

Democratic Socialist Republic of Sri Lanka

FY2016 Ex-Post Evaluation of Japanese ODA Loan Project¹

“Upper Kotmale Hydro Power Project (I) (II)”

External Evaluators: Yumiko Onishi and Ryujiro Sasao, IC Net Limited

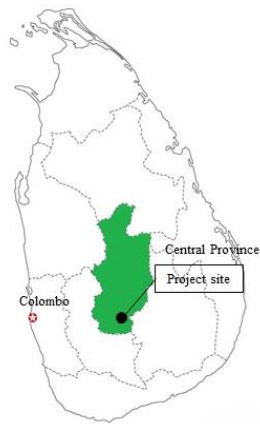
0. Summary

In the late 1990s, Sri Lanka achieved high economic growth, and power demand was increasing at the rate of 7% annually. However, installed capacity in the country was not sufficient to meet the power demand and there was a severe shortage of electricity. Such a situation posed a serious challenge to socio-economic activities such as people’s daily lives and investments. Given such a situation, this project was expected to contribute to the economic growth of the country through meeting the increasing power demand by constructing a 150 MW hydropower plant on the Kotmale River, a tributary of the Mahaweli River. In the development plan of the country, increasing power generation was considered important at the times of both the appraisal and the ex-post evaluation. As a development need, it is still necessary to strengthen the power supply capacity. Consistency with Japan’s ODA policy is also confirmed and the relevance of the project is high. After the project started, intake from the tributaries has been cancelled in light of environmental consideration while other aspects of the project scope have been implemented almost as planned. The actual project cost was approximately within the budget; although, for the project period, there was a significant delay because of carefully dealing with resettlement. Therefore, the efficiency is evaluated as low. Regarding operation and effect indicators, the target has been mostly achieved for fixed indicators; however, the originally fixed target for planned and non-scheduled outage hours seems to be ambitious and the actual outage hours exceed the target significantly. There has been no specific negative impact on the natural environment from the project. For resettlement, careful consideration has resulted in huge improvements in the lives of affected people. Considering the above, the effectiveness and impact of the project are high. No major problems have been observed in the institutional, technical, and financial aspects, as well as the current status of the operation and maintenance system. Therefore, sustainability is also evaluated to be high.

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

¹ In the ex-post evaluation, opinions from Sri Lankan expert was sought in regard to the impacts of resettlement and rehabilitation program implemented in the project. Selection of the expert was done by external evaluator, and agreed by JICA.

1. Project Description



Project Location



Talawakelle Reservoir

1.1 Background

Sri Lanka achieved an average annual economic growth rate of 5% between 1996 and 2000, and power demand increased at an annual rate of 7% because of advancements in industrialization, spread of home appliances, and expansion of rural electrification. The amount of electricity sold in 1990 was 2,608 GWh and increased to 5,258 GWh in 2000. However, installed capacity was insufficient in meeting the power demand and the power supply was in serious shortage. After 1999, hydropower energy generation was limited because of annual droughts and loss of load probability, which is an indicator of the reliability of power supply, was 4.73 days/year in 1999 – a very large figure (around the same time, developed countries were formulating the supply plan to keep the figure less than 0.1). This kind of unstable power supply was a big hindrance to socio-economic activities such as daily life and investments.

1.2 Project Outline

The objective of this project is to meet the projected power demand increase by constructing a run-off the river hydropower plant (150 MW) on the Kotmale River, a tributary of the Mahaweli River (upstream of the existing Kotmale Dam), with adequate environmental and social impact mitigation, thereby contributing to the economic growth of Sri Lanka.

Loan Approved Amount/ Disbursed Amount	I	33,265 million yen / 32,667 million yen
	II	4,552 million yen / 4,548 million yen
Exchange of Notes Date/ Loan Agreement Signing Date	I	March 2002 / March 2002
	II	March 2010 / March 2010
Terms and Conditions	I	Interest Rate 0.95% (Main portion)

	<p>0.75%(Consulting portion) Repayment Period 40 years (Grace Period 10 years) Conditions for Procurement Tied (Special Yen Loan)</p>
	<p>II Interest Rate 0.20%(Main portion) 0.01%(Consulting portion) Repayment Period 40 years (Grace Period 10 years) Conditions for Procurement Tied (Special Terms of Economic Partnership (STEP))</p>
Borrower / Executing Agency	The Government of Democratic Socialist Republic of Sri Lanka / Ceylon Electricity Board
Project Completion	September 2012
Main Contractor(s) (Over 1 billion yen)	Maeda Corporation (Japan), Nishimatsu Construction Co., Ltd. (Japan) / Maeda Corporation (Japan) (JV), Kurimoto, Ltd. (Japan), Mitsubishi Corporation (Japan), Kinden Corporation (Japan)
Main Consultant(s) (Over 100 million yen)	Electric Power Development Co., Ltd (Japan)
Feasibility Studies, etc.	Master Plan for Upper Kotmale Hydropower Project (JICA, November 1987)
Related Projects	<p><u>Japanese ODA Loan</u></p> <ul style="list-style-type: none"> • Power Sector Restructuring Program (March 2003) • Samanalawewa Hydroelectric Project (Reservoir Remedial Works) (August 1995) • Kukule Ganga Hydroelectric Power Project (July 1994) • Upper Kotmale Hydroelectric Power Project (E/S) (March 1992) • Samanalawewa Hydroelectric Power Project (I) (II) (III) (September 1986, October 1987, March 1991) <p><u>Technical cooperation</u></p> <ul style="list-style-type: none"> • Master Plan Study on the Development of Power Generation and Transmission System in Sri Lanka (2004–2006) <p><u>Asian Development Bank (ADB)</u></p> <ul style="list-style-type: none"> • Power Sector Development Program (November 2002)

2. Outline of the Evaluation Study

2.1 External Evaluators

Yumiko Onishi and Ryujiro Sasao, IC Net Limited

2.2 Duration of Evaluation Study

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

Duration of the Study: September 2016 – October 2017

Duration of the Field Study: December 4–21, 2016 and April 18–24, 2017

3. Results of the Evaluation (Overall Rating: B²)

3.1 Relevance (Rating: ③³)

3.1.1 Consistency with the Development Plan of Sri Lanka

At the time of the appraisal in 2002, in response to increasing power demand and shortages in supply, the Government of Sri Lanka listed the following as important issues for the power sector in the “Six Year Development Plan (1999–2004)”: improved efficiency and reliability; expansion of generation capacity on par with demand (development of new sources); improved electrification rate, development of transmission and distribution facilities responding to aging facilities and expansion of power generation; and rationalizing tariff structure. Particularly, it prioritized promoting the development of a balanced energy mix and restructuring the power sector.

According to the Ceylon Electricity Board’s (CEB) “Long Term Generation Plan (2015–2034)” effective at the time of the ex-post evaluation, Sri Lanka’s economic growth and power demand have a direct correlation. The country’s power demand has increased at the annual rate of 6% over the last 20 years. According to the Central Bank of Sri Lanka, the country’s economic growth is estimated to grow at an annual rate of 8% between 2015 and 2018. In “Mahinda Chintana (Ten Year Development Framework 2006–2016),” the power sector is defined as a push factor for economic growth, and particularly, diversification of the power source, expansion of power generation, and promotion of rural electrification are emphasized. According to the “Long Term Generation Plan (2015–2034),” the total installed capacity in 2014 was 3,932 MW and is targeted to reach 5,623 MW by 2034. As can be seen, the project was implemented to meet the increasing power demand, and the country’s development plan has been consistent from the time of the appraisal to the ex-post evaluation.

