

WORLD WETLANDS DAY

Ahmed Hassaan Zuhair

2nd February of each year is celebrated as World Wetlands Day. It marks the date of the adoption of the Convention on Wetlands on 2nd February 1971, in the Iranian city of Ramsar on the shores of the Caspian Sea.

A wetland is an area of land whose soil is saturated with moisture either permanently or seasonally. Such areas may also be covered partially or completely by shallow pools of water. Mangroves, swamps, tidal mudflats, estuaries, rivers and streams are all wetlands. The water found in wetlands can be saltwater, freshwater, or brackish.



Wetlands and Forests, this is the theme for this year's World Wetlands Day, especially chosen because 2011 is the UN International Year of Forests. The slogan for this year is simple – Forests for water and wetlands – allowing us to look at the 'big picture' of forests and wetlands in our lives. At a time when many people are engaged in celebrating the World Wetlands Day it is important to have a basic understanding concerning wetlands. Following are some primary information about wetlands that you may find useful:

■ Wetlands are among the most important life supporting systems on the Earth. Yet they are some of the most threatened natural environments. Wetlands are considered the most biologically diverse of all ecosystems. Plant life found in wetlands includes mangroves, water lilies, cattails, sedges, tamarack, black spruce, cypress, gum, and many others. Animal life includes many different amphibians, reptiles, birds, insects, and mammals.

■ Many unique, rare and endangered species are found only in wetlands. Many migratory birds depend on wetlands; which means the well being of wetlands has implications for animals in other countries. Wetlands are also important sources of fish, crustaceans, shellfish and other food for people.

■ Wetlands naturally filter and recharge the water that later comes out of our faucets downstream. They act like giant sponges, slowing the flow of surface water and reducing the impact of flooding. They are known to be very effective at filtering and cleaning water pollution, often from agricultural runoff from the farms.

■ Wetlands are places where sediments are collected and soils and landforms are built. Wetlands also prevent soil erosion, and they buffer water bodies from potentially damaging land use activities such as agriculture. And wetlands can remove and store greenhouse gases from the Earth's atmosphere, slowing the onset of global warming.

Conservation

Wetlands have historically been the victim of large-scale draining efforts for real estate development, or flooding for use as recreational lakes. By 1993 half the world's wetlands had been drained. Since the 1970s, more focus has been put on preserving wetlands for their natural function — sometimes also at great expense.



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Ramsar Convention: the Convention on Wetlands of International Importance, especially as Waterfowl Habitat, or Ramsar Convention, is an international treaty designed to address global concerns regarding wetland loss and degradation. The primary purposes of the treaty are to list wetlands of international importance and to promote their wise use, with the ultimate goal of preserving the world's wetlands. Methods include restricting access to the majority portion of wetland areas, as well as educating the public to combat the misconception that wetlands are wastelands.

Wetlands in Maldives

In Maldives five types of wetlands exists, namely mangroves, marsh lands, sea grass beds, inland water bodies, and coral reefs. Though our natural resources are quite limited when compared to some other countries, protecting and conserving these few natural resources at our disposal, would definitely endow numerous aesthetic as well as economic benefits. To replace these wetland ecosystem services several countries in the past have spent enormous amounts of money on water purification plants and remediation measures, constructing dams, levees and other artificial flood controls. Thus in conclusion conserving our wetlands may yet yield the greatest continuous benefit to present generation while maintaining their potential to meet the needs and aspiration of future generations.

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“GAN BODU FENGAN’DU”

Ilham Atho Mohamed

Located in the isolated South East side of Gan, the “Bodu Fengadu”, commonly called as “Rai Fengadu” or “Naraka Fengadu” still remains to be one of the most mysterious places in Maldives. Contrary to the name “Bodu Fengadu” it is one of the very small ponds in the Maldives. This pond like water body is approximately 140feet across, and is more or less oblong. The surrounding belt is covered mainly with “Kan'doo”

(*Bruguiera cylindrica*), one of the most common mangrove plants of the Maldives.

The name “Rai Fengadu” comes from the color of the pond. Due to the heavy deposition of old leaves, branches and trunks of “Kan'doo” the water in the pond is in a deep orange-red. In the early days, the bark of Kan'doo was used as an orange to red dye.

