

# **LESSONS LEARNED FROM COMMUNITIES DISPLACED BY THE MAHAWELI MULTIPURPOSE DEVELOPMENT PROJECT SRI LANKA**

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The Mahaweli River diversion project in Sri Lanka included the construction of a cascade of large dams along river Mahaweli, which drains one sixth of the country. The reservoirs inundated many ancient villages in Central Hill areas. This paper describes the Mahaweli project with special emphasis on Upper Mahaweli and looks at the fate of the migrant families 20 years after they left, with the inundation of their traditional lands. This discussion is an attempt to follow the good examples, and to avoid repeating the mistakes if any.

## **MAHAWELI DIVERSION PROJECT**

Sri Lanka is located in the Indian Ocean between 5.55N and 9.51 N latitudes and 79.4E and 81.53E longitudes. It is about 65,610 square kilometers in extent. The central hills receive over 3500 mm of rain annually. The country has 103 river basins, and Mahaweli is the largest river system, draining about one sixth of the country. The length of the river Mahaweli is about 331 km. The annual discharge of the river is about 53200 MCM.

The Mahaweli River diversion project included the construction of a cascade of large dams along river Mahaweli. The reservoirs inundated many ancient villages in Central Highland (Kandyan) areas. The Sri Lanka government wanted the first generation of resettled farmers to be sustainable, and the second generation to become export farmers. This paper presents research in these resettlements 20 years after migration; to assess what worked right and what can be learnt, if things went wrong. The methods applied in conducting the research included literature survey, key informants discussion, group discussions, observations and field measurements.

The Mahaweli Development Program is the most extensive physical and human resource development program ever implemented in Sri Lanka. Master plan for the development of the Mahaweli Ganga river basin, which had the largest potential for both hydropower generation and irrigated agriculture in the dry zone of Sri Lanka, was prepared during the 1950's and 1960's with the help of UNDP and FAO. The project was to be implemented over 30-year period, starting from 1970.

The Mahaweli Program has contributed towards the birth of new settlements, hydropower generation and alleviation of unemployment. Apart from these, control of floodwater, development of agriculture and livestock resources and the initiation of the industries based of agricultural products are some of the other important activities.

The first phases of the Mahaweli Ganga development project were the diversions of Polgolla & Bowatenna, which were started in 1970 and followed by the development of system H by 1976. This phase was able to provide irrigation water to 53,500 ha of land already under cultivation and to 2400 hectares of new lands and also to generate hydropower of 40 MW.

In 1977, accelerated Mahaweli development project was conceptualized. The Mahaweli Authority Act No 23 of 1979 formed The Mahaweli Authority of Sri Lanka. This Accelerated program aimed to complete the major dams of Victoria, Kotmale, Randenigala and Rantembe and four principle transbasin diversions within a short period of five years. Accelerated Mahaweli Development Project was to provide irrigation to 128,000 hectares of land and to generate 470 MW of hydro- power.

## **MIGRATION OF PEOPLE**

Table 1. The details of land extents, number of families settled in each system

<i>System</i>	<i>Total land Extent (Ha.)</i>	<i>Irrigable Extent (Ha.)</i>	<i>Land above Command (Ha.)</i>	<i>No. of families settled</i>
B	114,117	35,800	61,110	19,782
C	68,614	24,695	32,448	26,529
H	50,994	30,832	16,485	31,789
G	12,308	5,067	6,847	5,675
L	163,393	3,664	44,019	3,364
Uda-Walawe	55,700	12,270	25,004	34,245
Upper Mahaweli	2,458	-	2,458	7,173
<b>Total</b>	<b>467,584</b>	<b>112,328</b>	<b>188,371</b>	<b>128,557</b>

Source: Mahaweli PMU 1999/ RBP&M Division 2001 [1]

Reservoirs belonging to the Upper Mahaweli are Kotmale Reservoir (172 MCM) and Victoria Reservoir (721MCM)[2]. A number of villages in Central Hill (Kandyan) area were inundated by these reservoirs. Main economic actively in inundated ancient villages (some of which were more than 2000 years old) was mainly agriculture such as rice (paddy) and vegetable cultivations.

