

## OZONE DAY 2010

*Message by Hon. Mohamed Aslam, the Minister of Housing and Environment on the occasion of World Ozone Day 2010*

This year's theme 'Ozone Layer Depletion: Governance and Protection at Their Best' highlights the importance of national compliance and strong commitment around the world to the protection of the Ozone layer.

The Montreal Protocol has achieved a unique status among the existing multilateral environmental agreements through universal participation and has been regarded as the most successful agreement in achieving goals and targets in protecting the environment. It has provided substantial global warming reduction benefits, thus helping to manage the twin challenges of ozone layer protection and the climate system.

Today, as we celebrate the Ozone Day, we are again reminded of the great challenge ahead of us in saving the planet. The road ahead is not easy, but with continued support from the associated agencies we have no doubt about achieving our targets.

Maldives has declared its commitment to phasing-out the Hydrochloroflourocarbons (HCFCs) by 2020, 10 years earlier than the actual accelerated phase-out schedule agreed by the member countries. This schedule in Maldives is aligned with the carbon neutrality plan of Maldives, aiming to achieve dual benefits by eliminating Ozone depleting substances and also reducing carbon emissions.

Total phase-out of HCFC will contribute to eliminating 130,000 Mt equivalents of CO<sub>2</sub> emission, which is estimated to be 20% of total carbon emissions of Maldives.

The steps that the Maldives is taking with regard to the environment are bold and unconditional and hope to be inspirational to other nations as well. Our commitment to mitigate climate change underlines how crucial it is especially for low lying island states and other vulnerable nations to ensure that action is taken in time to avoid wiping out of entire civilizations in small island states and many other vulnerable countries.



The High Level Round Table Dialogue on the HCFC Phase-out Management Plan (HPMP) and its contribution to carbon neutrality in Maldives held in June this year helped to reaffirm the government's commitment to achieving HCFC phase-out by 2020, to get the endorsement of various Government ministries and private organizations involved in the HPMP implementation plan, and to garner the much-needed support from industry leaders and policy makers.

With the involvement of relevant stakeholders we have now formulated a road map to implement the HPMP and are geared towards achieving the set targets. With the help of the HPMP Steering Committee which was recently formulated by the President, we are now set to take further relevant measures to control HCFC consumption.

We are truly grateful to MLE, UNEP, UNDP and the regional office for their continued support and assistance in implementing ozone related projects. We also appreciate the continued support and co-operation from the member countries in implementing activities under the Montreal Protocol.

# OZONE LAYER PROTECTION: GOVERNANCE AND COMPLIANCE AT THEIR BEST

*Message by the UN Secretary General Mr. Ban Ki Moon*

This year, the International Day for the Preservation of the Ozone Layer highlights the central role of good governance in pursuit of environmental goals. In general, successful environmental agreements require a broad framework, clear targets and a gradual approach to implementation. Then, as governments gain confidence, they build on initial steps and set more ambitious goals. The Montreal Protocol on Substances that Deplete the Ozone Layer – which last year achieved universal ratification – is an excellent example of this process.

When the Montreal Protocol was signed in 1987, governments did not originally envision the phase-out of any ozone-depleting substance. Yet, as a result of very strong national and global compliance, Parties to the Montreal Protocol have cut the production and consumption of more than 98 per cent of these harmful chemicals. In the process, the Protocol has also reduced emissions of greenhouse gases by more than 135 billion tons of CO<sub>2</sub> equivalent, making it instrumental in the fight against climate change.

The Montreal Protocol could not have delivered such profound achievements without robust governance and compliance structures put in place by its Parties, both collectively and individually. The foundation of the Protocol is fairness. Through the principle of “common but differentiated responsibility”, the treaty provides a grace period to developing country parties, a funding mechanism governed by an equitable representation of developing and developed countries, compensation for the cost of phasing out ozone-depleting chemicals, capacity building for national ozone offices in 147 developing countries, and dissemination of the most up-to-date ozone-friendly technologies.

I encourage Parties to the Montreal Protocol to continue to build on this model and to explore synergies that could help to address other environmental challenges, especially climate change. Let us use the governance tools contained in the existing ozone and climate treaties to reduce environmental threats to sustainable development and human well-being.

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## OZONE DAY 2010

*Message by Mr. Atul Bagai, Senior Regional Coordinator,  
UNEP DTIE OzonAction Programme*

The Maldives is in the front line of the global environmental issues. It is perhaps the most vulnerable country in the world as a number of scientists have warned that if nothing is done to reduce global carbon emissions, the country would soon sink beneath the rising seas.

UNEP Division of Technology, Industry and Economics (DTIE) OzonAction Programme is currently assisting developing countries, including the Maldives designing the hydrochlorofluorocarbon (HCFC) phase out management plan (HPMP) in their country and now the Maldives has become the first country in the world to receive the funding from the Multilateral Fund for the Implementation of the Montreal Protocol for the country's HPMP.

Maldives has made a historic decision to phase out HCFCs by 2020, in line with its carbon neutrality policy, 10 years ahead of the Montreal Protocol phase out schedule.

The plan includes phase out of consumption of HCFCs, mainly used in the air conditioning in its nearly 100 tourist resorts spread in its more than 1000 islands. The strategy also includes policy and legislations, training and capacity building activities and information outreach for HCFC phase-out. UNEP DTIE OzonAction would assist the Maldives in reaching their ambitious target by cutting its carbon footprints and benefiting from low hanging fruits, catalyzing energy efficiency and green economy.

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Maldives' decision to stop the consumption of this group of chemical earlier than the phase out deadline is considered the first major concrete step to make the carbon neutral declaration a reality. This is a contribution to showcase that there are low hanging fruits that countries can pick from the Montreal Protocol- the most successful multilateral environmental treaty that exists so far -to reduce the impacts of climate change.

When the plan succeeds, the Maldives will turn into the world's first most eco-friendly and ozone-friendly country. The Maldives being a small island nation with limited resources and capacity, these ambitious targets will become an example to all, including developed countries to step up to save the planet and join the Maldives in becoming the winners of the climate neutral and ozone-friendly race.

