and after project completion in 2015 and 2016. It was revealed that the traffic volume for both sections increased by 30% after project completion (Table 4).

⁶ The evaluator visited 17 of the 20 district and regional offices of each implementing agency which manage the project target roads and irrigation facilities. However, out of those district and regional offices, there were only 3 locations where the design specification of the project's target facilities could be confirmed.

Table 4: Annual Average Daily Traffic on Target National Roads (Two Sample Roads)

Unit: No. of vehicles/day

Section	Province	Target road length (km)	Survey point (km)	Baseline	Actual		
				Before 2013	2014	2015	2016
					Completion year	1 year after completion	2 years after completion
Kekirawa – Thalawa	North	9.0	20	6,294	N.A.	N.A.	N.A.
	Central		13	3,146	N.A.	4,106	N.A.
Ampara – Uhana Mahaoya	Eastern	13.0	5	4,771	6,208	N.A.	N.A.

Source: RDA

The annual average daily traffics of the 19 provincial roads were also compared using data provided by the Provincial Road Development Authority of three target provinces prior to project implementation (before 2010) and after project completion (after June 2014). It was revealed that the traffic volumes after project completion had increased to the level prior to project implementation or more in all sections. In particular, the rates of increase in traffic volume on the provincial roads from the Eastern Province were significant and traffic volumes increased more than twice in 6 out of 9 sections (table 5).

Table 5: Annual Average Daily Traffic on Target Provincial Roads (19 Sample Roads)

Unit: No. of Vehicle/day

Province	Section	District	Target road length (km)	Baseline	Actual
				Before 2010	After June 2014 (After project completion)
Eastern	Pallikudiyiruppu Internal Road	Ampara	0.45	105	320
	Malayadi Pansala Road - Damana	Ampara	0.30	92	380
	Jamaliya Road - Addalachenai	Ampara	0.80	305	675
	Konawatha Road	Ampara	2.50	290	860
	Amaravayal Thennamaravadi Road	Trincomalee	8.40	282	428
	Mavadichennai- illankaithurai- Navaladi Road	Trincomalee	9.00	196	352
	Valayiravu Link Road	Batticaloa	1.02	1,000	2,000
	Beach Road Kattankudy	Batticaloa	1.48	2,000	3,000
	Kaluwanchikudy Kurumanvely Ferry Road	Batticaloa	0.75	1,000	2,000
North Central	Rathmale - Nachchaduwa Road	Anuradhapura	11.00	1,700	2,100
	Galkiriyagama - Meewewa Road	Anuradhapura	5.83	1,550	2,050
	Seppukulama - Galenbindunuwewa Road	Anuradhapura	3.95	1,150	1,500
	D1 North Channel Bund Road	Polonnaruwa	3.78	1,100	1,500
	Welikanda - Singhapura - Katuwanvila Road	Polonnaruwa	5.00	950	1,300
Central	Hedeniy Bolagala Road	Kandy	2.40	1,522	1,640
	Kalunthanna Tammitiyana Dewahandiya Road	Kandy	9.39	986	1,012
	Piligalla Dawlagala Road	Kandy	3.60	1,630	1,821
	Wahuge Pitiya Wahigala Road	Matale	1.20	138	210
	Aban Opalgama Road	Matale	4.80	214	321

Source: Provincial Road Development Authorities of the Eastern Province, the North Central Province and the Central Province.

Note: As each Provincial Road Development Authority has not necessarily conducted periodic traffic volume surveys, some of the traffic data shown in the above table may include data calculated based on a specific assumption referring to the available actual traffic data for vicinal roads.

This project rehabilitated 92.0 km of national roads and 253.6 km of provincial roads. The two sample national roads mentioned above (total of 22 km) were equivalent to 24% of the total length of the target national roads and the 19 sample provincial roads (total of 75.65 km) were equivalent to 30% of the total length of the target provincial roads. Furthermore, later focus group discussions for residents living along the target roads (150 residents) in the three target provinces revealed that those residents acknowledged an increase in traffic volume after project completion. Therefore, it is considered that traffic volume on the roads rehabilitated by this project has increased to exceed the previous level.

(3) Benefited Area, Cultivated Area and Agricultural Production Volume

As for the traffic volume mentioned above, data for the benefited areas, cultivated areas and volume of agricultural production at the irrigation schemes rehabilitated by the project were collected and analyzed in order to understand the recovery of function after project implementation in a quantitative manner. Because the subprojects of this project rehabilitated only parts of the irrigation facilities from each irrigation scheme, and as the rehabilitated irrigation areas could not be identified, the data of the overall irrigation scheme were analyzed.

<Large and Medium-Scale Irrigation Schemes>

The benefited areas, cultivated areas and agricultural production volume of the overall targeted large and medium-scale irrigation schemes in 57 locations under the management of Irrigation Department, MIWRM in 2016 (2 years after the project completion) had recovered as almost same as the pre-disaster level (2010). However, by district, the cultivated area and agricultural production volume of the irrigation scheme in Trincomalee district (Eastern Province) was below the pre-disaster level due to water shortages according to the implementing agency (Table 6).

Table 6: Benefited Areas, Cultivated Areas and Agricultural Production Volume of Large and Medium-scale Irrigation Schemes under the Management of Irrigation Department, MIWRM

Indicator	District / Province	Baseline	Actual		
		2010	2014	2015	2016
			Project completion	1 year after project completion	2 years after project completion
Areas benefited by the project (ha)	Trincomalee (Eastern Province)	41,650	41,650	41,650	41,650
	Batticaloa (Eastern Province)	7,025	8,462	8,583	8,826
	Ampara (Eastern Province)	85,933	85,933	85,933	85,933
	Anuradhapura (North Central Province)	26,275.4	26,275.4	26,275.4	26,275.4
	Polonnaruwa (North Central Province)	34,249	34,249	34,249	34,249
	Total	195,132	196,569	196,690	196,933
Cultivated Areas (ha)	Trincomalee (Eastern Province)	41,650	30,710	40,483	39,680
	Batticaloa (Eastern Province)	7,025	8,462	8,583	8,826
	Ampara (Eastern Province)	85,933	85,933	85,933	85,933
	Anuradhapura (North Central Province)	26,275.4	26,275.4	26,275.4	26,275.4
	Polonnaruwa (North Central Province)	34,249	34,249	34,249	34,249
	Total	195,132	185,629	195,523	194,963
Volume of Agricultural Production (t)	Trincomalee (Eastern Province)	331,110	204,745	263,415	267,380
	Batticaloa (Eastern Province)	100,984	129,488	139,392	159,192
	Ampara (Eastern Province)	392,350	398,150	406,370	410,140
	Anuradhapura (North Central Province)	193,225.5	197,554.0	160,722.0	203,691.0
	Polonnaruwa (North Central Province)	353,330	278,410	370,820	375,260
	Total	1,371,000	1,208,347	1,340,719	1,415,663

Source: Irrigation Department, MIWRM

Note: This project implemented 167 subprojects for the rehabilitation of irrigation facilities in 57 large and medium-scale irrigation schemes in the Eastern Province and the North Central Province under the management of the Irrigation Department, MIWRM. The breakdown of 57 large and medium-scale irrigation schemes is 8 in Trincomalee district, 3 in Batticaloa district, 17 in Ampara district, 24 in Anuradhapura district, and 5 in Polonnaruwa district.

