Sri Lanka

Greater Colombo Flood Control and Environment Improvement Project

Third-Party Evaluators:
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Field Survey: November 2000

1 Project Profile and Japan's ODA Loan

1) Background

The greater Colombo area, which is covered by this project, includes the City of Colombo, the largest in Sri Lanka, and its suburbs. The majority of the areas are lowland, within 6m above sea level. Along the rivers there are marshy areas scattered within 1m above sea level, which serve as temporary reservoirs (retarding basins) in rainy weather. As urban development progresses, the area of marsh is declining, and the long-term lack of maintenance on rivers is reducing their drainage functions, leading to annual flooding. Flood damage was particularly severe in the urban poor populations (shanty communities[Note]) residing along the river banks. Flooding into their homes and the spread of disease caused by the flooding were becoming a serious social problem. Remedial action was urgently required.

2) Objectives

To improve the river system (by rehabilitating rivers and building retarding basins) in the Greater Colombo area in order to control the flooding which occurs annually in the region, to improve the living environment by relocating shanty residents or improving their housing areas, and thereby to improve the watershed environment.

3) Project Scope

①River rehabilitation (widening channels, excavating riverbeds, digging out drainage channels, building retarding basins).

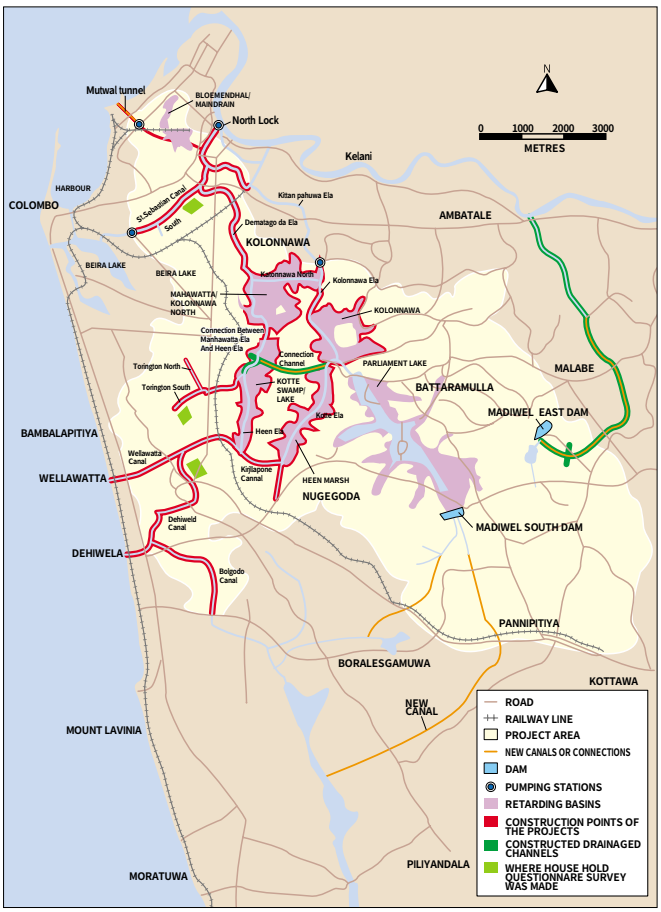
②Relocation of shanty dwellers or improvement of their housing areas.

③Procurement of maintenance equipment and materials (excavation and dredging equipment etc.).

④Consulting services.

4) Borrower/Executing Agency

Democratic Socialist Republic of Sri Lanka / Sri



Note : Shanties are areas within public land such as along rivers and railways and in marshes where the poor build small dwellings to live in without land rights.

