

A Turtle can't see the Difference

Environmental Studies Newsletter

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Volume : 02

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Department of Bio-science
Faculty of Applied Science
University of Vavuniya

PROTECT TURTLES

There are seven species of marine turtles in the world. Five of the seven sea turtles visit the Sri Lankan shores to nest. These Sea turtles reach Sri Lankan shores from April to July, and this is the peak season for nesting. Rekawe, Bandarawatta, Duwemodara, and Kosgoda beaches were identified as the best nesting beaches in southern Sri Lanka.

All 7 Species of marine turtles are listed in Appendix I of the Convention on International Trading in Endangered Species of Wild Fauna and Flora. Three of them are classified as critically endangered by IUCN, and a further three are classified as endangered.

Despite natural predators, human is the biggest threat to sea turtles. Harming activities like killing, wounding, or harming a turtle have been prohibited. Furthermore, turtle possession, as well as taking or destroying their eggs, is an offense. However, these harmful activities are being continued in several parts of the island. These shelled reptiles are illegally slaughtered for their attractive shells or their meat. Especially Hawksbill turtles often fall victim to the hunters. The booming of tourism and transformation of tropical coastlines into resorts deteriorate the Nature of the nesting beaches. Gill nets and fishing hooks are dangerous for adult turtles drifting around and finally caught by the fishermen.

World's Turtle Day is declared on May 23rd for awareness creating and educating people towards the protection of turtle's habitats at their level best from human activities.

Ms.T.Mathivathani
2018/2019 Batch
Environmental Science

*"Say goodbye to plastic pollution and
conserve the sea turtle from it"*

THE COVER STORY

Since the 1940s, plastic has only been mass-produced, but it's having a devastating impact on sea turtles. Research suggests that 52% of the world's turtles have eaten plastic waste. The reason is simple: a floating plastic bag looks like many jellyfish, algae, or other species.

Sea turtles and other marine creatures mistake plastics and other garbage for food (such as jellyfish) and ingest them. This mistake causes blockages within their digestive system and eventual death. Even if they survive, consuming plastic can make turtles unnaturally buoyant, stunting their growth and leading to a slow reproduction rate. So, all sea turtle species are at risk from plastics.

With the odds stacked so heavily against sea turtles, it can be to know how to help. Many of us are doing our part to reduce plastic pollution by recycling, reducing and reusing, but it's just not enough on its own. All of us must step up to take accountability and end this pollution epidemic.

Earth was created for all life, not just human life. So, nothing is more important to this society than preserving its natural capital. People need nature to survive and to thrive. So let us together conserve sea turtles as humanity.



Cover page designing
and Cover Story

Ms.N.M.Rishaya
2016/2017 Batch
Environmental Science

ENVIRONMENT

The environment is one of valuable Nature's gifts for us. It is a great blessing for us with many trees and pure air. Our environment is wonderful with many trees, plants, animals, insects, birds, water, etc. The streams that run across our environment add freshness and a soothing atmosphere for us. The chirping of the birds and the rustling of leaves in the soft wind makes our environment an excellent place for relaxation.

The forests in our environment serve humans to live a healthy life. The trees can absorb the carbon dioxide that contains in the air and release oxygen to purify the air that we breathe. Moreover, the trees play a significant role in producing rain. The huge trees reduce the risk of landslides and provide shelter to wildlife. When it comes to threatening floods, the roots of the trees will protect the earth from erosion.

Do you know that these valuable trees provide valuable medicines?

People destroy great Nature to a great extent. The biggest threat to the environment is that the people pollute it they throw polythene here and there. It causes great damage to our environment.

So as humans, we must protect our beautiful environment. We should plant more and more trees to protect it. We should make people aware of the importance of protecting beautiful Nature's gift.



Ms.M.J.F.Mifra
2017/2018 Batch
Environmental Science

ENVIRONMENTAL SOCIETY (ENSOC)

ENSOC is a students society of the University of Vavuniya. It performs as a platform for the students to protect the environment, create awareness among the public and improve their skills. The activities of the ENSOC have been documented in this newsletter.



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Ms.Y.Jinthusa (Student-Level II)

HUMANS HAVE BECOME A THREAT TO HUMANS



Nowadays, the way of living pattern of the human being should be changed. If many sides should change, agriculture is the most crucial side. For the present world, green applications for agriculture are highly admired. For survival, food is essential. However, unfortunately for this critical process, humans use many chemicals, poisons, metals, heavy-metals, pesticides, herbicides, etc. They add every poison in their foods by their own hands.

Why are they trying to kill them by themselves?

There are many ways to practice sustainable agriculture with green applications. I want to suggest all the people start a small vegetable garden in your home level as you can. Then you can avoid the harmful toxins that digest to your body.

