

**JBIC ODA Loan Project Mid-Term Review 2006**

Evaluator: Junko Fujiwara (OPMAC)

Time of Mid-Term Review Field Survey: February 2007

Project Title: Democratic Socialist Republic of Sri Lanka “Upper Kotmale Hydro Power Project” (L/A No.SL-P74)

**[Loan Outline]**

Loan Amount/ Contract Approved Amount/ Disbursed Amount: 33,265 million yen/ 18,955 million yen/ 3,616 million yen (as of end of March 2007)

Loan Agreement: March 2002 (5 years after L/A signing)

Project Completion Date: April 2011

Loan Expiry Date: October 2012

Executing Agency: Ceylon Electricity Board (CEB)

Operation and Maintenance Agency: Ceylon Electricity Board (CEB)

Selection Criteria for Mid-Term Review: Special Yen loan

**[Project Objective]**

The objective of the project is to meet the increasing demand for electric power after 2008 by building a runoff-river hydropower plant (150 MW) on the Kotmale River (upstream from the existing Kotmale Dam) with the environmental and social consideration, a tributary of the Mahaweli River, thereby contributing to Sri Lanka’s economic growth.

Consultant: J-Power

Contractor: Lot 1: Maeda Corporation; Lot 2: Maeda Corporation, Nishimatsu Construction Co., Ltd.

**[Mid-Term Review Result]**

Item	Ex-ante Evaluation (at the time of appraisal) (March 2002)	Result of mid-term review and ex-post evaluation results as estimated at the time of mid-term review
Relevance	(1) National policy level The importance of development of the electric power sector was emphasized in the Six Year Development Program, 1999-2004.	(1) National policy level The Mahinda Chintana, Development Framework 2006-2016, which the Sri Lankan government is currently implementing, estimates a GDP growth rate of 8% for the next 6 years and 9% to 10% macroeconomic growth thereafter. Sri Lanka aims to raise the per capita GDP to Rs. 485,000 (US\$3,960) by 2016 (purchasing power parity US\$13,000) and to become a more developed country. Electric energy, ports, transportation, telecommunications, and the small and medium company sectors are referred to as the main driving forces in the secondary sector of industry, and the growth rate of this sector is expected to be 8%-9%.

<p>(2) Policy level</p> <p>In the Six Year Development Program, 1999-2004, the main issues in the electric power sector were listed as improvement of efficiency and reliability, expansion of power generation capacity to meet demand, development of transmission, transformer, and distribution facilities and improvement of the electrification rate in response to aging facilities and the expansion of power generation capacity, and streamlining of the fee system.</p> <p>a) Sector reorganization</p> <p>The Power Sector Policy Directions, enacted in 1997, centering on gaining of a competitive advantage over other Asian countries in the cost of electricity by supplying electric power at low cost to the economy, society, and environment, to meet future energy demand. It called for split of the CEB electric generation, transmission, and distribution sectors, promotion of mobilization of private resources in the thermal power generation sector, and introduction of a law through establishing an independent regulatory agency.</p> <p>b) Expansion of power generation capacity</p> <p>The amount of electric power generated by Sri Lanka has increased at an average of 7% during the past 20 years and was expected to increase at 6%-10% annually in the future.</p> <p>c) Development of electricity transmission and distribution network</p> <p>The development is being pursued in accordance with the Electricity Transmission Network Development Plan (10-year plan) (2000) and the Medium Voltage Distribution Network Development Plan 1995-2005.</p> <p>d) Rural electrification</p> <p>The stated goal was to raise the rural electrification rate from 56.6% to 80% by 2005.</p>	<p>(2) Policy level</p> <p>The electric power sector development plan in the Mahinda Chintana, Development Framework 2006-2016 mentions diversification and expansion of energy production through coal-fired and hydro power plant projects, new fuels and liquid fuel power generation projects, and renewable energy resources. The plan also emphasizes streamlining of the fee system and increased access to electricity particularly in remote areas. The following items are listed as the most important issues, and it is estimated that Rs. 818,145 million is required to implement all the measures.</p> <ul style="list-style-type: none"> <li>i) Expansion of access to electric power</li> <li>ii) Streamlining of electric fee system, debt reduction, achievement of subsidy goals</li> <li>iii) Diversification of fuels for power source development and energy conservation</li> <li>iv) Promotion of renewable energy development</li> <li>v) Promotion of transmission and distribution network development</li> <li>vi) Achievement of greater efficiency in supply-side energy</li> <li>vii) Achievement of greater efficiency in demand-side energy</li> <li>viii) Improvement of knowledge management, plan preparation, and fund investment in the electric power sector</li> <li>ix) Promotion of reorganization and regulatory development</li> </ul>
<p>(3) Planning level</p> <p>This project is the final large-scale hydropower generation project as a power source in Sri Lanka, as most have already been developed. To ensure a stable power supply that is not affected by weather, while focusing on thermal power generation, it is also highly necessary to fully develop the hydropower resources in Sri Lanka, which lacks its own sources of fuel. The project aims to meet peak demand of 2,346 MW in 2008. In the plan to achieve power generation facility capacity, the planned increase in hydropower is 220 MW, and of that, this project contributes 150 MW (the remaining 70 MW are to be produced by the Kukule Hydropower Plant). In addition, a coal-fired power generation plant (300 MW) is planned. This project, together with the thermal plant, was indispensable for meeting the electric power demand in the latter part of this decade.</p>	<p>(3) Planning level</p> <p>In the Long Term Generation Expansion Plan 2006-2020 (CEB (2005), a progressive increase in power generation capacity and the amount of electric power supplied is planned. The increase in electric power supply to be achieved by the construction and operation of this project's plant (150 MW) and the Kelawarapitiya Combined Cycle Power Plant (300 MW) is to be the main source of electric power until the construction of the three currently-planned coal-fired power plants (total 2,000 MW) and the construction of other hydropower plants (Broadlands: 35MW, Uma Oya: 15 MW, Gin Ganga: 49 MW, Moragolla: 27 MW). In the overall power source development plan, the high relevance and importance of this project at the planning level is emphasized.</p> <p>The power generation cost of this project is 8.009 yen/kWh (calculated when project</p>

