

Extended Abstract

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Changes occurred in the land use with the Nilwala Project and related impacts.

(Pertaining to Matara District)

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Abstract :

Nilwala River is the major river in the Matara District of southern Sri Lanka, and is 72km in length. Frequent floods and inundation of urban and peri-urban areas resulting in socioeconomic impacts are major problems that occur downstream of the basin. In order to address these problems, the Nilwala Flood Protection Scheme was implemented in 1985, by adding flood protection bunds and introducing deeper drainage networks to paddy ecosystems, as well as pumping stations to evacuate the tenyear return floods. In spite of this, the flood protection scheme created new problems for paddy ecosystems due to development of acid sulphate conditions in drying paddy fields after rapid evacuation of flood water from fields. At present, the Irrigation Department has to bear nearly 70 million rupees on fuel alone for flood evacuation from rice fields, creating a conflict situation between the authorities and farmer communities. The pilot project initiated by ADPC, with financial support of Aus AID, helped to study the problems and address the policy issues while mainstreaming climate information applications in order to reduce the vulnerabilities associated with paddy farming. Rallying academia, government institutions, farmer organizations, and local governments under the leadership of the District Secretary to form a management committee has helped in identifying the most effective policy framework. It has also helped with addressing the main issues related to acidity problems through technology interventions and adapting them for farming systems. This research study is conducted in order to study changes occurred in the land use with the Nilwala Project and related impacts in Matara District. In the collection of data both primary and secondary sources were used. In the process of collecting primary data a sample of 50 families was selected from areas such as Kiralakele, Nadugala, Bandaththara, Kadduwa and Akuressa. Methodologies like interviews and questionnaires were used. In addition method of case study was also used. In this research study the nature of socio economic, political and cultural relationships among the community living in the environment close to Nilwala river and factors of changes of such relationships are analyzed under a social scientific aspect. According to the result of the study there have been great changes in the use of land within the areas under subject to the study. It is completely changed from the land use profile which existed prior to the commencement of Nilwala project. Specially different institutions have taken various measures in order to minimize adverse impacts on natural use of land. But They have not been

able to restore them. Therefore even in the presence there are some socio economic, environmental and political issues pertaining to this situation.