3.1.2 Consistency with the Development Needs of Sri Lanka

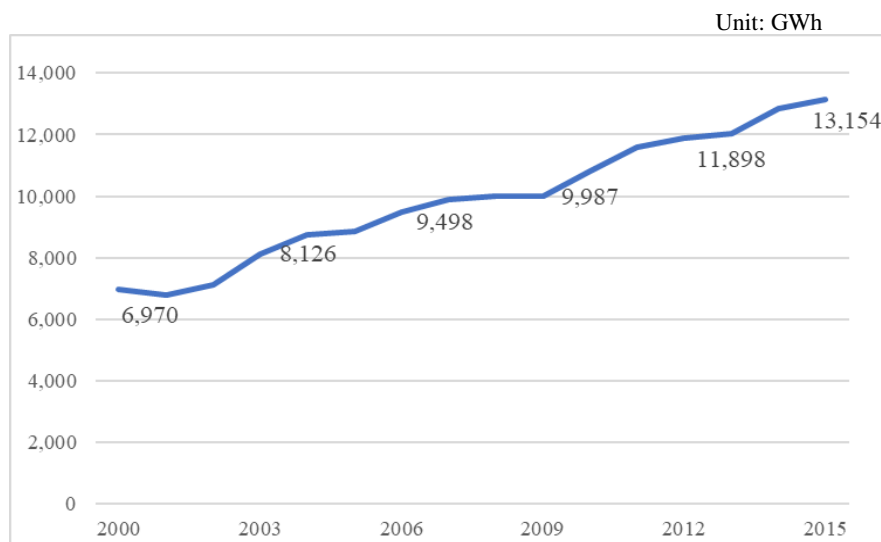
In the “Long Term Generation Plan (2002–2016),” which was in effect at the time of the

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

³ ③: High, ②: Fair, ①: Low

appraisal, peak-time demand was expected to reach 2,346 MW in 2008 from 1,404 MW in 2000. Accordingly, it was planned to secure 2,909 MW of total installed capacity by 2008 (it was 1,777 MW in 2000). In the same plan, the increased capacity for hydropower was 220 MW, out of which 150 MW were to be met from the project. Another large project, a west coast coal-fired thermal power project, was being planned, and both of these projects were important for meeting power demand that was expected to rise after 2007. In 1999, Sri Lanka’s energy mix was such that hydropower was the baseload with 67% of the total power generation. Even around that time, hydro-resources in the country were more or less fully developed, and the project was going to be the last largescale new hydropower project. Sri Lanka planned to change to a balanced energy mix mainly catered by thermal power by expanding the power generation facilities in order to secure a stable power supply that is not dependent on the weather. For a country that does not possess domestic fuel resources, developing hydropower to its maximum potential was essential. In 2015, the share of hydropower within the total electricity generation was 37% (1,377 MW) and after the project, largescale (100 MW or more) hydropower projects by the CEB had not been developed⁴, and the share of hydropower is expected to be 18% by 2034.

As described earlier, Sri Lanka’s power demand has been increasing at the annual rate of 6% over the last 20 years, and this trend is expected to continue after the time of ex-post evaluation. According to the “Long Term Generation Plan (2015–2034),” it is expected to reach 30,759 GWh by 2034. Figure 1 shows the electricity generation after 2000.

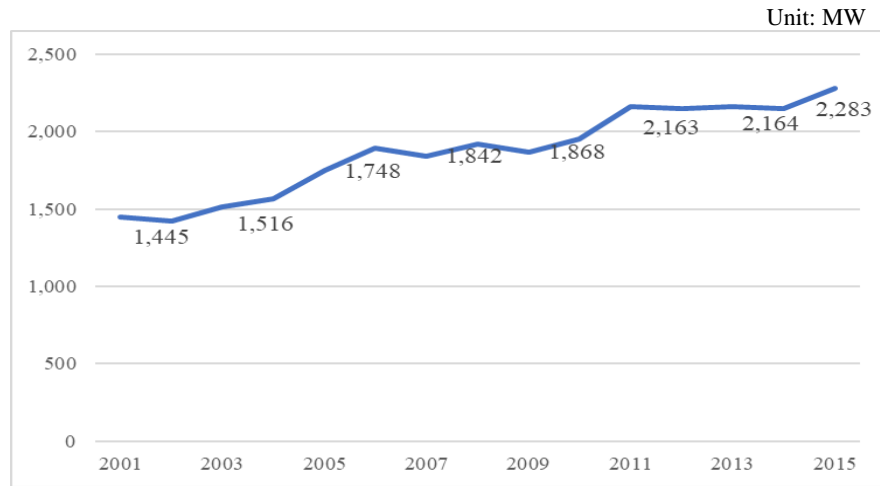


Source: Sri Lanka Sustainable Energy Authority

Figure 1: Changes in Electricity Generation

⁴ It excludes the Uma Oya Multi-Purpose Project which is being implemented. The project, located in the Uma Oya river basin and implemented by the Ministry of Irrigation, has a generation capacity of 120 MW.

Figure 2 shows the changes in peak-time demand between 2001 and 2015. According to the “Long Term Generation Plan (2015–2034),” peak-time demand is estimated to increase hereafter at the annual rate of 5% and reach 4,805 MW by 2030.



Source: CEB

Figure 2: Changes in Peak-Time Power Demand

As can be seen from the time of the appraisal until the ex-post evaluation, a development need exists towards power demand.

3.1.3 Consistency with Japan’s ODA Policy

In 2002, the following sectors were important for Japan’s ODA policy for Sri Lanka.

- Development and improvement of economic infrastructures
- Development of mining industries
- Development of agriculture, forest and fisheries
- Human resource development
- Improvement of health and medical system

In JICA’s “Country Assistance Strategy for Sri Lanka (2002),” which was under preparation at that time, “reform and support or development of economic infrastructure” was to be included in Japan’s important areas for assistance to be consistent with mid- and long-term visions. As can be seen, the ODA policy toward Sri Lanka included the development and improvement of economic infrastructure at the time of the appraisal, and the project was consistent with the ODA policy at that time.

This project has been highly relevant to the country’s development plan and development

needs, as well as Japan's ODA policy. Therefore, its relevance is high.

3.2 Efficiency (Rating: ①)

3.2.1 Project Outputs

Outputs of the project were divided into five contract lots, and the following main works were planned for each of the lots:

- Lot 1 (preparatory works): access roads, development of resettlement sites, facilities for construction, and 33 kV transmission line
- Lot 2 (civil works): Talawakelle reservoir, tributary intake facilities, surge tank, penstock, underground power station, switchyard, and civil works for watershed environmental management
- Lot 3 (hydromechanical equipment): intake gate, flood gate, penstock, etc.
- Lot 4 (generation equipment): turbines (vertical axis, Francis), generators, main transformer, switchyard, etc.
- Lot 5 (transmission line): 220 kV, two circuits

In the project, Environmental Impact Assessment (EIA) was conducted in 1994. In the process of EIA approval, it became necessary to consider alternatives in details. Therefore, an EIA report was submitted again in 1996. Thereafter, the project started implementation after obtaining approval from the Government of Sri Lanka. However, after the project started, there was resistance from influential local people citing the impact on the natural environment. This resulted in cancellation of the construction of tributary intake points of Lot 2 in 2005. Because the environmental impact had been sufficiently considered before the project started and the changes were made considering the request from the project opponents, the changes were appropriate. Other contract lots were implemented mostly as planned (see "Comparison of the Original and Actual Scope of the Project" for details).

In addition, construction supervision and management consulting services were planned in the project. For consulting services as a whole, the man/month (M/M) for international consultants was 666 M/M and 843 M/M for local consultants. Construction supervision consulting services were implemented, but because the project period was prolonged, it actually became 812 M/M for international consultants and 1,434 M/M for local consultants. Because there was a plan to spin-off the CEB, management consulting services were originally expected to prepare a management framework for hydropower company newly established by spin-off and preparation of detailed plans for institution and finance among other things after the spin-off. At the time of the Phase II appraisal, because the CEB's unbundling was put on hold, management consulting services were changed to operation and maintenance consulting services. Training courses needed for CEB engineers to operate and maintain the project were conducted by the construction supervision consultants and contractors; however, for the maintenance

management plan, the CEB's existing plan was used. Thus, it was no longer necessary to hire consultants, and the consulting service related to this portion was not implemented. Table 1 shows the plan, the changes made, and the actual consulting services.

Table 1: Planned and Actual Consulting Services

	Phase I appraisal (plan)	Phase II appraisal (plan)	Actual
Terms of reference	Construction supervision, management consulting service	Construction supervision, operation and maintenance consulting service	Only construction supervision consulting service was implemented
International consultants	666 M/M	603 M/M	812 M/M
Local consultants	843 M/M	814 M/M	1,434 M/M

<Special Yen Loan>

Because the project was a Special Yen Loan, satisfaction level toward the scheme of the Government of Sri Lanka and the executing agency was surveyed. The Department of External Resources, under the Ministry of National Policies and Economic Affairs, and the borrower of the ODA Loan, recognized that concessional terms, particularly the low interest and long repayment period, were beneficial. On the other hand, both the Department of External Resources and CEB, the executing agency, pointed out the problems related to procurement based on rules for country of origin of goods and services. That is, according to the Department of External Resources and CEB, by applying rules for country of origin of goods and services, the bidders are restricted; as a result, competition becomes less. For the bidding, it was desirable to have a minimum of three bidders; however, in the project, some of the contract lots had three bidders at the time of pre-qualification, but in some cases, only two made the bids. In itself, a Special Yen Loan scheme can be attractive to the central government while it seems that the executing agency, who is the actual user of the scheme, have some concerns.