		<p>plan was altered in 2005; Rs. 7.28/kWh at an average 2005 exchange rate of 0.91). The transmission and distribution cost in that year was Rs. 3.14/kWh. The current average retail rate is fixed at Rs. 10.75/kWh. Assuming that the retail rate is raised in the future by the promotion of the CEB's operational efficiency supervisory functions and approved by the Public Utilities Commission of Sri Lanka, the unit cost of power generation of this project will be low compared to the average retail cost and may be expected to contribute marginally to the improvement of CEB's financial status.</p> <p>Accompanying the increase in fuel prices and the start of operation of the thermal power plants, it is pointed out even in the above-mentioned Mahinda Chintana, Development Framework 2006-2016 that CEB's unit cost of power generation will reach Rs. 15.0/kWh in 2010. The only factor that will suppress the rise in power generation cost for the time being is the start of operation of this project's hydropower plant, at an appropriate scale and in a timely manner, together with the Kukule Hydropower Plant which began operation in recent years. Therefore, this project's role to improve CEB operations is large.</p> <p>However, it is forecasted that completion of construction will be delayed from the original plan, like the Kelawarapitiya Power Plant, and this will affect to power source development overall. Power shortages of 200 MW in 2007 and 405 MW in 2008 are the forecasts. There is apprehension that these power shortages will necessitate large-scale planned outages in 2007 and 2008.</p> <p>Under this project, JBIC provided Special Yen Loans. This is a system established in December 1998 for the rapid economy recovery of Asian nations which had been affected by the economic crisis. In addition to promoting projects that provide a strong economic stimulus to the market and have a strong impact on the creation of employment, the primary objectives of the Special Yen Loan are (i) the preparation of an attractive business environment for private investment, and (ii) the realization of structural economic reform through improvements in productivity. Under this system, even more discretionary loans are granted than in regular projects, thereby providing assistance to the relevant country. This project will ease the tight supply-demand situation of electric power in Sri Lanka and will develop a stable power supply system which is considered indispensable for sustained economic growth, and so this Special Yen Loan is recognized as relevant.</p>												
<p><b>Effectiveness (Impact)</b> <b>(1)Operation and effect indicators</b></p>	<p>(1)Operation and effect indicators a. Quantitative effects 1) Operation and effect indicators</p> <table border="1" data-bbox="412 1278 1211 1415"> <thead> <tr> <th></th> <th>Definition</th> <th>Original target</th> </tr> </thead> <tbody> <tr> <td>Hydro utilization factor (%)</td> <td>Electric power generated in specified period(kWh)/ generated power available</td> <td>97% (Electric power generated : 512GWh/year)</td> </tr> </tbody> </table>		Definition	Original target	Hydro utilization factor (%)	Electric power generated in specified period(kWh)/ generated power available	97% (Electric power generated : 512GWh/year)	<p>(1)Operation and effect indicators a. Quantitative effects 1) Operation and effect indicators</p> <table border="1" data-bbox="1247 1278 2047 1415"> <thead> <tr> <th></th> <th>Definition</th> <th>Target (2012)</th> </tr> </thead> <tbody> <tr> <td>Hydro utilization factor (%)</td> <td>Electric power generated in specified period(kWh)/ generated power available</td> <td>97% ( Electric power generated : 409GWh/year)</td> </tr> </tbody> </table>		Definition	Target (2012)	Hydro utilization factor (%)	Electric power generated in specified period(kWh)/ generated power available	97% ( Electric power generated : 409GWh/year)
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<b>(2)Factors which may influence the effectiveness and impact</b>	(2)Factors which may influence effectiveness and impact a. Environmental impact Sri Lanka’s Ministry of Forestry and Environment requested CEB to prepare a basin environmental management plan to prevent water pollution and soil erosion, and to devise all measures possible for the environmental problems raised in the EIA processing. In response, it was decided that the executing agency would conduct project monitoring using project staff and that the executing agency would present a report to the Environmental Committee.	(2)Factors which may influence effectiveness and impact a. Environmental impact The final project plan is being implemented based on the recommendations for alleviating environmental impact as mentioned in the EIA report. As stated above, from the standpoint of environmental consideration, construction of a facility to intake water from the tributary was abandoned. Due to this, there will be no reduction of water volume of the waterfall, which was an initial environmental impact concern. Furthermore, environmental considerations by the contractors are incorporated into the contract documents as an “Environmental Management Plan.” To manage the progress of the project in an ongoing manner, the Environmental Committee meets every other month at the Ceylon Environmental Authority. The parties concerned share information on the progress condition of the project and																								