<Small-Scale Irrigation Schemes>

The benefited areas, cultivated areas and agricultural production volume of the overall targeted small-scale irrigation schemes in 21 locations under the management of the Eastern Provincial Irrigation Department in 2016 (2 years after the project completion) had increased by 24% each when compared to the pre-disaster level (2010) (Table 7).

On the other hand, the benefited areas, cultivated areas and agricultural production volume of the overall targeted small-scaled irrigation schemes in 34 locations under the management of the Northern Central Provincial Irrigation Department in 2016 (two years after project completion) recovered almost to the same level as pre-disaster (2010) (Table 8).

Table 7: Benefited Areas, Cultivated Areas and Agricultural Production Volume of Small-scale Irrigation Schemes under the Management of Eastern Provincial Irrigation Department

Indicator	District	Baseline	Actual		
		2010	2014	2015	2016
			Project completion	1 year after project completion	2 years after project completion
Areas benefited by the project (ha)	Trincomalee District	1462.81	1723.82	1723.82	1821.07
	Batticaloa District	1931.19	2215.81	2378.54	2378.54
	Ampara District	615.4	730.78	730.78	769.24
	Total	4,009.4	4,670.4	4,833.1	4,968.9
Cultivated Areas (ha)	Trincomalee District	1462.81	1723.82	1723.82	1821.07
	Batticaloa District	1931.19	2215.81	2378.54	2378.54
	Ampara District	615.4	730.78	730.78	769.24
	Total	4,009.4	4,670.4	4,833.1	4,968.9
Volume of Agricultural Production (t)	Trincomalee District	6582.65	7757.24	7757.24	8194.55
	Batticaloa District	8690.5	9971.1	10703.43	10703.43
	Ampara District	3076.95	3653.9	3653.9	3846.2
	Total	18,350.1	21,382.2	22,114.6	22,744.2

Source: Provincial Irrigation Department (PID), Eastern Province

Note: This project implemented 47 subprojects for the rehabilitation of irrigation facilities in 21 small-scale irrigation schemes (8 in Trincomalee district, 7 in Batticaloa district, 6 in Ampara district) under the management of PID, Eastern Province.

Table 8: Benefited Areas, Cultivated Areas and Agricultural Production Volume of Small-scale Irrigation Schemes under the Management of the North Central Provincial Irrigation Department

Indicator	District	Baseline	Actual		
		2010	2014	2015	2016
			Project completion	1 year after project completion	2 years after project completion
Areas benefited by the project (ha)	Anuradhapura District	1,057.9	1,067.5	1,067.5	1,067.5
	Polonnaruwa District	364.0	393.5	393.5	393.5
	Total	1,421.9	1,461.0	1,461.0	1,461.0
Cultivated Areas (ha)	Anuradhapura District	1,057.9	1,067.5	1,067.5	1,067.5
	Polonnaruwa District	364.0	393.5	393.5	393.5
	Total	1,421.9	1,461.0	1,461.0	1,461.0
Volume of Agricultural Production (t)	Anuradhapura District	4,753.0	4,857.0	4,964.0	5,043.0
	Polonnaruwa District	1,632.0	1,775.0	1,821.0	1,861.0
	Total	6,385.0	6,632.0	6,785.0	6,904.0

Source: PID, North Central Province

Note: This project implemented 34 subprojects for the rehabilitation of irrigation facilities in 34 small-scale irrigation schemes (29 in Anuradhapura district and 5 in Polonnaruwa district) under the management of PID, North Central Province.

Although the cultivated areas and agricultural production volume are highly influenced by the climate conditions of each year, the implementing agencies believe that the rehabilitation and improvement of the irrigation facilities by this project have been contributing factors to

the above results. The Eastern Province had been under the control of the Liberation Tigers of Tamil Eelam (LTTE) for a long time, and therefore it was difficult to access and cultivate some parts of the irrigation schemes. However, the return of farmers as a result of the end of the civil war and the restoration of public safety, as well as there being a good agricultural environment ready for the farmers could be one of the reasons which has influenced the increase in the benefited areas, cultivated areas and agricultural production volume in the Eastern Province. Meanwhile, the Irrigation Department, MIWRM and the Provincial Irrigation Departments have provided continuous maintenance and improvement of the irrigation facilities, and capacity building support for farmers' organizations using their own budget. These efforts may have contributed to the recovery of the benefited areas, cultivated areas and agricultural production volume of the rehabilitated irrigation schemes.

3.3.2 Qualitative Effects (Other Effects)

At the time of the appraisal, “the prompt recovery of the economic and social activities in the disaster-affected areas” was listed as a qualitative effect of the project. However, the ex-post evaluation decided that the above effect is an indirect effect of the project, and therefore to treat it as an impact.

Rehabilitation of Roads and Irrigation Facilities by the Project



Source: PRDA, Eastern Province, PRDA, North Central Province, PRDA, Central Province.

3.4 Impacts

3.4.1 Intended Impacts

(1) Securing the safety of residents in the disaster-affected areas

According to RDA and each Provincial Road Development Authority, driving at night was dangerous as the condition of road surfaces had previously been bad. However, road paving was improved by the project and the number of traffic accidents has decreased due to smooth

driving compared to before project implementation. Road signs, road marking, pedestrian crossings, hard shoulders and sidewalks were put in place, and the traffic safety measures were enhanced, all of which has contributed to improvements in safety for residents. Furthermore, roads and bridges used to be inundated during the flood, and were impassable for a few days or a week in some cases, but after project implementation, this is no longer the case, and safe and smooth access is now possible even during the monsoon season.

According to the Irrigation Department, MIWRM, two reservoirs in the irrigation scheme in Ampara district, Eastern Province were damaged by floods, and the area in the lower reach and the road system were affected. The project rehabilitated the damaged bund, and the safety of the areas surrounding the reservoirs was secured. In the Kaudulla irrigation scheme in the Polonnaruwa district of North Central Province, some of the paddy fields (1,000 acres (approximately 404 ha) paddy fields) and more than 500 farmers' households in the area often had suffered from floods during the monsoon season. The project built a causeway (a road that directly crosses a river, and it is often built where the flow rate is low) which made it easier to carry out flood control during the monsoon season, saving the above mentioned paddy fields and farmers' households from flooding. In addition, rehabilitation of the 34 water reservoirs (including bunds and diversion channels) damaged by floods in the North Central Province has secured the safety of the areas surrounding the reservoirs.