The Montreal Protocol's success has shown that we now know that together we can address climate challenges through technology support and capacity building efforts. What we need now is leadership to get further climate benefits from the ozone layer protection. UNEP DTIE OzonAction would like to congratulate to the Government of the Maldives on this leadership role and we look forward to supporting and working shoulder to shoulder with the Maldives in reaching this ambitious goal.

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## JOURNEY TOWARDS PHASING OUT HCFCs – DUAL BENEFITS

*Miruzza Mohamed*

Montreal protocol is the most successful environmental agreement in which Maldives has achieved many things. Maldives is actively involved in meeting the obligations of the Montreal protocol and it is one of the first countries to phase-out CFC consumption two years earlier, in 2008, than the target phase-out date set by the Montreal protocol, 1st January 2010. With this achievement Maldives has embarked on its journey towards phasing out HCFCs, 10 years earlier to original dates set by the 19th Meeting of Parties to the Montreal Protocol.



The HPMP (HCFC Phase-out Management Plan) of Maldives was the very first HPMP prepared and submitted by UNEP and approved by the Executive Committee at its 60th meeting. The HCFC phase-out strategy of Maldives is linked with the carbon neutrality policy of the country. Hence, the country is committed to phase-out HCFC consumption by 2020. This HPMP alone will reduce the emissions of the Maldives by the equivalent of 130 million tons of carbon dioxide which is estimated to be 20% of total carbon emissions of Maldives that is equivalent of 26 million cars taking off the road for a year. Therefore, this plan not only contributes to Ozone layer protection but also global warming reduction.

The task ahead is more challenging than the phasing out of CFCs. Maldives has now started its journey towards achieving the new target. On 09th June 2010 a preparatory stakeholder workshop on HCFC Phase-out Management Plan (HPMP) Implementation Initiation was held to discuss and identify roles and responsibilities of all the stakeholders involved in HPMP. This workshop was conducted by UNEP and UNDP. The purpose of this workshop was to establish a measure to fast track implementation of HPMP, get the commitments from the industries and stakeholders and prepare a draft action plan to submit to the high-level roundtable meeting which was held on the following day.

The workshop was attended by the National Ozone Unit (NOU), Air-conditioning and refrigeration servicing technicians from servicing workshops, tourism, fisheries and food processing sector, HCFC and HCFC based equipment importers, distributors, Maldives Customs Services, Ministry of Fisheries, Marine Resources and Agriculture, Ministry of Tourism, Maldives Polytechnic Climate Change department, Maldives Energy Authority, UNEP, UNDP and Bureau of Energy of Efficiency.



Back to back with the stakeholders workshop a half day media capacity building workshop was held for the representatives of the local media, including news papers, TV and radio stations. A total of thirteen participants took part in this workshop which was conducted by the Regional Co-ordinator of UNEP/ROAP Mr. Atul Bagai, Chief Editor of The Nepali Times Mr. Kunda Dixit and Director/CEO of TVE Asia Pacific Mr. Nalaka Gunawardene. This workshop covered a large variety of topics related to fundamentals of ozone depletion and climate change and their linkages. It also screened number of films and other visual media related photos, stories and articles.

A High Level Round Table Dialogue on HCFC Phase-out Management Plan (HPMP) and its contribution to carbon neutrality in Maldives was held at the Bandos Island Resort and Spa on 10th June 2010. Government officials, ministers, deputy ministers, foreign dignitaries resident in Male' participated in the high-level roundtable dialogue.

Two agreements were signed for the disbursement of the first tranche of the HPMP; an MOU signed between UNDP and the Government of Maldives, and the funding agreement (SSFA) signed between UNEP and the Government of Maldives. The High Level Roundtable Meeting was very successful in receiving the commitments from the relevant organizations.

To speed up the implementation of the HPMP, President has formulated a Steering Committee in coordinating the implementation of the HPMP.

This year as we mark the ozone day we have lot to accomplish, a lot to look forward to and a whole new set of goals to reach towards. The national ozone unit marks this year's ozone day very colourfully with several events planned to take place.

## BEACH EROSION IN THE MALDIVES

*Ahmed Hassaan Zuhair*

The Maldives with its 26 Geographic atolls and over 1190 islands scattered across the Indian Ocean presents a unique and dynamic environment. As one of the lowest-lying countries in the world, the Maldives is particularly vulnerable to rising sea levels and its corollary, beach erosion. On average the islands of the Maldives lie 1 to 1.5 meters above the mean sea level, with the highest island situated 3 meters above sea level.

Beaches are highly dynamic areas, continuously changing to the stress caused by the natural forces of winds and waves as they interact with the land. Beach erosion is a common problem faced by almost all the islands of the Maldives. It is suggested by some that this is part of the process where islands are formed and eroded. Historic findings suggest that some islands which existed before have vanished because of erosion. There are new islands formed during this process as well.



Maldives has a unique reef structure known as 'faru', which are a succession of circular reefs. Strong ocean currents along with monsoon winds form these reef structures. Atoll reefs that surround the islands protect the beaches from the ocean and wind. These reefs that are actively involved in producing the white sand, act as a defense against the strong waves that break into the beaches. The reef slows down its force therefore the swash is not as destructive as it would have been. So when the corals die, the beach actually suffers a double blow. First, the supply of new sand decreases as the animals and plants producing them vanish. Secondly, as the dead coral reef framework crumbles under the relentless attack of waves and boring organisms, the erosive wave forces on the shoreline dramatically increase.

There has been a significant amount of erosion reported on islands that are close to the windward reefs. There was significant damage in 1812 and 1955 when gales destroyed many of the northern islands. Alifu Atoll or 'Hagngnaameedhoo' suffered tremendous losses in 1964 when it was flooded by high waves. The capital city of Malé was also flooded in 1987 after a severe storm. This led to the construction of the \$48 million sea wall around Male' that we see at present.