Wait a while and think about your family and your loved ones. Use compost for your cultivation instead of synthetic chemicals. The use of foods that are chemically fertilized can affect you long term as well as short term. Allow birds and some animals for your cultivation field. They will protect it from pests and worms. So, no need for pesticides. Use neem, garlic, and ginger extracts as liquid pesticides when required.

Live Happily, Eat Safely, Get a Long Healthy Life, and Protect Mother Nature.

Ms.W.W.A.G.I.Fernando
Level III Student
Environmental Science

SUSTAINABLE FOOD PRODUCTION

As the human population keeps increasing, we become more aware of the need for sustainable food production. It's a method of production using processes and systems that are non-polluting, conserve non-renewable energy and natural resources, are economically efficient, are safe for workers, communities, and consumers, and do not compromise the needs of future generations.

As with anthropogenic activities, food production contributes to climate change, water scarcity, soil degradation, and the destruction of biodiversity. Modern agricultural practices involve the usage of various synthetic pesticides and fertilizers. Also, modern food production and packaging technologies use several artificial chemicals to improve food products' shelf life, quality, and safety.

COVID-19 impacts have led to severe and widespread increases in global food insecurity, affecting vulnerable households in almost every country, with impacts expected to continue through 2022 and into 2023. Sustainable food production is the only solution to achieve global food security with the eco-friendly concept.



Sustainable food production practices involve the appropriate use of fertilizers and pesticides to avoid pollution, reduce the use of fossil fuels, optimize land use and reduce the conversion of land for agriculture, design energy, and water

-efficient food manufacturing sites. They protect the quality of natural resources and reduce greenhouse gas emissions to maintain air quality. They reverse soil loss and restore organic matter content in soils, increase biodiversity through good farming practices, implement sustainable fishing practices to restore fish stocks and reduce pollution of coastal areas. They use environmentally efficient food packaging methods including optimizing packaging use, usage of materials that have a lower environmental impact and recycled materials. Thus, they reduce food waste and spoilage as much as possible.

Global food production methods must change to minimize the impact on the environment and support the world's capacity to produce food in the future.

Ms.R.Rizla
2016/2017 Batch
Environmental Science

ORGANIC FARMING

Organic farming is one of the methods of crops and livestock production. In this method, the crops grow without pesticides, fertilizers, genetically modified organisms, antibiotics, and growth hormones. Instead, it provides attentive care that promotes health and meets the behavioral needs of livestock. This concept was developed in the early 1900s by Sir Albert Howard, F.H. King, Rudolf Steiner, and others. There are several Organic farming practices. Those are;

- Crop rotation



- Green manure
- Animal manure
- Integrated weed management
- Integrated pest management
- Livestock management

- Cover cropping



Crop rotation means changing species of crops on the same field, but the crops species change season by season. The cover cropping farming method implies covering the field with any plant species for a specific season. In Green-manure, the green plants mix with the soil. It creates organic matters and nitrogen enrichment in a particular soil. Animal manure and organic farming practices also help to enrich the soil's nutrients with natural components that originated from animals. In the organic farming method, we can get benefits and issues.



The benefits of organic farming are;

- Promotion of biodiversity
- Reduction of environmental toxins
- Non toxic foods
- Better soil quality
- Low use of non-renewable resources

Issues of organic farming are;

- Lack of subsidies
- Lack of infrastructure
- Higher cost
- Need of knowledge-intensive farming
- More observation required
- Marketing is required

Ms.B.W.K.S.Kumari
2016/2017 Batch
Environmental Science

VERMICULTURE



Vermiculture can be simply defined as cultivation of worms. Vermicomposting is done with the help of earthworms. Vermicast is the excreta of worms. Vermicasts are beneficial to soil microflora and inhibit pathogenic micro-organisms' growth.



Earthworms habitat are found everywhere except in sandy soil and soil deficient in humus. They are mostly found in upper layers of slightly damp soil. They feed on dead matter, and they are hermaphrodites, but they show copulation.

Earthworm species used for vermiculture



Lumbricus rubellus



Eisenia fetida



Lumbricus terrestris



Eisenia andreii

Preparation of Vermicomposting

The layer of chopped dried leaves is used as bedding material. Cow dung + chopped dried leaves mix in 3:1 ratio. It allows for 15-20 days for partial decomposition. Then the earthworms are introduced into that partially decomposed material. Water is sprinkled or sprayed to the compost bed daily. After that, this bed is covered with a gunny bag. Finally, the bed is turned over after 30 days. The vermicompost preparation methods are;