According to the survey carried out in 1979 about 590 ha of paddy lands and 1560 ha of upcountry highlands were inundated by Kothmale reservoir. Thus, it was estimated that economic impact due to this could be around 20 million Sri Lanka rupees (about 2.5

million USD at that time). But, no cost estimation has been done on either biological resources or biodiversity of the area.

In addition, 1250 ha of paddy lands and about 850 ha of lands rich with fruits and cocoa and other mixed crops were destroyed by the Victoria project.

The number displaced due to the Upper Mahaweli reservoirs are around 8,000 families from Victoria and around 3,200 of families from Kotmale area. These people were offered compensation, and a small plot of land in same vicinity, or 1.2 hectares of land in newly irrigated areas like system C or system B. This composed of 1 hectare of irrigated land and 0.2 ha. of home garden-land. The compensation and land provided by the government to families, which lost their land due to Mahaweli constructions, was not done properly. There were many irregularities while the government officers estimated the value of the properties of each family.

Many people, whose livelihood is rice cultivation, opted to migrate to Mahaweli systems. Accordingly Mahaweli system 'C' and 'B' were to be developed and the settlement of farmer families in them was also included in the accelerated Mahaweli program. Farmer families were settled in undeveloped areas. At that time, Malaria spread severely among them at Girandurukotte area. People were affected seriously without any facilities even drinking water, houses, roads and hospitals. At the beginning even the Mahaweli town centers had no school, post office, hospitals and other service centers to cater to these villagers. Later all these facilities were given by the Mahaweli Project. One failure of the accelerated project was the movement of farmers before the proper infrastructure was in place.

In addition, farmer families took much time to adapt to the new and harsh environment. Wild animals such as wild boars, bears and various snakes attacked the new settlers at the beginning. New settlers responded to these wild animals by killing them. Also, some are hunting wild animals as a food source. During the insurgency of 1987-89 farmers were not allowed to keep firearms, and it did not help them in this aspect.

Until the first crop yields were obtained, dry foods were offered to the people. The settlers recall that the quantity of food was not enough for a family and also people were not familiar with type of foods given under aid programs.

Thousands of people who lost their ancestral places and settled in places with different environment complain of respiratory problems, skin problems & injuries [3]. They also face many other social, economic, environmental and emotional problems. Respiratory problems were due to the dust in the area and dry weather has caused skin problems. Dry zone climatic conditions caused new health problems not heard of in their ancestral area with moderate climatic conditions. In the newly irrigated area rainfall is received once a year (within a 4 month period) and the rest of the year is mostly dry. When they went to the Mahaweli systems initially, roads were unpaved. During the construction period, transportation of goods done on these roads resulted spreading of dust everywhere.

For those Upper Mahaweli people who were displaced from their traditional villages owing to the creation of upper Mahaweli reservoirs, but opted to stay in the vicinity, the

land given mostly consisted of marginal tea land, which generated no income at all. The farmers were used to Kandyan home gardens, providing foods and cash crops round the year. Kandyan home gardens contain several kinds of cash crops as coconut, pepper, and cocoa in Victoria and tea in Kothmale. Most people in these areas earned money round the year from these crops apart from their occupation. Therefore, people who lived in these areas were not poor. Plantation lands inundated by reservoirs resulted in people becoming poor.

Fruits, vegetables and old rice varieties such as Heenati and Mutusamba were cultivated in surrounding villages before the construction of Victoria reservoir. After the Mahaweli project, these old rice varieties were not successful in new areas. The traditional knowledge the farmers had of these cultivations was lost.

After the movement of farmers to dry zone environment, after the paddy cultivation, Farmers were encouraged to cultivate short period crops like grains (Soya beans, green-gram, menari, sesame, cowpea, etc.) during dry season. Also the rice varieties cultivated in dry zone are improved species with high yield and matured in a short period. But it was found that food prepared from these new varieties is not tasty. Encouragement to grow should have been complemented with know-how to make delicious food from new crops [4].