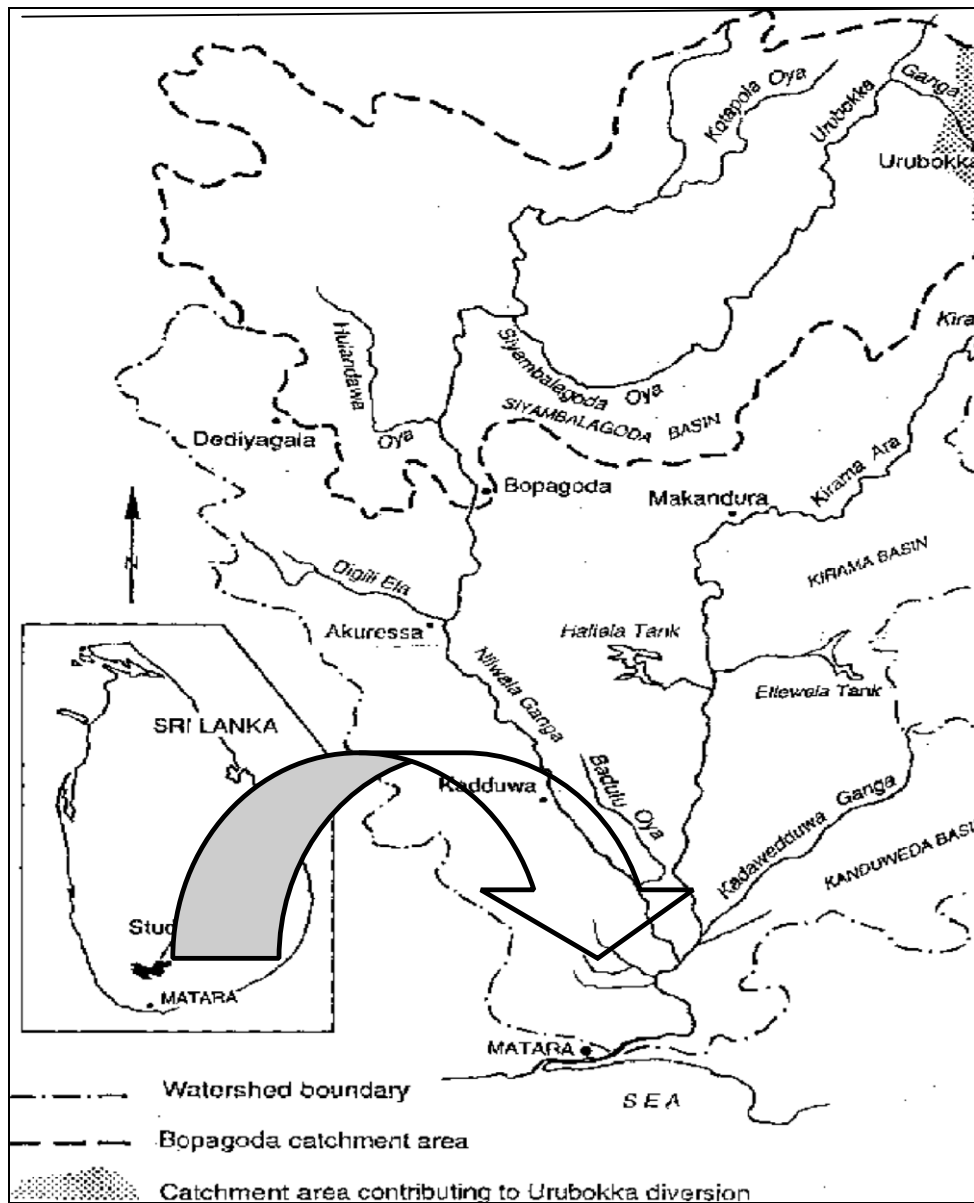
Key words : Nilwala project, Study area, land use, changes, environmental

2. Introduction and research problem/ issue :

Nilwala river which is situated in the Southern Province is 72 km long. It begins from Gongala hills and flows into the sea in

Thotamuna in Matara. The average slope of the bottom of the riverbed approaches nearly zero at last 13 km of the river, where Matara township and urban areas are concentrated. The major hazardous events within the basin could be broadly described as flash floods, droughts, landslides and severe erosion in the upstream side. Preliminary assessment of the sites susceptible to landslides and severe erosions appear to be linked to scrub lands, which are mostly the marginal and abounded tea lands, whereas floods often affect the lower basin area. Its flood plain choked at its outlet to the sea restricts easy evacuation of floodwater to the sea, often resulting in floods and inundation of roadways in Matara town (Panabokke, 1996). Since both upper and lower basin areas are affected by hydrometrological disaster events, and invariably the events are influenced by global climate change, the events have become more frequent and higher in magnitude. Therefore, it was essential that the government undertake measures to mitigate the growing impacts of such events Special feature of Nilwala river is its long distance of flow across low area from a water fed area with a higher **elevation**. As a result lower valley of Nilwala has been subjected to flood from ancient time. About 8500 hectare of paddy lands out of total paddy land extent of 17000 hectare in Matara district were damaged due to flood occurred in 1980. In addition, the above mentioned flood situation adversely affected tea, rubber and coconut cultivation in the areas of Matara, Akuressa, Kadduwa, Malimbada, Kiralakele and daily life of the people in those areas. A solution was brought forward for this by the then Sri Lankan Government. It was Nilwala Project which commenced in the year 1983 and it was implemented in 3 stages. With the implementation of these stages a considerable changes occurred in land use in Matara district. Decrease of quality of agricultural lands, loss of farmers' lands, increase of cost of agricultural lands, decrease of man: land rate, land boundary issues were among them. Map Matara:, Source: www.lanka.info





Source: Map Matara:./ www.lanka.info

1. Research Methodology

Accordingly the prior objective of this study is to identify changes occurred in the land use of Matara district with the implementation of Nilwala project and related impacts. On the other hand it is also expected to review land use changes before and after the implementation of this project, identify current issues of farmers and solutions for them.