- Bin type methods are;
 - Lehigh
 - Cage
 - Block
- Pit method
- Bed method

Ms.I.M.N.Hansima Induwarani
2018/2019 Batch
Environmental Science

Field visit to Adampan Integrated Organic Farm

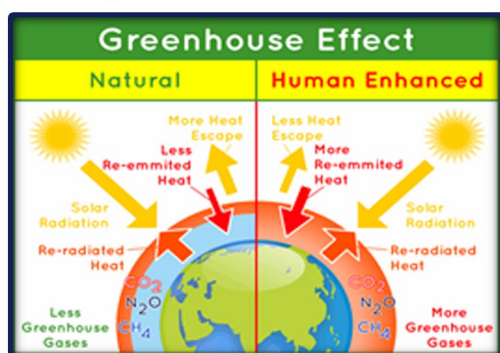


Students of Department of Bio-science (2015/2016 and 2016/2017 Batches) visited to Adampan Integrated Organic Farm. It is situated in Adampan, Mannar. The aim of this field visit was to observe the farming techniques and methods. (17th February 2021)

GREENHOUSE GASES AND GLOBAL WARMING



The greenhouse effect is the warming of the earth's surface due to earth's atmosphere traps heat radiating from the earth toward space. Both phenomena, the greenhouse effect and global warming, are interconnected with each other. Due to greenhouse gases, solar radiation is absorbed and blocks earth's heat from releasing into space. Methane (CH_4), Carbon-dioxide (CO_2), Chlorofluorocarbons (CFCs), Water vapor, Nitrous oxides are some of the greenhouse gases.



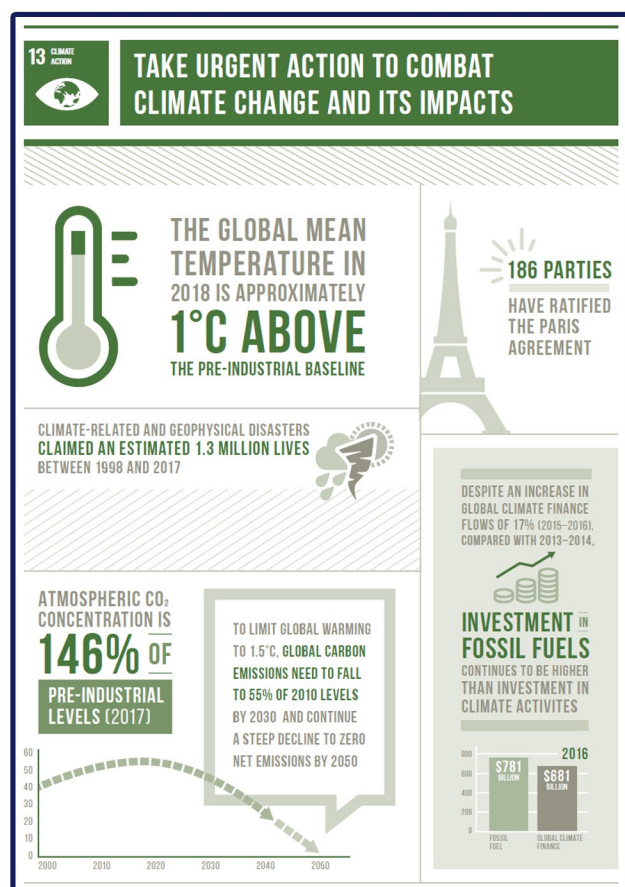
Due to those emissions, the earth will become warmer. This leads to the melting of glaciers and the rising sea level. Polar bears and marine animals and other species get affected. And also due to this global issue, the following effects can be raised. They are fire threats, ecosystem imbalance, health issues, extinction of species, invasion of pests and weeds, drought conditions, and reduced harvest of the crop varieties.



To overcome this issue, eco-friendly agricultural practices using biopesticides, bioethanol as a biofuel instead of fossil fuels for automobiles, or public transport methods, limit the unnecessary usage of light bulbs that emits CFC gases and reduce usage of photocopy machines, A/C machines, perfumes, and other aerosols. We should save our mother planet as our soul.



Ms.S.V.A.Saumya Kumari
2016/2017 Batch
Environmental Science



DEFORESTATION IN SRI LANKA

Deforestation is removing a forest or stands of trees where the land is converted to a non-forest use. Deforestation is one of the most prominent issues in global land use. Estimates of deforestation traditionally are based on forest cleared for human use, including removal of the trees for wood products and croplands and grazing lands and development purposes.