Lanka Land Reclamation and Development Corporation (SLLRDC)

5) Outline of Loan Agreement

Loan Amount / Loan Disbursed Amount	¥11,198 million / ¥10,441 million
Exchange of Notes / Loan Agreement	March 1992 / March 1992
Terms and Conditions	Interest rate: 2.6%, Repayment period: 30 years (10 years for grace period), General Untied (Partially United for consulting services)
Final Disbursement Date	May 1999

2 Results and Evaluation

1) Relevance

At the time of the appraisal there was a pressing need for a flood control project in the Greater Colombo area, and the relocation/housing improvement operation was in line with the residential environment improvement policy, which the Sri Lanka government had been carrying out since 1978. The river rehabilitation plan was also relevant in its improvement sequence, the scale of its plan, and the improvement methods employed. Thus the project was relevant as a whole.

2) Efficiency

1. Project Cost

Total project cost was ·12,821 million, of which the ODA loan covered ·10,441 million. These costs were largely as planned. Within that cost, the amount of the ODA loan for the shanty relocation and housing improvement operation was ·1,023 million, which covered the entire cost of reclaiming land for the relocation site, building common infrastructure and building house foundations.

2. Implementation Schedule

The river rehabilitation works were scheduled to be completed by January 1997, but the actual completion date was March 1998. The disbursement deadline was extended by one year as a result. The household survey for the relocation of residents began in December 1990 and the actual relocation process took from 1992 to 1996, with the infrastructure in the relocation site being developed gradually and completed by 1997.

3. Implementation Scheme

The SLLRDC, which was the executing agency, is mainly in charge of land development (reclamation) and its sale, while conducting public works projects in Sri Lanka, such as river rehabilitations and lake drainage projects. The executing agency reports that the performance of the consultants and contractors was good.

3) Effectiveness (Operational Status / Quantitative Effects)

1. Reduction of the River Water Level

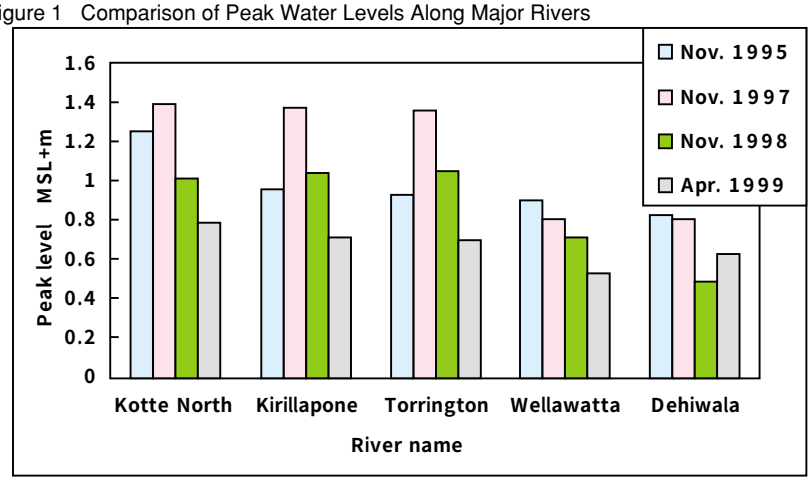
This project has had a clear impact for flood control. Before the implementation of the project, most of the rivers, which were covered by the project, was unable to withstand two-year frequency rains (rains of a scale which occurs once in two years). After the project, the rain of April 1999, which was rated as 25-year frequency rain, did not raise the levels of the rivers beyond the height of their embankments. Figure 1 compares equivalent rains before and after

the project, showing the peak water level within that rain period. There is a clear tendency of lower water level after the project completion (March 1998) due to improved drainage condition.

2. Reduced Flood Frequency and Damage

A questionnaire survey of residents in four areas along the rivers revealed marked decreases in the frequency, depth and duration of flooding. The same survey also showed clear impact in reducing flood damage, in the forms of damage to homes and possessions, obstruction of road traffic, absences from work and other losses, as well as improving sanitation and reducing diseases.

Figure 1 Comparison of Peak Water Levels Along Major Rivers



Source: SLLRDC materials.

Note: Rainfall from three days of continuous rain amounted to 148mm in November 1995, 165mm in November 1997, 148mm in November 1998 and 161mm in April 1999.