3.2.2 Project Inputs

3.2.2.1 Project Cost

The total project cost at the time of the appraisal was JPY 41,836 million (out of which JPY 23,329 million was foreign currency and Sri Lankan rupees (SLR) 12,807 million was local

currency). Out of the total project cost, the ODA Loan was JPY 33,265 million. However, after the project started, there was a shortage of project funds (the reason is explained later) and an additional loan (Phase II) of JPY 4,552 million was provided in 2010. At the time of the ex-post evaluation, the actual total project cost became JPY 42,561 million⁵ (out of which JPY 23,138 million was foreign currency and SLR 22,247 million was local currency) and the disbursed amount of the ODA Loan was JPY 37,215 million. The total project cost exceeded the planned cost by 2%, and the ODA Loan exceeded the planned one by 12%. The ODA Loan was used for Lots 1-5 and consulting services. The project cost for civil works has increased 33% from the planned amount. The increase in this portion of the project cost is mainly due to the soaring price of equipment and materials⁶ which exceeded the price escalation beyond what was estimated because of the delay in project implementation. Although an additional ODA Loan was provided because of fund shortages, the Government of Sri Lanka agreed to contribute part of the additional fund and the effort of the government was evident.

Table 2: Planned and Actual Project Cost

Total Project Cost (Plan)	Actual	Actual Against Plan
JPY 41,836 million	JPY 42,561 million	102%

3.2.2.2 Project Period

The original project period was planned for 82 months from March 2002 (the signing of the Loan Agreement) to December 2008, which was the beginning of commercial operation. Commercial operation started in July 2012 for Unit 2 and September 2012 for Unit 1. As a result, the actual project period was 127 months from March 2002 to September 2012, which exceeded the plan (Table 3).

Table 3: Plan and Actual Project Period

Plan	Actual	Actual against Plan
82 months	127 months	155%

Among the reasons for the prolonged project period were as follows: revision to the project plan after starting because of resistance from influential local people; delays in the procurement process for consulting services and contractors; and delays in land acquisition and resettlement process. The delay related to the resettlement process was 24 months, making it the biggest cause. In the project, various considerations were taken and negotiations took place in view of

⁵ However, because the land acquisition cost for 30 ha has not been paid at the time of the ex-post evaluation, the cost was added on the actual project cost by using the average land acquisition cost per ha paid previously.

⁶ The fuel (diesel) price, which was SLR 30/liter in 2002, became SLR 115 in 2012 (source: Ceylon Petroleum Corporation).

the social environment which included the fact that many of the project affected people (PAP) were tea plantation workers who belong to lower and poor social classes. Communities were resettled as a whole, to the extent possible, and households which ran businesses (those who owned residence-cum-shop properties) stayed back in the original location. From the planning stage of resettlement, careful considerations were given. As a result, the project brought a positive impact to the lives of PAP and they were satisfied. Considering such facts, the delay related to the process was inevitable (see column at the end of the report for process and impact of the resettlement).

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

Table 4 shows the Internal Rate of Return (IRR) calculated for the project at the times of the appraisal and the ex-post evaluation along with its assumptions. The figures from the time of the appraisal is from the Phase II appraisal when net electric energy production was revised. Re-calculation at the time of the ex-post evaluation was done using the same assumptions from the appraisal.

Table 4: IRR and Assumptions

	Financial IRR	Economic IRR
IRR	Appraisal: 7.3% Ex-post evaluation: 7.8%	Appraisal: 11.0% Ex-post evaluation: 20.8%
Cost	Project cost, operation and maintenance cost	Project cost (excluding taxes), operation and maintenance cost, re-investment
Benefit	Revenue from sale of energy	Alternative thermal power (gas turbine) construction and operation and maintenance costs
Project life	50 years	

Financial Internal Rate of Return (FIRR)

For FIRR, the same assumptions from the time of the appraisal were used while actual values were used for the cost and benefit from 2012 to 2015. For estimated operation and maintenance cost after 2016, the average of 2014 and 2015 has been used. For benefit after 2016, the annual power production was fixed at 391 GWh and it was assumed that there will be no power tariff revision. The cost increased by 20% compared to the value estimated at the time of the appraisal; however, the power generation and sales tariff increased slightly on the benefit side as well, and the actual FIRR became approximately the same as that of the time of the appraisal.

Economic Internal Rate of Return (EIRR)

For EIRR, the same assumptions as those at the appraisal time were used; for the cost, actual

values were used up to 2015. Assumptions from the time of the appraisal were used for the construction, operation, and maintenance cost of alternative thermal power projects while actual price was applied for fuel to calculate the benefit. The re-calculated cost is the same as that of the appraisal time. However, on the benefit side, the fuel price of USD 0.1322/kWh at the time of the appraisal soared to USD 0.2359/kWh in 2015 and alternative thermal power stations' operation and maintenance cost saved by the project were estimated to be more. Thus, EIRR has become 20.8%, significantly exceeding the value of appraisal time.

As described above, the project cost exceeded the plan although by factors that were not in control of the project such as price escalation and resettlement process, and the project period significantly exceeded the plan. Therefore, the efficiency of the project is low.

3.3 Effectiveness⁷ (Rating: ③)

3.3.1 Quantitative Effects (Operation and Effect Indicators)

For effectiveness, weightage was given to operation and effect indicators fixed at the time of the Phase II appraisal. Table 5 shows the target and actual values of operation and effect indicators for the project. For the project, the target year is two years after the project completion. Therefore, for comparison with the actual achievement, the values from 2014, which is actually two years after the project completion, was used for evaluation. Hydro-utilization factor, planned and non-scheduled outage hours, and net electric energy production are indicators established at the time of the appraisal. Net electric energy production was originally 510 GWh/year; however, as a result of cancelling tributary intake facilities, gross generation output has been revised from 512 GWh/year to 409 GWh/year and the target has also been changed to 407 GWh/year. Although capacity factor and maximum output were not originally part of the indicators, they are standard indicators that show operation of power station. Therefore, they were added as additional indicators at the time of the ex-post evaluation. Target for capacity factor has been calculated based on the target figure of net electric energy production.

⁷ Sub-rating for Effectiveness is to be put with consideration of Impact.

Table 5: Target and Actual Figures for Operation and Effect Indicators

	Target	Actual		
	2014	2012	2013	2014
	2 Years After Completion	Completion Year	1 Year After Completion	2 Years After Completion
Hydro Utilization Factor (%)	97	64	139	89
Planned and Non-Scheduled Outage Hours (hours/year)	263	697	2,454	1,137
Net Electric Energy Production (GWh/year)	407	259	565	363
Capacity Factor (%)	31	31	43	28
Maximum Output (MW)	150	150	150	150

Source: Documents provided by JICA and questionnaire to the executing agency

Note: Hydro utilization factor (%) is calculated by net electric energy production / gross generation output (409 GWh) x 100. Therefore, when the net electric energy production is more than 409 GWh, it exceeds 100%. Capacity factor for 2012, which is the year power station started its operation, is calculated based on the actual number of operational days.

Indicators other than planned and non-scheduled outage hours have essentially achieved the target in their 2014 actual figures. The actual outage hours have significantly exceeded the fixed target of 263 hours (exceeded by 874 hours); however, the method used to arrive at the target at the time of the appraisal could not be confirmed. According to hearing from the CEB, the average annual outage hours of other hydropower stations operated by the CEB is 504 hours for each unit. Considering the situation, the target outage hours for the Upper Kotmale Power Station should have been 1,008 hours annually. If the target is replaced by 1,008 hours and compared with the actual, the outage hours exceeds the target by 129 hours. Because net electric energy production is almost achieving the target, the target for outage hours originally fixed may have been ambitious.

3.3.2 Qualitative Effects (Other Effects)

At the time of the appraisal, stable supply of power was defined as a qualitative effect of the project. According to the CEB, there have not been planned power cuts in recent years in Sri Lanka and it appears that the power is supplied stably.

