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## Education for Wetlands: Public Perception in Malaysia

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### Abstract

The importance of wetlands ecosystem cannot be denied simply because they are always recognized as “wastelands”. The need to proactively convey a message and an image to the public is now widely recognized globally. Public understanding of the importance of wetlands inspires utilization of these resources. Environmental education encourages behavioral changes that facilitate habitat protection and wetland conservation. This paper will focus on education and awareness curriculum for wetlands protection, community and non-formal education programmes on wetlands. The overall aim of this paper is to provide an understanding of the importance of the role of wetlands for the environment.

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*Keywords:* Wetlands; RAMSAR; awareness; conservation

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### 1. Introduction

To what extent do people in Malaysia have high values and regards for the environment, especially wetlands? How can we assess how close people feel towards nature, i.e. wetlands?

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In this paper, we are highlighting the importance of education for wetlands, from the public perception in Malaysia. We have conducted research in the vicinity of Tasek Bera in Pahang, which is the first Ramsar site in Malaysia.

The method used was by using a semi-structured interview of local residents in the areas surrounding Tasek Bera, and an analysis was made of the data collected from those interviews. Another series of interviews was also made of the various Ministry officers who enforced the area of the wetlands to see whether their perceptions were the same as the local population, or if they had a different perception.

There are many issues that need to be raised with regards to the environmental pollution menacing Malaysia's wetlands. Wetlands cover about 10% of Malaysia's surface area. Swamp forests, including freshwater and peat swamp, habitats make up 5% of the land while mangroves make up 2%. In the past, wetlands were destroyed chiefly because of agricultural activities including coconut, rubber and oil palm plantations. The main problem is the fact that where wetlands are concerned, there is no overall national policy. To be more accurate, there is no policy in place. There is a draft policy in existence but it has yet to be made a reality. This is necessary because there has to be some sort of guideline when it comes to the protection and the exploitation of wetlands. This is especially true when considering the various government agencies which all have a role to play. Looking at the laws that we have, for instance, the Department of Environment, the Local Authority, the Federal and state Forestry Department and the Federal and State Fisheries Departments all have important roles to play.

Many discussions have taken place on the causes of destruction to the environment, especially to wetlands. Environmental groups claim that globalization and forest product industries contribute to these causes of destruction. As a consequence, the public perception is that the more paper or wood products that are used, the more destruction would take place.

Tasek Bera is an alluvial riparian swamp system situated in the catchment of the River Pahang, which comprises swamp forest (90%), Pandanus- *Lepironia* swamp and open water (1%) with beds of submerged macrophytes. It is a monsoonal wetland system, subject to fluctuations in water levels of up to 5 meters, which occur in response to local rainfall patterns. The peat swamp forests of Tasek Bera are floristically and structurally unique while the mosaic of wetland habitats contains plant species of conservation interest, and together with adjacent rainforest support a rich diversity of animal life, including globally threatened and endemic species. Some 2000 indigenous Semelai people live in and around the Ramsar site, depending to a limited extent upon its resources, and eco-tourism is being promoted as one of the important uses of the site.

The main causes of destruction in the Tasek Bera area were from people who were logging illegally, or were killing protected species in the Tasek Bera wetlands area.

## **2. Literature Review**

### *2.1. Terms of education for wetlands, public perception*

The highest priority in wetlands education programs, is very simply, the definition of the word "wetlands". In Malaysia, in the Malay language, a wetlands is just simply "kawasan paya" or literally "a swampy area". A very simple definition for the public that does not evoke great feelings or good feelings about saving the area as a wetlands area that needs to be protected and nurtured by the public, before some logging company comes in and cuts down everything they can before someone starts complaining, usually an environmental group who has people who care about the vegetation and the wildlife in the area.

The established definition of a wetlands area is that wetlands can be defined as 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 6 meters (IUCN 2007).

This would also include a “buffer” zone, which is an area surrounding a wetlands area that acts as a transition area between the wetlands and the surrounding countryside or populated areas. This can be anywhere from half-a-mile to two or three miles from the edge of the wetlands. In the United States, four government agencies, the USFWS (US Fish and Wildlife Service), the Environmental Protection Agency (EPA), and the U.S. Army Corps of Engineers, along with the Soil Conservation Service, all had their own definition of what a wetlands is, so they all adopted the same Federal definition of a wetlands (Federal Manual for Identifying and Delineating Jurisdictional Wetlands, 1989). A wetlands must have:

- **Hydrophytic Vegetation.** The site must be dominated by plants that require or prefer wet soils. This criterion can be difficult to apply because it is often hard to identify the many plant species on a given site and to determine their relative abundance there.
- **Hydric Soils.** In general, hydric soils are wet and anaerobic (lacking in oxygen) for one week or more during the growing season. Unfortunately, it is not easy to identify soil properties in transitional areas with enough certainty to satisfy this requirement.
- **Wetland Hydrology.** The hydrology criteria are based on the depth from the surface to the water table and the length of time the water table remains at that depth. The hydrology factor is the most difficult of the three criteria to quantify because it can change rapidly with rainfall or flooding. In addition, wet conditions may occur only seasonally or at irregular intervals. The site may have to be monitored for an extended period to determine its hydrology.