		<p>matters of concern in the environmental sector and have a questions and answers session, thereby endeavoring to ensure transparency.</p> <p>The holding of these meetings by the CEA is prescribed by the Extraordinary Gazette Notification No. 1283/19 of April 10, 2003: National Environmental Regulation No.1 of 2003, Upper Kotmale Hydropower Project – Monitoring, and joining the meeting as committee members are staff from the ministries, authorities, bureaus, and local political organizations.</p> <p>In the same Gazette, reference is made to the Watershed Management Plan, and it states that tree planting should be conducted using local species of plantings, under the supervision of the Environment Authority, to prevent landslides, etc. The cost of this is included in the consultant expense, and the plan is to implement planting as part of the consultant services.</p>
	<p>b. Resident relocation</p> <p>CEB is to prepare the Resettlement Action Plan (RAP) (scheduled for completion in March 2002). JBIC's agreement with RAP is a condition for contracting consultants.</p> <p>457 households are to be relocated (SAPROF 2001 statistics). In addition to this, it will be necessary to relocate a small number of households at the water intake point and in the road expansion and construction area.</p> <p>In the ex-ante evaluation, it was confirmed that discussion with residents by the Relocation Committee had been carried out and that agreement had been reached on resident relocation, conditioned on information notifications through an information center, appropriate substitute land, and provision of compensation (relocated residents will be offered nearby residences and incidental facilities for free).</p>	<p>b. Resident relocation</p> <p>1) Resettlement Action Plan</p> <p>Prior to the start of construction, the Resettlement Action Plan was prepared in February 2003. JBIC conducted a review of the plan, and based on JBIC's comments and onsite conditions, a revised version was prepared in January 2005.</p> <p>Currently the Income Enhancement Program is being implemented, and it offers local young people opportunities for job training. In addition, it is planned to use revolving funds after the relocation.</p> <p>Discussion with residents scheduled for relocation is regularly conducted (see below), and various arrangements are made to prevent problems or quickly resolve them.</p> <p>In addition to this, a Grievance Redress Committee, the brainchild of the executing agency, was set up to offer the optimum relief measures.</p> <p>There are 498 households targeted for relocation (485 residential households and 13 residential households combined with commercial enterprises, in 11 communities). The living space offered at the relocation site will exceed the previous living space. (Even households with less than 37m<sup>2</sup> will be compensated with approximately 46m<sup>2</sup> in living space. However, space offered for commercial enterprises will remain approximately the same.)</p> <p>2) Construction of housing at relocation site</p> <p>Discussions with residents to be relocated and other concerned parties are almost completed based on the recommendation of RAP. Land acquisition is also completed, and construction of relocation housing is proceeding (as of February 2007, housing in two locations is nearly complete).</p> <p>Relocation of residents is a premise of much of the overall process, but the executing agency has been keeping its stance of taking into consideration as much as possible</p>

