

Summary of Terminal Evaluation

I. Outline of the Project	
Country : Sri Lanka	Project title : Project of Promoting Energy Efficiency Improvement in Sri Lanka
Issue/Sector : Energy	Cooperation scheme : Technical Cooperation Project
Division in charge : JICA Sri Lanka Office	Total cost (as of January 28, 2011) : 347,287 Thousand JPY
Period of Cooperation	(R/D): Feb. 11th, 2008 3 years (from May 1 st , 2008 to May 30 th , 2011)
	Partner Country's Implementing Organization : Sri Lanka Sustainable Energy Authority (SLSEA) Supporting Organization in Japan : J-Power
Related Cooperation : Not available	
1. Background of the Project	
<p>Sri Lanka depends on 62% of its electricity generation on imported oil¹. Therefore, electricity prices are much higher than those of neighbouring countries; thus hinder the competitiveness of export industries among the Asian countries. Due to the limitation of generation expansion, it is believed that there is a risk for the country to face serious power shortage in the near future. Therefore, promotion of energy efficiency and conservation (hereinafter referred to as EE&C) is an urgent task for the country to continue economic growth in the future. In September 2007, Sri Lanka Sustainable Energy Authority Act became effective and SLSEA was established as an institution to regulate and promote EE&C.</p> <p>Under these circumstances, the Government of Sri Lanka requested a project on EE&C to the Government of Japan. The proposal was accepted by JICA and the Project was commenced in May 2008 for the period of three years.</p>	
2. Project Overview	
(1) Overall Goal : To achieve high efficiency in energy consumption.	
(2) Project Purpose	
Infrastructure necessary for materializing energy efficiency activities in the country is enhanced.	
(3) Outputs	
Output 1:	Necessary resources (rules and regulations, human resources, equipment and materials) for implementing SLSEA Act are prepared.
Output 2:	Incentive/disincentive mechanism for promoting energy efficiency is repaired.
Output 3:	Mass consciousness is created among general public, private and public sectors on energy efficiency improvement.
(4) Inputs	
Japanese side :	
JICA Experts:	13 persons
Equipment :	32.7 million JP yen
Trainees received :	26 persons
Local cost:	40.2 million JP yen ²
Sri Lankan side :	
Counterpart personnel:	15 persons
Local Cost :	SL Rs.156,828,750 ³
Land and Facilities :	An office room for JICA Expert Team
II. Evaluation Team	
Members of Evaluation Team	
Mr. Takuya Otsuka	Senior Representative, JICA Sri Lanka Office
Mr. Gen Hashimoto	Representative, JICA Sri Lanka Office
Dr. Priyantha Serasinghe	Project Specialist, JICA Sri Lanka Office
Ms. Tomoko Tamura	Kaihatsu Management Consulting Inc.

¹ Sri Lanka Energy Balance, 2007

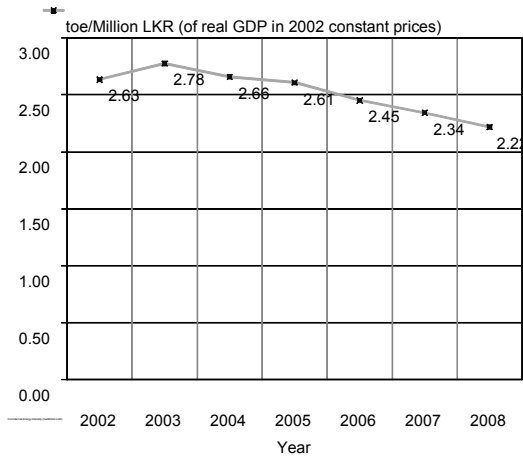
² As of the end of December 2010.

³ Budget of the Energy Management Division of SLSEA for the years 2008, 2009 and 2010.