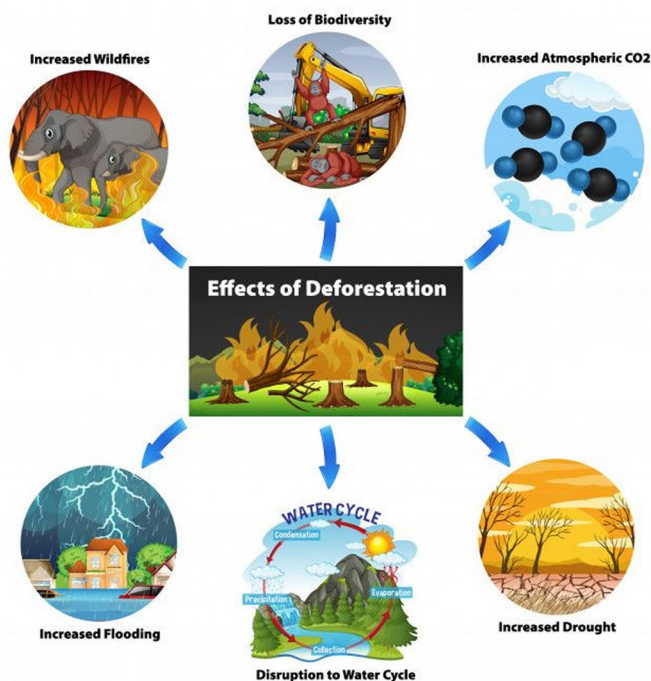
The causes of deforestation can be categorized into two types. Those are natural causes and human activities. Natural causes are forest fire, landslides in forest areas, drought, diseases among forest areas, etc. Human activities are development activities, agriculture activities, industrial projects, construction of dams and reservoirs, and using wood as a fuel.



Sri Lanka had 3.53 mha of natural forest in 2010, extending over 54% of its land area. By 2020, it lost 11.2 kha of natural forest, equivalent to 4.40 Mt of CO₂ of emissions. From 2001 to 2020, Sri-Lanka lost 10.3 kha of humid primary forest, making up 5.5% of its total tree cover loss in the same period. As a result, the total area of humid primary forest in Sri Lanka, decreased by 1.7% in this time.



Figure: Destroyed area of Wilpattu national-park



Solutions for deforestation

- Reforestation - The process of regenerating or replanting forest areas that have been destroyed or damaged for the benefit of humankind.
- Afforestation
- Agroforestry
- Laws and policies
- Sustainable development

G.G.A.N.Gunawardhana
2016/2017 Batch
Environmental Science

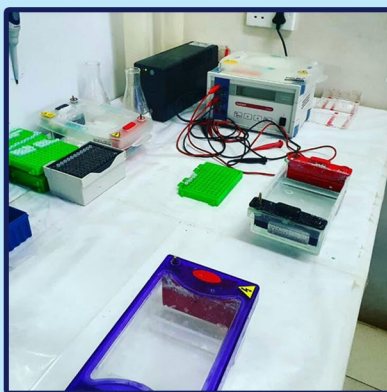


Internship training programs

Students of Department of Bio-science (2015/2016 Batch)



Ms.R.A.D.Samarawickrama
National Water Supply and
Drainage Board-
Anuradhapura



Ms.A.F. Shaheeka Farwin
National Aquaculture
Development Authority
(NAQDA)-Bathulu Oya



Ms.A.W.F. Nafla
National Water Supply
and Drainage Board-
Puttalam



Mr.T. Keerthanaram
Department of Wildlife
Conservation-Kilinochchi



Ms.A.R Rinuza
National Building Research
Organization (NBRO) (Landslide Risk
Reduction Management Division)