		<p>the intention of the residents, and has had many discussions with residents to make many changes in the design of the relocation housing. For this reason, frequent delays occurred in the overall process, and each time, the schedule was readjusted. The land and housing at the relocation site are larger than the resident's previous land and housing, and it is planned to move the entire community a maximum distance of 1.2 km from the original location.</p>
	<p>c. Social considerations</p>	<p>c. Social considerations  Employment of local residents is being promoted. As of February 23, 2007, there were 864 (71%) local hires out of 1,215 employees in Lot 1, and as of March 1, 2007, there were 946 (66%) local hires out of 1,443 employees in Lot 1. Preparations are underway to start Lot 2 construction (scheduled to start on April 9), and as of March 5, 2007, there were 34 (51%) local hires out of 67 employees in Lot 2. It is desirable to pay attention so that employment opportunities and surplus income in the project area are not limited to specific residents (relocated residents, related parties, and agitators, etc.) Furthermore, there are no striking signs of the phenomenon where other industries are subjected to pressure, for example, massive employment of plantation farm workers.</p>
	<p>d. Water volume secured and weather data</p>	<p>d. Water volume secured and weather data  The main river systems in Sri Lanka are the Mahaweli river system and the Laxapana river system, and the Upper Kotmale River is part of the Mahaweli river system. At the time of the mid-term review, there was no particular problem with the water volume of the Mahaweli river system.  Furthermore, according to the original plan, the catchment area is 397.2km<sup>2</sup>, average inflow volume is 17.82m<sup>3</sup>/s, and maximum water intake volume is 46.7m<sup>3</sup>/s.  Accompanying changes in the plan (2005; see "Efficiency, (1) Output" below, the figures became 310.6km<sup>2</sup>, 13.2m<sup>3</sup>/s, and 36.9m<sup>3</sup>/s, respectively. The basis for these calculations is data on average rainfall from 1981 to 1998 which was confirmed at the time of SAPROF. Since currently no system for regular monitoring of water volume secured has been established, continued collection of rainfall data in the future is necessary.</p>
<p><b>(3)Factors which may influence the sustainability</b></p>	<p>(3) Factors which may influence sustainability</p>	<p>(3) Factors which may influence sustainability  a. Progress in reorganization of electric power sector  Although there is no visible progress in the split up of CEB, a bill to introduce laws and regulations through the creation of an independent regulatory agency is being prepared for approval by the Cabinet. To pass this bill will allow the agency to approve fees. It is anticipated that appropriate fees will be set so that the actual cost of electric power (Rs. 14.0/kWh) can be collected.  b. Financial status of CEB</p>

		<p>Further improvement in management is needed as loss was large (Rs. 15,707 million in 2004; Rs. 6,852 million in 2005) both in 2004 and in 2005.</p> <p>c. Electric power fee system Due to increased supply-side costs stemming from soaring fuel prices, review of the fee system is urgently needed. This is also spurring on the preparation of the bill to establish a regulatory agency, which will play a role in sector reorganization.</p> <p>d. Activities by local residents and politicians Participation by local politicians, etc., in the Environmental Committee in (2) a. above is encouraged, and information on the progress of the project is constantly provided. Since local residents have been incited by politicians before, it is desirable to continue to provide correct information to everyone through all channels, including the Environmental Committee, Residents' Committee, and Housing Committee.</p>																																						
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		Tailrace Tunnel	D=4.3m, L=459m				Tailrace Tunnel	D=4.3m, L=459m	
		Surge Tank	Restricted orifice, D=12m, H=98m				Surge Tank	Restricted orifice, D=12m, H=98m	
		Penstock Tunnel	D=4.3~1.45m, L=792.86m				Penstock Tunnel	D=4.3~1.45m, L=792.86m	
		Underground Power Plant	W=19m, L=50.5m, H=36.5m				Underground Power Plant	W=19m, L=50.5m, H=36.5m	
		Tailrace Tunnel	D=4.3m, L=459m				Tailrace Tunnel	D=4.3m, L=459m	
		Switch Yard					Switch Yard		
		Surge chamber	Restricted orifice, D=8m, H=57.7m, Upper chamber W=4m, H=12m				Surge chamber	D=12m, H=98m	
		Headrace Dam					Headrace Dam		
		Devon diversion tunnel	A=2.2M*2m, L=3,676m				Devon diversion tunnel	<i>Cancelled due to plan change</i>	
		Andrew diversion tunnel:	A=2.2m*2m, L=58m				Andrew diversion tunnel:	<i>Cancelled due to plan change</i>	
	Pundal fall pump (250kW), pile line	D=0/7m, L=500m		Pundal fall pump (250kW), pile line	<i>Cancelled due to plan change</i>				
	Puna diversion:	A=2.2m*2m, L=5,227m		Puna diversion:	<i>Cancelled due to plan change</i>				
	Hydro Power Facilities (Lot3)	Surge Tank			Hydro Power Facilities (Lot3)	Surge Tank			
		Penstock pipe				Penstock pipe			
		Turbines(Vertical axis, Francis, 600rpm,)	77,000 kW *2units			Turbines(Vertical axis, Francis, 600rpm,)	77,000 kW *2units		
	Generators (Lot4)	Generators(Vertical axis, 3-phase, AC synchronous)	88,000 kVA *2units		Generators (Lot4) (planned)	Generators(Vertical axis, 3-phase, AC synchronous)	88,000 kVA *2units		
		Main transformers(13.8/220 kV * 3D * OFWF, indoor)	88,000 kVA*2units			Main transformers (13.8/220 kV * 3D * OFWF, indoor)	88,000 kVA*2units		
		Switch Yard (220 kV double bus bar, 220 kV Gas insulated switchgear (outdoor) )				Switch Yard(220 kV double bus bar, 220 kV Gas insulated switchgear (outdoor) )			
	Relevant Transmission Lines (Lot4)	220kV transmission lines (single Zebra conductor)	2 circuits; Distance: 17.5 km		Relevant Transmission Lines (Lot5) (planned)	220kV transmission lines (single Zebra conductor)	15.2km		
	Consulting Services		Foreign:	Local	Consulting Services		Foreign:	Local	
D/D, T/D, PQ, evaluation		72MM	46MM (38+8)	D/D, T/D, PQ, evaluation		62MM	172MM		