3. EIRR

The EIRR figure estimated at the time of the appraisal was 9.7%, and the actual figure was 10.9%.

4) Impact

1. Socio-economic Impact Due to Flood Control (indirect impact)

Impact was found on increase of usable land, reduced waterborne disease, and reduction of flood losses to the local economy.

2. Impact of the Relocation of Residents

Refer to the third-party evaluation.

3. Environmental Impact

This project has had no notable negative impact on the environment.

5) Sustainability (Operation and Maintenance)

1. Operation and Maintenance Scheme

Maintenance of the rivers improved under this project is under the jurisdiction of the maintenance section of the Canal Development and Maintenance Department of the SLLRDC. The maintenance work mainly consists of dredging, cleaning of the water surface (removal of garbage and water weed), grass cutting and river bank renovation.

2. Operation and Maintenance Status

a) Sedimentation: The blockage of the mouth of the Dehiwala Canal at times of flooding, which was a cause of concern before the implementation of the project, still occurred, and it seemed to cause ill effects on the canal itself and a wide area upstream. The SLLRDC 's internal rules call for taking necessary measures such as excavation when the water level rises, and it is necessary to carry out adequate regular excavation as well as appropriate maintenance based on its rules. The SLLRDC is considering the construction of a cross dike to tackle the problem, and that construction is expected to be carried out as soon as possible. Some river sections are not maintained frequently, and there is heavy sedimentation. In future the state of sedimentation in the rivers is required to be checked regularly according to a procedural manual, and dredging should then be carried out as required.

b) Dumping of garbage into the river was a problem before the implementation of the project, and many areas have not improved, leading to deterioration of water quality. The problem arises because roads to the most secluded residential areas along the river are too narrow for garbage trucks to pass, making municipal garbage collection impossible. A pilot project for countermeasures against garbage dumping is now under way started from December 2000 as one element of phase II of the project. The four areas worst affected by garbage dumping (three sections along the St. Sebastian Canal and one section along the Main Drain) have been designated as model zones where the SLLRDC works with the city hall to widen roads for garbage trucks to pass, distribute collection bins and educate the residents. These measures are expected to progress and spread.

c) Management of retarding basins: Retarding basins are important facilities for this project, and they must keep the required surface area if flood control ability is to be secured in the targeted areas. However, some have been filled in by illegal developers. The area which has to be secured must be specified and measures now being prepared, such as legislated restrictions on development, must be put into effect urgently, backed up by thorough implementation of periodic monitoring.

3 Third-party Evaluation of Resident Relocation and Improvement of the Residential Environment

■ Survey Objectives

The theme of this report was to investigate whether or not the relocation of residents under The Greater Colombo Flood Control and Environment Improvement Project was conducted appropriately, and to evaluate, on that basis, the changes in the residential environment of low-income residents of Colombo, who were affected by the project. Particular attention was paid to the organization of shanty residents living without property rights along the canals, and the process of their participation in the project.

■ The Urban Poor of Colombo

According to the latest detailed surveys, the resident poor of Colombo, who are not living in a proper residential environment, number approximately 66,000 households, accounting for half of the city 's population. Of them, approximately 20% live in shanty areas. They build dwellings for themselves on land where they have no land rights, and make a living through informal employment. Most of them live along the canals, where they are severely affected by the frequent flooding.

■ Housing Policies in Sri Lanka

Sri Lanka 's traditional housing policy is characterized by a strong political commitment to the poor. Despite the fact that

squatters have no rights to the land they inhabit, large-scale forced removals of squatters have been seldom conducted in the past. Instead the policy has been to divide public land into lots and give it to the current occupants, who are encouraged to improve their own housing. This policy position has created participatory planning methods to mobilize the residents, a framework of support policies to guarantee the execution of those methods and residents 'organizations as actors for this system.