According to the results of the Focus Group Discussion (FGD)⁷ conducted at the ex-post evaluation, all 299 participants (100%) said that the safety of residents of the affected areas has improved following implementation of the project. According to the residents of the irrigation sites, natural disasters such as floods can be a big risk that may cause damage to the irrigation facilities and agricultural activities. They acknowledged that the project had contributed greatly to minimizing the risk of damage by natural disasters to the irrigation facilities as well as to the overall safety of residents in some areas.

From the above, it can be seen that the project has contributed to securing the safety of residents in the disaster-affected areas to some extent.

(2) Prompt Recovery of Economic and Social Activities

According to the Provincial Road Development Authorities of the three target provinces, the prompt transportation of agricultural inputs and outputs has become possible due to the rehabilitation and reconstruction of roads affected by disaster, which has had the effect of reducing transportation costs. This cost reduction has made it possible for farmers to sell their agricultural products at competitive prices.

⁷ At the time of the ex-post evaluation, FGD were conducted with residents living along the target roads and residents (mostly farmers) using the irrigation facilities, in order to investigate the project effects and impacts. A total of 21 FGD were conducted (8 in the Eastern Province, 7 in the North Central Province and 6 in the Central Province) and there was a total of 299 participants (residents from the irrigation sites: 149, residents from the road sites:150).

According to the Irrigation Department, MIWRM, the rehabilitation and improvement of the irrigation facilities affected by the disaster was completed in less than 3 years (35 months) and the short duration of this minimized the damage to agricultural production. Since the capacity of the Naakiri water reservoir of Batticaloa district in Eastern Province has improved, it is now possible to supply stable agricultural water throughout the year and the risk of water shortages has been reduced.

All 299 participants of FGD (100%) responded that the implementation of the project has promoted the prompt recovery of economic activities in the disaster-affected areas. From individual responses, it can be seen that 93-97% of the FGD participants acknowledged positive impacts of the project, such as the recovery of business activities and livelihoods, as well as health and educational services. As a reason for the recovery of health and educational services, they listed improvements in public transportation such as more frequent public transportation services due to the rehabilitation and improvement of the roads. Farmers in the irrigation scheme reported that the rehabilitation and improvement of bunds meant better convenience for those living within the irrigation scheme and nearby areas, as the bunds in the scheme were used as roads for agricultural and transit purposes.

Residents living on the road sites pointed out: (1) reduced driving time, (2) improved public transportation services (increased number and frequency of buses), (3) increased traffic volume, (4) improved road access (new access to important locations), (5) improved agricultural activities, especially capacity for transporting of agricultural products, and (6) reduced periods when roads were impassable during floods, as significant shared changes after the implementation of the project. Also, some residents from the irrigation sites pointed out (1) expanded irrigation areas, (2) the securing of means of transportation (the bunds of water reservoirs and the revetments of canals are also used as roads within the irrigation schemes), and (3) improvements in reservoir capacity as some additional effects brought by the project.

On the other hand, the residents from the road sites noted maintenance issues in the road drainage facilities. This project also developed new drainage facilities in many target sections while rehabilitating disaster-affected roads. However, the maintenance of these drainage facilities has not been sufficient, and there have been some reported cases where drainage channels have flooded, damaging the road shoulders and making some roads impassable because of the water overflowing on the surface after heavy rain. These problems were often seen in the roads between mountains in hilly areas of the Central Province. Some of the FGD participants requested appropriate maintenance of such drainage facilities.

From the above, it can be seen that this project has contributed to the prompt recovery of the economic and social activities of the disaster-affected areas.

(3) Prevention of Further Damage and Losses

As described above, collaboration with the disaster prevention experts of JICA's DiMCEP Technical Cooperation Project did not take place. Therefore, impacts related to the prevention of further damage and losses in collaboration with the DiMCEP Technical Cooperation Project were not seen in this project.

3.4.2 Other Positive and Negative Impacts

(1) Impacts on Natural Environment

This project was categorized as FI⁸ in *the Japan International Cooperation Agency Guidelines for Environmental and Social Considerations* (April 2010). For this reason, the implementing agencies categorized each subproject based on Sri Lankan domestic laws and the JICA Guidelines, implementing necessary counter measures as well as monitoring for the corresponding categories. The target subprojects of the project were the rehabilitation of existing facilities, and the implementing agencies did not conduct an Environmental Impact Assessment (EIA). The subprojects, which were classified in Category A, did not qualify in the end as a target of this project. Since the project target roads and irrigation facilities were all existing facilities, an Environmental Management Plan or an Environmental Monitoring Plan was not prepared at the time of project appraisal as well as during the project implementation. However, a periodic environmental monitoring was conducted during the project implementation by the environmental monitoring teams composed of engineers and officers of each implementation agencies responsible for environmental issues. During implementation of the project, necessary environmental protection measures were taken such as the minimum felling of trees and the management of waste from construction.

After completion of the project, no periodical environmental monitoring of the target national roads, provincial roads and rural roads was conducted by any of the implementing agencies. Each province organizes a monthly meeting where RDA, divisional secretaries, local government and the police discuss various issues including the issues of roads. If there is an environmental issue, it would be reported through the monthly meeting, and necessary measures would then be taken. Meanwhile, a divisional engineer from each district office of the Irrigation Department, MIWRM will take responsibility for the environmental monitoring of the large and medium-scale irrigation schemes and if there is a serious environmental issue, it should be taken care of according to advice given by the Environmental Section from the Irrigation Department Headquarters. According to the FGD,

⁸ The project was classified as Category FI since it satisfied the following requirements: JICA's funding of projects was provided to the Ministry of Finance and Planning (at that time); the selection and appraisal of the subprojects were substantially undertaken by an institution only after JICA's approval of the funding, so that the subprojects could not be specified prior to JICA's approval of funding (or project appraisal); the subprojects were expected to have a potential impact on the environment.

there was no negative impact of the project on the natural environment.

From the above, it can be seen that there is no negative impact on the natural environment from the project.

(2) Land Acquisition and Resettlement

There was no land acquisition for this project as its objective was to rehabilitate the existing facilities. When roads were widened, it was within the range of what had been already acquired. However, at the request of local residents, when widening of disaster-affected roads was conducted in addition to rehabilitation in some parts of the mountain areas of the Kandy district in the Central Province, land was donated voluntarily by the local residents.

