

World News of Natural Sciences

WNOFNS 14 (2017) 116-123

EISSN 2543-5426

Socio-economic impact of wetlands: a study based on Navithanveli DS Division

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ABSTRACT

The prime objective of this study is to assess the socio-economic impact of wetlands in the study area; the secondary objective is to establish the condition of the wetlands and to propose remedial measures. Primary and secondary data were used for this study. As primary data, we employed direct observation, questionnaire survey and group discussion. As secondary data, we utilized statistical data from Navithanveli DS Division, previous researches and general ecological works. In Navithanveli DS Division, inhabitants are benefitted by wetlands in many ways. Paddy cultivations, vegetable cultivation, small-scale fishing, biodiversity, groundwater recharge, gardening, Tule mat industry and water for domestic usages. Indiscriminate activities of inhabitants, unplanned and improper infrastructure have caused many challenges for the wetlands in the study area. Many remedial measures have been recommended to conserve the wetlands in the study area.

Keywords: Socio-economy, wetland, paddy cultivation, biodiversity, groundwater recharge, Navithanveli DS Division

1. INTRODUCTION

Humans are integral part of wetland system. They totally depend on the wetland. Wetlands contribute to the local and national economy. 64 % of the world's wetlands have disappeared since 1900. (Ramsar convention on wetland).

According to two estimates, wetlands cover between 125 and 131 million hectares (Mha) in Africa and between 204 and 286 Mha in Asia.

Overall, scientists estimate that wetlands cover at least 6% of the world's land area. 2 In South America, the best estimate is approximately 179 Mha (IWMI, 2014)

Wetlands are areas where water covers the soil, or is present either at or near the surface of the soil all year or for varying periods of time during the year, including during the growing season. The convention on wetlands, signed in Ramsar, Iran, in 1971, is an intergovernmental treaty which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. There are presently 158 Contracting Parties to the Convention, with 1758 wetland sites, totalling 161 million hectares, designated for inclusion in the Ramsar List of Wetlands of International Importance. Ramsar Convention is the only global environment treaty dealing with a particular ecosystem (Ministry of environment, Forest and Climate change, Government of India, 2017).

The Ramsar convention says that the wetlands are 'areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres' (Ramsar convention).

Wetlands gives many benefits in various ways such as wild fruit and nuts, forage, timber, natural fibres, medicines purification and detoxification: filtration, purification and detoxification of air, water and soils; cycling processes: nutrient cycling, nitrogen fixation, carbon sequestration, soil formation; regulation and stabilisation: pest and disease control, climate regulation, mitigation of storms and floods, erosion control, regulation of rainfall and water supply; habitat provision: refuge for animals and plants, storehouse for genetic material; regeneration and production: production of biomass providing raw materials and food, pollination and seed dispersal; and information/life-fulfilling: aesthetic, recreational, cultural and spiritual role, education and research (Food and Rural Affairs, 2005)

In Sri Lanka, Vangalai sanctuary, Wilpattu, Anaivilunthan tank, Madukanga, Bundala and Kumana are the selected Ramsar wetlands. Sri Lanka is rich country for wetland. Many types of wetlands such as freshwater wetlands, salt water wetlands, brackish water wetland and constructed wetlands are available in Sri Lanka.

In Navithanveli DS Division there are various kind of wetlands. It creates the employment opportunities such as paddy cultivation, vegetable cultivation, small scale fishing, biodiversity balance, groundwater recharge, tulle mat production and gardening. Inhabitant of Navithanveli DS Division people are socio-economic benefits from wetlands. Thus, this study aims to identify the socio-economic impact of wetland in Navithanveli DS Division.

2. STUDY AREA

All villages in Navithanveli from 20 GN division were settled under the Gal-Oya multipurpose development project. People in the Navithanveli DS Division depend mainly on Agriculture. Navithanveli DS Division was affected by the civil war in 1990 most of the Tamil people were affected. The famous rice mill which had been destroyed during the war period in 1990 gave employment opportunities to many residents.