■ Summary of the Relocation of Residents Under This Project

The shanties along the banks of the canals in the Greater Colombo area, which were to be affected by this project, can be broadly divided into three groups, according to the outcomes of the project.

① Resettlement zones where households live after being moved off site in connection with this project.

② Improvement zones with resettlement within the same area (on-site resettlement), subject to confirmation of rights and improvement of facilities.

③ Unimproved zones which were affected by this project but did not receive any related improvements.

At present the related figures for the groups are as follows:

① 15 zones, 2,792 households.

② 17 zones, 1,573 households.

③ 21 zones, 1,156 households.

According to government-related agencies, the residents are to be provided with the following types of support.

① Land (50m^2).

② Common infrastructure (water supply, toilets, drainage facilities, garbage collection boxes, community centers, street lighting, roads etc.).

③ Housing loans (up to Rs20,000 from the NHDA, with grants of up to Rs8,000 for low-income households).

④ Rs1,000 of blessing money.

⑤ Provision of trucks for moving.

The following support was added by requests from the residents [1].

⑥ Construction of house foundations.

⑦Compensation for permanent houses .

■ Process and Results

This project involved the first large-scale relocation ever experienced in Colombo. The process involved only a very few exceptional cases of forcible relocation, which is a notable achievement. However, the residents did not move spontaneously of their own accord, but most did when they saw no alternatives. The standard laid down in international human rights law requires a guarantee that any kind of forced removal will be preceded by negotiations with those to be relocated, in which all possible alternatives will be examined , but it has been seldom practiced in reality.

The methods for housing improvement developed in Sri Lanka are based on the search for alternative methods through discussions between the residents and the NHDA staff, and many of the NHDA staff have taken it to heart. Nevertheless, the relocation process within this project (the process from the relocation planning to constructing activities immediately after the relocation stage) did not include that kind of participatory discussion, except in some areas where the NHDA has been working on improvement for a long time. That was because there was strong pressure to relocate the residents in line

1 The ODA loan covered the entire cost of reclaiming the resettlement zones, building the common infrastructure and building house foundations.

with the technical schedule of river improvement works.

As a result, the living environment for the relocated residents has clearly improved. The impact has been particularly strong in aspects such as flood damage reduction, public health improvement and acquisition of social recognition (escape from the label of the poor people living illegally by the canal). In some areas there has also been a positive impact on the promotion of employment. Environmental improvement through the reduction of flood damage was also applied to the residents who remained by the canals.

However, that does not mean that the end justifies the means . That is the approach for designing an engineering blueprint, emphasizing the product only. What saved this project from the danger of becoming a blueprint plan was the flexibility of Sri Lanka planning system which enabled content of the relocation support measures to alter in response to opposition and proposals expressed by the residents, and accepted the contributions of numerous actors besides the executing agency. That flexibility was supported by the political commitment to improving housing for the poor.

■ Changes in the Housing Environment in Each Zone

The lives of relocated residents in resettlement zone were radically changed. In most cases, they endured wretched housing conditions immediately after relocation due to delays in building the facilities. Nevertheless, residents 'organizations were recreated in the relocation destinations, and progress was made in the construction of facilities through negotiations with the project executing agency. There was also input from the activities of numerous groups and aid agencies outside the scope of this project, and eventually the residents came to feel their own social recognition and to value the improvement in their living environments. For example, in Badowita, which is one of the resettlement zones, monthly residents' meetings were held with the involvement of politicians and government-related agencies, and plans to improve the living environment were discussed. These plans, which were realized through the residents 'own efforts, included water supplies and drainage channels for every house through construction contracts with the residents. However, there were some resettlement zones in which illegal residents increased markedly through political interventions outside the plans and public facilities were not properly maintained. Long term community operational strategy ran into problems in these areas.