## 2.2. *Why education of wetlands is important?*

Education concerning wetlands is important because without that education, and the knowledge that comes from that education, wetlands that are here today will be destroyed, or ruined beyond all hope of recovery, and the children of today will not have anything to show their children of the beauty of the wetlands and the vast benefits people can derive from the proper use of those wetlands, as well as protecting the areas surrounding the wetlands as its buffer zone.

The educational kit that was created by the Bera education office working with a teacher’s training college in Pahang to develop a wetlands education kit, and targeting primarily schoolchildren. The kit comprised teaching modules, as well as student activities, a VHS tape on Tasek Bera flora and fauna, sound tapes of different animals found within the wetlands, two posters, one of fish found at Tasek Bera and the other showing various habitats within the wetlands area. It took eighteen (18) months to produce the final kit.

The kit was then published in 1999 and sent out in a “McDonald’s Happy Meal”-format, to make it easier to carry in the field, and to make it visually interesting for schoolchildren. Out of 450 kits produced, 250 were sent to schools in Pahang selected by the Education Department, to see how effective the kit was in teaching children about wetlands.

At the end of 2000 after one full year in usage and circulation, a questionnaire had been prepared and sent out to the schools to ascertain the level of understanding of wetlands and how useful the Kit was as an education tool. The data from the questionnaire was analyzed and 65 % of the respondents stated that the Kit was innovative in the approach used and the activity sheets were fun to do. Also, 72 % of the respondents said that they better understood the functions and values of wetlands.

### *2.3. What is the education and awareness curriculum for wetlands protection in Malaysia?*

Within the Malaysian school system, 'Environmental Education' (EE) (Alam dan Manusia) was incorporated into the primary schools in 1982, but in 1992 was integrated across the curriculum into many different subjects, not taught as a single subject. Of course, this means the students learn what a wetlands is, and possibly how it fits into studying science and the environment, but not necessarily why wetlands need to be protected. Other than this, Wetlands International has put together an educational package that goes into great detail, with many activities to increase awareness of wetlands, but this has not been made mandatory for Malaysia or any other countries that have wetlands.

#### *2.3.1. How does this compare with neighboring countries?*

From what literature the researcher could find concerning the educational curriculum in Thailand and Indonesia, Malaysia would seem to be far ahead of either country, in that Thailand does not seem to have anything in the secondary school curriculum except concerning the environment, and nothing again in the primary schools. The only wetlands educational programs that can be seen for Thailand are at any specific wetlands areas, through the site's Educational Center. The same goes for Indonesia; no mention was made of wetlands education, except as environmental programs done by individual schools.

### *2.4. Formal and non-formal education*

In pre-teaching programmes leading to the Malaysian Teaching Diploma (DPM) and the Post-graduate Diploma in Teaching, they have made environmental education a compulsory subject. There are also courses taught at the tertiary level at most public universities, as a Diploma-level course.

At the non-formal level, there are various government organizations and NGOs who have environmental programs and activities that they offer to the public. One of these is Wetlands International, from their branch offices in Malaysia. There is also an educational center at Tasek Bera, but because of its remote location, there aren't as many visitors except for sports fishermen and a few foreign visitors.

### *2.5. The current situation in Malaysia*

In recent years there has been a small upsurge in environmental awareness amongst the Malaysian population, and the Government has started many programs in Peninsular Malaysia, as well as more notably in Sabah and Sarawak. The only problem still prevalent is that the young people and students only start learning about the environment and wetlands after Form 1, which is in sharp contrast to programs in Japan and Korea, where even kindergarten children are taught about the environment, and go on field trips to various wetlands areas in Japan and Korea. At the IUCN Conference in 2008 in Hanoi, North Vietnam one of the keynote plenary speakers was a 15-year old Japanese girl named Yukiko, who had started her school project with her classmates on a wetlands area near her school five years before the conference (when she was 10 years old).

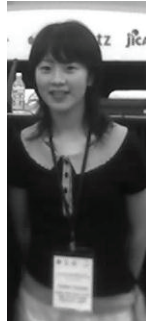


Fig. 1. Yukiko at the Wetlands Conference in Vietnam

### 3. Methodology

For the research done at Tasek Bera, a series of semi-structured interviews were made, with local residents directly surrounding the lake area, as well as various government officials from the Municipal Councils, the Jungle Department (*Jabatan Perhilitan*), and officers at Tasek Bera. A total of 150 people were interviewed and then the data was collated and input using SPSS version 12 for analysis. Analysis was also done according to job function of the respondents and location of some 25 FELDA settlements surrounding the wetlands area. From the results, the research showed that enforcement officers did understand that the area had been designated as a wetlands area, but that there still some confusion as to exactly what a wetlands area was, but this did not stop them from enforcing the rules and regulations of their respective departments. There are approximately 6-8 different departments that have jurisdiction within the wetlands area, from 4 different Ministries.