The name “Narak Fengadu” is another name given to the pond by those who initially tried to solve the mysteries of this pond. The meaning of “Narak Fengadu” is “Hell Waters”. The name was given not because of its color, but because of the mysterious high temperature that seemingly increases with depth.

But, the mystery of this pond lies mostly in its unknown depth. The pond is almost straight downwards starting from its very edge. There are no shallow areas in the entire pond except for an almost 5 square feet area on the Northern edge of the pond. Several past attempts to determine the depth has given no result.

The first such attempt was made by a research team who tied a stone (a piece of “foi”) to a rope and tried releasing it into the center of the pond. After a certain depth, the rope became light, and when it was pulled out the end of the rope looked burned. There was no stone. Several attempts after that gave similar results. Nevertheless, some locals claim to have reached to a depth of 600feet using similar technique. However, the rope they used got stuck at this depth and they had to cut the rope.

A team of the Ministry of Housing and Environment tried the same technique on 30th January 2011 to determine the depth of the pond. The rope was released twice into two different places in the center of the pond. Each time the rope got stuck after a certain depth and in the last attempt the rope had to be cut.

It is now believed that the deeper level of the pond is covered with several generations of debris from the leaves, trunks and branches of the nearby trees. And hence, is impossible to release any kind of rope without it getting stuck in the piled up debris.

An interesting tale relate as: a long time ago, a tree that fell into the pond was pulled deep into it and was later found in Gaadhoo Kandu (the sea of nearby island). Such a thing is possible only if there is an underground channel that connects the sea and the pond, which technically speaking is possible. However, this still needs to be proven.

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The place is rich of biodiversity. In addition to the healthy Kan'doo belt around the pond, coconut palms, Screw pine and Kin'bi (Sea Poison Tree) were abundant in the nearby area. The pond has varieties of small fish, the introduced Tilapia and frogs. Though no one has seen, it is also believed by locals that the pond has water snakes.

Since the pond is located in an isolated area of Gan, it is rarely used by locals or outsiders. Some locals use the place for picnic, while the young adults use it to enjoy a good swim.

5TH PROVINCIAL ENVIRONMENTAL AWARENESS SESSION

Mohamed Naseeh

The 5th Provincial Environmental Awareness Session was held at Laamu Atoll Education Center (LAEC), L. Fonadhoo on 29 January 2011.

The session, the fifth of a series of environmental awareness-raising sessions conducted nationwide by Environment Department since 2010, was inaugurated by Mr. Ahmed Mujthaba, the State Minister of South Central Province.



94 students from LAEC (L. Fonadhoo) and Madrasathul Hamad bin Khaleefa al-Saane (L. Gan) attended the session.

The topics covered in the session included climate change and energy, biodiversity conservation, waste management and protection of the ozone layer.



Apart from the presentations, various interactive activities were conducted and environmental video clips were screened.

At the end of the session certificates were awarded to all the students who took part in the workshop. The certificates were distributed by Mr. Mohamed Nazeef, Principal of LAEC. In addition to certificates, a number of publications by Environment Department awareness raising materials were donated to the libraries of both schools.



INTERNATIONAL YEAR OF FORESTS 2011

Ilham Atho Mohamed

Key Facts

- Forests cover about 31 per cent of the land on Earth, around 4 billion hectares, and contain more than two-thirds of the world's terrestrial species. The Amazon basin alone is home to an estimated 25 per cent of all land-based species.

- 53 per cent of the world's forests are found in just five

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countries: Brazil, China, Canada, the Russian Federation, and the United States of America.