	<table border="1"> <tr> <td data-bbox="595 142 797 240">Project management support</td> <td data-bbox="797 142 1005 240">61MM</td> <td data-bbox="1005 142 1218 240">152MM (110+42)</td> </tr> <tr> <td data-bbox="595 240 797 308">Environmental management</td> <td data-bbox="797 240 1005 308">49MM</td> <td data-bbox="1005 240 1218 308">69MM</td> </tr> <tr> <td data-bbox="595 308 797 375">Construction supervision</td> <td data-bbox="797 308 1005 375">457MM</td> <td data-bbox="1005 308 1218 375">826MM (626+200)</td> </tr> <tr> <td data-bbox="595 375 797 568">Management of CEB Hydro Power Generation Department (Hydro Genco* following split)</td> <td data-bbox="797 375 1005 568">27MM</td> <td data-bbox="1005 375 1218 568">N/A</td> </tr> </table> <p data-bbox="412 580 1218 647">*Name of company dedicated to hydro power generation following split from CEB.</p>	Project management support	61MM	152MM (110+42)	Environmental management	49MM	69MM	Construction supervision	457MM	826MM (626+200)	Management of CEB Hydro Power Generation Department (Hydro Genco* following split)	27MM	N/A	<table border="1"> <tr> <td data-bbox="1429 142 1630 240">Project management support</td> <td data-bbox="1630 142 1839 240">40MM</td> <td data-bbox="1839 142 2101 240">155MM</td> </tr> <tr> <td data-bbox="1429 240 1630 308">Environmental management</td> <td data-bbox="1630 240 1839 308">40MM</td> <td data-bbox="1839 240 2101 308">69MM</td> </tr> <tr> <td data-bbox="1429 308 1630 375">Construction supervision</td> <td data-bbox="1630 308 1839 375">433MM</td> <td data-bbox="1839 308 2101 375">606MM</td> </tr> <tr> <td data-bbox="1429 375 1630 568">Management of CEB Hydro Power Generation Department (Hydro Genco* following split)</td> <td data-bbox="1630 375 1839 568">N/A</td> <td data-bbox="1839 375 2101 568">N/A</td> </tr> </table>	Project management support	40MM	155MM	Environmental management	40MM	69MM	Construction supervision	433MM	606MM	Management of CEB Hydro Power Generation Department (Hydro Genco* following split)	N/A	N/A
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<b>(2) Project period</b>	(2) Project period March 28, 2002 – August 2009 (planned) (7 years, 5 months)	(2) Project period March 28, 2002 – April 2011 (altered) (9 years, 1 month) The reasons for the extension of the project period were that the consultant contract was signed in November 2003 and there were multiple changes in the planned construction site for employee's permanent facilities. Due to this, the project period was extended to 122.5% of the originally planned period.																								
<b>Results of Special Yen Loan Satisfaction Survey</b>	<p data-bbox="412 890 1218 951">(1) Purpose of introduction The significance of the Special Yen loan at the time it was extended is as follows.</p> <p data-bbox="412 986 1218 1078">Sri Lanka was strongly affected by the Asian economic crisis from 1998 to early 1999. For the country's full economic recovery, there was a need for continued support of economic structural reform.</p> <p data-bbox="412 1114 1218 1238">a. This project consisted of a plan for construction of a large-scale hydro power plant. The civil engineering works included many artifices in the construction methods out of consideration for the environment during implementation, and technology from Japan was necessary.</p> <p data-bbox="412 1273 1218 1396">b. Demand for electric power in Sri Lanka thenceforth was expected to grow by 6% to 10% annually, and so construction of power generation facilities was an urgent matter. Development of electric power is essential for development of economic infrastructure; if this project was not actualized, the already-strained electric power</p>	<p data-bbox="1249 890 2101 1046">(1) Purpose of introduction According to the executing agency and the Ministry of Finance and Planning, the reasons for the introduction of the Special Yen Loan and its attractiveness lie in the low interest rate, the longer repayment period, swift project implementation, and the advanced level of Japanese technological capabilities.</p> <p data-bbox="1249 1082 2101 1396">(2) Competition and procurement a. Competition At the time of this field study (February 2007), selection of contractors for Lot 1 and Lot 2 were finished, while P/Q's for Lot 3 and Lot 4 have been done. The number of participating bidders was 4 in Lot 1 and 3 in Lot 2. In Lot 1, 3 out of 4 companies were accepted to bid, and they tendered bids. In Lot 2, all 3 companies were accepted, of which just 2 tendered bids. The executing agency stated that, compared to similar types of projects funded with regular Japanese ODA loans, in this project there were few Japanese contractors that tendered bids, and moreover, the number of bidders tendering bids was further reduced</p>																								