Period of Evaluation	From 12.01.2011 to 28.01.2011	Type of Evaluation : Terminal
III. Results of Evaluation		
1. Summary of Evaluation Results		
(1) Relevance – Very High		
<p>The Project Purpose is consistent with development policies of Sri Lanka “Mahinda Chintana (2006-2016)”, which prioritizes EE&C. Japanese ODA Country Policy and Country Strategy of JICA for Sri Lanka highlighted an importance to assist power sector, including EE&C.</p> <p>In order to attain further economic development, it is an urgent task for the country to realize a socio-economic structure of high energy intensity by promoting EE&C programme, as the country is highly depends on petroleum for its energy source. Therefore, there are urgency and needs for the Project. JICA and JICA has superiority in assisting EE&C, because most of the proposed legislations under the Project were already established in Japan under the Rationalization in Energy Use Law and JICA has implemented EE&C projects in various countries and is enable to use its accumulated knowledge and experience in the Project.</p>		
(2) Effectiveness - Moderate		
<p>The counterpart officers of SLSEA have (i) gained necessary skills and know-how to implement the proposed EE&C legislations and to utilize the instrument introduced by the Project, (ii) successfully implemented several pilot projects which will pave the way for full-scale introduction of the incentive/disincentive scheme and (iii) remarkably improved the quality and quantity of the awareness creation programme. In this manner, the Project has been created an expected level of effect especially in terms of technical transfer.</p> <p>However, it is likely to take some mote time for SLSEA to achieve the Project Purpose completely, due to the delay in the enforcement of the proposed regulation and the finance schemes, although the delay was caused as a result of the careful and prudent decisions of Ministry of Power and Energy (MoPE) and Department of External Resources in order to implement the proposals more successfully.</p>		
(3) Efficiency - Moderate		
<p>All the planned input from Japanese side has been made on time and as scheduled. Input from Sri Lankan side has been made adequately, although it is regretful that the vacancies in the important positions in SLSEA have not filled. With the limited number of human resources, SLSEA counterpart officers created the expected Outputs to the maximum level with the support of the JICA Expert Team. However, at this moment, several activities are still on the way to create the expected outputs.</p> <p>With regard to Output 1, the necessary technical transfer for implementation of the proposed EE&C legislation has been almost completed and SLSEA is ready for the operation of the scheme. Labeling scheme for compact fluorescent lamps (CFL), expansion of the instrument bank and IT infrastructure were implemented as planned. With regard to Output 2, there are several actions taken for improvement of the financial schemes and potential projects are being ready for finance, however, improvement of the finance schemes has not been realized yet due to the various reasons. It is positive that the pilot projects on CFL distribution and replacement of the water pumps of National Water Supply and Drainage Board have been implemented successfully. The level of creation of Output 3 was more than expected. The methodology of awareness creation programme was also improved to be more effective and sustainable.</p>		
(4) Impact – High (Forecast)		
<p>There is a prospect that the Project would contribute to achieve the Overall Goal. The Project also created extra outputs with regard to CDM (clean development mechanism). The following figures show the recent status with regard to the two indicators for the Overall Goal.</p> <p>(i) Commercial energy intensity is reduced below 1.8 tow/Million Rs. by 2017</p> <p>Commercial energy intensity is a standard measure of efficient use of commercial energy in a country. The Figure 1 shows a steady reduction of the intensity, which confirms the effect of the present EE&C activities and a good prospect that the intensity will become below 1.8 tow/Million Rs. by 2017.</p>		

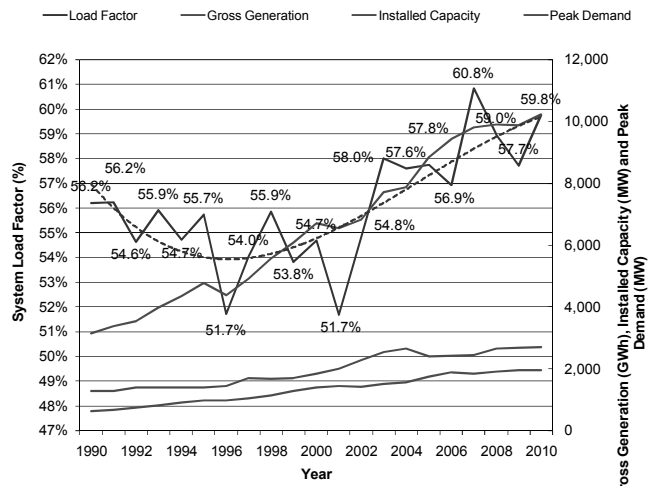
(ii) Electricity load factor is increased annually by 1%.