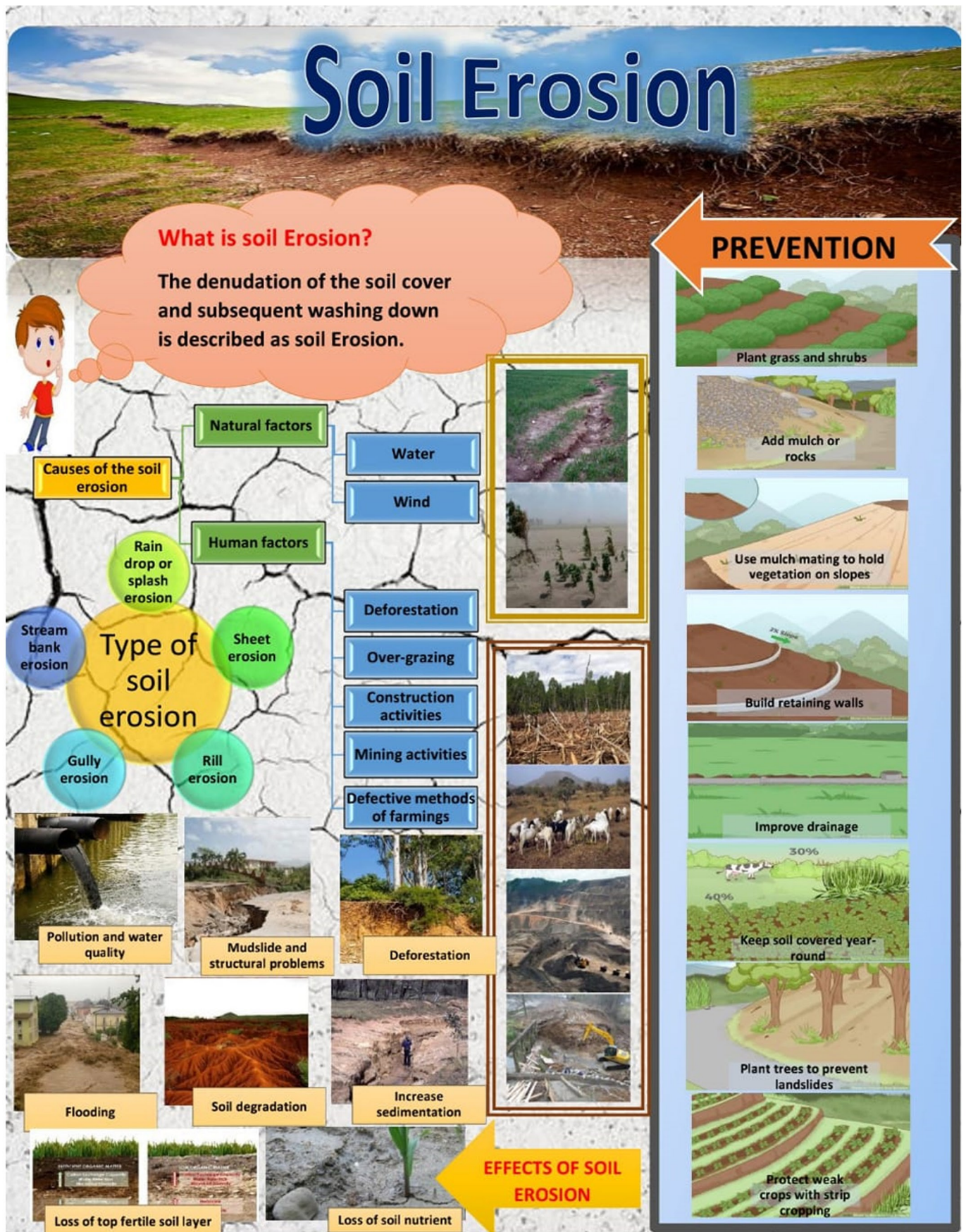


Ms.W.H.P.Yasanthika
Water Treatment Plant -
Polonnaruwa



Mr.K.L.D.C.Rasanga
National Aquaculture Development
Authority (NAQDA)-Puttalam

POSTER ON SOIL EROSION



Ms.S.Pithuja
2017/2018 Batch
Environmental Science

PHYTOREMEDIATION

What is phytoremediation?

In Latin, it is called as *remedium*, which means “to remedy” or “to correct”.

Phytoremediation can be defined as the effective use of plants to remove, detoxify, or immobilize the environmental contaminants from soil and groundwater through the plants' natural biological, chemical, and physical mechanisms.

This technology is used to remove a variety of contaminants from the environment, such as metals (As, Se, Cd, Hg, Sb, Ni, and V) pesticides, solvents, explosives, and crude oil. Phytoremediation is widely accepted as a cost-effective environmental restoration technology as well as an environmentally friendly technology.

Plants are unique organisms equipped with remarkable metabolic and adsorption capabilities and transport systems that can take up nutrients or contaminants selectively from soil and groundwater.

Characteristics of plants used for Phytoremediation

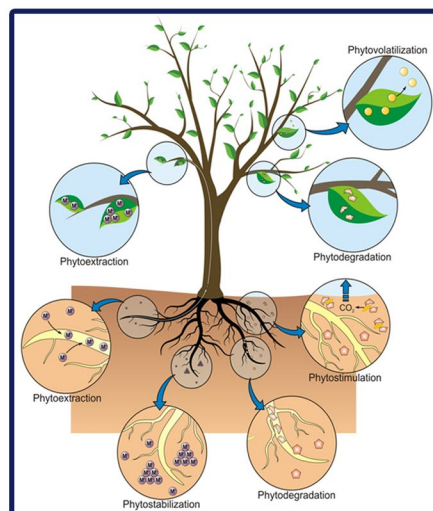
Plants having the ability to extract or degrade the contaminants of concern

- Adapted to local climates
- Having high biomass
- Dense and deeply penetrated root structure
- Compatibility with soils
- High growth rate.

Plants used for Phytoremediation

- *Brassica juncea*
- Sunflower
- Cottonwood
- Salix
- *Pteris vittata*
- Pennycress
- Mustard

How does Phytoremediation work?



Phytoremediation includes a variety of mechanisms such as Phytoextraction, Phytostabilization, Phytodegradation, Phytostimulation, Phytovolatilization, and Rhizofiltration.