In the irrigation scheme in the Pollonaruwa district of the North Central Province, 26 households⁹ living near the diversion channel of the Kadulla water reservoir were resettled. The district secretary was in charge of the resettlement procedure, and land and residential buildings were provided to the resettled households. This resettlement procedure was carried out based on Sri Lankan domestic laws, and the compensation was made based on the replacement cost. According to the Irrigation Department, the place where the resettled residents used to live was near the diversion channel and there were frequent floods. However after the resettlement, they were provided with residential buildings and land in a safe location, and therefore they have been satisfied with their living environment since resettlement.

In summary, the rehabilitated roads and irrigation facilities have been improved, and their functions have recovered to the same or a higher level than that prior to the disaster. Furthermore, some positive impacts that were related to the security of residents in the disaster-affected areas were observed. Driving safety on some roads has improved, the capacity of reservoirs has been enhanced and capacity for flood control improved for some irrigation schemes. Some impacts that were related to the prompt recovery of economic and social activities in the disaster-affected areas were also observed, such as decreased costs for the transportation of agricultural products, fewer times when roads were impassable during floods, reduced risks of water shortage as a result of the improvement in reservoir capacity, the recovery of business activities, recovered livelihoods, restored health and educational services. On the other hand, there was no impact related to disaster prevention in cooperation with the DPME Technical Cooperation Project. There was no negative impact on the natural environment through the

⁹ According to the Irrigation Department, MIWRM, because the location near the diversion channel has a high risk of flood and it is dangerous, it was not allowed to live in the area. However, the 26 households to be resettled did not own the land and they were farmers who had been living there illegally.

project. There was the resettlement of 26 households for the irrigation schemes in the North Central Province. The resettlement procedure was carried out appropriately based on Sri Lankan domestic laws.

From the above, it can be seen that there were positive impacts of implementation of this project as planned, and therefore its effects and impacts are high.

3.5 Sustainability (Rating: ②)

3.5.1 Institutional Aspects of Operation and Maintenance

<National Roads>

The Road Development Authority (RDA) is responsible for the operation and maintenance of the national roads which consist of trunk and artery roads as well as expressway throughout Sri Lanka. As of 2016, the total length of the national roads was 12,340 km. In the RDA headquarters, the Maintenance,

Table 9: Number of RDA District Office Staff responsible for the O&M of Target National Roads

District Office	Province	Number (person)
Ampara Office	Easter	88
Anuradhapura Office	North Central	33
Kandy Office	Central	34

Source: RDA

Management and Construction Department (National Roads) is responsible for the operation and maintenance of the national roads. There are provincial offices in 9 provinces across the country, under which there are 21 district offices. The project target roads were under the Ampara District Office, the Anuradhapura District Office and the Kandy District Office. The number of staff in each of the district offices is shown in Table 9. According to RDA, there is no issue in the allocation of a workforce at each district office. The RDA conducts daily maintenance directly, but some periodic maintenance is outsourced, the outsourcing companies being selected among those which have been registered and approved by the Construction Industry Development Authority (CIDA). No major issues were observed in terms of the institutional aspect of the RDA.

<Provincial Roads>

The Provincial Road Development Authority (PRDA) in each province is responsible for the operation and maintenance of provincial roads. The number of Provincial Road Development Authority staff in each province is shown in Table 10. While in the Eastern Province and the Central Province no major issues were observed in terms of the institutional aspect of the PRDA, a shortage of labor was observed in the PRDA of the North Central Province. However, although there are some restrictions in terms of staffing in the PRDA of the North Central Province, maintenance and operation is accomplished to some extent.

For the daily maintenance and periodic maintenance of the provincial roads, the Eastern Province outsources most and the North Central Province outsources some of the operations including to Community-based Organizations (CBOs). When outsourcing to CBOs, the PRDA is responsible for the supervision and quality control of the outsourced works. Meanwhile, most of the maintenance (more than 75%) is directly implemented by the PRDA in the Central Province, although some operations are outsourced as needed. Each PRDA is given project information and documents by the PMU. Therefore, no major issues have been observed in terms of the institutional aspects of the three target PRDAs.

Table 10: Number of Provincial Road Development Authority Staff in the Three Target Provinces

Province	Dept.	Total length of provincial roads (km) ^(Note)	Number (persons)
Easter	PRDA	1,089	Permanent staff: 139
North Central	PRDA	1,947	Permanent staff: 175 Temporary staff: 130
Central	PRDA	2,244	Permanent staff: 235

Source: PRDA/Eastern Province, PRDA/North Central Province, PRDA/Central Province

Note: The data for the total length of provincial roads for each province are as of 2015.

<Rural Roads>

Local council governments¹⁰ are responsible for the maintenance of the rural roads and the divisional council governments¹¹ (Pradeshiya Sabha) are in charge of the target rural roads in this project. Pradeshiya Sabha is responsible for the operation and maintenance of the target rural roads of this project in 30 locations (18 in the Eastern Province, 6 in the North Central Province and the 6 in Central Province).

In the four Pradeshiya Sabha¹² (one in the Eastern Province, two in the North Central Province and one in the Central Province) which were interviewed, although each one is different in size, there are a dozen or few dozen staff from the technical departments who were responsible for road, water and garbage collecting services, and also one or two assigned technicians. Meanwhile, there are rural roads that average a few hundred kilometers

¹⁰ The local government administrative system of Sri Lanka is made up of a parallel system of two different lines: (i) an administrative system under central control based on Districts (the country is divided into 25 districts), and (ii) an administrative system under the Provincial Council and the other local councils. The local administrative system based on Districts has remained from the British colonial era, while the Provincial Council system was introduced to solve ethnic problems in 1987. There are 9 Provincial Councils in Sri Lanka and other local councils underneath them as local municipalities. The local councils are mainly responsible for the provision of environmental and social services such as public health, sanitation, water supply, garbage disposal, sewage, etc.

¹¹ Each of the municipal Councils, Urban Councils and Pradeshiya Sabha are responsible for the operation and maintenance of the rural roads when they are located in municipal areas, urban areas and rural areas, respectively. The Local Councils are under the supervision of the Commissioner of Local Government (CLG). The organizational structure of the Local Councils in each municipality is almost the same, and there are about 80 staff members in the Municipal Councils and 20 staff members in Pradeshiya Sabha.

¹² Damama Pradeshiya Sabha (Eastern Province, Ampara District), Thamankaduwa Pradeshiya Sabha (North Central District, Polonnaruwa District), Anuradhapura East Pradeshiya Sabha (North Central Province, Anuradhapura District), and Poojapitiya Pradeshiya Sabha (Central Province, Kandy District).

in length in each divisional boundary under Pradeshiya Sabha, of which 80-90% are gravel or unsurfaced. It is thought that there is not enough staff to implement sufficient maintenance (periodic maintenance) of the rural roads due to the limited staffing of each Pradeshiya Sabha.