Conditions in the improvement zones vary widely. The facilities built in connection with this project include embankments, maintenance roads, drainage channels alongside the roads, and chain link fences around canal land, and those facilities were present in all areas. They are largely confined to the facilities which were necessary purely for the canal improvements. Regarding other improvements within the residential areas, the land legalization procedures and the provision of housing loans were mainly conducted as part of the regular supports from an NHDA housing program. In some cases improvements were supported by the introduction, of various government and non-government programs outside the scope of the project. Some supplementary public facilities were built under this project based on residents 'initiatives.

In the unimproved zones, some residents refused to live in the resettlement zones despite the removal of their houses on canal land, and they rebuilt their houses and moved back to living in the original areas. Other areas have been designated for improvement but no actual work has started, leaving people living up against the chain link fences around the canal land.

■ Lessons Learned

- Comparison between the two resettlement zones covered by this study (Badowita and Obesekarapura) shows that there are at least two essential conditions for improved living in those areas:

  ①Support provided by a range of external actors such as politicians, related agencies, NGOs and donors, which are not necessarily directly linked to the executing agency, enables development of the area with the residents taking the lead as they take appropriate action.

②The residents had experience from their previous locations of activity in residents' organizations, and restarted that activity after relocation.

- Residential improvements in the areas covered by this study were, to a large extent, the fruits of involvement by various parties beyond the scope of this project. An integrated implementation scheme is required, which assumes the involvement of numerous actors, such as residents' organizations, NGOs, local government groups and aid agencies.
- A wide range of residents' organizations has differing functions at the various stages of development. Rather than just promoting the Community Development Council (CDC) as the safety net for government policy, support is needed for the growth of sustainable organizations (such as the Women's Bank) which can fulfill diverse objectives and day to day needs.
- Opportunities should be set up for study visits and exchanges of views involving residents, NGOs and government employees so that the areas affected by this project can be used as an important resource of experience. A forum should also be rebuilt to allow residents to present their own ideas on the form of residence they want in future and discuss them with related government agencies.
- If aid agencies gave skilful support to local coordination mechanisms, they would be able to make the political decision making processes related to projects more transparent. Moreover, aid agencies are required to be flexible enough to support flexible local planning systems that proceed at the residents' pace.

4 Lessons Learned

Refer to 3. Third-party Evaluation (above) for lessons on the relocation of shanty residents and improvement of residential areas.

5 Recommendations

1. The implementation of a large-scale study on the impact of flooding is important for the planning of flood control projects.
2. A water management master plan is expected to be drawn up for the Greater Colombo area.
3. Measures are necessary to be taken to alleviate landside water damage.
4. The maintenance scheme should be improved with the following measures:
   ①Dredging of river beds.
   ②Measures against the blockage of the opening of Dehiwala Canal.
   ③Maintenance of the retarding basins.
   ④Management of garbage dumping and water quality.
   ⑤Assignment of a priority ranking to maintenance locations under a limited budget.

6 Operational Points to Consider

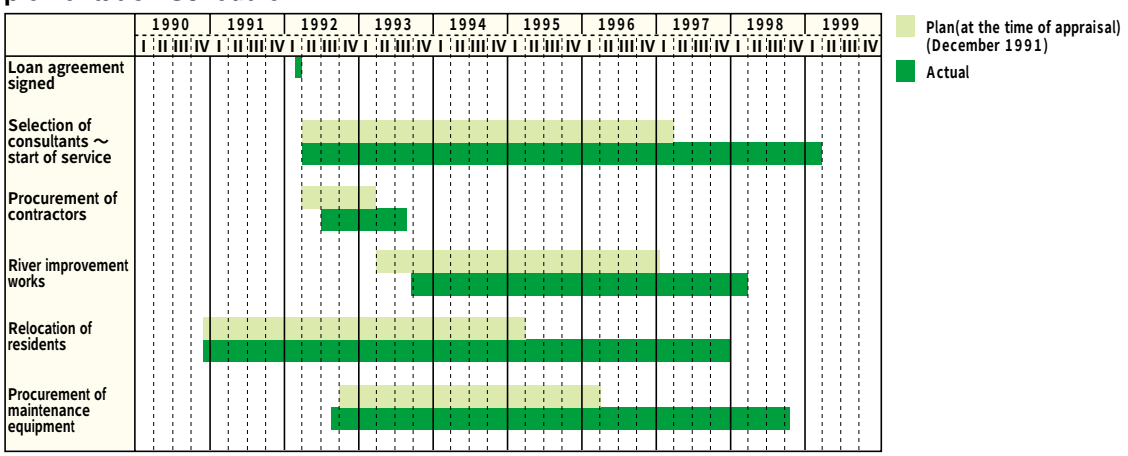
1. Relevance of the content of hydrological observations and flow calculation models used in the planning stage.
2. Problems with EIRR calculation.
3. Importance of the water control impact survey at the planning stage.