Global warming is affecting sea temperature and thus killing the corals. Furthermore, people in Maldives used to build their homes from the coral stones. These coral stones are easily available for them in the surrounding seas. Sand had been taken for building and construction. All of these have led to a trampling effect on our coral reefs. Human activities that influenced the beach include building harbors and jetties also dredging and reclamation, unplanned construction of jetties and reclamation without proper environment impact assessment. Also clearing of the mangroves in the beachside and construction of houses near the beach leads the soil to become loose, facilitating nature to take its devastating toll in the form of beach erosion.



Beach erosion has become a vulnerable scenario in the Maldives. The country's economy thrives due to tourism, which is completely dependent on the natural beauty of the environment of this nation that has attracted tourists to this destination from all over the world. Beach erosion cannot be stopped. It is an everyday occurring natural process. However it can very well be reduced. It requires countless endeavor and innumerable exertion. The public and the government need to work together on these aspects to enlighten a fruitful future. Today the government has implemented strict laws pertaining to the protection of its beaches. Coral mining has been banned and awareness programs are conducted on a regular basis to raise public knowledge towards this solemn issue.

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## CARBON NEUTRALITY: WHY GO CARBON NEUTRAL?

*Mohamed Fazeeh*

Going carbon neutral is an easy way to take responsibility for the greenhouse gas emissions we create every time we drive our cars, take a plane, or turn on our computers. It's based on the principle that, since climate change is a global problem, an emission reduction made elsewhere has the same positive effect as one made locally.

To solve the problem of climate change, we all need to take account of our personal carbon emissions and make continued efforts to reduce them ourselves. But it is impossible to reduce our carbon emissions to zero, no matter how hard we try.

#### Three places to cut your carbon

You can have a big impact on moving us all toward a greener future in the individual choices you make each day. These are some of the easiest and most effective ways, in four key areas, to reduce our carbon footprint and help improve our quality of life.

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## Transportation

Transportation accounts for almost half of noxious air pollution, more than a third of greenhouse gas emissions, and one quarter of common air contamination and almost one-fifth of water toxicity. To make a difference:

- Walk, bike, carpool or take transit to get to one of your regular destinations each week.
- If you are moving, choose a home within a 30-minute bike, walk or transit ride from your daily destinations. A convenient place to live reduces the amount you drive, which means you'll lower your greenhouse gas emissions and other pollutants.

## Energy

Wasting energy hurts nature and your wallet because energy efficiency means lower bills as well as less pollution. Here's how to stem your energy leaks:

- Reduce your home cooling/heating and electricity use. A more energy-efficient home will lower your utility bills and reduce the emissions that cause climate change. Find out how you can increase energy efficiency in your home through the Energy Guides for Homes and other programs.
- Choose energy-efficient appliances. Like efficient bulbs, TV, refrigerators and air conditioner etc

## Food

There are so many humans on the planet, simply feeding ourselves has led to all kinds of environmental havoc air and water pollution, loss of soil and reduced biodiversity. We can have a huge effect on climate change by simply changing a few of our food habits. Here's how.

- Eat wisely. Choose foods that are local, organic and low on the food chain whenever possible. Make the most of seasonal foods.
- Take care of your trash. Composting all organic waste and recycling paper, cardboard, cans and bottles will help reduce the greenhouse gas emissions associated with landfills.



# ACCUSATION OR A THOUGHT OUT OF THE BOX, WHAT DO YOU THINK?

*Afsal Hussain*

Pollution seems to integrate itself into all the hemispheres i.e. Air, Water and Land connectively termed as the biosphere that all life persists. By definition the word 'pollute' is quoted as to make sth dirty or no longer pure, esp by adding harmful or unpleasant substances to it'. A very simple concept and easily digestible too. A spill of oil into a bucket of water would make it undesirable for usage isn't it? Meaning it gets dirty. No longer pure. Not potable for consumption either.

Pollution for us might be an innovative word but it had been a cliché used by earth for ages. Longer than we humans ever go into reality. Rolling back into the pages of the chronology the luxurious habitat so called as the Earth was not too hospitable around 4.5 billion years ago. It was nothing but a large molten mass with no or slight atmospheric significance. Planetesimals trashed the planet into a never ending doom day. Epochs of time elapsed away with consolidated crust and gave away large amounts of reducing gases and water vapor entrapped in the boiling magma underneath. These were the first signs of atmospheric accumulation around our home planet. Condensation revealed the mighty oceans and in turn brought up the evolution of organic life forms such as prokaryotes.

Photosynthetic process brought up the key ways of conversion of energy into matter and the production of oxygen as a biproduct. Most of the oxygen produced got embedded with other metals found in the rocks to form various forms of oxides. But relatively the process over leaped the saturation level and ended up into a great catastrophe which is scientifically termed as the Great Oxygenation Event (GOE). Extinction followed with succession through resistance and adaptation to the prevailing conditions in that time frame.

Nature had always been a part of our lives. Portraits of cavemen bring up a visualization of the great link between their souls and nature itself.

From the tools they utilized to hunt and memorize the stories of their livelihood on the walls. Nature had given them, warmth, care and more over exquisite flavors to quench the various desires. But the ever raging desire for satisfaction never broke down. Curiosity and hardship made the tiny seed to shoot to a modern world, a world of civilization we live in today.

The humongous natural resources are now nearly up to its brink of exhaustion. This doesn't end all, the ratio of consumption with that of deposition is exponentially shooting up with time. Technology got accused in front of pollution. Alternatives plotted out paths of gaps in between but not too far. Perfection was the only solution. A goal which is not impossible but not close by.

Nature had its own secrets in its own mechanisms and processes it deals with stabilization and to run. Little we know of it. Interrogating it today as harmful or waste might one day confound us as the basic tool for sustaining life in its accord.