Project information and documents such as design drawings of the rural roads had not been handed over from the PMU or provincial governments to the four Pradeshiya Sabhas which were interviewed and it is assumed that this was also the case for Pradeshiya Sabhas where interviews/hearings did not take place. However, the PRDAs are responsible to take care of larger scale maintenance and repair, and therefore the maintenance of the concrete pavement roads rehabilitated and improved by the project is necessary only for surface treatment (sand sealing) or weeding of road shoulders. For this reason, it is thought that there are no major problems for periodic maintenance to take place without project information such as design drawings.

Therefore, there are some issues observed in terms of the institutional aspects of the four Pradeshiya Sabhas which were interviewed.

<Large and Medium-scale Irrigation Schemes>

The Irrigation Department, MIWRM is responsible for the operation and maintenance of large and medium-scale irrigation schemes. The Irrigation Department has 14 regional offices and 5 zone offices throughout the country. Five of the regional offices, the Trincomalee Office, the Batticaloa Office, the Ampara Office, the Anuradhapura Office and the

Polonnaruwa Office, are responsible for the operation and maintenance of the target large and medium-scale irrigation schemes. The number of staff at each regional office is shown in Table 11. According to the Irrigation Department, there is an insufficient number of staff at the Anuradhapura, Batticaloa and Ampara offices with a particular lack of lower level technicians. However, although the number of staff is somewhat limited, the operation and maintenance work for the large and medium-scale irrigation schemes is implemented to a certain level by the Irrigation Department. Therefore, it is considered that there is almost no issue in terms of the institutional aspects of the Irrigation Department, MIWRM.

Table 11: Number of Regional Office Staff of Irrigation Department, MIWRM responsible for the O&M of Target Large and Medium-scale Irrigation Schemes

Regional Office	Province	Number (persons)
Trincomalee Office	Eastern	206
Batticaloa Office	Eastern	80
Ampara Office	Eastern	365
Anuradhapura Office	North Central	415
Polonnaruwa Office	North Central	261

Source: Irrigation Department, MIWRM

<Small-Scale Irrigation Schemes>

The Provincial Irrigation Departments (PIDs) of the two target provinces are responsible for the operation and maintenance of the small-scale irrigation schemes. The number of staff at each PID is shown in Table 12. The Eastern Province PID implements most of the

Table 12: Number of Provincial Irrigation Department Staff in Target Two Provinces

Province	Dept.	Number (persons)
Eastern	PID	348 (including 120 workers)
North Central	PID	71

Source: PID, Eastern Province, PID, North Central Province

operation and maintenance work by themselves and has field workers as staff members; therefore, the number of staff is larger than that in the Northern Province Irrigation Department. On the other hand, there is a relatively small number of staff at the Northern Province PID, as much of the maintenance work is outsourced to farmers' organizations and CBOs. However, the maintenance of field canals in the small-scale irrigation schemes is the responsibility of the farmers who own the fields. According to the PID of the Eastern Province and the North Central Province, there is no major issue in terms of the institutional aspects. Therefore, there are no issues seen in the institutional aspects of the two target provincial PIDs.

3.5.2 Technical Aspects of Operation and Maintenance

<National Roads>

The engineers (chief engineers and senior engineers) who belong to the above three district offices of RDA are qualified as "chartered engineers" by the Institution of Engineers Sri Lanka (IESL). In addition, other technical staff such as technicians and site supervisors, possess the technical capacity to implement normal maintenance work. There is a training department in the RDA headquarters, and all members of technical staff are expected to take annual in-house training programs such as "Road Operation and Maintenance Training" and "Computer Training". There are also overseas training programs for the acquisition of the latest road and bridge technology.

Maintenance work has been implemented based on the RDA standard regulations, *Standard Specifications for Construction and Maintenance for Roads and Bridges – November 2008*. The Disaster Impact Assessment Checklist created through the JICA' DiMCEP Technical Cooperation Project described earlier, has been introduced by RDA, and it is used for road and bridge designing. Therefore, there is no issue in terms of the technical aspect of RDA.

<Provincial Roads>

The engineers (chief engineers and senior engineers) at PRDAs in the three target

provinces are also qualified as “chartered engineers” by IESL. At the PRDAs in the three target provinces, the Road Maintenance Management System (RMMS¹³) has been introduced by donors; but it is only the Central Province PRDA¹⁴, which actually utilizes this system to implement the maintenance of the provincial roads. However, it is possible to implement the maintenance of the provincial roads without the use of RMMS. Each PRDA conducts periodic training programs for staff in order to maintain and improve their technical capacity¹⁵. The three target provinces implement maintenance work based on the RDA maintenance standard specifications. Therefore, there is no issue in terms of the technical aspects of the PRDA in the three target provinces.

<Rural Roads>

Usually, one or two road managers / engineers and a dozen skilled road workers are allocated to Pradeshiya Sahba. However, the engineers’ qualifications and ability are inferior to those of the RDA and PRDA. The four Pradeshiya Sahbas where interviews took place own heavy machinery (roller trucks, concrete mixer trucks, loading shovels, etc.) for road maintenance. The engineers at Pradeshiya Sahba receive technical training on a regular basis, and they get technical support from the engineers of provincial government as needed. Through this, the staff of the technical divisions of Pradeshiya Sahba is considered to possess the sufficient knowledge and technical skills required for maintaining concrete paving roads. Therefore, there is no issue in terms of the technical aspects of the four Pradeshiya Sahbas interviewed.

<Large and Medium-Scale Irrigation Schemes>

The engineers at each regional office under the Irrigation Department, MIWRM are also qualified as “chartered engineers” by IESL. MIWRM has two training institutions in the country, the Irrigation Training Institute (ITI) and the Kothmale International Training Institute (KITI), which provide training for staff from the Irrigation Department on the subjects of operation and management, water management, and flood control every year. Furthermore, the Irrigation Department has a resident office in each irrigation scheme they

¹³ RMMS is a system that sets priorities in maintenance from the perspective of economic efficiency, based on road surface condition data or traffic volume data.

¹⁴ RMMS was introduced to the Central Province and Sabaragamuwa Province by the technical transfer made under the Japanese ODA loan projects “Rural Road Improvement Project” (Loan agreement signed on March 2003) and “Provincial/Rural Road Development Project (Central Province & Sabaragamuwa Province)” (Loan agreement signed on March 2010).

¹⁵ PRDA, the Eastern Province conducts training programs for engineers and technical offices on the quality control of road construction and on procurement 1-2 times a year. PRDA, the North Central Province dispatches several selected engineers to overseas training programs in Malaysia, Vietnam and India every year so they can study up-to-date technical knowledge and skills for road maintenance and road project management including road engineering, contract management, supervision, and quality control. PRDA, the Central Province conducts outbound training programs (one a year), technical training (twice a year), and supervisor training (three times a year) for technical staff and management assistants.

manage, and the resident engineers provide capacity development and technical support for the farmers' organizations. The Irrigation Department implements operation and maintenance according to the operation and management manual and guidelines of the irrigation facilities. Therefore, there is no issue in terms of the technical aspects of the Irrigation Department, MIWRM.