In this research study the methodology includes 03 major parts as follows.

01. Collection of data
02. Presentation of data
03. Analysis of data

Accordingly collection of data includes 02 major methods. They are collection of primary data and secondary data. In the collection of primary data a few methods were used. They are questionnaire, interviews and observations. In the collection of data areas like Godagama, Akuressa, Nadugala and Kadduwa covering Matara

district were selected. Data of years from 1983 – 2016 had to be collected in order to study the changes and impact of land use in these areas with the implementation of Nilwala project.

This research was carried out with the help of data collected through structural questions to responders selected from above mentioned areas. In that process, even data of institutions were also used.

Belonged to a part of project(Hec.)	Land extent cultivated paddy after the project	Land extent cultivated before the project	
	Yala	Maha	Yala
Kiralakele (1990)	100	600	1300
Kadawedduwa (2220)	1800	1800	1800
Kadduwa (880)	500	540	580
Akuressa (315)	315	315	
Total extent (5005)	2715	3255	3680

Figure.1: Changed of paddy cultivated lands before and after the commencement of
Source : Field study – 2016/11/16

4. Results and findings

In this event, basic attention was paid to a few matters.

- Was there any change in paddy cultivable land extent before and after the commencement of Nilwala project ?

Paddy cultivated land extent in Matara district pertaining to Nilwala project has been divided into 04 parts. They are Kadawedduwa, Kadduwa, Akuressa and Kiralakele. Data on change of lands cultivated collected from these areas before and after the commencement of Nilwala project are as follows.

Table No. 01 : Changed of paddy cultivated lands before and after the commencement of Nilwala project.

According to these extents it was expected to cultivate a land extent of 5000 hectare but it was not possible to cultivate about 1800 – 2000 hectare. On the other hand a greater change can be seen in total cultivated land extent before and after the project.

The reasons for these are the results of changes occurred in land use.

Accordingly changes of paddy cultivated lands in the study area before and after the commencement of Nilwala project could be reviewed through hypothesis.

H₀ - There is a change of paddy cultivated lands.

H₁ - No change of paddy cultivated lands.

Changes occurred in land use in flooded areas.

When engineering techniques are analyzed it is apparent that Nilwala river is a project designed in order to protect from floods. But within the study areas there are flood threats even today. Under this project ten year plan of flood prevention was designed and massive threats of flood cannot be seen in this study area as a result of bunds, canals and pump houses constructed. Accordingly at present areas like Shoe bridge area of Akuressa, Bandathara, Nadugala and Thudawa can be identified as flood threat areas.

How land use changes affect water supply and drainage in Matara District.

Nadugala pump house is largely responsible in purifying and distributing water within Matara district. But as a result of drainage systems, dams and canals constructed under this project sea water is mixed.

Fertile cultivable lands become unfertile lands.

With the implementation of this project natural fertility in the study area cannot be seen now. Good example for this is the area of Kiralakele. Palatuwa area belonged to Kiralakele played a major role as a lowland which collects excessive water of Nilwala river and immensely served people living in Matara area. But at present this land area has become unfertile barren land.

In addition to this, some issues pertaining to land ownership have arisen as a result of certain activities like filling up cultivable and constructing highways and housing etc.