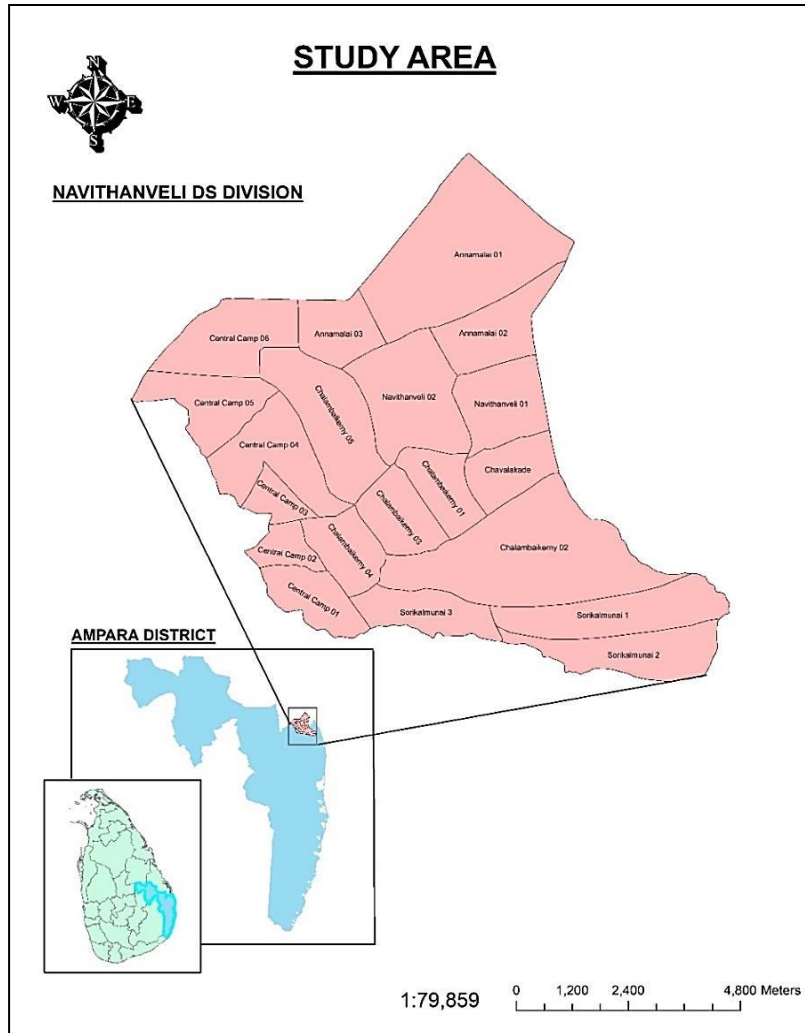


Figure 1. Map of Navithanveli DS Division.

Navithanveli DS Division is situated in Northeast part of Ampara District. The boundary of Navithanveli DS Division are

- North- Porathivupatru DS division, Batticaloa
- East- Batticaloa tank
- South- Sammanthurai DS division
- West- Uhana DS Division

2. OBJECTIVES

Primary objectives

- To identify the socio-economic impact of wetland

Secondary objectives

- To find the environmental challenges for the wetland
- To propose remedial measures to overcome challenges

3. MATERIALS AND METHODS

Both primary and secondary data were used for this study. As primary data questionnaire survey, direct observation and conversation with relevant officials were made. To collect data questionnaire survey was used. 50 questionnaires were distributed among the samples who were selected purposively.

- Farmers – 50
- Inhabitants – 35
- Agrarian officials – 10
- Environmental official – 02
- Official from irrigation department – 03

As secondary data, statistics from Divisional secretariat, performance report of District Secretariat, previous researches, newspapers, magazines, and books were used. All the collected data were analysed with the help of Ms Office Excel and SPSS software.