<Small-Scale Irrigation Schemes>

The engineers at PID in the Eastern Province and the North Central Province are also qualified as "chartered engineers" by IESL. Each PID provides training for their staff on a regular basis in order to maintain and improve their technical skills¹⁶. In addition, each PID provides capacity development and technical support for the farmers' organizations, in cooperation with divisional staff from the Department of Agrarian Services, Ministry of Agriculture. The PIDs mainly provide technical guidance and support for maintenance of the irrigation facilities, and the Department of Agrarian Services provides support related to management aspects such as support for agricultural techniques, the distribution of fertilizers and seeds, and the operation and management of farmers' organizations. The PID in Eastern and North Central Provinces implement operation and maintenance according to the operation and management manual and guideline from the Irrigation Department, MIWRM. Therefore, there is no issue in terms of the technical aspects of PIDs from the two target Provinces.

3.5.3 Financial Aspects of Operation and Maintenance

<National Roads>

The maintenance budgets of three RDA district offices and the entire RDA for the past three years are shown in Table 13 and Table 14. A part of the maintenance budget for national roads was distributed from the Road Maintenance Trust Fund¹⁷. However, the fund itself has not been functioning properly in recent years, so instead, 4,000 million rupees of maintenance fees have been distributed annually by the Ministry of Finance and Planning. According to RDA, a comparable amount of annual maintenance fees will be distributed by the Ministry of Finance and Planning for the time being. There is no issue in terms of the maintenance budget.

¹⁶ PID, the Eastern Province conducts training programs for PID staff every year on the methodology for the operation and maintenance of irrigation structures, on the quality control aspects and on the design aspects of irrigation schemes. Meanwhile, PID, the North Central Province provides training programs for PID staff, including technical officers and engineers, every year on subjects such as leadership training, GPS/GIS training, and design training.

¹⁷ The Road Maintenance Trust Fund was established by the government of Sri Lanka in December 2005 to secure finance for road maintenance. The financial source for this was based on a levy of 1 rupee per 1L for gasoline sales and 0.5 rupee per 1L for diesel sales.

Table 13: Maintenance Budget of Three RDA District Offices

Unit: Million Rupees

	2014		2015		2016	
	Plan	Actual	Plan	Actual	Plan	Actual
Ampara Office (Eastern Province)	20.0	24.0	20.0	27.0	25.0	31.5
Anuradhapura Office (North Central Province)	360.0	306.0	215.0	147.1	240.0	179.8
Kandy Office (Central Province)	630.7	487.2	238.0	158.0	202.5	167.5

Source: RDA

Note: The maintenance budget for RDA district offices is a total maintenance budget for all national roads located in each district, including the target national roads of the project.

Table 14: Maintenance Budget of the Entire RDA

Unit: Million Rupees

		2014		2015		2016	
		Plan	Actual	Plan	Actual	Plan	Actual
Total Annual Budget of RDA	Current	5,500	5,500	6,000	6,000	6,000	6,000
	Development	25,700	24,278	38,872	35,203	37,380	N.A.
	Total	31,200	29,778	44,872	41,203	43,380	N.A.
Total maintenance budget of RDA for all national roads		8,000	7,262	5,000	3,554	4,000	N.A.

Source: RDA

<Provincial Roads>

The maintenance budgets of PRDAs of the three target provinces for the past three years are shown in Table 15. Each PRDA does not have its own financial source and the budget distributed by the provincial government is the main financial source of the maintenance budget of PRDAs. Unlike the maintenance budget for the national roads, there is no distribution from the Road Maintenance Trust Fund for the maintenance of the provincial roads. For this reason, there is a budget shortage for the provincial road maintenance in all provinces. There are different demands for the maintenance cost of the provincial roads for each of the three target PRDAs as the roads all differ in distance, and geographical conditions. However, according to the PRDAs, the required annual maintenance budgets for each province in order to implement proper maintenance in all provincial roads according to the rules has been 150 million rupees in the Eastern Province, 500 million rupees in the North Central Province and 1,200 rupees in the Central Province. There is a big difference when comparing these figures to the actual maintenance budget distributed to each PRDA. Therefore, there is an issue in terms of the financial aspects of the three target PRDAs.

Table 15: Maintenance Budget for PRDAs of Target Three Provinces

Unit: Million Rupees

	2014		2015		2016	
	Plan	Actual	Plan	Actual	Plan	Actual
PRDA, Eastern Province	86.0	52.0	114.0	103.0	63.7	55.0
PRDA, North Central Province	75.0	74.8	100.0	92.8	120.0	114.0
PRDA, Central Province	400.0	374.0	400.0	302.0	400.0	190.0

Source: PRDA, Eastern Province, PRDA, North Central Province, PRDA, Central Province

<Rural Roads>

The financial resources for Pradeshiya Sahba consist of budget distribution from the provincial government and their own tax revenue (property tax, etc.) and the maintenance budget for the rural roads is derived from this. According to the four Pradeshiya Sahbas interviewed, financial shortages are being experienced as the maintenance budget currently distributed is only 30-40% of what is necessary. In addition, the maintenance budget of Pradeshiya Sahbas is used for the maintenance of gravel and unsurfaced roads on a priority basis, and spending on paved roads, including concrete pavements, is extremely limited. Therefore, some minor problems have been observed in terms of the financial aspects of the four Pradeshiya Sahbas which were interviewed.

<Large and Medium-Scale Irrigation Schemes>

The maintenance budgets of the regional offices in the two target provinces under the Irrigation Department, MIWRM as well as those for the entire Irrigation Department for the past three years are shown in Table 16 and 17. The maintenance budget of the Irrigation Department is distributed by the central government. Although the Irrigation Department estimates an annual budget of 1,000 million rupees to maintain its irrigation facilities nationwide, its actual maintenance budget for 2016 remained at 800 million rupees. This is still considered by the Irrigation Department to be insufficient even though the actual maintenance budget for 2016 had a significant increase compared to the previous year as there was an additional budget for flood prevention. Therefore, some minor problems have been observed in terms of the financial aspects of the Irrigation Department, MIWRM.

