

# MEASURING ECOSYSTEM SERVICES PROVIDED BY MOEYUNGYI WETLAND IN MYANMAR

## Basic Information of MOEYUNGYI WETLAND

Name: Moeyungyi Wetland Wildlife Sanctuary  
Area: 10,360ha  
Location: Southern part of Bago Region, Myanmar  
Designation: Ramsar site (designated in 2004)  
Purpose: Man-made water storage reservoir constructed in 1873-1878 for irrigation and flood protection, now an important ecosystem for wildlife as well as bringing significant benefits to local people.



## Importance of Biodiversity & Ecosystem services

Ecosystem services are the benefits that people receive from nature and we depend on these services to produce food, regulate water supplies and climate, and protect us from extreme weather. We also benefit in less obvious ways such as from spiritual experience and recreational enjoyment. A number of ecological and environmental processes and functions, such as soil formation and nutrient cycling, underpin the ability of an ecosystem to deliver services. Moeyungyi WWS provides significant benefits for 12,000 households living around the wetland, and also has values for regional and global beneficiaries. The wetland also has rich diversity and is important for wildlife; a home for nearly 20,000 migratory and resident birds, mammals, reptiles, amphibians, fish, insects and aquatic plants etc.



### Water

Water is vital to sustain life. The wetland provides water for drinking, cooking, bathing and other domestic purposes. Also, the wetland plays an important role as a reservoir, providing water for growing rice in the paddy fields particularly during the summer time. It provides flood protection in the wet season.



### Harvested Wildlife Goods

Local people depend on fish from the wetland for protein and as an income source by selling in the market. Lotus is also harvested for weaving shawls and robes for monks. Large numbers of water buffalo graze in and around the marshy areas. Molluscs are also fed to ducks that are raised on the wetland.



### Agriculture

In Myanmar, the basic cereal crop on which almost all of the population relies is rice. As the water recedes within the wetland, newly-exposed are used for rice cultivation. Rice paddy is irrigated by the wetland ecosystem.



### Tourism / Recreation

The wetland provides birdwatching opportunities especially for migratory waterbirds. Also, people can enjoy the idyllic landscape, and national and international tourist numbers are increasing.



### Climate Regulation

In general, wetlands moderate the local climate by absorbing heat by day and releasing at night and contribute to regulating the global climate through storage of carbon.

Icons for ecosystem services ©Jan Sasse for TEEB / Photos provided by BirdLife International and BANCA

# VALUATION OF THE ECOSYSTEM SERVICES

## Results of the Assessment

Moeyungyi Wetland provides various ecosystem services. For this survey, water, harvested wild goods, cultivated goods, nature-based recreation and climate regulation values were measured using “TESSA – Toolkit for Ecosystem Service Site-based Assessment” and based on existing data and interview surveys. Since only some ecosystem services were included, the results present a minimum estimate of the value of the wetland. Despite this limitation, the result shows that the wetland provides benefits of at least \$22.1 million per year.

These results help people to recognize ecosystem services better, and improved understanding can lead to wise use of the wetland such as sustainable agriculture and fisheries and better policy formulation, resulting in land-use and management options that deliver more effective conservation, resilient livelihoods and poverty alleviation.

For more information of the method: <http://tessa.tools/>

### Benefit



#### Water : \$ 8.5 million/year

Irrigation water is worth \$83,400/year  
Domestic use of water is worth \$7,987,000/year (\$1,280/household/year)  
Flood protection function to the downstream region is worth \$458,000/year



#### Harvested Wild Goods : \$ 16.2 million/year

Fish production of the wetland is worth \$15,360,000/year (\$3,360/household/year)  
Buffalo grazing and molluscs for duck food in the wetland is worth \$774,000/year and \$75,000/year, respectively. Lotus stalk harvest for waving textile is worth \$19,000/year



#### Cultivated Goods : \$ 0.4 million/year

Rice production inside the sanctuary is worth \$438,000/year (\$548/ha/year)



#### Nature-based Recreation : \$ 0.07 million/year

Foreign and domestic tourists and visitors pay a travel cost equal to \$74,000/year



#### Carbon Storage : \$ 91.6 million

The benefit of global climate regulation from the carbon stored in the wetland is \$91,595,000. This is an one-off stored value, i.e. not an annual value.

### Cost



#### GHG Emission : - \$ 3.1 million/year

Paddy fields release CO<sub>2</sub>, Methane and Nitrous which accelerates climate change. The cost of these are \$3,136,000/year.



#### Management Cost : - \$ 0.02 million/year

The management cost of the sanctuary is about \$22,000/year and this is used for various activities such as monitoring and controlling the use of the resources, awareness raising for conservation etc.

**Net Benefit \$ 22.1 million/year**  
**Plus \$ 91.6 million of carbon storage function**