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Measuring ECOSYSTEM SERVICES provided by MOEYUNGYI WETLAND in Myanmar



MOEYUNGYI WETLAND Wildlife Sanctuary

Basic Information

Moeyungyi Wetland Wildlife Sanctuary (WWS) is an important wetland and the only Ramsar site in Myanmar (designated in 2004). The Ramsar Convention is an international treaty for the conservation and sustainable utilization of wetlands, and the designation indicates the importance of the fundamental ecological functions of the wetland and their economic, cultural, scientific and recreational value.

The wetland covers an area of 10360ha, located in the southern part of Bago Region; the western and southwestern parts belong to Bago Township and the southern and eastern parts to Waw Township. The northern boundary demarcates between the wetland and Daik-Oo Township. The wetland is a shallow rectangular man-made water storage reservoir constructed in 1873 -1878, but over time it has become an important ecosystem for wildlife as well as bringing significant benefits to the local people.



Importance of Biodiversity & Ecosystem Services

Ecosystem services are the benefits that people receive from nature and we depend on the services to produce our food, regulate our water supplies and climate, and protect us from extreme weather. 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 which result in 'goods' that are valued by people. We also value them in less obvious ways: contact with nature can contribute to spiritual experience, provide recreational enjoyment and is known to have a positive impact on long-term health and happiness. Thus, the economic, health and social benefits that we derive from ecosystem services are vital for human well-being.

Moeyungyi WWS provides food and water supply for local communities living in 17 villages located around the wetland. The wetland has rich diversity and it is important for wildlife; it provides a home for nearly 20,000 migratory and resident birds, mammals, reptiles, amphibians, fish, insects and aquatic plants etc. Among the waterbirds, the site supports threatened species including Baer's Pochard (CR) and Sarus Crane (VU).

Agriculture

In Myanmar, the basic cereal crop on which almost all of the population relies is rice, a cultivated food. As the water recedes within the basin, newly-exposed areas, which are around 800ha, are used for rice cultivation. Rice paddy is watered and fertilized by the wetland ecosystem.

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 shawl and the robe for monks. Besides this, large numbers of water buffalo and cattle graze in and around the marshy areas. Molluscs are also fed to ducks that are raised on the wetland.



Water

Water is vital to sustain life, and is needed for domestic use. Some people around wetland depend on the wetland water for drinking, cooking and bathing and other domestic purposes. Also, the wetland plays an important role as a reservoir particularly during the summer time, where huge water withdrawal is necessary for growing rice in the paddy fields.



Climate Regulation

In general, wetlands provide a function of climate regulation locally and globally. The wetland contributes to regulating the global climate through storage of carbon. Locally, water bodies moderate the local climate by absorbing heat by day and releasing heat at night.

