

# **Ecosystem Management: ECO-Engineering Project in Rice Plot in Sungai Besar, Selangor**

Dr Rosliza Jajuli

Agro biodiversity and Environment Research Centre, MARDI

Ecosystem Management is a process that aims to conserve major ecological services and restore natural resources while meeting the socioeconomic, political and cultural needs of current and future generations. This is important to ensure that every country continues to maintain its vital biodiversity for future sustainable development. In the Convention on Biological Diversity (CBD) article 2, biodiversity refers essentially to the diversity of living organisms, the genes they contain and the communities to which they contribute. These also include diversity within and between ecosystems. In general, biodiversity plays an important role in almost everything – from climate change mitigation, restoration of degraded habitats, management of an ecosystem, source of medicine for treatment of diseases and control from biological invasions.

## **ECOSYSTEM SERVICES PROVIDED BY BIODIVERSITY**

The main problem lies in human perception that they are the most sophisticated and intelligent form of life that dictate the fate of other living things around them. This somehow detached man from accepting the importance of other life forms (biodiversity). Every unit of biodiversity plays an important role in a balanced natural ecosystem. Take for example the agriculture sector, which is responsible for producing food to feed the country. For every food or fruits being served on your table, there is a whole lot of chain events that take place before it is ready for consumption.

Many varieties of local underutilized fruits and medicinal plants which are unknown to many people, contain high value nutrients that can be utilized to support human health. As food is a form of product that is easily seen and purchased, other contributions to biodiversity is less appreciated or even ignored. No attention is given to this pollinating agent's existence until there is a sudden reduction in fruit yield due to its absence. Due respect must be given to both the tiny creatures that play a role in the ecosystem service and to the ecosystem itself.

An ecosystem functions as a unit interconnected with the environment. Ecosystem such as wetland remove harmful substances from drinking water while forest ecosystems are the green lungs of the environment that provide clean air by producing oxygen and removing carbon dioxide.

## **ECOSYSTEM MANAGEMENT THROUGH ECOLOGICAL ENGINEERING (ECO-ENGINEERING)**

The major challenge now is to conserve biodiversity and manage ecosystems effectively for future sustainable development. Scientists believe that the ecosystem approach is the best way to conserve biodiversity. Ecological engineering is an emerging study of integrating ecology and engineering which involves design, monitoring and construction of ecosystems. The design of sustainable ecosystems intends to integrate human society with its natural environment for the benefit of both. Eco-engineering projects in agroecosystems have been carried out on a small

scale for rice and vegetables areas. In an eco-engineering approach, we actually educate the farmers on the importance of conserving biodiversity and reducing the use of chemical inputs. This will eventually improve the biodiversity in the area and occurrences and losses due to pests and diseases which are reduced significantly as the ecosystem services provided by the biodiversity play their roles.

Biodiversity shapes the future of the human race. Biodiversity gives basic materials for life, freedom of choice, social and cultural identity and security. As Malaysia gears up to be a knowledge economy and a high income nation, a collective and sustainable effort by every Malaysian is important in making sure the effort will be successful. The revised National Policy on Biological Diversity (2015 – 2025), which was launched recently by Ministry of Natural Resources and Environment, will guide Malaysia to a more holistic and concerted approach in safeguarding biodiversity as a natural capital that would benefit current and future generations of Malaysians.

Date submitted: Nov. 16, 2016

Reviewed, edited and uploaded: Nov. 17, 2016