

Country Name	<b>The Project for Construction of a Dredger</b>
Democratic Socialist Republic of Sri Lanka	

**I. Project Outline**

Background	In Sri Lanka, 18 fishery harbors were in operation and two more harbors were to be added shortly at the time of ex-ante evaluation (2012). Since almost all fishery harbors in Sri Lanka were located in such places as either directly faced to the outer ocean or in lagoons, under monsoon climate, severe siltation had occurred (the annual sedimentation was estimated as about 173,000m <sup>3</sup> ), which made the water depth of navigation channels and harbor basins shallow and disturbed the safety navigation of fishing boats. Ceylon Fishery Harbours Cooperation (CFHC) had undertaken to dredge the sedimentation with four dredgers including one grab hopper dredger which was supplied in 1989 as Japan's Grant Aid and three cutter suction dredgers with the annual total dredging capability of about 95,000m <sup>3</sup> , which was insufficient by about 78,000m <sup>3</sup> against the sedimentation mentioned above. Moreover, the grab hopper dredger above was so old that repair and maintenance works had been increasing year by year.			
Objectives of the Project	To enable dredging appropriate amount of silt and prevent accidents due to the sedimentation in fishery harbors in Sri Lanka by constructing a self-propelled grab hopper dredger, thereby contributing to the promotion of productivity and profitability of fishery activities in the country.			
Contents of the Project	<ol style="list-style-type: none"> <li>1. Project Site: 21 fishery harbors in Sri Lanka<sup>1</sup></li> <li>2. Japanese side: Provision of grant necessary for construction of a self-propelled grab hopper dredger</li> <li>3. Sri Lankan side: Obtaining the provisional nationality certificate and necessary documents for the transportation of the new dredger from Japan to Sri Lanka, performing the custom clearance, tax and port charges exemption and registration of the new dredger, providing appropriate berthing/ mooring space for the new dredger, and carrying out the domestic transportation of the new dredger from the hand over point to the designated birthing / mooring area, etc.</li> </ol>			
Project Period	E/N Date	March 18, 2013	Completion Date	October 22, 2014 (Completion of handing over of the dredger in Sri Lanka)
	G/A Date	March 18, 2013		
Project Cost	E/N Grant Limit / G/A Grant Limit: 988 million yen, Actual Grant Amount: 802 million yen			
Executing Agency	Ceylon Fishery Harbours Cooperation (CFHC) under the Ministry of Fisheries & Aquatic Resources Development and Rural Economic Affairs (MOFARDARE)			
Contracted Agencies	Main Contractor: KEGOYA DOCK co., Ltd. Main Consultant: Shipbuilding Research Center of Japan			

**II. Result of the Evaluation**

## &lt;Constraints on Evaluation&gt;

- While Indicator 2 is stated as “(prevention of) annual number of accidents due to the sedimentation in the fishery harbors area” in the ex-ante evaluation sheet and the preparatory survey report, it was found out that the baseline figure stated in the table for the indicator was actually “annual number of accidents of fishing boats” (not limited to accidents due to the sedimentation, nor in the fishery harbors area). Thus, in the ex-post evaluation, Indicator 2 was revised as “annual number of accidents of fishing boats”. Then, as the original Indicator 2 cannot be verified quantitatively, “whether the number of accidents caused due to the sedimentation in fishery harbor areas has decreased after the project completion” was checked qualitatively.

## &lt;Special Perspectives Considered in the Ex-Post Evaluation&gt;

- [Indicator 1-2 for Evaluating Quantitative Effects] While Indicator 1 is stated as “(increasing) annual maintenance dredging volume conducted by dredgers owned by CFHC” in the ex-ante evaluation sheet, this includes dredging volume conducted by dredgers other than the one constructed under the project. Thus, in order to clarify the contribution of this project to achievement of the indicator, Indicator 1-2 (“of which, annual maintenance dredging volume conducted by the dredger constructed under the project”) is added.
- [Supplemental Information for Evaluating Impact] Indicators for evaluating impact of this project (contributing to the promotion of productivity and profitability of fishery activities in the country) are not stated in the ex-ante evaluation sheet. Thus, “the volume of fish catches” is used as supplemental information to assess impact of the project.
- [Target Year for Evaluation] In the ex-ante evaluation sheet, it is stated that the target year for evaluation is 2018, which is three years after project completion (The project was planned to be completed in January 2015). However, this project was completed in October 2014 and three years after project completion is October 2017. Thus, in the ex-post evaluation, the target year was changed to 2017.

**1 Relevance**

## &lt;Consistency with the Development Policy of Sri Lanka at the Time of Ex-Ante and Ex-Post Evaluation&gt;

The project has been consistent with Sri Lanka's development policies such as “maintenance of fishery harbors” as set forth in “Mahinda Chintana (2007-2016)” (Vision of New Sri Lanka), “Ten Years Development Policy Framework of the Fisheries and Aquatic Resources Sector (2007-2016)” and “the draft National Fisheries and Aquaculture Policy (2017)” (to be approved by the parliament).