Comparison of Original and Actual Scope

1) Project Scope

	Original(at the time of appraisal)	Actual
1. River improvement (1) River channel widening and riverbed excavation (2) Excavation of new rivers (discharge channels) (3) Building of retarding basins (4) Appurtenant structures for the river (road bridges, underground channels etc.)	Total extension of 43,995m 4 rivers, Extension of 9,871m 5 basins, Total land area of 380ha Total: 43	Total extension of 43,844m 4 rivers, Extension of 9,666m 4 basins, Total land are of 348ha Total: 49
2. Shanty resident relocation (1) No. of households covered ・Relocated to resettlement areas ・Plot improvement in the same area ・Not determined (2) Content of support for residents	 4,382 3,317 18 Total: 7,717 ① Land (50m²) ② Common infrastructure (water supply, toilets, drainage facilities, garbage collection boxes, community centers, street lighting, roads etc.). ③ Housing loans (from the NHDA, up to Rs20,000, with a grant of 8,000 to low income households). ④ Rs1,000 for blessing money. ⑤ Provision of trucks for moving.	 2,792 1,573 — Total: 4,365 The following were added: ⑥ Construction of house foundations (for those moved to areas outside Colombo City. ⑦ Compensation for permanent homes
3. Procurement of maintenance equipment (1) Excavators (2) Dredging equipment (3) Conveyors (4) Cranes and forklifts (5) Pile drivers	 6 4 27 2 1	 7 1 37 2 —
4. Consulting services Bidding evaluation, construction supervision, technical guidance	560M/M	604M/M

2) Implementation Schedule



Source: JBIC materials, SLLRDC materials.

Note: River improvement works began with areas where relocation of residents was complete.

3) Project Cost

Units: \ million, Figures in ( ) are in millions of Rs.

	Original (at the time of appraisal)				Actual				Difference			
	Total amount	ODA loan portion	Local currency portion of total amount (millions of Rs)		Total amount	ODA loan portion	Local currency portion of total amount (millions of Rs)		Total amount	ODA loan portion	Local currency portion of total amount (millions of Rs)	
Civil works	6,426	6,426	1,697	(547)	6,691	6,691	2,235	(1,092)	+265	+265	+538	(+545)
Relocation of residents	761	713	761	(246)	1,023	1,023	1,023	(471)	+262	+310	+262	(+225)
Maintenance Procurement of equipment	1,099	1,099	250	(81)	931	931	60	(30)	-168	-168	-190	(-51)
Consulting service	1,012	1,012	230	(74)	984	984	184	(87)	-28	-28	-46	(+13)
On-site management fees	215	214	215	(69)	24	24	24	(15)	-191	-190	-191	(-54)
Land acquisition, compensation fees	1,675	–	1,675	(540)	1,134	–	1,134	(540)	-541	–	-541	–
Tax	283	–	283	(91)	1,246	–	1,246	(593)	+963	–	+963	(+502)
Interest rates of construction	787	787	–	–	789	789	–	–	+2	2	–	–
Total	12,258	10,251	5,111	(1,648)	12,821	10,441	5,906	(2,827)	+563	+190	+795	(+1,179)
Contingency	1,148	947	512	(165)	–	–	–	–	–	–	–	–
Total	13,406	11,198	5,623	(3,461)	12,821	10,441	5,906	(2,827)	-585	-757	+283	(-634)