A different set of questionnaires was presented for the local populace as well as the semi-structured interviews. Analysis of that data showed that the local populace sort of understood what a wetlands is, but the people, mostly from the Semelai tribe of aborigines (orang asli), have also tried to continue their way of life with restrictions placed on them by the Government as far as hunting and fishing are concerned. They also are moving slowly towards becoming guides and such for the tourists that do come to the wetlands. Their perception of the wetlands is much different from the other respondents, as they lived and hunted in the area before it was designated a wetlands area.



Fig. 2. Lily fields at Tasek Bera

### *3.1. Results of the Analysis*

There were 120 respondents, 72 female and 48 male, where the majority of the females (80%) were office personnel for the different departments involved, the rest being from the Felda settlements. There were 25 Felda settlements found from the data, and 35 different occupations listed, from both the government departments and the public that were interviewed.

Many of the public respondents were aware that Tasek Bera had been designated as a wetlands site by the Government, but the perception most of them had was that it was just the 'place where they lived. The Semelai have been living in the area for 600 years, and they originally lived off the land, hunting and fishing, as well as certain plants that have medicinal value.

### **4. Limitations and Future Research**

The research was limited in many ways. First, it was done as a case study of a single wetlands area, though arguably the first officially designated RAMSAR site in Malaysia. The case study was done on a single basis at a specific period of time, not as a study of the wetlands area over a longer period of time. The research was done solely using primary data collected by the research team, as there is no available data from secondary sources, most of which would have come from the Ministries and departments involved in the enforcement of rules and regulations, but was not available to the research team as it was all considered as private and confidential.

Out of 150 questionnaires tendered to respondents from the government and the public, only 120 questionnaires were considered valid, as the other 30 were discarded for various reasons; not filled out completely, not returned, and so on. In asking for opinions from government officials and workers, the main problem was in the confidentiality question, where many employees were afraid their boss or supervisor would know what they said, and take action against them.

### **5. Conclusions and Recommendations**

The primary conclusion that can be made is that information concerning wetlands needs to be disseminated at even lower levels than it is at present, possibly going to primary school levels. Information about wetlands needs to be included more in the lower school curriculum, and wetlands areas designated in each state in Malaysia, so that schoolchildren in each state have an area they can visit as a school trip, or that an area close to each school is designated as an area where the students can do hands-on projects concerning wetlands.

The secondary conclusion that can be derived from all this is that wetlands areas are not simply science-based, but need to be considered in a more socio-ethical position; not just a place to collect data, but a place that teaches adults and children that wetlands areas are a vital source for life and living within the total environment. Each has its place within the environment, humans, animals and plants. The best example is in the paddy fields; the farmer plows the field, plants the rice, but kills any snakes he finds, thus causing the rat and mice population to grow, then the rats and mice eat the rice and the farmer loses money when it comes time for harvest. If the farmer then uses natural fertilizers, he doesn't poison the birds who lay their eggs in his field, and who don't have their chicks surviving. By not killing snakes, the rat/mice population is controlled and the rice is protected by the snakes as well as the farmer, yielding a much higher yield for the crop, and making money for the farmer, who needs to feed his family and send his children to school.

Recommendations can be made for the following:



- The Government should try to find more wetlands sites to be protected, and increase the level of awareness of wetlands and their importance at a younger age.
- The Education Department should increase the information level on wetlands within the school curriculum, beginning in Standard 1 or possibly even for kindergarten level.
- The Education Department should consult with wetlands organizations in Malaysia, and invite them to visit schools to disseminate information above and beyond what is in the school curriculum, and start wetlands groups within the schools to increase the children's awareness
- Have more school projects concerning wetlands and organize school trips for children of all ages, not just Standard 6 and Form 5 students.
- Organize awareness groups among adults in a community to raise the level of consciousness of wetlands, so that the adults can see where the wetlands fit into the human view of the environment.

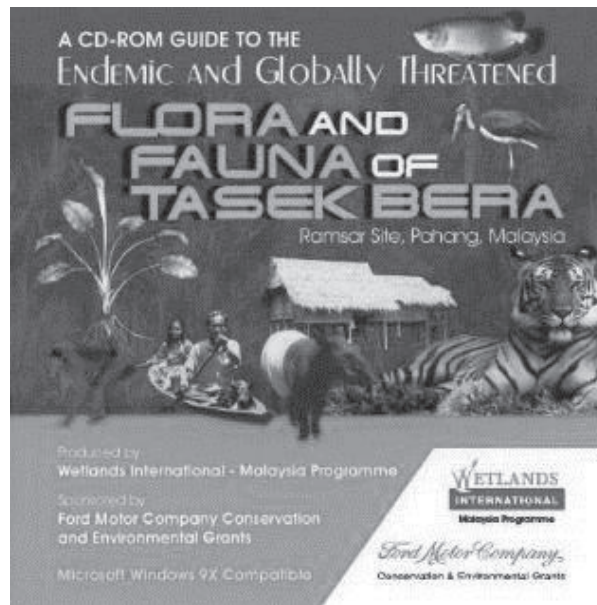


Fig.3. CD cover for a guide to Tasek Bera

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