## &lt;Consistency with the Development Needs of Sri Lanka at the Time of Ex-Ante and Ex-Post Evaluation&gt;

The project has been consistent with Sri Lanka's development needs for appropriate maintenance dredging in fishery harbors through construction of a new dredger at the times of both ex-ante and ex-post evaluations.

## &lt;Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation&gt;

The project was consistent with Japan's ODA policy as stated in the Country Assistance Policy for Sri Lanka (2012) (which included

<sup>1</sup> The maintenance dredging sites of the dredger to be constructed under the project were planned to be 20 fishery harbors in total, while actual maintenance dredging sites of the dredger constructed under the project at the time of ex-post evaluation are 21 fishery harbors in total.

assistance for fishing areas such as coastal areas).

<Evaluation Result>

In light of the above, the relevance of the project is high.

## 2 Effectiveness/Impact

<Effectiveness>

The project has partially achieved its objectives. CFHC owns five dredgers in total including the one constructed under the project (called “Sayuru”) at the time of ex-post evaluation<sup>2</sup>. Two out of these five dredgers are very old and require repair works frequently, and frequent unavailability of these two dredgers and bad weather and sea conditions resulted in the targeted annual dredging volume having not been achieved (Indicator 1-1). As for Sayuru, it has not been fully utilized and the targeted annual dredging volume was not achieved in 2015 and 2017 while it was achieved in 2016, as bad weather and sea conditions negatively affected its operation in these years (Indicator 1-2). On the other hand, actual number of accidents per fishing boat has been much fewer than the target (Indicator 2). According to the Department of Fisheries and Aquatic Resources in the Ministry of Fisheries & Aquatic Resources Development and Rural Economic Affairs (MOFARDARE), accidents due to sedimentation in fisheries harbors have rarely been observed and reported during the past few years, though reasons for the decrease of accidents are unclear. Nonetheless, the fact that CFHC has continuously made efforts to remove sedimentation utilizing dredgers, excavators and other machineries is considered to have contributed to the decrease to a certain extent.

<Impact>

Regarding the volume of fish catches in the originally targeted 20 fishery harbors, it has increased by approximately ten percent against the baseline since project completion. While it is difficult to explain the causal relationship of the increase and the project, as there are many factors that affect fish productivity such as weather, sea waves, number of fishermen, number of fishing boats in operation and the volume of siltation, according to CFHC and MOFARDARE, safety and mobility of fishing boats have been ensured since project completion owing to Sayuru, particularly under the situation that two out of five dredgers are frequently unavailable. Therefore, the project is considered to have contributed to the increased fish productivity at least to some extent.

Regarding other impact, no negative impact on natural environment has been observed and no land acquisition and resettlement has been occurred under the project.

<Evaluation Result>

As the effect of the project has been observed partially as planned, the effectiveness/impact of the project is fair.

### Quantitative Effects

Indicators	Baseline 2011	Target 2017 3 Years after Completion	Actual 2015 1 Year after Completion	Actual 2016 2 Years after Completion	Actual 2017 3 Years after Completion
Indicator 1-1: Annual maintenance dredging volume conducted by dredgers owned by CFHC in all fishery harbors under administration of CFHC (m <sup>3</sup> /year) (21 harbors in total)	88,500	173,000	102,130 (59%)	138,030 (80%)	77,370 (45%)
Indicator 1-2: Of which, annual maintenance dredging volume conducted by the dredger constructed under the project (m <sup>3</sup> /year)	-	78,000	26,150 (34%)	91,180 (117%)	22,650 (29%)
Indicator 2: Annual number of accidents per fishing boat	0.03	Not over 0.03	0.003	0.018	0.0018
(For reference) Annual number of accidents of fishing boats	144	-	16	96	10
(For reference) The number of registered fishing boats	4,280	-	5,059	5,282	5,502

Note: Percentages in brackets show achievement rates against targets.

Source: Ex-Ante Evaluation Sheet, Preparatory Survey Report, Questionnaire survey to Statistics Unit and Department of Fisheries and Aquatic Resources, MOFARDARE

### Expected Impact

[Volume of fish catches in the originally targeted 20 fishery harbors]

	Baseline 2011	Actual result 2015	Actual result 2016	Actual result 2017
Volume of fish catches (ton)	338,900	380,370 (12%)	381,520 (13%)	366,285 (8%)

Note: Percentages in brackets show increase rates against the baseline.

Source: Preparatory Survey Report, Fisheries Statistics 2016, Questionnaire survey to Statistics Unit, MOFARDARE

## 3 Efficiency

The outputs of the project were produced mostly as planned<sup>3</sup>. Both the project cost and the project period were within the plan (ratio against plan: 81%, 91%, respectively). Therefore, the efficiency of the project is high.