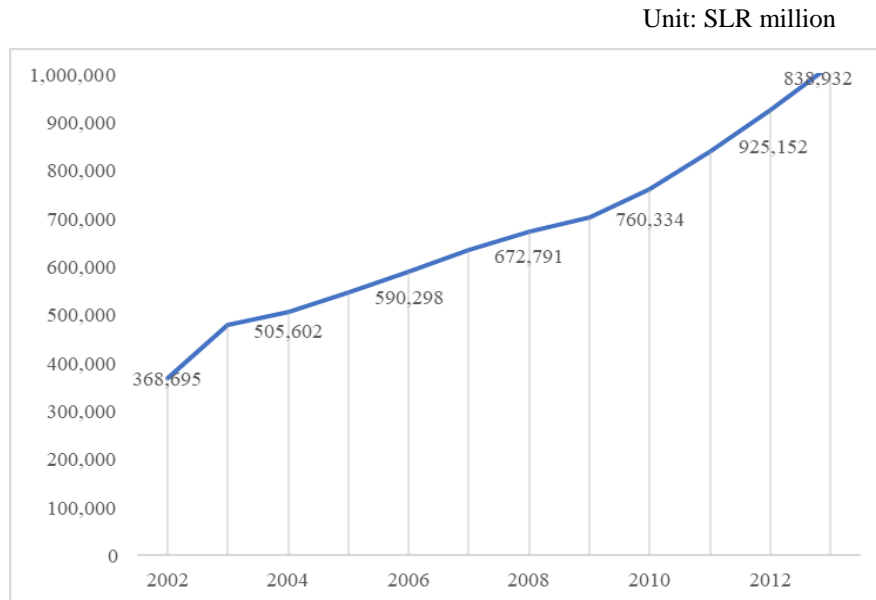
3.4 Impacts

3.4.1 Intended Impacts

The intended impact for the project was contribution to the economic growth of Sri Lanka. In Talawakelle, Central Province, where the project site is located, interviews were conducted at the time of the ex-post evaluation. It was apparent from the interviews that the local economy had temporarily boomed because many construction-related people came from outside for the project and engaged local subcontractors for sourcing construction materials and other things. As can be seen, the project seems to have temporarily contributed to the local economy of

Talawakelle.

In the last five years (2011–2015), Sri Lanka saw an annual average economic growth of 6%⁸. As evident in its industrial output since 2002, it grew stably as shown in Figure 3.



Source: Central Bank of Sri Lanka

Figure 3: Industrial Output of Sri Lanka

The GDP share of Central Province in the last ten years has been changing at an annual average of 10%. At the same time, the demand for power is continuing to increase and the number of consumers, which was 2.80 million in 2002, reached 5.41 million in 2015. Sri Lanka's electrification rate was 61.0% in 2002 and 98.5% in 2015. When compared to the World Bank's 2012 data, it was 88.7% for Sri Lanka⁹, while surrounding countries like India, Bangladesh, and Nepal were 78.7%, 59.6%, and 76.3%, respectively, making Sri Lanka's electrification rate higher than the other countries'. Power demand increased almost at the same rate with rigorous economic growth in recent years. Looking at peak-time demand and the project's generation capacity in 2015, the project is supplying about 7% of the peak-time demand. As can be seen, the project has contributed to the country's economic growth to a certain extent.

⁸ Source: Asian Development Bank

⁹ According to the data provided by CEB, it is 94%. For comparison, the same source has been used here.

3.4.2 Other Positive and Negative Impacts

a) Impacts on the Natural Environment

The project was classified as category A according to the “JBIC Guidelines for Confirmation of Environmental and Social Consideration” (October 1999) because it is a large-scale hydropower project. An environmental monitoring committee chaired by the Central Environmental Agency was established for the project and regular meetings were held to check the impact on the natural environment during project implementation. Environmental monitoring after the project completion has not been specifically carried out because it is not mandatory by Sri Lankan law. Currently, the risk of siltation in the reservoir is low; therefore, CEB is measuring the siltation level irregularly.

At the time of the appraisal, it was expected that five waterfalls in the Kotmale River basin would be affected by the project. However, as described earlier, because the water intake from the tributaries was cancelled after the project started, only St. Clair’s Falls was affected. From the interviews conducted with the shops (tourism-related) overlooking the waterfall and with the local residents, it was apparent that the flow of the waterfall decreased compared to before the project was implemented. In reality, the annual average water flow of St. Clair’s was 13.45 m³/sec before the project implementation, and the CEB is releasing 1.31 m³/sec of water everyday between 5:00 to 15:00 based on the government order. According to the businesses that run



Figure 4: St. Clair’s Falls

restaurants and tea shops catering to tourists in the nearby area, although the visitors who have been to the areas several times have pointed out the reduction of water in the waterfall, there has not been a decrease in footfalls. Space for viewing the waterfall was constructed by the project. In addition, beside a coffee shop and parking lots, an exhibition space was set up to display information about the project.

Moreover, because the large areas surrounding the project site were developed as tea plantations, there was no important ecosystem that needed to be conserved. Nevertheless, the International Union for Conservation of Nature studied the impact on the ecosystem at the project site and downstream of the Kotmale River in 2006. Based on the study report, the project was to translocate *Ravana Politissima*, an endemic species of snails from the submergence area. According to a post-survey by a local consulting firm, at two out of four sites where translocation was done, the survival conditions were not necessarily satisfactory. However, although the species was originally seen as unable to survive in the reservoir, a

submergence area, the survey confirmed its existence around the reservoir. The post-survey studied the flora and fauna of other areas, too, and no specific issues were reported.

At the time of environmental clearance for the project, the CEB was instructed to formulate and implement a watershed management plan. In the project, the watershed management plan was prepared in 2003 and afforestation, soil conservation, fire protection, and awareness activities were implemented. Many of the activities were implemented within the tea plantations located in the watershed. According to the interviews with the tea plantation management from that time, apart from physical activities like afforestation and fire protection, the awareness activities targeting the plantation workers received high appreciation because such activities have raised the workers' awareness towards the environment.

It was reported that during the construction period, the environmental monitoring unit comprising the CEB and contractors were measuring parameters like water quality, ground water level, air quality, and noise level every month. Although no specific grievance redressal system was established for complaints arising from the implementation of the project, according to the local residents, they were able to report the complaints to CEB or the Urban Council. According to the CEB, there were no specific problems reported by the environmental monitoring unit's measurement during the project implementation. At the time of the ex-post evaluation, a questionnaire survey was conducted for 21 households around the reservoir and power station. They were asked to rate the conditions during the construction regarding air pollution, waste, dust, water quality, noise, and vibration using four-grade scales. In the results, the responses for noise and vibration were mostly "very concerned" and "slightly concerned," as shown in Figure 5. Some of the households have filed complaints to the CEB because house walls were cracked from the dynamite used for the construction of project related facilities. CEB has assessed the damage to the houses and provided compensation for repairs.

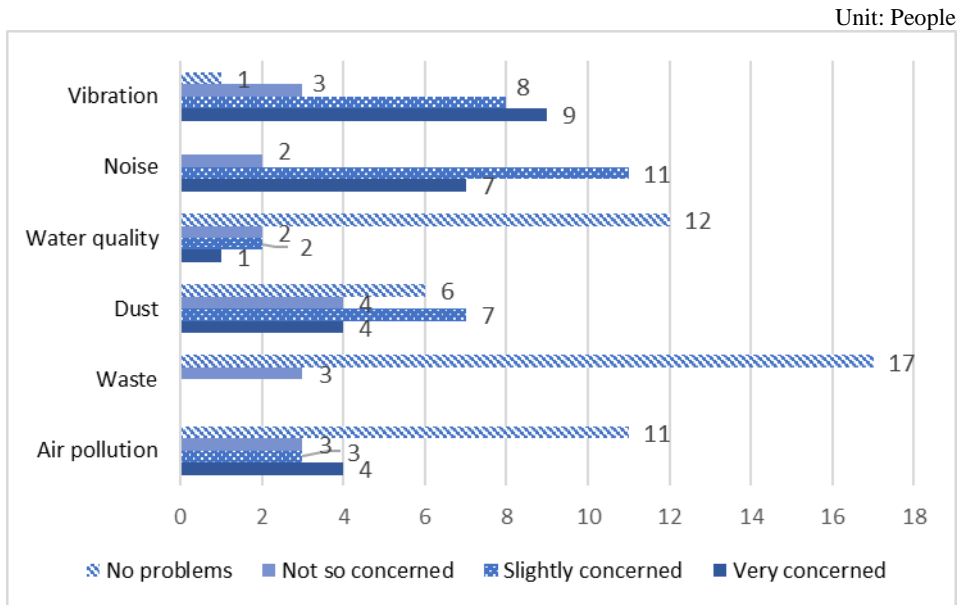


Figure 5: Opinion on Environment during the Construction

Regarding air pollution, waste, dust, water quality, noise, and vibration after the project completion, one household responded “slightly concerned” for waste and “not so concerned” for water quality. The remaining 20 households responded “no problems” to all the parameters. Therefore, it seems that there are currently no issues related to the environment.

As can be seen, no particular negative impact on the natural environment was confirmed.

b) Land Acquisition and Resettlement

In the project, 524 households were resettled¹⁰ in order to make space for construction of the reservoir and widening of access roads. Land acquisition was originally planned for 155 ha but it became 99 ha. The land required for the project was reduced because a portion of the PAP (households who run business along the main road) returned to the original location after the project completion¹¹. For the resettlement, a resettlement action plan including details of compensation and a support program was prepared. Women also participated in the resettlement planning process through the housing committee in each area. Out of the 117 women surveyed in the PAP survey conducted in the ex-post evaluation,¹² 92 (79%) felt that women’s opinions

¹⁰ At the time of the appraisal, it was 457 households. The affected households have increased because those that preferred to relocate with the rest of the community and new households (whose members were newly married during the prolonged resettlement process) were added.