The main economic activity in the Mahaweli area is agriculture. Despite the initial setbacks, today the Mahaweli farmers produce 20% of the total rice production of the country. In the production of subsidiary crops such as chilies, big onions and red onions, the Mahaweli area takes the lead. Farmers in Zone H formed export cooperatives and sold their chilies abroad. Crop diversity is a conspicuous factor in Mahaweli farming. Interest in livestock resources, development and animal husbandry is also on the increase in the Mahaweli areas.

The fish from Mahaweli reservoirs are an important protein source for the people in the central highlands, and also bring a source of income to young men of the areas.

Culture and arts processes in the areas inundated were lost due to the accelerated project and no coordinated effort has been made to preserve this important aspect of Sri Lankan folk tradition.

## **FATE OF SECOND-GENERATION FAMILIES**

Displaced farmer families received same size of land of 0.2 hectare of home garden land and 1 hectare of irrigated land. But, they had owned lands with larger extents in their ancestral places inundated by reservoirs. Number of families settled under the Mahaweli Master Plan (1994) is 128,557. Of these, 86,254 families are farmer families. Generally each farming family has several members, children being a valued source of agricultural labour. Within 20 years, these children have grown up and have their own families. The system planners thought the first generation of Mahaweli settlers will not be subsistence farmers but sustainable farmers. The second generation was supposed to be export farmers. But this did not work out as planned. The second-generation families have

subdivided land their parents have originally received and in turn each plot is too small to support a growing family.

Even the original settlers who did not opt to move out to system C etc., received a land smaller than 0.2 ha in the vicinity of reservoirs. All families facing this problem got a plot of land smaller than their lands (inundated due to the reservoir), which is not enough to be subdivided within several family members. Farmers could not purchase land due to the lack of available money. This situation has led to a lot of disharmony among family members, even leading to domestic violence. These people who sacrificed their ancestral land for common good are facing an insecure future.

Some of the original settlers who initially went to dry zone, have gone back to their original villages, giving their land to the children. Some politicians helped them in this back-migration, coveting their votes. These reverse settlers have settled in marginal sloping lands in their original villages, contributing to massive soil erosion from this marginal hilly land they have occupied.

## **SILTING OF RESERVOIRS**

The small village reservoirs are silted up due to the various agricultural activities without soil conservation measures and forest degradation in sloping lands. Chena (slash & burn) cultivation in steep slopes, clearing of forests for agriculture and settlements in central highlands has exposed the soil to rain water causing intensive soil erosion. Eroded soils are brought by storm water to natural waterways. All these have led to siltation of reservoirs.

Mahaweli Development Project has caused environmental degradation in many ways. Construction of new road system and transportation of machineries needed to the project resulted in soil degradation. These road systems were constructed through the natural forests and sometimes in steeply graded lands. Generally, in upcountry with high annual rainfall, soil erosion is evident at elevations of 300 m to 1000 m. Apart from this, farmer families from reservoir areas were resettled at slopy lands in high elevation new settlements established e.g. at Galaha, Victoria and Kotmale areas contributing to erosion of soil.

Soil erosion in up-country has led to siltation of reservoirs. During 1952 to 1982, it was recorded that 15 million tons of silt has been transported from Upper Mahaweli through Peradeniya measuring centre. Out of this much silt has deposited in Polgolla reservoir and in 1988, 44% of total capacity of the reservoir was filled with silt, just 12 years after its construction. To prevent soil erosion, short term and long term actions should be taken.

At present, Randenigala and Rantembe reservoirs are also being filled with silt. Therefore, management of watershed is essential to protect natural springs in the area itself.