Table 16: Maintenance Budget of Regional Offices under the Irrigation Department, MIWRM

Unit: Million Rupees

		2014		2015		2016	
		Plan	Actual	Plan	Actual	Plan	Actual
Trincomalle Office (Eastern Province)	Maintenance budget	37.9	36.3	39.6	39.0	45.3	44.3
	Annual budget	308.1	278.3	402.7	300.0	331.3	327.3
Batticaloa Office (Eastern Province)	Maintenance budget	8.6	N.A.	9.7	N.A.	24.5	N.A.
	Annual budget	212.5	N.A.	245.9	N.A.	202.4	N.A.
Ampara Office (Eastern Province)	Maintenance budget	67.5	57.6	65.2	68.4	76.1	76.2
	Annual budget	314.5	311.2	432.9	394.8	528.8	491.2

		2014		2015		2016	
		Plan	Actual	Plan	Actual	Plan	Actual
Anuradhapura Office (North Central Province)	Maintenance budget	N.A.	61.3	N.A.	62.0	N.A.	69.4
	Annual budget	N.A.	801.2	N.A.	673.2	N.A.	697.7
Polonnaruwa Office (North Central Province)	Maintenance budget	59.8	58.7	58.7	57.9	67.5	66.6
	Annual budget	173.5	157.3	350.9	344.8	315.5	284.4

Source: Irrigation Department, MIWRM

Note 1: The maintenance cost covers the maintenance cost for all irrigation schemes under the management of each regional office including the maintenance cost for the target irrigation schemes of the project.

Note 2: The maintenance cost does not include the personnel cost for the staff of each regional office.

Table 17: Maintenance Budget of the Irrigation Department, MIWRM

Unit: Million Rupees

	2014		2015		2016	
	Plan	Actual	Plan	Actual	Plan	Actual
Maintenance budget	559.7	559.7	450.0	431.0	800.0	753.7
Annual budget	12,863.3	12,847.0	13,397.2	13,198.2	16,585.3	13,224.1

Source: Irrigation Department, MIWRM

Note: The maintenance cost does not include the personnel cost of Irrigation Department staff.

<Small-Scale Irrigation Scheme>

The maintenance budgets of PID of the Eastern Province and the North Central Province for the past three years are shown in Table 18. Budget distribution from the provincial government is the main financial resource of the maintenance budget for the irrigation facilities under PID in both provinces, as it is for the PRDA, and PID does not have its own financial resources. Maintenance outsourced to farmers' organizations and CBOs is also paid out of the budget of PID. However, the maintenance of the field channels in each field is paid by the farmer who owns the land. Each PID is currently experiencing budget shortages for maintenance. According to PID in the Eastern Province and the North Central Province, to maintain its irrigation schemes appropriately according to the rules requires 90-100 million rupees for the Eastern Province, and 322.4 million rupees for the North Central Province. There is a large gap when these are compared to the actual maintenance budgets that are distributed to each PID. Therefore, there are some issues observed in terms of the financial aspect of PIDs in two target provinces.

Table 18: Maintenance Budget of the Provincial Irrigation Departments of Two Target Provinces

Unit: Million Rupees

	2014		2015		2016	
	Plan	Actual	Plan	Actual	Plan	Actual
PID, Eastern Province,	50.0	48.0	50.0	47.8	40.0	38.8
PID, North Central Province	181.5	148.4	531.0	247.7	261.0	156.0

Source: PID, Eastern Province, PID, North Central Province

Note: The maintenance cost does not include the personnel cost of PID staff.

3.5.4 Current Status of Operation and Maintenance

<National Roads>

The RDA maintenance activities for national roads are shown in Table 19. The target national roads are maintained in good condition.

Table 19: Contents of RDA Maintenance Activities for National Roads

Type of Maintenance	Contents
Routine Maintenance	Jungle cleaning of road shoulders, cleaning and desilting of drains, crack repair and pot hole patching
Periodic Maintenance	Sealing and patching of road surface, repair of road shoulders, painting of guardrails, repair, color and white washing of road signs, repair of structures damaged by accidents

Source: RDA

<Provincial Roads>

At the PRDA in the three target provinces, the maintenance budget is used for repair and urgent repair of decrepit provincial roads on a priority basis. The maintenance budget distributed for the new and repaired provincial roads is extremely limited after 5-6 years since completion. However, at the time of the ex-post evaluation, the target provincial roads were kept in a good condition.

<Rural Roads>

In Pradeshiya Sahba, almost no maintenance is implemented for the concrete paving roads as their life-span is approximately 20 years, and also there is only a limited budget. However, at the time of the ex-post evaluation, the target rural roads of the Pradeshiya Sahbas who were interviewed were kept in a good condition.

<Large and Medium-Scale Irrigation Schemes>

The contents of the routine and periodic maintenance for the large and medium-scale irrigation schemes by the Irrigation Department, MIWRM are shown in Table 20. The target irrigation facilities under the management of the Irrigation Department in the Eastern Province and the North Central Province are kept in a good condition.

Table 20: Contents of the Maintenance Activities for Irrigation Facilities
by the Irrigation Department, MIWRM

Type of Maintenance	Contents
Routine Maintenance	Checking cracks in bunds, slopes and drainages, checking of water leakage in gates and canal structures, weeding and cleaning of canals and tank bunds
Periodic Maintenance	Repair of irrigation structures, desilting of canals

Source: Irrigation Department, MIWRM

<Small-Scale Irrigation Schemes>

The contents of routine and periodic maintenance for the small-scale irrigation schemes by the PID are shown in Table 21. The target irrigation facilities under the management of PID of the Eastern Province and the North Central Province are kept in a good condition.

However, although it is not a target scope of the project, it is not sufficiently implemented the maintenance of field channels in each field by farmers' organizations which are responsible for the maintenance, working on a volunteer basis..

Table 21: Contents of Maintenance Activities for Irrigation Facilities by the Provincial Irrigation Department of the Two Target Provinces

Type of Maintenance	Contents
Routine Maintenance	Weeding and cleaning of canals and tank bunds, desilting of canals
Periodic Maintenance	Major repair of gates and tank bunds, major works for desilting of canals

Source: PID, Eastern Province, PID, North Central Province

In the light of the above, there are some problems observed in terms of the institutional and financial aspects, as well as current status of the maintenance and operation of the project, therefore the sustainability of the project is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The objective of this project was to recover its previous level of function for the road and irrigation infrastructure in disaster-affected areas in the Central, North Central and Eastern Provinces of Sri Lanka by the rehabilitation of flood damaged roads and irrigation facilities, thereby contributing to the prompt recovery of economic and social activities, the improvement in the safety of residents, and the prevention of further damage and loss. The relevance of the project is high, as the objective was consistent with Sri Lanka's development policies and development needs as well as with Japan's ODA policies. Each function has been recovered. The annual average daily traffic on the rehabilitated national and provincial roads by the project, benefited areas, cultivated areas and the volume of rice production where there were irrigation schemes have all reached, or overtaken the pre-disaster level. The safety level in the surrounding areas has improved due to improvements in road safety and decrease in traffic accidents. Meanwhile, there has been an enhancement in the capacity of reservoirs as well as improvements in flood control since implementation of this project; therefore, the project has contributed to the safety assurance of the residents in the disaster-affected areas to some extent. Decreased transportation costs for agricultural products, decreased time for road closure during floods, reduced risks of water shortage as the result of the improvement in reservoir capacity, recovery of business activities, recovered livelihoods, restored health and educational services

were all observed. Therefore, it is considered that the project has contributed to the prompt recovery of the economic and social activities of the disaster-affected areas. No negative impact on the natural environment was observed, and no land acquisition was executed. However, 26 households were resettled for the irrigation component of the project, and the resettlement was executed according to related Sri Lankan domestic laws. Therefore, the effectiveness and impacts of the project were high. The efficiency of the project was high as the project cost and project period were both within the plan. On the other hand, a minor problem was observed in the institutional and financial aspects of the operation and maintenance system. Therefore, the sustainability of the project effects is evaluated to be fair.