¹¹ Because they operated businesses in residence-cum-shop, it was important for them to remain close to the main road for their livelihood. Therefore, these households have temporarily relocated and returned to the same area after the area has been redeveloped.

¹² For the PAP survey, a questionnaire survey was conducted for 128 households. When the primary respondents were men, questions related to women were separately asked to the adult female of the same household. Resettled households were grouped by resettlement schemes, and based on the total number of houses in each scheme, sample size was decided. Sampling in each resettlement scheme was conducted by obtaining scheme-wise maps, by numbering the houses, and by generating random numbers with Microsoft Excel.

were reflected in the planning process. When PAP's level of satisfaction towards compensation was checked through the survey, 66% of the respondents felt it was sufficient (the remaining 18% responded "not sufficient" and 16% "can't say either").

The houses were provided in six different designs based on the size of the house before the resettlement. For PAP who were farming, either alternative land or cash compensation was given. As a system of grievance redressal related to the resettlement, a Grievance Redressal Committee was constituted with a divisional secretary, four religious leaders from the area, and teachers. About 100 complaints were reported to the committee during its five-year term. Complaints pertained to both individual households and the community. For example, there was a complaint that when those required resettlement were identified, they were temporary away from the target area and thus, they were not recognized as PAP. According to the nature of the complaints, some were resolved based on the discussion by the committee and in case more actions are required, the committee decided and the CEB was to take actions accordingly. If anyone was not satisfied with the decision of the committee, he/she could appeal to the court. According to two former committee members inquired at the time of the ex-post evaluation, all the cases were already resolved.

For improving the livelihood and living environment of the PAP after the resettlement, the project implemented support programs including the following: skill training (electric wire, welding, heavy machinery, computer, mushroom cultivation, and sewing); microfinance; support for home gardens such as provision of seedlings and tools; and medical camps¹³. Skill training courses were conducted once for each course and twice for a computer course. No post-training follow-up was done. For the skill training program, participants were selected from the PAP considering such factors as their age and experience. However, when PAP's awareness was checked at the time of the ex-post evaluation, 60% of the respondents were unaware of the program¹⁴.

There has been no monitoring of the income level of project-affected households after the resettlement. The average annual household income before and after the resettlement was checked in the PAP survey, and the results showed that it changed from SLR 22,914 to SLR 32,242. However, considering the inflation rate between 2009, which was before the resettlement and the time of ex-post evaluation, no significant change is seen. On the other hand, housing and access to public services improved significantly. Other various impacts from the resettlement are described in the column at the end of the report. Compared to only 27% of the respondents lived in the permanent structures, all the households moved into the permanent structures after the resettlement (Figure 6). Particularly, the average floor area for a family in the line room provided by the tea plantation was 23 m², which changed to 58 m² after the

¹³ Health check-ups and awareness programs on health and hygiene were conducted.

¹⁴ Impacts of skill training program are described in the column at the end of the report. The reason PAP's awareness was low towards the program is not known.

resettlement. Regarding water supply, electricity, and cooking fuel, there was also a significant improvement because of the resettlement.

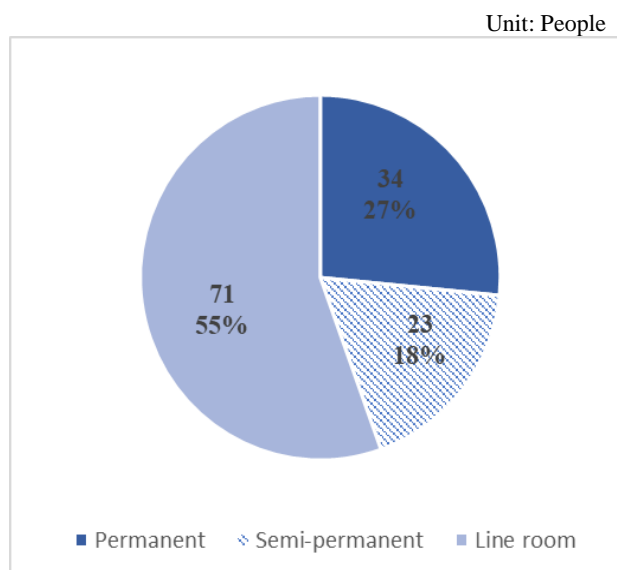


Figure 6: Housing before the Resettlement

Resettlement sites were provided as close as possible to the original location, within 1.5 to 2 km. Since many PAP had been residing in the center of the town, in the focus groups discussions conducted in the ex-post evaluation, they stated that the access has worsened.¹⁵ Resettlement was made by keeping the community whole to the extent possible; however, there are cases where it was not possible and, based on the people’s preference, resettlement happened by dividing the community. In the PAP survey, PAP were asked about their relationship with other people after the resettlement. In the results, 66% responded “same as before” while 27% said “weakened” and 7% “strengthened.” In addition, the project has relocated Tamil School¹⁶ to the center of Talawakelle. Before the relocation, the school was housed in an old tea factory and there were not even partitions for the classrooms. The new school has proper partitions and each classroom is equipped with lights, desks, and chairs. As the school infrastructure was upgraded, the number of students in the Tamil School has increased compared to earlier. According to the vice-principal of the school, he felt there are now more students who wish to be enrolled in the school and the academic performance of the students has also improved.

Out of the 128 households surveyed, 33 had experienced floods or landslides before the resettlement. For these 33 households, because housing structure was strengthened compared to before the resettlement, they cited that fear of disaster risk was reduced. Because careful

¹⁵ Conducted in three resettlement schemes. In one of the schemes, about 15 people from a women’s group participated; in the other two schemes, about 20 people who were present at the time of the visit participated.

¹⁶ Public school teaching class 1 to 12. Mainly Tamil students are studying at the school.

considerations were given from the beginning such as PAP involvement in preparing the resettlement plan, the living environment for PAP seems to have improved significantly (see column at the end for details).

c) Unintended Positive/Negative Impact

Because many people belong to the poor section of society in the project area, it was expected that the project prioritize hiring local people. According to the CEB and the local residents, local people were given preference to be hired as unskilled labor for the construction site in the project. After the project completion, local residents were hired for some of the jobs at the power station such as security guards and drivers. Nevertheless, according to the interviews conducted around the power station, people voiced dissatisfaction that hiring of local residents was very limited.

The project has largely achieved its objectives. Therefore, the effectiveness and impact of the project are high.

3.5 Sustainability (Rating: ③)

3.5.1 Institutional Aspects of Operation and Maintenance

The project was implemented by the CEB, which is under the supervision of the Ministry of Power and Energy. The CEB was established as a power corporation in accordance with the CEB Act in 1969 by taking over the generation, transmission, and distribution projects of the government electricity department. At the time of the appraisal, restructuring of the CEB was under consideration as part of Sri Lanka's power sector reforms – the CEB was to be divided by its functions into generation, transmission, and distribution, and each unit was to be re-established as an independent company in accordance with the Company Act. However, because of opposition from the staff and for political reasons, restructuring was cancelled. At the end of 2014, the CEB possessed 69% of Sri Lanka's generation capacity. The CEB has divisions such as company strategy, generation, transmission, distribution, and asset management; the operation and maintenance of the Upper Kotmale Power Station is managed by Mahaweli Complex,¹⁷ which is under the generation division. Against 42 personnel planned for operation and maintenance at the time of the appraisal, 43 personnel were posted at the time of the ex-post evaluation and institutional setup for operation and maintenance is established as planned. According to the power station officers, because the power station is new and there is less breakdown, operation can be managed by 43 personnel, but enhancement of staff strength is necessary in the future and the CEB is preparing to increase the number of personnel. Staff

¹⁷ A division that manages seven hydropower stations in the Mahaweli River Basin.

turnover after the commercial operation started at the power station is low (2-3 personnel annually). Allowance for remote location posting is provided to the staff working at the power station and initiatives to retain the staff is also in place.

3.5.2 Technical Aspects of Operation and Maintenance

Trainings related to the technical skills needed for operation and maintenance of the power station was conducted during the project implementation period. Consultants and manufacturers have conducted trainings that are required for operation and maintenance of facilities and equipment of the projects. Currently, training courses including refresher and safety management courses are conducted in the CEB’s own training facility. According to the CEB, personnel posted for operation and maintenance have the necessary educational background and technical training experience for each position, and the technical standards are appropriate. Their standards are at the level they can address issues related to operation and maintenance.