	<p>industry was expected to further deteriorate, and there was concern that smooth implementation of economic restructuring would be hindered.</p> <p>c. It was expected that procurement from Japan, mainly for construction of the headrace dam and water channels, and for materials and equipment of hydro power generation, power generators, etc. would exceed 50% of the total JAPANESE ODA loan amount overall, and so the opportunity for Japanese companies to participate was extremely large. (source: JBIC materials)</p>	<p>by the trend toward forming joint ventures, and so competition was limited. (On the other hand, the executing agency states that the successful bid price stayed at the same level as regular infrastructure projects.) The Ministry of Financial Planning was concerned because it had the impression that the limited number of bid tenders hampered free and proper competition. The consultant's view was that there had been a movement among the Japanese companies to restrain each other, and so the number of bids was small.</p> <p>On the other hand, from the contractor's point of view, the stipulation of tied procurement itself is not supportive of competition. The number of truly competitive bidders is in fact limited due to the technological capability, organizational ability, and funding capability even if there are many bidding companies. Even if more than 10 companies tender bids, the competition is actually among two or three companies. It is also pointed out that, in the case of tied procurement, there is a merit to exclude dumping contractors from other countries since bidders are restricted to Japanese corporations, in addition to the regular PQ.</p> <p>b. Procurement</p> <p>The executing agency pointed out that there are cases where highly competitive cost estimates and optimal supply sources cannot be selected because of the strict regulations governing countries of origin for materials and says that it is desirable to relax conditions on country of origin ratio, etc. The Ministry of Financial Planning's view is that it is difficult to apply the country-of-origin rule not only in this project but in all large-scale infrastructure projects. The reason is that, since the overall procurement volume is large and a broad range of items is procured in the case of large-scale infrastructure projects, when the country-of-origin rule is applied, coordination of procurement within and among lots becomes complex and requires time, meeting cost goals is difficult because it increases the number of Japanese products, which are higher in cost, and participation only by Japanese bidders is a precondition, even if their numbers are few. The consultant stated that it is desirable to abolish the country-of-origin rule.<sup>1</sup> It was pointed out that, in recent years, there have been many cases of Japanese contractors working outside of Japan, and when production of products is limited to Japan, they reverse-export overseas products, which adds on intermediary time and expense. Moreover, it was stated that while there is no difference in products and quality manufactured overseas by Japanese companies, it cannot be denied that there is a possibility of inviting higher costs and budget overruns by limiting procurement sources of products and materials to Japanese procurement.</p>
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<sup>1</sup> In Special Yen loans, a procurement condition is that less than 50% of the Japanese ODA loan funds may be used to procure goods and services originating in countries other than Japan.