- More than 1.6 billion people depend on forests for their livelihoods;
- Forests are home to an estimated 300 million people around the world.
- 80 per cent of people in developing countries rely on traditional medicines, up to half of which originate from plants found mainly in tropical forests.
- Forest biodiversity is the basis for more than 5,000 commercial products, from aromatic oil distilled from leaves to herbal medicines, food and clothing.
- Three quarters of the world's accessible fresh water comes from forested watersheds; forests purify drinking water for two-thirds of the major cities in developing countries.
- Forest biodiversity is being lost at an alarming rate: up to 100 animal and plant species are lost every day in tropical forests.
- 36 per cent of the total forest area is covered by primary forests—i.e. forests comprised of native species where the ecological processes have not been significantly disturbed by human activity. Primary forests have decreased by more than 40 million hectares since 2000, mostly due to logging and agricultural expansion.
- The rate of deforestation has slowed somewhat over the past decade; yet each year, approximately 13 million hectares of the world's forests, an area the size of Greece or Nicaragua, are lost or degraded. Deforestation and forest degradation in primary tropical forests, which are of high biodiversity value, continue at an alarming rate: around 6 million hectares per year.
- Emissions resulting from deforestation and forest degradation may contribute more than 15 per cent to annual global greenhouse gas emissions.
- It is estimated that up to one billion hectares, or about one quarter of all forest lands, are in need of restoration to improve their productivity and delivery of ecosystem services; restoring these forest landscapes would have enormous benefits for sustainable development.
- Globally, more than 460 million hectares of forests, 12 per cent of the total forest area, are designated for the

conservation of biodiversity as their primary function, an increase of 32 per cent since 1990.



Did you know?

The tallest tree in the world: a coast redwood (*Sequoia sempervirens*), which stands 115.55 m tall

The largest tree in the world: a giant redwood (*Sequoiadendron giganteum*) called “General Sherman,” with a volume of 1487 m³

The oldest known living tree in the world: a great bristlecone pine (*Balfouriana*) called “Methuselah,” which is around 4,850 years old

All three trees stand in California, United States of America.

Source: idb-2011-booklet-en

REGULATION ON ENVIRONMENTAL LIABILITIES

Mirza Mohamed

The Regulation on Environmental Liabilities (Regulation No. 2011/R-9) has been published in the government gazette on 17 February 2011. The objective of the regulation is to prevent actions violating the Environmental Protection and Preservation Act 4/93 and to ensure compensations for all the damages that are caused by activities that are detrimental to the environment.

The regulation sets mechanisms and standards for different types of environmental liabilities and equal standards that shall be followed by the implementing agency while implementing the regulation.

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According to this regulation the Government of Maldives reserves the right to claim compensation for all the activities which have breached the Environmental Protection and Preservation Act 4/93.

The regulation will be effective from 17 February 2011.

CARBON TAX FOR MALDIVES – FOOD FOR THOUGHT

Zammath Khaleel

Carbon tax is one of the few tools that are considered among experts as means to reduce GHG emissions. But it is been plagued by word tax at the end of it. When a new tax is thought of, it would be natural that a person's thought would interpret as increased cost of goods and living conditions. But Carbon Tax may be the most effective tool to accurately administer “common but differentiated responsibilities” principle within a country to reduce emissions. According to IPCC models a carbon tax of 56.8USD/ton of CO₂ would reduce emissions of 35% from Business As Usual scenario

Carbon Tax is essentially a tax levied on the amount of carbon-equivalent emission potential. In a country like Maldives such a tax could do miracles in terms of going low carbon. And it would be much easier to administer. Unlike Cap and Trade, to administer carbon tax we would not require additional capacity of carbon auditors, detailed MRV protocols. We would have to add Carbon tax alongside the existing import tax and all the required capacity needed would be catered within the same process. But unlike import tax which is a percentage of the price of the goods, carbon tax would be fixed based

on the carbon content making this even simpler than import tax.

Levying carbon tax should be limited to fossil fuels in case of Maldives to make it simpler and easily digestible. And should be started with a modest level of may be 25USD/ton of CO₂ which could be increased as time goes on. That's additional revenue of roughly 25.1 million USD for Maldives at current level of emissions. On the flipside, there would be an increase of fossil fuel price, for example diesel price would increase by roughly 95laari per liter, petrol price would rise by 80laari per liter and LPG 20kg tank price would rise by 20rf per tank. These laari amounts can easily add up to a sum which could be a real burden to the average citizens. Carbon tax revenue can be used to subsidize basic services (similar to NSPA program) like water services, public transport services and electricity services so that those prices would remain as in the normal condition and alleviate the burden on average citizen. And whatever fund remaining either could be used for public welfare spending and reap the benefits of double dividend or even setting up RE subsidy fund and other projects to reduce emission from other major sectors.