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

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

(1) Recommendation to Pradeshiya Sahba

Each Pradeshiya Sahba is responsible for maintaining rural roads that are hundreds of kilometers in distance. Furthermore, 80-90% of the rural roads are gravel or unsurfaced roads, and the burden of maintenance is great as damaged gravel or unsurfaced roads need to be maintained during the monsoon season. Meanwhile, the institutional setup and budget for maintenance of each Pradeshiya Sahba are limited, and, in the current situation, almost no maintenance is implemented for concrete roads. In order to secure the minimum level of surfaced road maintenance with such limited staff numbers and budget, it is recommended that a participatory maintenance system by local residents to be introduced. In this way, residents living along the rural roads would take part in some of the work such as weeding on the road shoulders or cleaning the drainage facilities.

(2) Recommendation to the Provincial Council

Although RMMS was introduced to the PRDAs of the three target provinces with the support of donors, the Central PRDA was the only place where RMMS was actually utilized to implement maintenance of the provincial roads. The advantage of RMMS is the ability to prioritize roads that require maintenance from the point of view of economic efficiency based on objective data such as road conditions and traffic volume. All three target PRDAs are experiencing maintenance budget shortages as a common problem, and it is important that maintenance is implemented utilizing RMMS in order to conduct road maintenance rationally and efficiently within limited budgets. For this reason, the PRDAs need to work together, sharing information on RMMS or providing opportunities for mutual learning of knowledge and skills in order to improve their RMMS operational capability.

4.2.2 Recommendations to JICA

None

4.3 Lessons Learned

(1) Project implementation scheme to secure smooth operation when multiple implementing agencies are involved

In this project, there were multiple implementing agencies involved at both the central government and provincial government levels, such as RDA (in charge of national roads), provincial governments (in charge of provincial roads, rural roads and small-scale irrigation schemes) and the MIWRM (in charge of large and medium-scale irrigation schemes). The Department of National Planning, the Ministry of National Policies and Economic Affairs represented the implementing agencies in order to coordinate the overall project and play the role of project management role. Did it not only set up PMU within the Department of National Planning, but also set up PIU within RDA and MIWRM at the central level, and in each of the provincial governments at the provincial level. This implementation scheme functioned promptly and well and agile project implementation was conducted as expected. In Sri Lanka, it is not uncommon that development projects are implemented with a scheme such as that described above, and the success of this project can be referenced in the future.

(2) Project framework for accelerating disaster rehabilitation

For the purpose of implementing prompt disaster rehabilitation, the project approved subprojects as eligible for the loan where contractor bidding was completed retroactively by the pledge date (August 22, 2011) before the signing of the loan agreement (September 29, 2011). Furthermore, because the subprojects were scattered in the target provinces and there were many of them, and because each payment amount was small and it was very likely that many payments would be made, the Special Account Procedure with the SOE method was employed in order to simplify the process of voucher submission and verification. Thus, it became possible to implement a minimum amount of urgent construction (reinforcement where landslides had occurred, repair of anicuts, etc.) by the start of the monsoon season in October. As its result, it was possible to resume irrigation agriculture (rice cultivation) during 2012 Yala¹⁸ (mid-April to mid-August) in many irrigation schemes, and it was confirmed the economic loss of farmers was kept at a minimum level. As for the rehabilitation of the large and medium-scale irrigation schemes under the Irrigation Department, the Department of National Planning, Ministry of National Policies and Economic Affairs acted with flexibility, approving the introduction of a direct management method and changes in procurement rules as exceptions,

¹⁸ Rice cultivation in Sri Lanka is made in two cropping seasons: the Yala season (from mid-April to mid-August) during the south-west monsoon and the Maha season (from October to January) in the north-east monsoon.

and this contributed to the prompt implementation of the project. The retroactive financing, the Special Account Procedure with the SOE method (i.e. the lending procedure of initial payment without evidenced documents), and flexible measures for the procurement rules promoted prompt disaster rehabilitation and contributed to the achievement of the objectives as emergency support. The success of this project can be referenced for similar projects in the future.

<End>

Comparison of the Original and Actual Scope of the Project

Item	Plan	Actual
1. Project Outputs		
(1) Rehabilitation of National Roads	Total length: 71.7km (breakdown) • Central Province: 22.2km • North Central Province: 22.5km • Eastern Province: 27.0km	Total length: 92.0km (breakdown) • Central Province: 24.7km • North Central Province: 30.3km • Eastern Province: 37.0km
(2) Rehabilitation of Provincial Roads	Total length: 216.1km (breakdown) • Central Province: 47.1km • North Central Province: 73.7km • Eastern Province: 95.3km	Total length: 253.6km (breakdown) • Central Province: 72.3km • North Central Province: 97.5km • Eastern Province: 83.8km
(3) Rehabilitation of Rural Roads	Total length: 42.7km (breakdown) • Central Province: 10.3km • North Central Province: 7.4km • Eastern Province: 25.0km	Total length: 44.9km (breakdown) • Central Province: 22.0km • North Central Province: 7.3km • Eastern Province: 15.6km
(4) Rehabilitation of Large and Medium-scale Irrigation Schemes	No. of subprojects: 167	Same as planned
(5) Rehabilitation of Small -scale Irrigation Schemes	No. of subprojects: 77 (breakdown) • North Central Province: 38 • Eastern Province: 39	No. of subprojects: 81 (breakdown) • North Central Province: 34 • Eastern Province: 47
2. Project Period	Sep. 2011 – Sep. 2014 (37 months)	Sep. 2011 – July 2014 (35 months)
3. Project Cost		
Amount Paid in Foreign Currency	37 million yen	158 million yen
Amount Paid in Local Currency	8,217 million yen (10,454 million rupees)	7,927 million yen (10,879 million rupees)
Total	8,254 million yen	8,085 million yen
ODA Loan Portion	7,000 million yen	6,987 million yen
Exchange Rate	1 rupee = 0.786 yen (As of May 2011)	1 rupee = 0.729 yen (Average between 2011 and 2014)
4. Final Disbursement	October 2014	