Load factor is a measure of optimal use of power system resources by the electricity consumers⁴. Figure 2 shows the general tendency of increase, although the recent increment rate is slightly less than the annual target figure of 1%.



Note: The figure of 2008 is provisional
(Source: Draft Baseline Survey Report of the Project, January 2011)

Figure 1: Commercial Energy Intensity



Note: The figure of 2010 is provisional
(Source: Draft Baseline Survey Report of the Project, January 2011)

Figure 2: Electricity Load Factor

Contribution to the preparatory work for formulation of a programmatic CDM and establishment of a common base for the “grid emission factor” in the country, which is important in formulating CDM programme in the country, are extra outputs created by the Project. The latter is handed over to the Technical Cooperation Project of JICA named “The Project for Capacity Development of CDM Promotion in Sri Lanka”.

The methodology for awareness creation has a potential to be utilized in the similar technical cooperation projects of JICA in other countries. For example, the way to plan and conduct national EE&C award as well as the follow-up for the award winners, the way to hold the EE&C exhibition with private and public partnership and campaigns conducted at the time of introduction of CFL labeling scheme could be model to others.

(5) Sustainability : High

(a) Policy and institutional support

Commitment and support of the senior officials of MoPE and SLSEA is a positive factor to maintain effects of the project even after the Project period. SLSEA has an adequate regulatory powers to maintain the introduced and proposed schemes as well as to facilitate implementation of the 10-year plan.

(b) Organizational aspect

As mentioned earlier, there are several vacancies for the approved cadre of the Energy Management Division of SLSEA. Especially, the vacancies of the Deputy Director General and the Senior Specialist could be a shortcoming for the sustainability of the effect of the Project. The absence of “head- monitoring and vilification” will be a serious concern when all the proposed schemes are enforced.

(c) Financial aspect

The annual budget for recurrent cost for the Energy Efficient Division of SLSEA would be sufficient for the time being to cover administration cost to maintain and expand systems and schemes introduced by the

⁴ Larger the load factor, better the system usage resulting in lower electricity supply costs. Sri Lanka has a low system load factor, largely due to the dominant domestic lighting demand and the lack of base load industries. Therefore, Demand Side Management is an immediate remedial action in improving load factor.

Project. There would be no particular issue with regard to the finance of the division, unless there would be a drastic reduction of the allocation. It is a positive sign for financial sustainability that SLSEA is raising fund by the renting fee of the instrument bank and finding sponsorships for exhibition. Introduction of an improved financial scheme is urgently needed to sustain the effect of the Project.

(d) Technological aspect

SLSEA officers have gained most of the necessary know-how to promote EE&C up to the planned level and their technical level is satisfactory. All the instruments were purchased with careful consideration of the appropriate quality standard as well as the convenience of maintenance. Therefore, SLSEA officers are capable of maintain and operate the instrument in the future, too. Technical capacities of partner organizations, such as SLEMA and local consultant companies on EE&C and IT are also satisfactory. However, in the future, too, periodical update of the technical and knowledge level of the SLSEA officers and staff of the partner organizations will be needed because EE&C is the constantly advancing subject.

(e) Others

It is important to analyze and utilize the result of the pilot projects for CFL promotion and pump replacement of National Water Supply and Drainage Board. It is also important to make sure the implementation of the monitoring and verification of the newly introduced schemes, such as labelling and reporting as well as impact assessment of the level of EE&C promotion continuously.

2. Factors that promoted realization of effects

(1) Factors concerning to Planning

It was successful to have the three components, resource preparation, incentive/ disincentive scheme and awareness creation in the Project. These three were indispensable and need to be developed in parallel for promotion of EE&C in a country like Sri Lanka, where its government started full-fledged initiatives of EE&C.