1. **Phytoextraction:** The uptake of the plant's contaminant by root and the movement of contaminants from root to the above part of plants by absorbing, concentrating, and precipitating the contaminants.
2. **Phytostabilization:** Reducing the mobility of substances in the environment.
3. **Phytodegradation:** It is a breakdown of contaminants taken up by metabolic process within the plants.
4. **Phytostimulation:** Enhancement of soil microbial activity to degrade contaminants, typically by micro-organisms that associate with roots.
5. **Phytovolatilization:** It involves the use of plants to extract certain metals from soil and then release them into the atmosphere through volatilization.
6. **Rhizofiltration:** Filtering water through a mass of roots to remove toxic substances or excess nutrients. The remaining pollutants absorbed or adsorbed by the root.

Ms.Y.Jinthusha
2018/2019 Batch
Environmental Science

WHY BIODIVERSITY IS THE KEY TO OUR PLANET'S FUTURE?



Firstly, Biodiversity is an efficient tool and creates more habitats for more animals, insects, and birds in a small area. These habitats function as stepping stones between urban and agricultural deserts.

Secondly, using these stepping stones by insects, birds, etc., creates genetic diversity between plant, bird, and insect populations.

Thirdly, biodiversity gardens, parks, and allotments are a vital educational tool - a way for both children and adults in their daily life to work closely with nature, learn about nature and take direct responsibility for the various species in their gardens and the local area. Through biodiversity gardens, parks, etc., they will also have the opportunity to learn **CONCRETELY** about how plants grow and how insects, birds, etc., it help to create a balance between plants and wildlife. For many, biodiversities and the environment are still, very abstract concepts, associated with protesting to saving the Amazon rain forest or donating money to greenpeace. This is a bit of a paradox when you consider how horrified we

are about what they're doing in the Amazon, while at the same time, we are content to leave our own backyard as a desert. To give you an idea of this anomaly - 60 percent of the forest in Brazil is still intact, whereas **ONLY** 10 percent remains in countries like England, Ireland, Holland, and Denmark.

Fourthly, farmers everywhere are lagging well behind in their duty to create Biodiversity habitats. Instead, they either pollute the landscape with dangerous pesticides or create agricultural deserts by pulling up hedgerows or ploughing up the biodiversity border zones on their farms.

Last but not least, a rudimentary knowledge of biodiversity would spare us from the horrors of those 'green' wastelands that urbanites proudly call their front lawns. Not only do they mow these down to the bone, so practically no life other than the grass is possible, but they also uproot all the pollinating flowers, such as dandelions, daisies, clover, etc., under the illusion that such beneficial wildflowers are noxious weeds. Although beautiful from their perspective, these green wastelands are in reality dull and lifeless wastelands, where no biodiversity is possible. That makes them pretty ugly from where we stand.

Ms.Y.L.Fathima Sasna
2016/2017 Batch
Environmental Science



HIKKADUWA CORAL REEFS



Hikkaduwa National Park is located 100 meters away from the beach. Local, as well as foreign tourists, visit this place. Declared as a Coral Sanctuary on May 18, 1979, and opened to the public on September 19, 2002. The best time to visit Hikkaduwa is in April and November. Snorkeling and scuba trips are the most common things to see. Unfortunately, we can't collect live animals and walk on coral reefs.

Hikkaduwa covers about 102 hectares of coral-reefs. Staghorn, Table, Brain, and Elkhorn are the main corals, and hard corals are the special ones that are located on a coral reef base. It has 31 species of corals that act as a shelter to many animals, including shrimp, crabs, oysters, and starfish. Predators such as moray eels and ubiquitous blacktip reef sharks also live there but no casualties have been reported. However, there is a fish that carries deadly venomous fins called the lionfish.



Table Coral



Staghorn Coral



Elkhorn Coral



Brain Coral

Nowadays, these corals are highly degraded due to natural and human activities. In 1998, coral bleaching, induced by El Nino, reduced the coral coverage from 47 percent to 13 percent. Therefore, at least 30-40 percent of coral-reefs need to be restored. Although this has been designated as a protected area, it has been subjected to constant exploitation, including removing ornamental fish stocks for the commercial market.

We must always protect Hikkaduwa, which is an important ecosystem.