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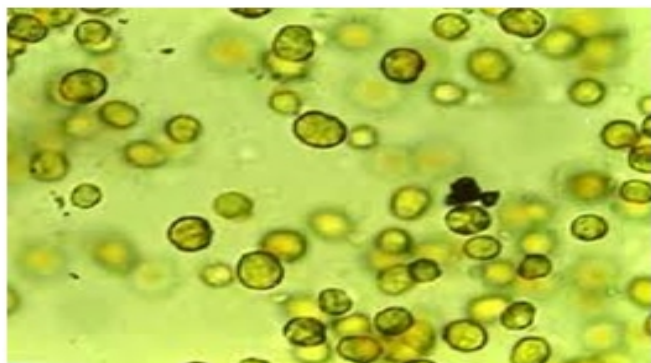
## MICROBIOLOGY BEHIND CORAL BLEACHING

*Hamdhoon Mohamed*

Coral Bleaching is a serious problem affecting the reefs of Maldives. A major coral bleaching was reported on 1998 which affected 98 percent of coral reefs in Maldives. Coral Bleaching is mainly due to loss of symbiotic protozoa from the coral polyps.

This article will look closely on the microorganism involved in the Coral Bleaching and stress involved in perspective of the microorganism.

### Zooxanthellae



Zooxanthellae are flagellate protozoa (commonly mistaken for an algae) that are golden-brown. They are symbiotic organisms which live inside the host (coral). Coral bleaching is due to stress induced expulsion, death or loss of pigmentation in Zooxanthellae.

In the ambient environment, Zooxanthellae and coral are in a symbiotic relationship in which the coral obtain enhanced growth and clarification rate. In return the protozoa get shelter and protection against predators.

Zooxanthellae directly or indirectly experience the stress that their containing coral undergo. Two of the frequent stress includes exposure to air during the low tide and damage from solar radiation in shallow water.

Predominant cause of coral bleaching is fluctuation of temperature. The protozoans loose their cell adhesion and get detached from the endodermal cells of corals.

Changes in water chemistry also affect the mutuality relationship between the Zooxanthellae and corals. Decrease in pH (acidification) of oceans is mainly due to uptake of anthropogenic (produced due to human activities) Carbon dioxide from atmosphere. Acidity of sea water affects the enzymes present in the Zooxanthellae resulting death.

Corals reefs are indispensable for the islands. So next time when you hear about coral bleaching please remember about these small fascinating organisms which is essential for the growth of the coral reefs.

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## MY ECOLOGICAL FOOT PRINT

*Mareer Mohamed Husny*

When any one kicks off any project or any activities we always map out the outcome before the project. This simple investigation is a must in the entire project. Because it indicates where are we. Indicates how we can proceed. It indicates what measures to be taken and what not to be taken.

Our goal of living an environmental lifestyle could only be achieved if we know how much we consume our own habitat. Generally this means locating or calculating our ecological foot print.

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In scientific terms ecological footprint can be defined as an analysis that compares human demand on nature with the biosphere's ability to regenerate resources and provide services.

Most of us have a huge ecological footprint than what we think. This is the main reason we have to contribute to the environmental degradation. Let's consider a human degradation to the environment.

The ecological footprint accounting method at the national level is described in the Living Planet Report or in more detail in Global Footprint Network's. The national accounts committee of Global Footprint Network has also published a research agenda on how the method will be improved.

There have been differences in the methodology used by various ecological footprint studies. Examples include how sea area should be counted, how to account for fossil fuels, how to account for nuclear power (many studies simply consider it to have the same ecological footprint as fossil fuels) which data sources used, when average global numbers or local numbers should be used when looking at a specific area, how space for biodiversity should be included, and how imports/exports should be accounted for. However, with the new footprint standards, the methods are converging.

In 2003, Jason Venetoulis, PhD, Carl Mas, Christopher Gudoet, Dahlia Chazan, and John Talberth -a team of researchers at Redefining- developed Footprint 2.0. Footprint 2.0 offers a series of theoretical and methodological improvements to the standard footprint approach. The primary advancements were to include the

entire surface of the Earth in biocapacity estimates, allocate space for other (non-human) species, change the basis of equivalence factors from agricultural land to net primary productivity (NPP), and change the carbon component of the footprint, based on global carbon models. The advancements were peer reviewed and published in several books, and have been well received by teachers, researchers, and advocacy organizations concerned about the ecological implications of humanity's footprint.

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## INTEGRATING CLIMATE CHANGE RISK INTO RESILIENT ISLAND PLANNING IN THE MALDIVES

*Hamza Khaleel*

### Introduction

Changes in Climate have been affecting lives in the Maldives drastically within the past century. There has been an increase in unpredictable weather incidents and storm surges. 80% of the 1,200 islands of the Maldives face severe beach erosion.

The capital island Male' and the International Airport of Maldives are protected by "tetra pods" provided by the Japanese government as a grant. This is the most costly and a quite controversial method of protection; hence newer cheaper solutions are in need, to protect the 200 inhabited islands of Maldives.

### Project Design

The ICCRRIP project was designed under the National Adaptation Plan of Action [NAPA] of the Maldives and funded under the Least Develop Countries Fund [LDCF]. As the first adaptation Project following NAPA, ICCRRIP will be a pioneering project in many ways.





## Project Inception

Project Inception was held on 29th April 2010. With the attendance of all stakeholders and senior governmental officers it was a grand beginning of a very important project for the government as well as the communities.

The Project aims to identify “soft adaptation measures” to the existing barriers and problems faced by islands due to changes in climate.

The Project is now underway and the Project Management Unit [PMU] is now in the second quarter of work.

## Outcomes of the Project

- 1-Make communities aware on Climate Risk and integrate risk information into policy, planning and investment decisions
- 2-Integrate Climate Risk into government policies that govern or impact land use planning, coastal protection and development in the Maldives
- 3-Island specific adaptation measures are demonstrated and their viability be proven
- 4-Project Knowledge is disseminated locally and internationally

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# THE WORLDS SMALLEST FLOWERING PLANT

*Ilham Atho Mohamed*

*sciencera.com  
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It not only holds the record of the world's smallest flower, but also world smallest fruit, Wolffia genus, are one of the most marvelous creations of nature.