Manuals for operation and maintenance are also in place. According to the CEB, manuals on parts and systems were prepared and are used by the personnel. The current manuals were prepared by the manufacturers; therefore, they need to be revised in the future. In case of revision, based on the situation on the ground so far, parameters such as frequency for inspection will be considered for revision. Daily, monthly, annual, and special inspections are conducted in accordance with the guidelines. Inspection records are also kept. Therefore, there is no issue with technical aspects of operation and maintenance.

3.5.3 Financial Aspects of Operation and Maintenance

Table 6 shows operation and maintenance budget allocation and expenditure for the Upper Kotmale Power Station in the last four years. The year 2013 was just after the operation started in the power station, and, because it was still within the defect liability period, the contractors took care of maintenance. Thus, the expenditure was minimal. According to the CEB, the budget for operation and maintenance has been provided sufficiently so far and the budget is expected to be secured hereafter as well.

Table 6: Operation and Maintenance Budget and Expenditure for Upper Kotmale Power Station

	Unit: SLR Million			
	2013	2014	2015	2016
Budget	1,154	952	1,163	1,206
Expenditure	78	1,047	1,076	NA

Source: CEB

Table 7 shows the financial statements of the CEB for recent years. At the time of the ex-post evaluation, the CEB’s fiscal year 2015 annual report was not published. Therefore, only the data

up to 2014 are included. The capital adequacy ratio was 27% in 2012 and improved to 30% and 49% thereafter. Similarly, the debt-equity ratio was 2.69 in 2012 but improved to 1.03 in 2014¹⁸. The current ratio for the CEB in 2013 and 2014 was 1.01 and 0.93, respectively. Because there is a stable revenue source from collection of electricity tariffs, there seems to be no particular issue.

Table 7: Financial Statement of CEB

	Unit: SLR Million		
	2012	2013	2014
Total Asset	727,728	749,438	769,660
Total Equity	197,300	226,729	380,022
Current Asset	101,295	93,435	76,492
Current Liabilities	137,356	92,698	82,309
Non-Current Liabilities	393,072	430,008	307,328
<hr/>			
Total Revenue ¹⁹	163,513	194,147	202,645
Direct Cost	▲ 222,419	▲ 165,508	▲ 210,850
Profit Before Tax	▲ 61,447	22,266	▲ 12,446

Source: CEB Annual Report

In 2013, due to the fact there was lots of rainfall, the balance has improved. In 2014 it was in deficit because of scarce rainfall in that year. On the other hand, according to the Ministry of Finance of Sri Lanka, the CEB's profit before tax (provisional) in 2015 was SLR 20,720 million and was in surplus. The electricity tariff, a revenue source for the CEB, is determined by the Public Utilities Commission. Most recently, the tariff was reduced in 2014.²⁰ However, according to the Finance Division of the CEB, the current tariff structure is not necessarily able to recover the cost. The average cost of electricity tariff in 2014 was SLR 18.50/kWh and the cost of supplying electricity was SLR 19.97/kWh. Provisional tariff and supply cost in 2015 is SLR 15.93/kWh and SLR 15.01/kWh, respectively. At the time of the project appraisal, the Government of Sri Lanka was providing SLR 0.5–1 billion to the CEB as subsidies. However, no regular subsidy is provided now except for special cases such as power shortages.

Moreover, power generation in Sri Lanka is still mainly hydropower. Therefore, power generation and the financial status of the CEB are dependent on the weather to a certain extent. Under such circumstances, the CEB is promoting development of renewable energy and liquid natural gas, which are relatively inexpensive to generate, to reduce the cost. As of March 2014, the CEB has already developed solar, wind, and biomass generation, and these facilities have a generation capacity of 135 MW.

As can be seen, the CEB has some issues in the financial aspect and has been working to

¹⁸ In 2004, there was capital change of debt by the Government of Sri Lanka.

¹⁹ Revenue from the electricity tariff. It does not include subsidies.

²⁰ It was due to the operationalization of a low-cost coal fired thermal power station (Norochocholai).

address them by such means as reducing generation cost through promoting renewable energy. Thus, there are no problems in financial aspects of operation and maintenance of the project.

3.5.4 Current Status of Operation and Maintenance

Maintenance of the Upper Kotmale Power Station is conducted in line with the prescribed schedule. The power station started operating in 2012, and no overhaul has been done so far. The power station is supposed to report certain parameters such as power generation, auxiliary power consumption, number of personnel, water released for St. Clair's Falls, and planned outage hours every month to Mahaweli Complex and the CEB's Central Control Room. Based on the report, the CEB headquarters is monitoring the situation in each power station.

According to the CEB, the facilities are functioning as originally expected; however, from the start of operations, noise and vibration of the turbine have been an issue. The problem of noise has been mostly resolved by such means as putting sound proof pads. For vibration, which extends to the civil structure and penstock, the CEB had Sri Lankan expert engineers conduct a survey to investigate the cause and find a solution. Moreover, by putting mats for absorbing vibration around the equipment inside the power station and putting a stiffener on penstock, measures suggested by the consultants who were engaged in construction supervision, the initially measured maximum level of vibration acceleration has reduced from 6.0 m/s^2 to 3.7 m/s^2 in the power station. Impacts on staff physical health and operation of the power station arising from the vibration have not been reported so far.

No major problems have been observed in the institutional, technical, and financial aspects of the operation and maintenance system. Although there is a problem with vibration in the power station, currently it does not pose an issue for the operation of the power station. Therefore, the sustainability of the project effects is high.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

In the late 1990s, Sri Lanka achieved high economic growth, and power demand was increasing at the rate of 7% annually. However, installed capacity in the country was not sufficient to meet the power demand and there was a severe shortage of electricity. Such a situation posed a serious challenge to socio-economic activities such as people's daily lives and investments. Given such a situation, this project was expected to contribute to the economic growth of the country through meeting the increasing power demand by constructing a 150-MW hydropower plant on the Kotmale River, a tributary of the Mahaweli River. In the development plan of the country, increasing power generation was considered important at the times of both the appraisal and the ex-post evaluation. As a development need, it is still

necessary to strengthen the power supply capacity. Consistency with Japan's ODA policy is also confirmed and the relevance of the project is high. After the project started, intake from the tributaries has been cancelled in light of environmental consideration while other aspects of the project scope have been implemented almost as planned. The actual project cost was approximately within the budget; although, for the project period, there was a significant delay because of carefully dealing with resettlement. Therefore, the efficiency is evaluated as low. Regarding operation and effect indicators, the target has been mostly achieved for fixed indicators; however, the originally fixed target for planned outage hours seems to be ambitious and the actual outage hours exceed the target significantly. There has been no specific negative impact on the natural environment from the project. For resettlement, careful consideration has resulted in huge improvements in the lives of affected people. Considering the above, the effectiveness and impact of the project are high. No major problems have been observed in the institutional, technical, and financial aspects, as well as the current status of the operation and maintenance system. Therefore, sustainability is also evaluated to be high.

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

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

As described in the section on sustainability, the Upper Kotmale Power Station has a problem with vibration. The CEB and consultants have so far studied the cause and taken measures, but the problem has not been resolved. Because the long-term effect of the vibration cannot be ruled out in the future, it is advisable to continue to explore the solution together with the consultants while taking advice from external experts who specialized in vibration issues.

4.2.2 Recommendations to JICA

None.

4.3 Lessons Learned

Formulation and Preparation of Resettlement Action Plan with Due Consideration to the Local Society

Because many PAP were Tamil tea plantation workers who are socio-economically vulnerable, the resettlement plan was prepared and implemented carefully for this project. In the planning phase, housing committees comprising PAP were established, and a forum was made where the executing agency and PAP can have a direct dialogue and PAP can take part in plan preparation. For sharing information and exchanging views with the PAP, the project director and the resettlement officer of the executing agency were directly involved instead of using third parties such as NGOs. In this manner, they tried to build trust with the PAP. In addition, by avoiding

political involvement such as tea plantation trade unions, it has resulted in improving the self-confidence of the PAP (see the column at the end for details).

Resettlement in the project was implemented to provide a better housing environment than the one prior to the resettlement. The housing environment, particularly the housing infrastructure and access to public services, has benefitted PAP greatly after the resettlement. In addition, based on the process described earlier, because PAP were involved from the planning phase and able to reflect their views in the process, their satisfaction towards resettlement was high. By giving comprehensive consideration to the lives of PAP, it has resulted in positive impacts on awareness and action of PAP as well. This kind of measure can be applied to similar projects in and out of Sri Lanka.