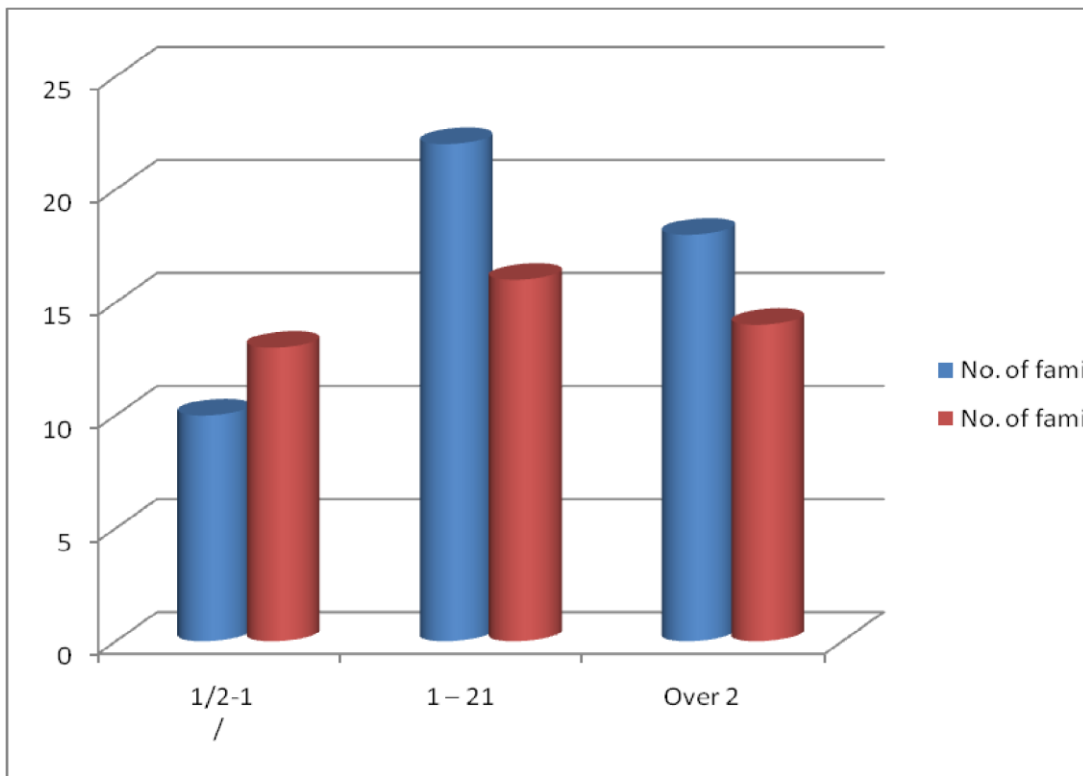


Table No. 02 : Change in land ownership before and after the implementation of Nilwala project.

Land extent	No. of families (Before)	No. of families (After)	Percentag Before
1 / 2-1	10	13	20
1 – 21	22	16	44 3
Over 2	18	14	36
Toatal	50	50	100

Figure.2 :Changed in land ownership before and after the implementation of Nilwala project. Source : Field Study – 2016./11/16

Figure.1: Changed in land ownership before and after the implementation of Nilwala project., Source : Field Study – 2016./11/16

5. Conclusions, implications and significance

According to these figures an apparent change in land ownership can be seen with the implementation of this project. As a whole following benefits can also be seen in the study area with the implementation of this project.

- Cities of Matara and Akuessa have become more safer from flood than earlier.
- Construction of new buildings, highways and irrigation systems.
- Setting up of small scale enterprises and factories within the study area.

Following disadvantages can also be seen.

- Environmental pollution due to mining and taking out soil.
- Has led to dearth of water, water pollution and water diseases.
- Water sources become dry, level of water sources and wells have reduced.

Accordingly in this study following conclusions can be obtained.:

- Nilwala project has affected due to the considerable changes occurred in land use in Matara district than other areas ➤ Land ownership and possession has been changed
- Not a well planned project.
- Project has not considered economic and environmental facts and matters.

Accordingly land use in Matara district has greatly changed and as solutions following could be pointed out.

- To start remaining works of stages.
- Authorities have to work impartially
- Obtain ideas from those who have technological and scientific knowledge.
- Obtain ideas of general public and give scientific base for them.

Then only we can survive Nilwala river though it is difficult and long term.

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