The domino effect of such a measure is many and below are some of them,

- In tourism sector, increased price of fossil fuel based energy services would make RE technologies more economically viable and catalyze the transition to low carbon technologies
- Energy efficient equipments and office appliances would become more popular.
- Private sea transport would be reduced and ferry services would be utilized more making it efficient
- Road transport would lessen as more and more car and motorcycle owners avoid unwanted rides/trips reducing traffic burden on capital making it a bit safer. It would also motivate more environmentally friendly and healthy transport methods like bicycle and walking.
- And if the revenue used correctly could reduce the gap between the classes of rich and poor
- There could be many more after effects and some may be even negative but it definitely looks like that grass could be much greener in the future with Carbon Tax than without it.

Reference: Climate Change 2007, Mitigation of Climate Change, Page 237-238

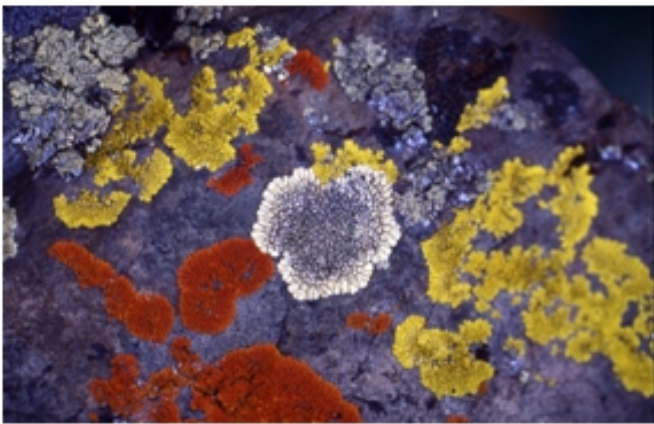
LICHENS – EXAMPLE FOR LIVING IN HARMONY

Hamdhoon Mohamed

Lichen is the general name given for a symbiotic association between a fungus and algae. Most scientists consider lichens a composite organism in which both fungal and algal partner benefits from its relationship. Although lichens are not very commonly found in the Maldives these fascinating creatures are examples for living in harmony.

There are mainly three types of lichens; Crustose lichens (grow over a substrate like a crust), foliose lichen (named due a resemblance to a leaf) and Fruiticose lichens (shrubby appearance). Crustose lichens are commonly mistaken for mosses like plants which belong to bryophytes in the plant kingdom.

Lichens consist of a fungal partner and an algal partner. Fungal partner provides protection against infections and algal partner provide photosynthetic products as nutrient.



According to the European Space Agency lichens can survive unprotected in space. Lichens are excellent indicator of air pollution, since there are highly susceptible to sulphur dioxide. Lichens are consumed as food in many parts of the world. Lichens are used in preparation of porridge, pudding, soup and salads. Very few lichens are poisonous and they appear yellow. Lichens are used to extract dyes like litmus which is used as pH indicator. Antibiotics are also secondary products produced by lichens.

Since these organisms have so much uses it important to

know about them. They are significant organisms which contribute to the biodiversity of our planet.



DEFORESTATION AND ITS IMPACT ON OUR LIVES

Abdulla Hamad Yassin, Imaduddin School / 7E

The International Year of Forests was declared by the UN on the 2nd of February 2011 to raise awareness for the development and conservation of all the forests of the world. Forests cover almost 31 percent (almost 4 billion hectares) of the Earth's surface, and almost 13 million hectares of forests disappear each year due to deforestation.

Deforestation is a major threat to human life. Sadly, we have to take the responsibility for this threat. Huge forests are cleared to enable us to live in comfort, to get more land to build houses and for other uses. We cut down trees to manufacture things like paper, furniture

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and textiles.

At least 1.6 billion people depend on the forests to live. The majority are poor people who live nearby forests, and the rest are tribes who live in the forests. Deforestation will affect their lives and in some cases may even wipe out whole tribes of people. The surviving tribes will find it difficult to adapt to urban life.

Forests contain the majority of animal and plant life of the world. If the forests are wiped out, we will lose millions of different species of plants and animals, some of which have yet to be discovered. In addition to this, it will have a detrimental effect on all the ecosystems of the world, including our own. It will affect our food chain, among other things.



A healthy, beautiful forest.....



.....looks like this after deforestation.