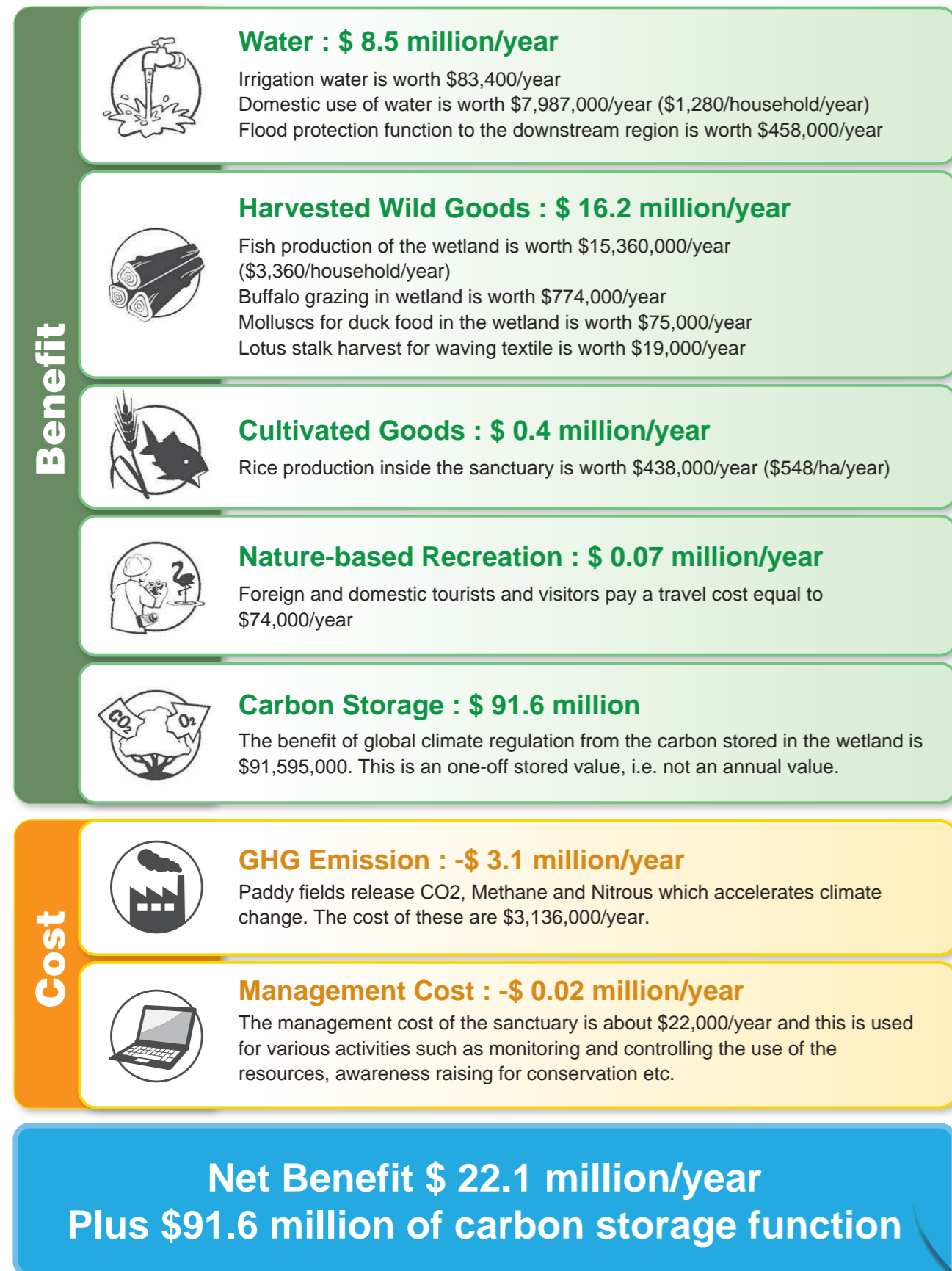
Tourism / Recreation

The wetland provides birdwatching opportunities especially for migratory waterbirds. Also, people can enjoy the idyllic landscape and recently, national and international tourists have increased. Well managed eco tourism can provide benefits not only for tourists, but also for local people as an income source.

Valuation of the ECOSYSTEM SERVICES

Results of the Measurement

Moeyungyi Wetland provides various ecosystem services and the estimated economic benefit equals at least the following amount per year according to this simple survey.



Interpretation of the result

The value of the ecosystem services of Moeyungyi is measured based on existing data and interview surveys. Since only some of the major ecosystem services were selected for the survey, the result does not cover the whole services derived from the wetland. Even though, the result shows that the wetland bring us benefits of at least \$22.1 million per year.



Why evaluate ecosystem service?

Despite their importance, ecosystem services are consistently undervalued in conventional economic analyses and decisions. In Myanmar, the majority of the population lives in rural areas and derives its livelihood directly from ecosystem services.

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



Threats to the wetland

Despite its importance for biodiversity and ecosystem services, this wetland is under threat from human activities. The following activities are the major threats to the wetland.

- Electric shock fishing : it causes overexploitation of fish resources
- Water overuse : huge water withdrawal is necessary particularly during the summer time
- Use of fertilizer and pesticides : contamination of the water can affect human health and threatens the existing biologically diverse plant and animal species.
- Land encroachment for paddy field : over wetland area reduces the extent of the wetland and increases the level of water pollution
- There are also several activities affecting the biodiversity such as bird hunting / bird trapping with nets / trading of turtles and snakes etc.

- In order to receive the benefit derived from the wetland, such activities need to be monitored and managed in a sustainable way.

To receive this benefit sustainably...for future generations

Appropriate conservation action and management puts less pressure on the wetland and helps to maintain good condition of the wetland ecosystem. Healthy ecosystems deliver benefits sustainably to people.



How to measure ECOSYSTEM SERVICES

Next Step

To make effective decisions, it is important to know the difference between the amount of the ecosystem services provided by a site in its current state compared to a plausible alternative one (e.g. agriculture) where the habitat is converted, or in which resources are unsustainably exploited. Decision-makers need to consider how ecosystem services are changed as a result of changes in land uses (e.g. from conservation to development). By using the toolkit "TESSA", the value of the ecosystem services are determined for the current and alternative states, and can be compared to allow more informed decisions.

For more information: <http://tessa.tools/>

The Method

This assessment was conducted by using a guidance toolkit called "TESSA" -Toolkit for Ecosystem Service Site-based Assessment. The step-by-step process for assessment is designed as a decision key. The toolkit covers five classes of ecosystem services i.e. water services, harvested wild goods, cultivated goods, nature-based recreation and climate regulation services. It leads the user through a series of steps or questions, so that the user learns along the way.