Comparison of the Original and Actual Scope of the Project

Item	Plan	Actual
1. Project Outputs		
a) Preparatory works	Construction and renovation of access roads, development of resettlement sites (including houses), facilities for construction, 33-kV transmission line (41 km)	Construction and renovation of access roads, development of resettlement sites (including houses), facilities for construction, 33-kV transmission line (32 km)
b) Civil works	Construction of dam (Talawakelle reservoir and tributary intake facilities at 6 sites), headrace (12.5 km), tributary intake tunnel (9 km), surge tank (2 sites), underground penstock, underground power station, and switchyard and civil works for watershed environmental management	Construction of dam (Talawakelle reservoir), headrace (12.5 km), surge tank (2 sites), underground penstock, underground power station, and switchyard and civil works for watershed environmental management
c) Hydromechanical equipment	Intake gate, flood gate, penstock etc.	As planned
d) Generation equipment	Turbines (vertical axis, Francis), generators, main transformer, switchyard, etc.	As planned
e) Transmission line	220 kV, 2 circuits, 17.5 km, etc.	220 kV, 2 circuits, 15.5 km, etc.
f) Consulting service	1,509 M/M (construction supervision and management consulting service)	2,246 M/M (construction supervision consulting service)
2. Project Period	March 2002–December 2008 (82 months)	March 2002–September 2012 (127 months)
3. Project Cost		
Amount Paid in Foreign Currency	23,329 million yen	23,138 million yen
Amount Paid in Local Currency	18,507 million yen (12,807 million rupees)	19,423 million yen (22,247 million rupees)
Total	41,836 million yen	42,561 million yen
ODA Loan Portion	33,265 million yen	37,215 million yen
Exchange Rate	1 rupee = 1.44 yen (As of February 2001)	1 rupee = 0.94 yen (Average between January 2002 and December 2015)
4. Final Disbursement	October 2014	

On Views of Expert

In this ex-post evaluation, in addition to performing evaluation based on the five DAC evaluation criteria by the external evaluator, the views of a Sri Lankan academic expert were sought in order to reflect more specialized and diverse views. The external evaluator selected the expert, and solicited cooperation from Dr. Dhammika Herath, the University of Peradeniya.

Dr. Herath is a sociologist specialized in peace and development studies and works as a senior lecturer at the University of Peradeniya. He is also affiliated with International Center for Ethnic Studies, a Sri Lankan think-tank, as a researcher and has been formulating and evaluating many projects on reconstruction of conflict affected areas, ethnic harmony, community livelihood and capacity development. He is also knowledgeable on issues related to land acquisition and resettlement in public works.

In the project, a large-scale resettlement took place. While the resettlement process, changes in living standard before and after the resettlement, and support provided for restoration of livelihood were surveyed, through the comparison of resettlement process which took place in accordance with the Sri Lankan law in this project and similar projects, the positive and negative impacts from diverse perspective were studied. Dr. Herath has provided advice as a local expert on the designing, implementing and compiling the results of the study and has given comment on the results of the study.

The summary of the study results and comments by Dr. Herath is attached as an appendix to the evaluation report.

End

Column on Resettlement and Rehabilitation Program of Upper Kotmale Hydro Power Project

In addition to the standard ex-post evaluation, an effort was made to capture various impacts of resettlement and rehabilitation (R&R) that took place in the Upper Kotmale Hydro Power Project (UKHP). First, to understand the context, the R&R program of the UKHP was studied in detail while information on other development projects whose R&R program was cited as a success was collected and studied. Further, based on the household survey of project affected people (PAP) conducted in the ex-post evaluation and interviews with key informants such as project officials, NGO workers, and tea estate managers, tangible and intangible as well as positive and negative impacts of resettlement under the project have been summarized.

<R&R programs>

Based on suggestions by government officials and experts in the field to study their R&R programs, the Lunawa Environmental Improvement and Community Development Project (LEICDP)²¹ and the Southern Highway Construction Project²² were identified as projects for comparison with the UKHP. Together with the UKHP, these projects began in 2001, which coincided with the time that the National Involuntary Resettlement Policy (NIRP) was introduced in Sri Lanka. While the UKHP had 524 affected households, the LEICDP had about 900 and the Southern Highway Construction Project nearly 600. More than half of PAP in the UKHP were Tamil estate workers while the other two projects' PAP were mostly of the Sinhala population.

NIRP Introduced

Until 2001, resettlement of people displaced by development projects were covered under the Land Acquisition Act, National Environmental Act, and other acts of the country. However, these legal frameworks did not mention entitlements for PAP who had no legal title to the property. Then came the NIRP (2001), which aimed to minimize the adverse impact on PAP. The policy is in support of suitably compensating the PAP, including those without legal

²¹ The project aimed to mitigate flood damage by improving urban drainage and canal systems. This is a Japanese ODA Loan project and aimed to improve the living conditions in the Lunawa Lake catchment area. The project started in December 2001 and was completed in April 2010.

²² The project constructed 67 km of expressways between Kottawa and Kurundugahahetekma. It was also a Japanese ODA Loan project and part of the Southern Transport Development Project, co-financed with the Asian Development Bank to construct a 125-km expressway. The project was implemented from March 2001 to September 2013.

documents. People who had no legal title to the project affected land were also given consideration. As the NIRP recommends the consultation and participation of PAP in the resettlement process, the PAP were involved from the very beginning in planning and implementation of the R&R programs in the three projects. Further, the NIRP calls for rebuilding the lives of PAP and improving living conditions. Although the NIRP is only a policy and awaiting enactment, the UKHP, the LEICDP, and the Southern Highway Construction Project all took the NIRP seriously.

Participatory Planning

With some variation in structure, each project established its own mechanism to ensure that PAP had a stake in the planning process. In the UKHP, nine Housing Committees were formed in affected communities. They served as forums to represent all affected households and provide an occasion on which they can raise concerns and solve issues. Executive members were selected from the Housing Committee; they formed part of the Resettlement Committee where broader common issues were discussed under the chairmanship of the Divisional Secretary. Members of the Resettlement Committee also included the project authority, the Urban Council chairman, and local religious leaders.

Uplifting through Resettlement

The principle of the NIRP was to provide “land for land” and “house for house” in which loss of property due to the project is compensated with physical property. These three projects took a step further and provided housing infrastructures that were better than what the PAP had prior to the projects. In the UKHP, six different types of houses were designed, ensuring that the affected houses would get a minimum of the existing floor space when resettled. Table 1 shows the types of house designed by the project with affected floor space.

Table 1: Affected Floor Area and the Area Given by the Project on Relocation

Unit: ft²

Type	Affected floor area	Floor area given by project
A	<400	624
B	401–600	818
C	601–800	1003
D	801–1000	1308
E	1001–1200	1435
F	1200–1500	1530
Special Types	>1500	Custom design



Photo 1: Type A House

<Impacts on Project Affected People>

Improved Housing-Related Infrastructure

The majority of PAP of the UKHP were “estate workers²³.” This meant that the majority were from socially and economically vulnerable classes of society. The estate workers traditionally lived in what are called “line rooms” – a row of small rooms in a single building²⁴. Apart from increased floor space, moving into houses built on individual plots equipped with water supply, electricity, toilet, and separate spaces for bedrooms, kitchen, and living room was a definite change in their lifestyle. The following tables show the changes in housing amenities after the relocation based on the survey conducted for 128 affected households at the time of the ex-post evaluation.

Table 2: Source of Drinking Water

	Before relocation		After relocation	
	No.	%	No.	%
Pipe supply	67	52	128	100
Hand pump/tube	10	8	0	0
Open Well	14	11	0	0
Spring/River	37	29	0	0
Total	128	100	128	100

Table 3: Types of Toilet

	Before relocation		After relocation	
	No.	%	No.	%
Household flush	9	7	31	24
Household non-flush	78	61	97	76
Community latrine	37	29	0	0
No toilet	4	3	0	0
Total	128	100	128	100

Table 4: Source of Lighting

	Before relocation		After relocation	
	No.	%	No.	%
Electricity	91	71	128	100
Kerosene	37	29	0	0
Total	128	100	128	100

Table 5: Source of Cooking Fuel

	Before relocation		After relocation	
	No.	%	No.	%
Cylinder Gas	13	10	77	60
Firewood	114	89	47	37
Kerosene	1	1	4	3
Total	128	100	128	100

The household survey also revealed that 66% of the respondents felt the compensation given under the UKHP was sufficient (the remaining 18% felt it was insufficient and 16% felt it was neither). Focus group discussions in several resettlement colonies also indicated the PAP were highly satisfied with the facilities provided to them.

²³ Estate workers are one of the three classifications of population (urban/rural/estate) in the Sri Lankan census. The term generally refers to the resident laborers of plantations. However, there are families today none of whom work on the estate but continue to live in the line room on the plantation.

²⁴ A typical line room may consist of several rooms which often lack windows and therefore have no or little ventilation. Each room housing a family may have one or two separate rooms giving little privacy to the occupants.