Trees keep the amount of carbon dioxide in the atmosphere at a low level. But due to deforestation, a large number of trees are lost. Thus, the amount of carbon dioxide and other greenhouse gases is increasing at an alarming rate. When the Sun's heat enters the Earth's atmosphere, most of it is reflected back, but the greenhouse gases trap some of the heat and make the Earth warmer. This is known as the greenhouse effect, which causes global warming.

Global warming causes the polar ice caps to melt, thus raising sea levels. This endangers the population of low-lying countries such as the Maldives. A rise in sea level affects the ecosystems too. Thus our very survival is threatened by deforestation.

We can prevent deforestation, by raising awareness. We can start campaigns, write articles, and upload information on to the Internet. For every tree that we cut down, we can plant several more trees to replace them. We can reduce paper consumption by reusing and recycling. Reuse furniture, wooden toys and cardboard boxes.

We must each do our part to conserve our environment and endow a Green Earth for future generations.

THE CONCERN OF DEFORESTATION IN TODAY'S SOCIETY

Luyuna Abdhul Wahid / 7C (Kalaafanu School)

Deforestation is a major concern in today's society. The destruction of the world's forest areas is leaving millions of acres uninhabitable. The varied species of animals and insects that use to live and thrive from these forests are rapidly becoming extinct. The destruction of the forest is also having a disadvantageous effect on the people through displacement thus forcing them to seek new living accommodations. Many of these people are losing their heritage and cultures leaving them with a sense of hopelessness. The barren land left by deforestation is also causing many ecological problems. Increased flooding and soil erosion are two of the other problems facing several countries like China, Brazil, and the Philippines. To gain a better understanding of the immense significance of this matter perhaps a look at the

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past, present and future are needed.

The public and environmentalists are realizing that deforestation is taking their tolls in more ways than ever before. With the reduction of 70 percent of the world's forests since the thirteenth century the effects have been linked to such things as mass soil erosion, substantial growth in desert and arid lands, as well as global warming. Although many environmentalists are making headway the battle seems at times pointless. Countries such as Japan, China and Vietnam as well as American owned companies do not share the same view as the environmentalists. In 1994 Japan obtained cutting rights to 1.5 million acres of dense timberland in Borneo alone (Wagner, 1998).

New problems are faced in countries every day concerning the environment. Today it is global warming; tomorrow it could be anything from nuclear devastation to lack of oxygen. Nobody really knows what is coming next but, one thing that is known is if the environmental problems of today cannot be dealt with in a constructive manner for all humanity, than how people are going to deal with the problems of tomorrow. Deforestation "Future Trends" Even though countries like the United States, Canada, and the United Kingdom have made the most evident progress on environmental issues there must be a greater awareness on a global scale.

Among the obvious consequences of deforestation is the loss of living space. Seventy percent of the Earth's land animals and plants reside in forests. But the harm doesn't stop there. Rain forests help generate rainfall in drought-prone countries elsewhere. Studies have shown that destruction of rain forests in such West African countries as Nigeria, Ghana, and Côte d'Ivoire may have caused two decades of droughts in the interior of Africa, with attendant hardship and famine.



Environmental problems endanger every nation and if mother earth is going to survive than future technology may be the answer. The environmental future lies in "Sustainable Development" which is an interdisciplinary concept that springs from three intellectual sources, the ecological sciences, economics, and from philosophy and ethics. Although we may be able to use new technology to enhance ways to rejuvenate the environment, people must still take the first step.

From the beginning of time man has utilized and destroyed every resource that they have come to acquire; people throughout the world are slowly realizing the inevitability of their indiscretions. Progress in areas of deforestation and reforestation are creeping along in small steps most of the time but it is progress all the same. The hope of many environmentalists is that these positive results will be widely replicated by others and will gradually replace practices that cause more severe environmental impacts or problems. The unanswered question is whether such a hope is realistic in the face of the impersonal, price-driven forces of global markets and the reality that even the best production processes today still require the use of growing amounts of materials, energy and the continued transformation of the landscape for the expanding human population.

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UNEP

WORLD ENVIRONMENT DAY



5 JUNE

Forests: Nature at Your Service

In support of the UN International Year of Forests

Layout & Design by: Mohamed Aflah

Published by:

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