Wolffia arrhiza produces the world's smallest flower. It also produces the smallest fruit called utricle. It is placed under family Lemnaceae. These plants grow floating in still or slow moving water. They are commonly referred as duckweed or Water-meal.



Each plant is shaped like a microscope football with a flat or rounded top depending upon the species. These plants have a freely floating thalii (body), with no stem or leaf; and are green to yellow in colour. An average individual plant is 0.6 mm long, 0.3 mm wide and weighs 120-150 micrograms i.e. about that of two grains of table salt.



Each plant produces a minute flower in the cavity present in the upper part of the plant body. A flower of this plant has only one single pistil and stamen. A bouquet of a dozen such plants in full bloom will occupy no more space than a pinhead.

Wolffia is edible and in fact quite tasty. It contains about 40 % protein by dry weight. Like legumes Wolffia contains high levels of all essential amino acids except methionine.

Wolffia is a very much sought after delicacy in Thailand, Myanmar and Laos.

Duckweeds, as they are known, are nowadays used in water treatment as they have the potential to purify waste water at a minimal cost. They also replenish mineral nutrients which would have otherwise been lost with waste water.

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## BRIEF OVERLOOK ON BIODIVERSITY

Mohamed Simah

### What is biological diversity?

Biodiversity or biological diversity is simply the variety of life. Biodiversity is all the living things around us. It is the fishes in our oceans, the birds in our skies the sweet smelling flowers and beautiful trees in our forests and gardens.

### Why is it important to us?

They provide us many different resources that are essential for us to live. Leaves and numerous other parts of trees are used to make many useful medicines. The foods we eat also come from different types of species. Eggs from chickens, the different types of fruits and vegetables from trees and of course trees also play a vital importance in cleaning and purifying the air we breathe by photosynthesis. These are all variety of organisms.



They are all biological diversity and are very important for us and all the other organisms.

### Why are biodiversity getting extinct?

There are several threats to the biodiversity. As important as all species are, there are invasive alien species that causes the growth of other species to be disrupted. And as we all know very well the climate is changing continuously and these changes are causing the growth of many species to be diminished. Biodiversity provides us many resources that are important for us. But when we start over exploiting the resources they would get extinct. Human actions and other natural reasons cause the habitat of organisms to be disrupted. As a result most of the species cannot survive these rapid changes to environment and the new habitats.

### What we can do to save the biodiversity?

There are several significant things or actions we can take to protect and conserve the biodiversity of the earth and prevent from near extinct species from becoming totally extinct. One thing that everyone can do is planting a tree. But only planting a tree is not enough. You should adopt the tree considering it as your responsibility and look after it and make sure it grows well. Also as the invasive alien species is a threat to various species we should remove these alien species from our gardens and forests. Then only can the local species thrive and become more abundant. Over exploitation is a main cause for the decrease in number of some species.

Maintaining the amount of fishing and killing of other animals for food in a controlled limit will make sure they also don't become extinct. Furthermore there must be a strong legislation to take action against the people who causes damage to environment. As of today there are 193 parties in the convention on biological diversity (CBD). CBD plays a vital and very important role in supporting the conservation of biodiversity in many countries. Moreover strong awareness needs to be created among the people to make them conscious about the endangered and protected species. This will greatly reduce the inadvertent damage to the biodiversity.

These are just a few of the many actions that can be taken to conserve and sustain biodiversity. Lastly it's all in our hands to protect and conserve biodiversity. If you have not yet started contributing to conserve biodiversity, start now.

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# SIMPLE ACTIONS YOU AND YOUR FAMILY CAN TAKE TO HELP THE ENVIRONMENT

*Aminath Shaufa*

■ **Plant a tree**

Try to plant a tree at least once every year-this simple action will absorb CO<sub>2</sub> while growing.

■ **Turn off the Air conditioners and heaters when not in use**

This saves a lot of energy and CO<sub>2</sub> .which leads to reduction of your electricity bills.

■ **Recycle at home**

Sort out your waste and recycle materials such as paper, galss, plastics, metal, and organic waste.

■ **Go for energy saving light bulbs**

Replace the old light bulbs for energy saving ones, this reduces the electricity bills and refuses the emission of CO<sub>2</sub>.

Turn off the lights when you don't need them.

■ **Avoid heavily packed products and plastic bags**

Try and avoid buying product with a lot of packaging Take your own bag to avoid using plastic bags-this saves a lot of CO<sub>2</sub> emissions buy cutting down your garbage.

■ **Avoid using Ozone depleting substances(ODS)**

Avoid the use of sparys containing CFCs, when buying products make sure they are ozone friendly and climate friendly.

When buying refrigerators /air conditioners try buying the ones that does not contain ozone or climate damaging chemicals.

■ **Buy rechargeable Batteries**

Batteries contain heavy metals such as mercury and cadmium which have become a major source of contamination.

■ **Turn off and unplug electronic devices when not in use**

Simply turn off and unplug your televisions or any other electronic devices when not in use.

DON'T leave them on standby, this helps saving a lot of energy and CO<sub>2</sub> emissions.

So you see there's so much we can do, we can create awareness amongst your friends and family about the importance of protecting the ozone layer and reducing the impact of climate change by practicing these ways which contributes to our everyday lives. We all can make a difference, because when it comes to protecting our planet.