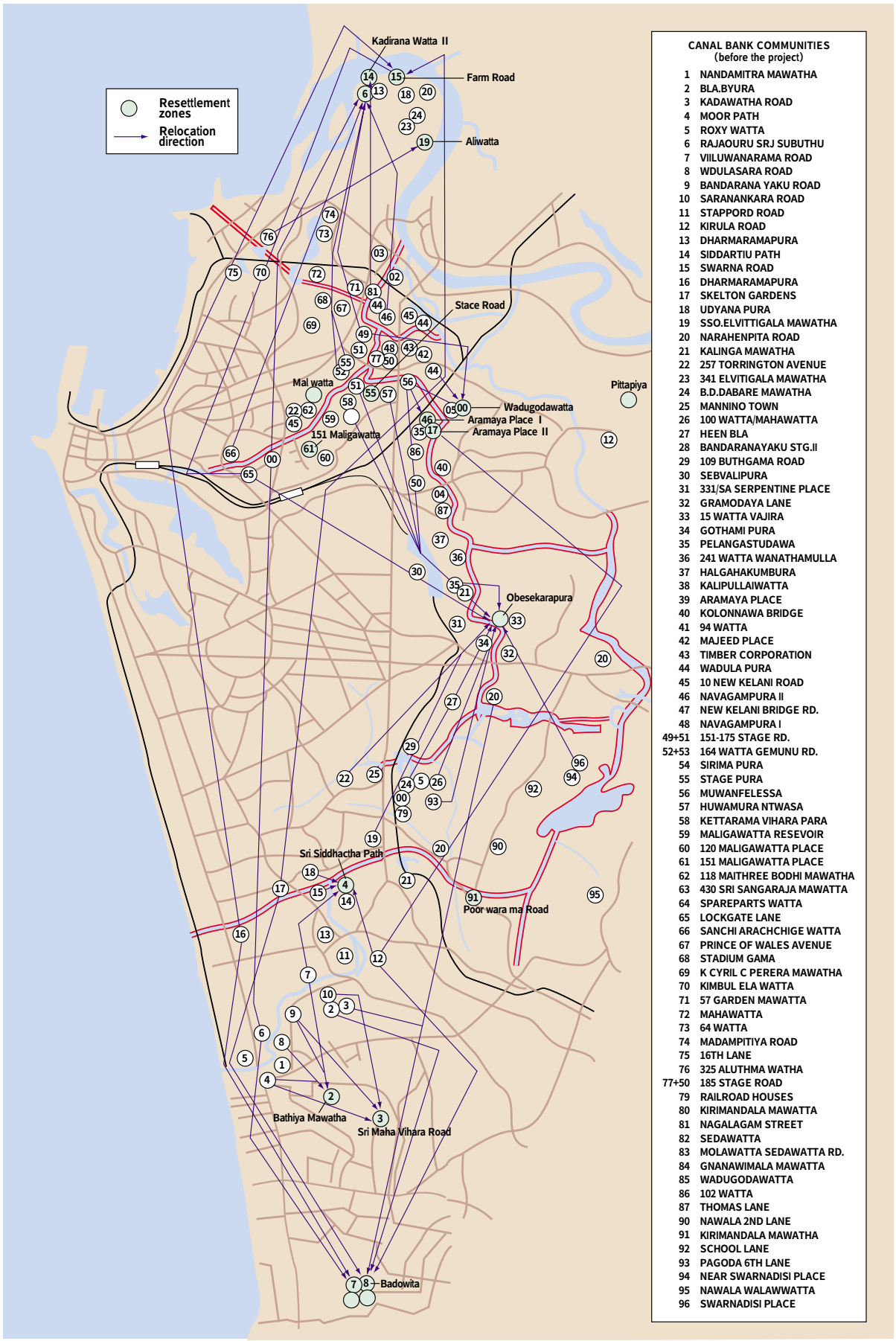
Source : JBIC material, SLLRDC material

Shanty along the Dehiwala Canal
(Before the project implementation)

