Ecosystem services and watershed management of Deduru Oya reservoir project in Sri Lanka

M.P.S. Thilakarathna[1]

Abstract

Deduru oya originates in the central hills of Sri Lanka and mainly runs through the North Western Province and is fed by a catchment of over 2600 km^2. The purpose of this study was to identify the ecosystem services provided by the Deduru oya project to different stakeholders and identification of threats to their continuity. This study was based on both primary and secondary data. The primary data was collected using questionnaires, interviews and observation in the study areas of Pothuwewa, Vilgamdematawa, Welpothuwewa, Pannawa, Polpithigama, Malagane, Thambarawa and Netiya. A semi structured questionnaire survey was conducted with 45 respondents with the application of simple random sampling technique. Data were analysed using SPSS statistical package and descriptive statistics were used to describe the present usage of ecosystem services provided by the Deduru oya project. Study results revealed that agricultural farmers, dairy and poultry farmers, fish sellers, domestic consumers, industrial workers and sand miners are the beneficiaries who gained provisioning services such as agriculture, fishing, fiber crops, sand and fresh water. Recreation, tourism, education, research, sense of the place and traditional ownership are cultural ecosystem services. Catchment areas are covered by large trees of "Kubuk'' (*Terminalia arjuna*) and "Mee" (*Madhuca longifolia sapotaceae*) which provide regulating services and supporting services of water purification, erosion control and maintaining the biodiversity. Although sand miners were beneficiary stakeholders of the reservoir, more than 85% of the respondents stated that illegal sand mining activity has adversely influenced on providing other ecosystem services. When the reservoir fills up to 70% of total water capacity, it overflows and inundates many areas and is a major threat on rural livelihoods of paddy and chena cultivation, and dairy farming. Payments for Ecosystem Services (PES) scheme as a suitable mechanism for sustaining ecosystem services and watershed management.

Keywords: *Ecosystem services, Payments for ecosystem services, Stakeholders, Watershed management*

[1] *Department of Environmental Management, Rajarata University of Sri Lanka.*
Corresponding author's email: samadhimp93@gmail.com