**“EVERY ACTION COUNTS”**

## OZONE WORD SEARCH

*Aminath Shaufa*



P	Q	R	A	D	I	A	T	I	O	N
X	R	L	U	F	M	R	A	H	Z	T
R	Y	O	A	S	F	H	O	T	Z	G
W	R	S	T	W	V	M	C	R	Y	H
S	L	G	X	E	Z	F	A	A	B	A
U	A	E	U	S	C	O	A	E	Q	L
N	B	F	L	H	Y	T	R	E	X	O
D	O	X	R	T	S	B	I	N	Z	N
R	L	Z	G	Y	Q	S	A	O	M	S
I	G	S	A	C	Y	U	E	Z	N	D
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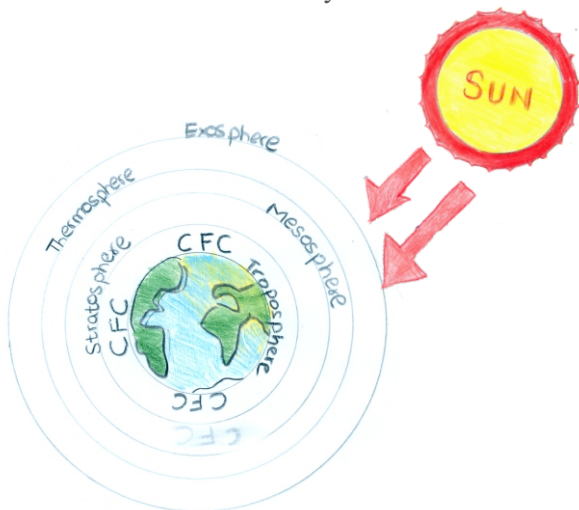
- RADIATION
- OZONE
- HALONS
- DEPLETED
- UV RAYS
- GLOBAL
- SUN
- HARMFUL
- EARTH
- SPARYS
- OZZY
- PROTECTION
- CFC

# STUDENTS SECTION

## A HOLE IN THE OZONE?

*Mohamed Alaau Ibrahim  
Iskandhar School*

The ozone layer, a layer of gas in the upper atmosphere, performs the vital role of protecting humans and other living things from the harmful ultraviolet rays (UV) of the sun. In the 1970's scientists discovered that certain man-made chemicals could destroy ozone.



A thinning ozone layer leads number of serious health risks for humans. It causes greater incidences of skin cancer and eye cataracts, which children being particularly vulnerable. Depletion of ozone in the stratosphere could lead to significant increases in UV radiation reaching the earth's surface which could in turn lead to adverse human and animals health effects as well as ecosystem impacts. There are also vulnerable impacts to biodiversity. Increased UV rays reduce level of plankton in the ocean and subsequently limited fish stocks. A direct negative economic impact is the reduced life span of certain material like plastic.

**Will the ozone layer recover? Can we make more ozone to fill the hole?**

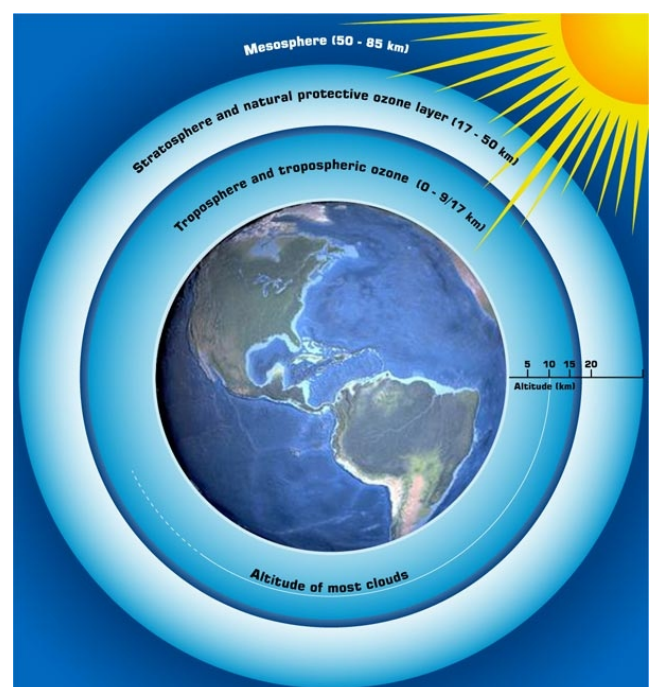
The answer in order are yes and no. we can't make enough ozone to replace what has been destroyed, but provided that we stop reducing ozone depleting substances, natural ozone production reactions should return the ozone layer to normal levels by about 2050. It is very important that the world comply with the Montreal Protocol: delays in ending production could result in additional damage and prolong the ozone layer's recovery. The world must find ways to avoid using widely know ozone depletion substances like: Refrigerants, insulating foams, solvents and Aerosols.

## THE OZONE LAYER

*Ahmed Imran  
Iskandhar School /SI*

The ozone layer is a layer of a gas in upper atmosphere which protects human and other living things from harmful ultra violet (UV) rays of the sun.

In the 1970's scientists discovered that certain man-made chemicals could destroy ozone and deplete the ozone layer. Further research found that the growing production and use chemicals like chlorofluorocarbons (CFCs) in aerosol spray, refrigeration, insulation and air conditioning was contributing to the accumulation of ozone depleting substances (ODS) in the atmosphere. They also observed that an ozone hole was developing above Antarctica.



# OZONE DEPLETION : HOW WE CAN HELP PREVENT IT?

*Malha Mohamed  
Kalaafaanu School / 7A*

The depletion of the ozone layer is a major concern today. The ozone layer protects us from the harmful rays of the sun therefore it is imperative that we preserve it. Human activity is responsible for the most damage to the ozone layer, thus, society should recognize that much can be done to prevent ozone layer damage.

A big step towards putting a stop on ozone depletion is growing as many plant and trees as possible and keeping a check on deforestation. Every year so many forests and trees are being cut for the wood and other uses which no one bothers to grow again. Plants and trees produce oxygen which is very useful not only for the mankind but also for the atmosphere.

Countries should also put a stop on the production and release of ozone depleting chemicals such as CFC's and HCFC's. CFCs and HCFC's play a big role in depleting the ozone layer. Other alternatives should be used in place of these to keep our environment clean and safe. If you stop littering and try to use the three R'S (Reuse, Reduce, Recycle) more often or always then the pollution in the air will decay and the holes in the ozone layer will patch. Furthermore, ozone friendly labeled products should be brought in use by individuals and corporate.

In addition to this, schools can have activities to increase awareness of the problem and initiate local action. Also, in schools children must be educated to keep the environment clean and friendly by clean fuels. Schools could also form an environmental club, where all students that are interested get a chance to participate in issues related with the environment and also take part in environmental forums.