Improved Dehiwala Canal

Badowita Area, One of the Resettlement Zones

Shanty Community Relocation Movements



CANAL BANK COMMUNITIES
(before the project)

1 NANDAMITRA MAWATHA
2 BLA.BYURA
3 KADAWATHA ROAD
4 MOOR PATH
5 ROXY WATTA
6 RAJAOURU SRJ SUBUTHU
7 VIILUWANARAMA ROAD
8 WDULASARA ROAD
9 BANDARANA YAKU ROAD
10 SARANANKARA ROAD
11 STAPPORD ROAD
12 KIRULA ROAD
13 DHARMARAMAPURA
14 SIDDARTIU PATH
15 SWARNA ROAD
16 DHARMARAMAPURA
17 SKELTON GARDENS
18 UDYANA PURA
19 SSO.ELVITTIGALA MAWATHA
20 NARAHENPITA ROAD
21 KALINGA MAWATHA
22 257 TORRINGTON AVENUE
23 341 ELVITIGALA MAWATHA
24 B.D.DABARE MAWATHA
25 MANNINO TOWN
26 100 WATTA/MAHAWATTA
27 HEEN BLA
28 BANDARANAYAKU STG.II
29 109 BUTHGAMA ROAD
30 SEBVALIPURA
31 331/SA SERPENTINE PLACE
32 GRAMODAYA LANE
33 15 WATTA VAJIRA
34 GOTHAMI PURA
35 PELANGASTUDAWA
36 241 WATTA WANATHAMULLA
37 HALGAHAKUMBURA
38 KALIPULLAIWATTA
39 ARAMAYA PLACE
40 KOLONNAWA BRIDGE
41 94 WATTA
42 MAJEED PLACE
43 TIMBER CORPORATION
44 WADULA PURA
45 10 NEW KELANI ROAD
46 NAVAGAMPURA II
47 NEW KELANI BRIDGE RD.
48 NAVAGAMPURA I
49+51 151-175 STAGE RD.
52+53 164 WATTA GEMUNU RD.
54 SIRIMA PURA
55 STAGE PURA
56 MUWANFELESSA
57 HUWAMURA NTWASA
58 KETTARAMA VIHARA PARA
59 MALIGAWATTA RESEVOIR
60 120 MALIGAWATTA PLACE
61 151 MALIGAWATTA PLACE
62 118 MAITHREE BODHI MAWATHA
63 430 SRI SANGARAJA MAWATTA
64 SPAREPARTS WATTA
65 LOCKGATE LANE
66 SANCHI ARACHCHIGE WATTA
67 PRINCE OF WALES AVENUE
68 STADIUM GAMA
69 K CYRIL C PERERA MAWATHA
70 KIMBUL ELA WATTA
71 57 GARDEN MAWATTA
72 MAHAWATTA
73 64 WATTA
74 MADAMPITIYA ROAD
75 16TH LANE
76 325 ALUTHMA WATHA
77+50 185 STAGE ROAD
79 RAILROAD HOUSES
80 KIRIMANDALA MAWATTA
81 NAGALAGAM STREET
82 SEDAWATTA
83 MOLAWATTA SEDAWATTA RD.
84 GNANAWIMALA MAWATTA
85 WADUGODAWATTA
86 102 WATTA
87 THOMAS LANE
90 NAWALA 2ND LANE
91 KIRIMANDALA MAWATHA
92 SCHOOL LANE
93 PAGODA 6TH LANE
94 NEAR SWARNADISI PLACE
95 NAWALA WALAWWATTA
96 SWARNADISI PLACE