Mr.L.B.M.S.N.Chandrarathne
2018/2019 Batch
Environmental Science

Visit to Belipola Arboretum



The visit was done for the study about the Analog Forestry in Belipola Arboretum under Dr.Ranil Senanayake, and an International certification course was specially done for the students of the Department of Bio-Science (2015/2016 Batch). (2021)

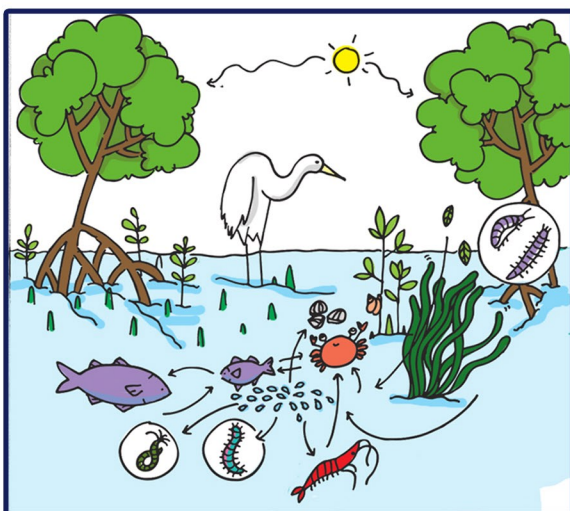
MANGROVES AND MANGROVES DEGRADATION IN SRI LANKA

A group of trees and shrubs, sometimes palm and ferns, live in the coastal intertidal zone referred to as mangroves. Mangroves are equipped with unique adaptations and enable them to live in saline and inundated environments. Mangrove forests can reach up to 30 m in their most ideal conditions of high rainfall or a good flow of groundwater to reduce the salinity in the environment. Mangroves are usually found in estuaries, coastal lagoons, and open coastlines.



Benefits

Mangroves are highly productive ecosystems with an array of benefits to both animals and humans. They play an important role in carbon sequestration by storing carbon primarily in their soils and dead roots. Established mangroves help to reduce erosion in their regions. They act as a place where freshwater, marine, and terrestrial habitats are met. They are instruments of biodiversity conservation. They are home to thousands of different species.



Threats in Sri Lanka

According to the estimations, between 1980 and 2005, approximately 25% of mangrove habitats were destroyed. Primary causes for mangrove forest degradation are conversions to aquaculture, agriculture, or urban uses. Deforestation for timber and pollution also causes mangrove degradation and loss. Pollution, especially from wastewater from aquaculture ponds, further degrade these forests. Approximately 3000 ha of mangroves have been recorded lost in the Puttalam District due to the expansion of aquaculture. Fringing mangroves are mostly what remains now in Sri Lanka around estuaries.

Conservation

Restoration, making mangrove museum, community awareness, low impact tourism, and livelihoods, verified carbon sinks, education facility are some conservation methods.



Ms.N.R.Hewawaravita
2016/2017 Batch
Environmental Science



WETLANDS IN SRI LANKA



Wetlands are simply habitats with a permanent or temporary accumulation of water with associated floral and faunal communities. Wetland is an area where the water table is near or just above the surface and soil which is water-saturated for a sufficient length of time.

In Sri Lanka, there are two major categories of wetlands.

1. Inland freshwater wetlands
2. Marine and saltwater wetlands

Inland wetlands are areas where water covers the soil or is present either at or near the surface of the soil. There are two types; Seasonal wetlands and non-Seasonal wetlands. Marine wetlands are saltwater wetlands exposed to waves, currents, and tides in an oceanic setting.

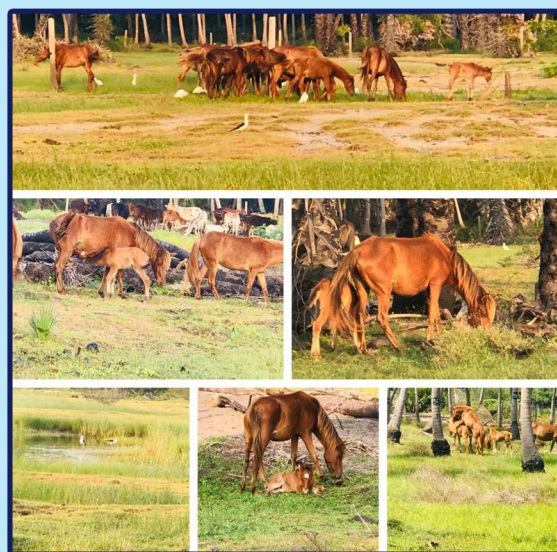
Wetlands act like kidneys of the earth. (Studies have shown that up to 92% of phosphorus and 95% of nitrogen can be removed) and also it acts as sponges. (Can store approximately 1-1.5 million gallons of floodwater per acre.) Play important role in groundwater supplies and also act as a buffer for natural disasters. Provide food and habitats for wildlife. The development of aquaculture poses a serious threat to wetlands. Introduction of several exotic aquatic animal and plant species, accidents of ships and oil spills are major recent threats to the marine wetlands in Sri Lanka. Wetlands are threatened by natural phenomena as well.

For example, the drought in the Hambantota area resulted in the drying off of several tanks. Increment in temperature is another natural phenomenon. For example, the Hikkaduwa coral reef, which was once a rich habitat, is now virtually a dead reef. Tsunami also resulted in the degradation of coastal wetlands.