<sup>2</sup> CFHC owned a grab hopper dredger and three cutter suction dredgers before project implementation, and a grab hopper dredger was added under the project.

<sup>3</sup> Registration of Sayuru has not been undertaken, because CFHC must obtain full insurance in order to register the dredger, however, the captain of Sayuru does not have a license required by insurance companies (all the CFHC captains have only the basic license), and there is no institution in Sri Lanka which can issue such license. The license must be obtained from recognized institutions in developed countries such as Japan and the United Kingdom, however, the cost is beyond CFHC's budget. Nonetheless, this has not affected its operation within the Sri Lankan coastal belt.

#### 4 Sustainability

##### <Institutional Aspect>

The operation and maintenance (O&M) of Sayuru are undertaken in the engineering service division of CFHC. The daily O&M is carried out by the crews of Sayuru, and the number of the crews is 18 including the captain, a marine engineer, a chief officer, seamen, workers, welders, divers and cook. In addition, an experienced consultant/advisor is hired by CFHC to support the engineering service division and crew members of all five dredgers on inspection and repair works. According to CFHC, these numbers of staff/crews are sufficient to properly conduct O&M.

##### <Technical Aspect>

18 crews mentioned above were recruited following CFHC policies and procedures to ensure necessary experience and educational background of the crews, and four pre-existing engineers from the engineering service division closely work with them for inspection and repair works. According to CFHC, the skill level of staff/crews is sufficient to properly conduct O&M, as they have been able to smoothly operate and quickly repair Sayuru when needed. Currently, knowledge and skills development of staff is conducted informally in the form of on-the-job-training (OJT) at workplaces. CFHC recognizes that a formal training system should be established within their organization, and is currently preparing to establish one for their staff to learn about the latest O&M and repair techniques to meet the future demands and enable full skills transfer to younger staff.

##### <Financial Aspect>

Approximately 20 million LKR has been spent annually as O&M cost of Sayuru, including fuel, cable compound, lubricants, wages and salaries, and victuals etc. CFHC has three major income sources, which are annual budget allocation from MOFARDARE (approximately 435 to 470 million LKR annually), income from harbor operations (approximately 370 to 450 million LKR annually) and other income sources (approximately 85 to 110 million LKR annually), and CFHC's income has been in increasing trend recently. According to the finance division of CFHC, it has sufficient budget to cover O&M cost of equipment and machineries in CFHC including Sayuru, and in case CFHC needs more funds for major repairs, it submits a request of necessary budget allocation to MOFARDARE (, which has been approved by MOFARDARE in the past years).

##### <Current Status of Operation and Maintenance>

Routine maintenance of Sayuru is conducted by the engineering service division every six months, in addition to daily maintenance conducted by the crews. CFHC plans to dry dock Sayuru for periodical inspection every three years. O&M activities are conducted as planned, which was confirmed in the maintenance record of Sayuru. It was also observed during the field visit that Sayuru was kept clean and well organized, and all the equipment and machinery in Sayuru are working and maintained well.

##### <Evaluation Result>

Therefore, the sustainability of the project effect is high.

#### 5 Summary of the Evaluation

The project partially achieved its objective of enabling dredging of appropriate amount of silt and preventing accidents due to the sedimentation in fishery harbors, as Sayuru has not been fully utilized and the targeted annual dredging volume was not achieved in 2015 and 2017 due to bad weather and sea conditions, however, the number of accidents per fishing boat has been much fewer than the target. The expected impact of contributing to the promotion of productivity and profitability of fishery activities has been observed, as the volume of fish catches in the originally targeted 20 fishery harbors has increased by approximately ten percent against the baseline after project completion, while there are many factors that affect fish productivity other than siltation. Sustainability of the project effect, and relevance and efficiency of the project are high.

Considering all of the above points, this project is evaluated to be highly satisfactory.

### III. Recommendations & Lessons Learned

#### Recommendations to Executing Agency:

- As stated above, CFHC does not have a formal training system. The human resource department together with the engineering service division within CFHC should analyze the needs for job trainings and/or separate training programs on O&M and repair works and establish a formal training system to develop staff capacities.

#### Lessons Learned for JICA:

- As stated above, two out of five dredgers owned by CFHC are very old and require repair works frequently, which has prevented CFHC from dredging necessary amount of silt. While Sayuru has not been fully utilized due to bad weather and sea conditions, during the short period of the high season (off-monsoon with low precipitation and wind), CFHC must mobilize all their dredgers to maximize the dredging amount for the year. Overall dredgers' performance could have been better if all the dredgers were fully functioning during the high season. Thus, when planning a similar project in future, future changes such as deterioration of existing dredgers should also be carefully analysed.



Sand collection basin of Sayuru under maintenance



Dredger view from the left side