(2) Factors concerning to the Implementation Process

- (a) Sincere support and close monitoring of the MoPE, keen interest and commitment of the SLSEA counterpart officers and rich experience of the JICA Expert Team contributed remarkably to the implementation of the Project.
- (b) Effective implementation of the Training in Japan, including timing, selection of the participants, training programme and coordination, enhanced the efficiency of the technical transfer.
- (c) Close cooperation of the partner organizations, such as SLSI (Sri Lanka Standard Institution), CEB (Ceylon Electricity Board), LECO (Lanka Electricity Company), SLEMA (Sri Lanka Energy Managers' Association), ESCO (Energy Services Company) and Moratuwa University, facilitated significantly to produce the planned Outputs.

3. Factors that impeded realization of effects

(1) Factors concerning to Planning: Not available.

(2) Factors concerning to the Implementation Process

As mentioned earlier, vacancies of the key staff of the Energy Management Division of SLSEA gave negative influence to the timely implementation of the planned activities, although the staff in office worked hard to compensate it.

4. Conclusion

EE&C is promoted effectively, only when the three components of the Project, resource preparation, introduction of incentive/ disincentive scheme and awareness creation are implemented effectively in parallel. For example, even the proposed legislation on mandatory energy reporting, management and audit will be enforced, the industries cannot react positively if an attractive finance schemes is not available. Labeling schemes will not function if manufactures, importers and consumers do not have proper awareness. Therefore, early enforcement of the proposed regulation and introduction of an appropriate finance scheme are very much important to promote EE&C.

While appreciating commitment and keen effort the staff of SLSEA, JICA Expert Team and other stakeholders of the Project made so far, the Terminal Evaluation Team expects some more actions to be taken to produce more successful result, by taking due considerations of the Recommendations stated hereinafter.

5. Recommendations

Immediate actions are requested to:

- (1) Early enforcement of the regulation on mandatory energy reporting, accreditation of energy managers and energy auditors by scrutinizing the legal compliance and obtaining a cabinet approval as soon as possible.
- (2) Fill the post of the "Deputy Director General – Strategy", "Head – monitoring and verification" and "Senior Specialist" for the Energy Management Division of SLSEA. Especially the position of the Senior Specialist, who is in-charge of development of IT infrastructure, should be filled well before the JICA Expert Team leaves Sri Lanka in April 2011, so that they can transfer their know-how to the Specialist.
- (3) Share the results of the pilot projects on CFL promotion and pump replacement of NWSDB among the stakeholders and reach consensus about the future actions to be taken.
- (4) Develop an improved financial scheme for EE&C as soon as possible while enhancing the capacity of the Project Management Unit of SLSEA by implementing the followings:
 - (a) Adding experience in fund management and project implementation by facilitating at least 10 showcase projects in 2011.
 - (b) Positively consider adding a staff to the Project Management Unit, who has expertise on loan operations.

Continuous actions are important to:

- (5) Make sure to implement monitoring and verification of the newly introduced schemes, such as labeling and energy consumption reporting.
- (6) Conduct impact assessment of EE&C promotion annually.
- (7) Review the 10 year EE&C plan periodically in a form of rolling plan system while formulating middle-term financial plan under the supervision of the MoPE.

6. Lessons Learned:

Enforcement of the new legislations on EE&C was a prerequisite to realize the Outcomes of the Project. In this regard, the JICA Expert Team mainly concentrated on technical transfer to the counterpart officers in preparation and operation of the legislation. The technical transfer has been conducted successfully; however, with regard to the process of enforcement of the legislation, the JICA Expert Team has not play significant role but only checked the progress of the procedure, especially after the draft document of the legislation was submitted to the Ministry from SLSEA. In a project like this, of which Outcomes are subject to the enforcement of legislations, it is advisable for the JICA Expert Team to conduct not only technical transfer in preparation and operation of the legislation, but also to support the whole procedure of the enforcement of the legislation, in ways to persuade industrial sector, participate in perusal and modification of the draft document of legislation, convince higher authorities in the Ministry and others. Furthermore, JICA needs to monitor such a project including the support to the enforcement of the legislation.

7. Follow-up Situation

It is necessary to follow-up the above-mentioned recommendations and progress with regard to the indicators for the Project Purpose and Overall Goal of the Project.