Changes in Human Capital

Interviews with estate managers and other individuals knowledgeable of the sector revealed that the estate workers traditionally have depended on estate management. Since the estate workers are socially vulnerable, while they were protected by the trade unions active in the tea estates, their condition was also politically capitalized to secure voters by promising the improvement in basic infrastructure. The estate management and trade unions were often the estate workers' first point of contact with the outside world, and they often depended on these institutions to complete such procedures as birth registrations and banking.

Through participating in the resettlement process, the PAP experienced the process of discussing and negotiating with others around them as well as with the project authority. They were given chances to decide and take action on their own. This seems to have inculcated a sense of social confidence in them.

Secondly, improved infrastructure and subsequent improvement in living conditions have prompted lifestyle changes among the PAP. This has impacted the way PAP see themselves as well. Better living conditions meant that the people felt they needed to have a persona that matched their living conditions. A similar case was cited in the LEICDP in which the former project director recollected how women from some of the affected households even changed the way they dressed after resettlement. Before the resettlement, there was a lower sense of self-importance because the women had to be involved in additional chores such as fetching water from the common tap far from home, which gave them little opportunity to "dress up." Once they moved into a new home at the relocation site equipped with individual tap connections, they were released from such chores. Women have also aspired to live the way others do in such houses. Changes in such lifestyles have further prompted the change in people's psychology. Some of the PAP of the UKHP expressed that having their own space at the resettlement site gave them privacy, providing them mental peace which in turn resulted in less family discord. This aspect has been substantiated by some of the estate managers as well. One of the estate managers said that he has noticed visible differences in the attitudes of the workers who have been resettled by the project. Perhaps because of the change in mindset and fewer issues at home, it appeared the workers became more productive and were able to comprehend instructions much easier than before.

Shortfall in Income Restoration Program

Although the resettlement has brought about mostly positive changes, there has been some

shortcomings. Issues on the R&R program of the UKHP are mentioned here. To restore the livelihood of PAP at least equivalent to or better than pre-resettlement levels, several skill training and support programs (income restoration program) were implemented in the project. Skill training courses were selected based on the preference from the PAP and considering the employment opportunity in the project site (construction site). Nevertheless, when applications were called for courses such as welding and heavy machinery maintenance, there were fewer takers. The survey on affected households during the ex-post evaluation also revealed that the people were less aware of various courses provided under the project. Many of those who attended the courses also felt that there has been no particular impact on their income from the training courses they received.

Table 6: Whether the Respondents Knew About Income Restoration Programs

	No.	%
Was aware	51	40
Was not aware	77	60
Total	128	100

Table 7: Impact of Income Restoration Programs (Respondents Have Participated in One of the Programs)

	No.	%
Increased income	5	17
Better health due to awareness on health and nutrition	5	17
Started business using microfinance	2	7
No impact	18	60
Total	30	100

<Strategies behind UKHP Resettlement>

Displacement of people due to development projects has historically attracted much criticism. However, the UKHP and other projects implemented almost at the same time, such as LEICDP and the Southern Expressway Construction Project, have been able to persuade society that it is not always so. The positive impacts of resettlement under these projects were not easily achieved. While the participation of PAP from the planning stage was definitely a factor of its success, it was not simply the participation in planning but certain strategies that were employed that made it work better.

Direct Dialogue between Project Authority and PAP

It is a daunting task for the project authorities to identify, communicate, and negotiate with the PAP on a daily basis. In places where active local NGOs are found, such organizations can be brought on board to be the interface between the people and the project. In the UKHP, however, the project authority maintained that it is important to have direct dialogues with the PAP without involvement of NGOs. This way, people knew directly who they were dealing with and

there was no loss or misinterpretation of information due to having intermediaries between the two. It was important that people trust the project authority; therefore, the project authority made sure to be present at each housing committee meeting. This effort by the project authority is fondly remembered by PAP even today. In resettlement schemes, people remember the former project director and how they had direct access to him if ever needed.

The LEICDP took a similar strategy in this regard. An NGO was involved in the resettlement process but was taken on board as part of the project authority. NGO workers were identified as part of the project authority so that they did not become mere intermediaries between the project authority and PAP.

Keeping Vested Interest at Bay

As mentioned earlier, the estate workers' issues were often capitalized by trade unions and other interest groups. The estate workers often had strong bonds with particular trade unions. The project authority felt it was necessary to separate the PAP from the trade unions and other vested interest groups for the PAP to directly participate in resettlement process and to reflect their honest opinions to the R&R program. Therefore, the Housing Committee was exclusive to PAP, who were given chances to think and decide on their own without the involvement of external parties. This is also part of the reason there has been much benefit on the social capital front as a result of resettlement in the project.



Comment by Dr. Dhammika Herath (Social Development Expert) at the University of Peradeniya

The UKHP brings in a whole transformation in the PAP through drastic improvement in the quality of life and dwellings compared to the pre-displacement level. Almost every PAP previously lived in what is locally referred to as a “line-room.” The UKHP has provided houses on individual plots equipped with water and sanitary facilities, which has led to a significant enhancement of the quality of life and dwellings as well as social status. In the succeeding sections, I present the weaknesses and strengths of the project.

There are several weaknesses regarding the quality of construction. Our respondents in a Tamil community complained of water leakages from the roof. Project authority promised to look after the houses for one year, after which PAP were expected to take care of the houses. Yet, PAP feel that a new house should remain in good condition for at least 20 years. Some respondents in a Tamil community complained of electric shocks due to erroneous wiring and we could observe that this had damaged some household equipment whereas some people avoided the use of electrical equipment. In my assessment, there are construction defects, which lower the level of satisfaction among the PAP. PAP should be able to address these shortcomings without having to invest significant resources. Although the construction defects affected only a minority of PAP, the contractors who built the houses should be held responsible for construction defects.

The UKHP imparted skills in welding, lathwork, electrical wiring, sawing, mushroom cultivation, etc. Nevertheless, not all those who received the training found employment in the same field. This is an area where the project could have done better to provide career guidance. Furthermore, although the project provided replacement lands for cultivation, some lands were unsuitable for cultivation due to unsuitable soil conditions and/or lack of water. This problem affected only a minority of farmers.

A significant complaint received from many PAP is access to the main road and increased distance to the town. Earlier, many people lived just a few minutes’ walk from the town center. The resettlement has increased distance to the town by 15–30 minutes and enforced a walk up on a mountainous road. A reliable public transport service would have been able to address this complaint.

There is also the issue of lack of clarity about the management of the settlements and service delivery. While the project claims to have handed over the responsibility to the Urban Council (UC), the UC personnel said the handover is not yet complete. This has resulted in the UC not coming forward to perform some of the services such as maintenance of street lights in the resettlement schemes it is expected to provide. I cannot come to a conclusion on this.

Irrespective of the minor issues documented above, the UKHP is one of the rare cases where a resettlement has improved the quality of life in both absolute and relative terms. The most significant achievement of the UKHP is that every PAP received a replacement house, which is many times better than the previous house. The UKHP has not caused landlessness or homelessness.

The UKHP had paid attention to the sustainability of the livelihoods of the PAP, not merely to sustain the existing levels but in fact to enhance, and also granted scholarships to children to support their education from primary school up to university. The project provided replacement lands for lands that were cultivated before the project and where replacement lands were insufficient, the project also provided appropriate financial compensation. Such high compensations are less common if one compares the project with development-induced displacement and resettlement in Colombo, where beneficiaries of housing have to pay for the replacement houses they received from the urban development authority. For those who had shops, the project provided replacement buildings, larger and better than the previous buildings, close to the main road.

The UKHP also contributed to improving the resources for education among the PAP. The Tamil medium school, which previously had one dilapidated building, currently has six buildings provided by the project and more teachers. Some parents who could not afford to send their children to the towns of Hatton or Nuwaraeliya for better education now send their children to the local Tamil school. So, the number of children in the school has increased.

Overall, the UKHP did not damage the social capital stocks of the affected settlements. Displacement involved moving to new locations around 2 km away. People were thus able to keep their networks intact. Social trust and norms of reciprocity have not suffered.

One of the reasons for the significant achievements of this project is incorporation of effective participation of the PAP, who were initially resistant to the project but later accepted it when they were made part of the decision-making. The project developed a resettlement committee with

appointed and nominated members. There has been close interaction between the members of this committee and officials including the former project director. Furthermore, the project developed a strong grievance redress committee, which was able to address most of the grievances that were directed to it.

I conclude this evaluation with a positive picture: the resettled community currently has comparably nicer houses, clean water, good roads, similar or enhanced livelihoods, greater privacy, electricity, and other essential basic amenities. The quality of life has improved. The evaluation does find some areas the project could have done better, but this does not significantly change the positive conclusion.