4. RESULT AND DISCUSSION

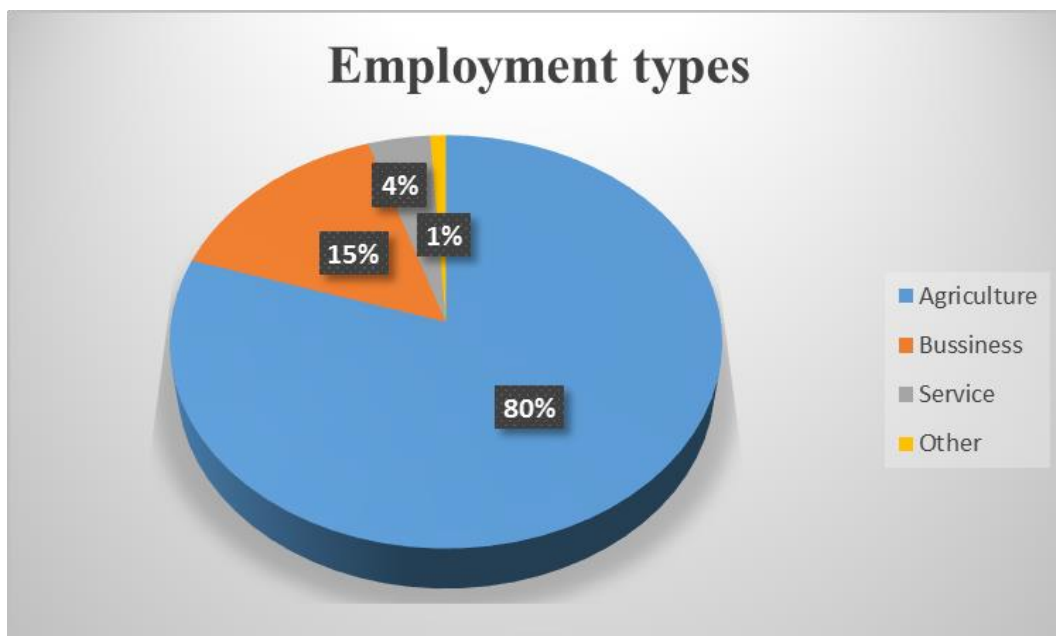


Figure 2. Employment types of Navithanveli DS Division

The employment types in Navithanveli DS Division are agriculture, business, service sector and other as 80%, 15%, 4% and 1% respectively. As an agricultural area, Navithanveli is extensively engaged. Majority of the wetlands are used for the paddy cultivation.



Figure 3. Field survey, 2017

Socio-economic benefit of wetlands

- Paddy cultivation
- Vegetable cultivation
- Fishery

- Biodiversity
- Flood controlling
- Sand for construction
- Groundwater recharge

The canal which runs through Navithanveli area is a primary water course to irrigate to paddy land from Senanayaka samudra. It is considered as a constructed wetland. Some small ponds temporarily store water from irrigation canal or rainfall are also considered as the constructed wetland. In Constructed wetland people get benefitted in various ways.

- Increasing recreation and ecotourism in the study area. Many inhabitants or out of area people use the constructed wetland for the recreation and to have bathe and swimming
- Much amount as well as types of fishes are caught by fishers who depend on the small scale fishery in the study area.
- Groundwater recharge and industrial purposes.
- Many constructed wetlands act as a transit to pass the water from one place to another.
- Giving drinking water to livestock

Many inhabitants in Navithanveli DS division are engaging the tule mat weaving as small scale industry.

Environmental challenges for wetland

- Indiscriminate usage of agrochemicals. Indiscriminate utilization of wetland causes many environmental challenges to wetlands.
- Waste dumping
- Increasing machinery utilization caused the biodiversity destruction
- Increasing soil mining. In many wetlands
- Meteorological drought
- Lack of awareness among people about the importance of wetland
- Improper land use and unplanned infrastructure
- Landfill.

Increasing waste dumping has caused many challenges for the wetland. Particularly, polythene, waste material from agriculture, dead plants and polluted wastages are causing enormous impact on the wetland. Many people dump waste material from households in to the wetland. Indiscriminate utilization of the agrochemicals has caused deterioration of wetlands.

5. CONCLUSION

90 percent of Navithnaveli inhabitants are farmers. They totally rely on the agriculture. For the self-sufficiency and for the commercial purposes they engage paddy cultivation. The wetlands particularly paddy lands and some kind of ponds are play crucial role for their day to day life. As conclusion the socio-economic impact of wetland is very high level in this study area.

Recommendation

- Reducing the excess utilization of the agrochemicals and eliminate all the ways where agrochemicals easily access to the watercourse or water bodies.
- To stop dumping waste materials on the wetlands. If so happen, introducing fine system with the respective organizations such as Pradeshiya Shabahs or local governments together with police department.
- Stopping to use heavy machineries during the night time which intimidate biodiversity destruction
- During the arid season, take measures to retain water from wetland to sustain living organisms.
- Considering wetlands during the construction or infrastructure activities.
- Use decomposable material for the households' needs
- Giving awareness among people about the importance of wetland
- Stopping illegal soil mining to conserve the soil erosion
- Take actions to leave small fishes to replenish the fisher and keep the ponds as fish rich areas.

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(Received 25 September 2017; accepted 10 October 2017)