		<p>Furthermore, the percentage of Japanese products procured for this project is; Lot 1: 10%, Lot 2: 50%, Lots 3 thru 5: 80% (planned).</p> <p>(3) Local Contractors  In the Special Yen loan system, the primary subcontracting is tied to the two countries involved. The executing agency points out that, because primary subcontracting contracts are tied to the two countries, it is forced to select local contractors who have no experience in Japanese ODA projects. There would be no problem in Lot 1 because the contractors are engaged in essentially local construction, but in Lot 2, there would be a concern that local contractors do not have technological capabilities because they have few technological workers to implement Lot 2. Moreover, the consultant states that in Lot 3 and Lot 4 there are likely to be services that will be unprocureable except from third countries.</p> <p>(4) Cost  Both the consultant and the contractors point out the high cost of equipment, materials, and products under the Special Yen Loan procurement conditions, as stated in (2)b above.  On the other hand, the Ministry of Financial Planning does not consider the higher cost to be due to the Special Yen loan (because it is tied to Japanese companies), but rather its opinion is that “using not only Japanese contractors but any foreign contractors costs more than using local contractors to perform the same level of work.”</p> <p>a. Lot 1 (preparatory construction)  When the L/A was approved, the estimate for Lot 1 was 4,300 million yen (foreign currency: 297 million yen, local currency: 2,770 million yen). The actual contract approved amount was 4,341 million yen (foreign currency: 699 million yen, local currency: 3,572 million yen). In the percentage of the budget approved by the government, the foreign currency amount more than doubled. This was largely due to the unavoidable change from LCB to ICB, but it is difficult to make a simple cost comparison.</p> <p>b. Lot 2  When the L/A was entered, the estimate for Lot 2 was 15,785 million yen, and the actual contract approved amount was 11,888 million yen. Looking at the breakdown, the local currency amount increased over the original assumption (2,577 million rupees to 4,120 million rupees), but the foreign currency amount significantly decreased (12,035 million yen to 7,318 million yen). The totals of both the bid price</p>
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		<p>and the contract price were below the consultant's estimate (of 13,796 million yen.</p> <p>(6) Evaluation of contractors by executing agency When requested to evaluate the performance of the contractors, the executing agency responded as follows.</p> <table border="1" data-bbox="1249 304 2045 635"> <thead> <tr> <th></th> <th>Lot 1</th> <th>Lot 2</th> </tr> </thead> <tbody> <tr> <td>1) Technological capability, implementation capability, O&amp;M capability</td> <td>Slightly dissatisfied</td> <td>Satisfied</td> </tr> <tr> <td>2) Adherence to schedule</td> <td>Slightly dissatisfied</td> <td>Satisfied</td> </tr> <tr> <td>3) Quality level of construction</td> <td>Satisfied</td> <td>Satisfied</td> </tr> <tr> <td>4) Project management</td> <td>Somewhat satisfied</td> <td>Satisfied</td> </tr> <tr> <td>5) Quality of results</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>6) Technology transfer</td> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table> <p>One of the reasons for the ratings of "Slightly dissatisfied" in Lot 1 was that selection and management of secondary subcontractors were not thoroughly done, which have affected to the management of the work schedule.</p>		Lot 1	Lot 2	1) Technological capability, implementation capability, O&M capability	Slightly dissatisfied	Satisfied	2) Adherence to schedule	Slightly dissatisfied	Satisfied	3) Quality level of construction	Satisfied	Satisfied	4) Project management	Somewhat satisfied	Satisfied	5) Quality of results	N/A	N/A	6) Technology transfer	N/A	N/A
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<p><b>Lessons Learned and Recommendations</b></p>	<p>Lessons learned</p> <p>a. Social considerations</p> <ul style="list-style-type: none"> <li>· This project is being conducted in a region that requires very much careful attention and policies even by the domestic administration in terms of its complex topography, culture, and religion, etc. There was a variety of interference in this large-scale infrastructure project in this region prior to its implementation (as well as during the project implementation), including a protest movement by persons concerned about the impact on the environment and heavy intervention by local politicians. In such case, it is important to conduct a survey of current conditions over a long term, to conduct a meticulous study beforehand of measures for existing problems and potential problems, etc., and to prepare a tailor-made action plan.</li> <li>· To prepare a revised RAP, a social development consultant was hired who has abundant relevant experience and has coped with many issues in resident relocation. In the revised RAP, reflecting experience gained in the project theretofore, well-planned, comprehensive measures were proposed, including job training for residents and preparation of a revolving fund for resident relocation, and these measures were put into practice. The posture of CEB, which has constantly and diligently devised measures for improvement during the project implementation, is a model of successful social consideration. It will be instructive to quote the revised RAP as important reference material when implementing other large-scale infrastructure projects. It is desirable to widely share the experience of the social development consultant and the executing agency, including the project director.</li> <li>· It would have been desirable for the borrower and the executing agency to recognize the large expense involved in the measures for residents and to take adequate budgetary measures in advance.</li> </ul> <p>b. Environmental considerations</p> <ul style="list-style-type: none"> <li>· It is worthwhile to mention that a Gazette was approved for periodically holding committee meetings including persons in the environmental field so that it could formally create a venue for reporting of the progress of the construction.</li> </ul>