It is obvious that the depletion of the ozone layer is a serious problem that poses many consequences to society. The possibility seems high that the depletion of the ozone layer will prove detrimental if action is not taken. I personally feel that even though the ozone depletion is a serious problem if we have the right attitude and good education, we can prevent ozone depletion.

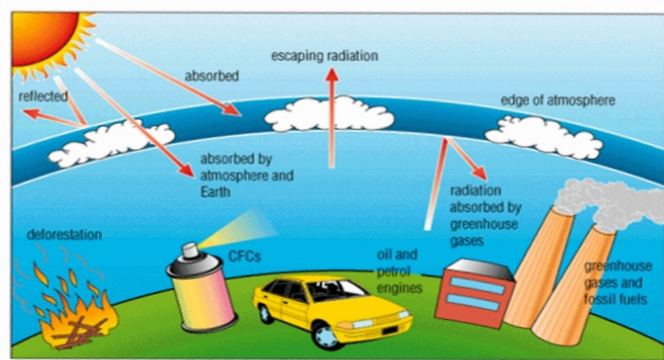


## SAVE THE ENVIRONMENT, SAVE THE FUTURE, SAVE THE PLANET!

*Maisoon Ahmed  
Iskandhar School / 6K*

Our planet is in trouble! Everyone of us, whatever age we are, can do something to help slow down and reverse the damage caused to our environment. We all have a responsibility for our environment. We must learn to live in a sustainable way, like learning to use our natural resources. We must keep the world in a good condition for our future. We humans create such a lot of rubbish! Is all our rubbish really rubbish? If u think about it, much of that we throw away could be used again. It makes sense to reuse and recycle our rubbish instead of just trying to solve the problem of where to put it!

*continued on page 14*



We must cut down on energy use. The air, water and soil of habitats all over the world have been, and are still being polluted in many different ways. This pollution affects the health of living things. Air is polluted by cars and lorries, and power stations create acid rain. When fossil fuels are burned to provide energy, they form polluting gases. The careless or deliberate dumping of litter in the environment is not unsightly but dangerous for wildlife too. Some of the things that we can do to stop these acts are:

- Stop hoarding plastic bags
- Save trees and waters
- Use and reuse clothes
- Use less CFC items
- Use Environmental friendly products and vehicles
- Stop putting sewage, oil, plastics, and radioactive substances into the water.

Let's start living simply again. Recently, we have been brash and wasteful with the facilities at our disposal. Let's minimize what we purchase and be less wasteful. When you are done with something, recycle it or give it to a charity instead of just tossing it. These are the things we all can do in our day to day lives. Start contributing NOW!

**SAVE THE ENVIRONMENT,  
SAVE THE FUTURE,  
SAVE THE PLANET!**



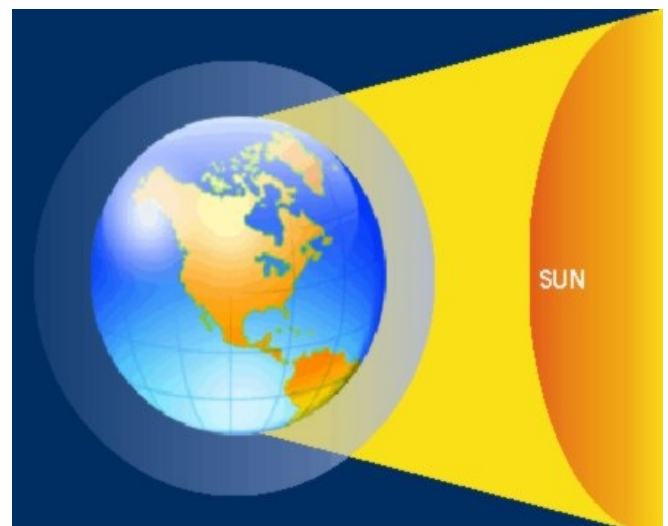
## OZONE: THE SAVIOR TO BE SAVED BY US

*Mohamed Dhaniyal Ageel  
7E, Iskandhar School*

Have you ever wondered why the windows in a high-up international flight are never opened? Is it because at the height in which the flight is, there is almost no air and also a gas which protects us albeit harming the lungs if inhaled, ozone.

In collaboration of the World Ozone Day, I am writing this essay to highlight on the fact of the necessity of preserving our ozone layer. However, I do believe I should describe ozone first. A rare form of oxygen, it has the chemical formula  $O_3$ . Spread throughout the atmosphere, it protects us like a shield from the harmful UV rays the Sun emits. It is 'good high up, bad low', as stated by ozone from polluted smog can harm us more than the good ozone does, not being able to hold back as much UV rays and damaging the lungs more.

Along with what it does, I believe that without knowing what is happening to the ozone layer, we cannot make an effort to save it. If all the ozone in the world were to be gathered together, it would form a layer around the Earth as thick as 2 pennies stacked together (0.3 cm). In the olden days, the ozone layer had no problems, and the ozone broke down into oxygen normally, which is part of an environmental cycle. However, recently, it has been noticed that the ozone layer is breaking down faster than normal. This formed a 'hole', which thinned part of the ozone layer. However, it is just a part of the ozone layer with reduced ozone.