With thousands of years of practices of water conservation, people of ancient villages had the social organization to clean the village level reservoirs themselves. Now

the excellent co-operative work structure that helped their old villages is non-existent. The government has appointed 'Vel Vidane' (Water Conservation & Distribution Officers) again from 2003, which is a positive step. These officers will coordinate voluntary work (in maintaining irrigation structures), with the water rations issued to particular farmers.

### **ELEPHANT – MAN CLASH**

Where the new farming ground is adjoining to jungle; the wild elephants clash with farmers. While no deaths were reported [5] among the indigenous "Veddah" people (who were resettled in demarcating the wildlife sanctuaries), the new settlers have no traditional knowledge to avoid the wild elephant. In the inevitable conflict men & elephants lose their lives

Due to the lack of lands, some second generation families also migrated to the jungle for their agricultural activities or for building of residences. Utilization of lands for chena (slash & burn) cultivation and clearance of forest cover for various purposes lead to loss of elephant's natural habitats. Elephants are fighting with man for their natural living places. Due to the forest degradation, natural water bodies in the jungle are dried up in dry season. Therefore, elephants come to new villages to find food and drinking water. The planners of elephant corridors forgot that elephants live for 70 years, carrying a 70-year memory. Such planning should be done considering the time scales of nature, not those of politicians.

One good outcome of this sad conflict is the establishment of elephant orphanages to cater for orphaned young elephants. While these venues were started as a humanitarian gesture, they have become tourist attractions. Outsiders reap the tourism potential of elephants. A coordinated program of eco-cultural tourism will generate much needed money to help farmers whose crops are lost due to elephant attack, and also will help them to look at the elephant other than as a pest.

### **AFTER 20 YEARS WHO OWNS THE MAHAWELI IRRIGATED LAND**

The land deeds for the farmers' plots were not issued in 1980's, ensuring the land cannot be sold. This was done with the good intention of keeping the settlers there and avoiding land irrigated by public money from being grabbed by few rich individuals. But, some farmers have transferred their land illegally to other buyers.

After 25 years the farmer is the landowner, he can take the land deed. Normally, buyers should pay the farmer installments for use of his land or he can pay farmer for 25 years at once to take land deeds. Only buyers who engage in this risky business are those who offer very low values for the land. Thus, land the only redeemable asset the farmers have being un-sellable legally, fall prey to moneylenders who lent pittance keeping land as collateral. Now these proud people have become tenant farmers in their own land.

Local politicians who see the Mahaweli reservations as an “available parcel of government land” have given away reservation lands of reservoirs, for short-term political benefit. A good example is the blocking out of the catchment of Girandurukotte reservoir in March 2004. Only remedy for this lack of governance is to educate the emerging “unprincipled” politicians (even two decades after project implementation), about the value and purpose of reservations.

### **LESSONS TO BE LEARNT FROM THE PAST**

This research emphasizes the need to draw lessons from the past.

1. The accelerated program while bringing many benefits to the country, played havoc with the lives of the people who gave their land for the development work. In future projects steps to be taken to mitigate the shortcomings and negligence.
2. With the emergence of Environmental laws, many of the actions carried out under the Accelerated Mahaweli Program would not have been possible [6]. More care should have been given to environment, and the effects of not following the existing guidelines should be publicized, to ensure no-repetition of the mistakes. Also if the project was constructed according to the previous schedule, the effect of large reservoirs could be factored in, and the reservoir designs done later would have been optimized.
3. While accelerating the development projects, the provision of necessary infrastructure to affected people should not be neglected. The people migrating should be treated as humans making a sacrifice for the nation, not as a statistic.
4. Adapting soil conservation methods, starting from the feasibility study period of a project. Also adapting methods that worked for a long time, like Vel Vidane system, to conserve water and maintain the irrigation network by community participation should be introduced and nurtured.
5. The planners of elephant corridors forgot that elephants live for 70 years carrying a 70-year memory. The fact that project planners should consider the time scales of nature is emphasized.
6. The land deeds are to be given to farmers after a short period of time like (say) 10 years. Also the education programs to be continued even after two decades about the value and the purpose of the project components like forest reservations.

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