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	<p>· There is a protest movement by citizens groups and politicians concerned about the project’s environmental impact as well as newspaper reports on such impact, and it is indispensable for project management to maintain its stance of diligently communicating to constantly keep people informed of the current conditions. It is desirable for this experience to be widely shared with future projects.</p> <p>c. Quick alteration of operation and effect indicators due to changes in output</p> <p>· The relationship between the executing agency and the consultant is extremely good, and it is based on mutual efforts to make concessions and firm trust in each other’s technological capabilities. Since this is a Special Yen loan, bids on all lots were tendered by Japanese contractors, but the consultant swiftly conducted a cost estimate, calculated the operation and effect indicators, and confirmed the details with the executing agency. It is desirable to share with future projects the flexibility as the occasion demanded and the realistic stance in the face of changing conditions consisting of changes in the output accompanying downward revision of the plan due to environmental considerations.</p> <p>d. Special Yen loan</p> <p>· The cost estimate used as the basis for the L/A signing was based on the assumption of a regular Japanese ODA loan at the time of the ex-ante evaluation. It was switched to a Special Yen loan without changing the basis of the estimate. It would have been desirable to have an appropriate review at the stage of the L/A signing.</p> <p>· Due to differences among countries in practices and customs concerning procurement, the strict rule of country-of-origin ratio led to an increase in the contractor’s burden. There were time restrictions in the project schedule that made it difficult to respond individually to each problem, such as those with import customs tax, etc., and the issues were too large for one contractor to handle. It is desirable for JBIC to take care to collect similar examples from each output and to request action from the Sri Lankan government.</p> <p>· While the merits for the Sri Lankan government included the low interest rate, long-term financing, swift implementation, and introduction of advanced technological capability, procurement sources as sub-contractors are limited for Japanese prime contractors, and it is desirable to devise measures so that the principle of competition functions properly.</p> <p>Recommendations</p> <p>· It is desirable to periodically implement follow-up studies on the improvements in the living environment of relocated residents following the completion of the project. Through this, not only will “good practices” in the project’s resident relocation be put in written form, but the resident relocation will have ongoing value as a model of successful social measures and is likely to greatly contribute to project formation in the future.</p> <p>· From the standpoint of securing adequate water volume, it is necessary to continually collect and monitor rainfall data.</p>	
<p><b>Indicators set for use at time of ex-post evaluation</b></p>	<p>Same as operation and effect indicators shown above.</p>	<p>(1) Operation and effect indicators The operation and effect indicators were set at the time of the ex-ante evaluation. Due to downward revision of the project scale, there were changes in the target levels (as stated above). There is no reference to FIRR in the revised project planning documents, etc., but it is necessary to recalculate FIRR at the time of the ex-post evaluation.</p> <p>(2) Executing agency’s evaluation system (measurement of indicator levels, etc.)</p> <p>· It is planned to assign experienced monitoring staff to the Upper Kotmale Hydro Power Plant and the CEB Power Generation Bureau, and budgetary measures are being studied.</p>

		<ul style="list-style-type: none"><li>· With regard to the condition of power plants and transmission and distribution lines supervised by CEB, the System Control Center, an accessory of CEB located in Colombo, manages the supply volume on an hourly basis by conducting monitoring of power generation amount and high-voltage electricity production and also adjusting the output among power plants.</li><li>· Furthermore, approximately 20 years have elapsed since the System Control Center was established, and it is becoming aged. Only 1/3 of the overall monitoring is conducted online, and the remainder of the data input and renewal is conducted by telephone. The CEB staff pays close attention to fully use their technological capabilities, but human error is unavoidable and so improvement of the facilities is desirable.</li></ul>
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