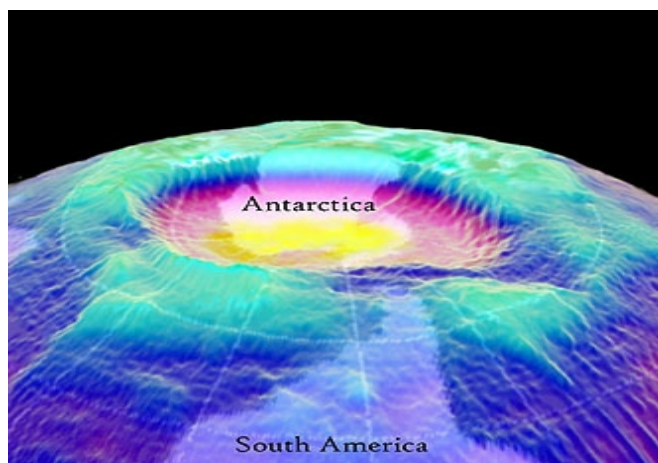


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The ozone hole was first noticed in 1985 above Antarctica by Joseph Farman and his colleagues at the British Antarctic Survey. By observing radiation from the Sun and increased UV radiation, they deduced that there was a hole in the ozone layer above Antarctica. Afterwards, other people found more minor holes above other parts of the world, leading to a somewhat 'thinned' ozone layer. The major cause was due to the CFC emissions from sources like refrigerators, air conditioners and other electronic appliances, as well as aerosol sprays. UV rays hitting CFC molecules made the chlorine atoms separate and, in turn, destroy tens of thousands of ozone molecules before they are removed from the stratosphere. As a result, more UV rays reached the Earth, leading to increased skin cancer rates and also destruction of plants and other living creatures.

As time went by, more people began to realize the importance of the ozone layer and they decided to do something to protect it. (One of the first steps taken to conserve the ozone layer was the Montreal Protocol, in which many countries that were apprehensive about the depletion of the ozone layer). Ever since then the amount of CFC's released have been greatly reduced, but it would take a long time for the ozone layer to be fully restored. We still have a lot to do in order to keep up this pace of healing. For the one thing, we should bring a stop to using CFC products since it is what has caused all this harm to the ozone layer. Additionally, we should plant more trees which can produce oxygen. Furthermore, we should reduce high-altitude aircraft flights and rocket flights. We should also stop the release of high-pressure steam to the atmosphere. If we can keep this up, God willing, the ozone layer will be restored by 2050.

This conclude, in conjunction with the World Ozone Day. I implore every person, be they old or young, man or women, child or elder, poor or wealthy to work in order to conserve our ozone layer. Our planet- our responsibility, and we should be the ones who look after it and preserve it for the generations to come.



## PROTECTING THE OZONE LAYER

*Musab Musthafa Hussain  
Iskandhar School / 7E*

The most important self shield of the earth is the Ozone Layer which is located above 30km. The ozone as the name implies is made up of Ozone ( $O_3$ ). The ozone layer is important to all organisms on earth, because it protects us from Sun's Ultra Violet (UV) rays and other harmful emissions. This ozone layer is crucial for the survival of all organisms and might be one of the reasons for life on earth.

Even so, the ozone layer is getting destroyed day by day due to the rapid increase in the use of green house gases. As the ozone layer errors sun's harmful rays are passed into the earth.

Due to the increased amount of CFCs, people get sun burn, cancer, breathing problems and many other diseases. So we must protect ourselves from this hazard. There are many things that we can do to protect the ozone layer. Firstly, use CFC free refrigerators, air conditioners. Secondly, do not burn too much fossil fuel. Grow more plants. Lastly, use hydroelectric and wind mills if possible.

We need to accept the fact that the earth's ozone is getting destroyed and works towards maintaining what is left so to allow future generations a life.



# NEW REPORT HIGHLIGHTS TWO-WAY LINK BETWEEN OZONE LAYER AND CLIMATE CHANGE

Geneva/Nairobi, 16 September 2010 – International efforts to protect the ozone layer—the shield that protects life on Earth from harmful levels of ultraviolet rays—are a success and have stopped additional ozone losses and contributed to mitigating the greenhouse effect, according to a new report.

The executive summary of the Scientific Assessment of Ozone Depletion 2010 provides new information about the effects of climate change on the ozone layer, as well as the impact of ozone changes on the Earth's climate.

The report was written and reviewed by some 300 scientists and launched on the UN International Day for the Preservation of the Ozone Layer. It is the first comprehensive update in four years.

The report reaffirms that the Montreal Protocol is working. “It has protected the stratospheric ozone layer from much higher levels of depletion by phasing out production and consumption of ozone depleting substances.”

Given that many substances that deplete the ozone layer are also potent greenhouse gases, the report says that the Montreal Protocol has “provided substantial co-benefits by reducing climate change.” In 2010, the reduction of ozone depleting substances as a result of the Montreal Protocol, expressed in CO<sub>2</sub>-equivalent emissions (about 10 Gigatonnes per year), were five times larger than those targeted by the first commitment period (2008-2012) of the Kyoto Protocol, the greenhouse emissions reduction treaty.

The report published by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) says that an important remaining scientific challenge is to project future ozone abundance based on an understanding of the complex linkages between ozone and climate change.

Changes in climate are expected to have an increasing influence on stratospheric ozone in the coming decades, it says. “These changes derive principally from the emissions of long-lived greenhouse gases, mainly carbon dioxide, associated with human activities.”

*Reference:*

*URL: <http://is.gd/fkKBT>*

## OUR CORAL REEFS ARE DYING AND WHO CARES?

*Ali Yusuf*

*Jamaluddin School / 7F*

Coral reefs deliver ecosystem to tourism, fisheries and coastline protection. Coral reefs are important for many reasons. They provide protection and shelter for many different species of fish. Without coral reefs, these fish are let homeless with nowhere to live.

In addition, coral reefs are very important because they protect coasts from strong currents and waves by slowing down the water before it gets to shore.

We all are aware that coral reefs can only live in very clear water if not, it will not survive and in the end we will lose all the benefits we get from the reef. There are natural destructions like cyclones and hurricanes which is not very frequent and can be recovered. However, human activities create long term disturbances which cannot be recovered. There are two different ways in which humans have contributed to the degradations of coral reefs, indirectly and directly. Indirectly, we have destroyed their environments dumping garbage to the reef, dredging and mining. In addition to this, careless boating, diving, fishing and other recreational uses of coral reef areas causes damage to coral reef.

We all know that the coral reefs are in danger but have we taken action? We need to be more responsible and accountable to our greedy actions. We need to follow the regulations and respect the nature and let them serve us.

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