Conservation biologists and environmentalists may have to work in close collaboration with development planners and policymakers to find viable solutions to the above challenges. So, environmental science students have to play a decisive role in the future conservation of wetlands in Sri Lanka.

Ms.P.P.H.K.K.Paranavitharana
2016/2017 Batch
Environmental Science

Field Visit to Mannar



Students of Department of Bio-science (2017/2018 Batch) visited Mannar to study the behavior of *Equus caballus* and *Equus africanus* under the supervision of Dr.S.Wijeyamohan, Senior Lecturer. They observed the common behaviors of donkeys and horses such as feeding, breeding, social and communicative behavior, shelter seeking, traveling time and far, etc.
(13th February 2021)

SAY NO TO NOISE POLLUTION



Thinking a daily figure of a city, it is remembered deafening, unpleasant noisy picture. Vehicles' honking, peoples' vociferation, and bellowing loudspeakers make it noisy. This noise pollution is defined as regular exposure to elevated sound levels that may lead to adverse effects on living organisms. Noise above 65 dB is considered as noise pollution. The aircraft noise, highway, and building projects, and the public addressing system enhance the noise pollution. It became torture to the people. Some defense activities also lead to noise pollution.

Noises can affect humans in various manners. It is very harmful to every age of people. Due to loud noise, people suffer from physical, mental disorders, and hearing problems. Exposing to noises for a long time lead to permanent hearing loss. The major threat from this is sleeplessness. The workers should have at least 6-hour long of sleep on a day. Because of the sleeplessness, their working performance can be reduced. It leads to a decrease in the national economy in a country. People suffer from psychological problems like depression, hypertension. Not only humans but also animals suffer from noise pollution. Their wellbeing and protection are impaired by noise emissions.

Periodically, Government took actions to reduce noise pollution. But they have failed due to discrepancies to wording of law and challenges to measure the noise level. Some laws related to noise pollution are National Environmental (Noise Control) Regulations

No.1 of 1996, National Environmental (Vehicle Horns) Regulations No. 1 of 2011, and traffic law. In reduction of noise pollution, Town-planners can use zoning method. Sound insulation methods and planting trees are ways to reduce noise pollution.

The noise pollution is an invisible threat to us. It can be prevented, but we need self-disciplines also.

Ms.D.P.C.K.Marasinghe
2016/2017 Batch
Environmental Science

Environmental Talk Series

The events were organized by the ENSOC of the University of Vavuniya. The talks were conducted to the public virtually with the participation of guest speakers who are prominent in their respective fields.

Talk- 01 (18th July 2021)

Topic: The challenges of marine ecosystem and marine resources in Sri Lanka.

Speakers: Dr.S.Wijeyamohan (Senior Lecturer, University of Vavuniya, Sri Lanka)
Dr.T.Jayasingam (Senior Lecturer, Eastern University, Sri Lanka)

Talk - 02 (15th August 2021)

Topic: Scientific discussion on Human Elephant Conflict.

Speakers: Dr. R.Sukumar (Professor, Indian Institute of Science, India)
Dr.N.Eswaran (Editor-In-Chief, Environmental Development, Elsevier. Research Associate, Nanjing Agriculture University, China)
Dr.S.Wijeyamohan (Senior Lecturer, University of Vavuniya, Sri Lanka)
Dr.T.Jayasingam (Senior Lecturer, Eastern University, Sri Lanka)

ALTERNATIVE ENERGY FOR SRI LANKA



Depleting resources and increasing energy demand significantly impact our planet's climate change and ecological disasters. The growing world population, as well as better living conditions, creates a growing energy demand. Several types of renewable energy resources have been identified and exploited in the world. Sri Lanka is blessed with renewable energy resources that can be utilized to fulfill the country's energy requirements. Renewable energy technologies help to overcome the energy crisis, and it is the cheapest and the most immediate way to reduce the use of fossil-fuels.

The alternative energy resources currently in usage in Sri Lanka are hydropower, solar-energy, wind energy, and biomass energy. Sri Lanka is blessed with several forms of renewable energy resources, warranted by geo-climatic conditions on the island. We are in an island located in the tropics and surrounded by the Indian Ocean, and receive rain from two monsoons; the Southwest and Northeast monsoons. The annual mean rainfall ranges from 750–4,500 mm, which sources a perennial river system. The high rainfall, coupled with other bioclimatic conditions of the tropics, has yielded a high plant density on the island. Therefore, biomass is available aplenty. Sri Lanka is located in the equatorial belt; receives a year-round supply of solar radiation. The tropical temperatures and the location of the island in the ocean have resulted in distinct wind regimes. These settings help to increase renewable energy resources in the country. There are some advantages of alternative energy; produce zero pollution, maintain

requirements are lower, save money, numerous health and environmental benefits, gives the opportunity to use bio-based fuels, and it can be used to recycle our waste products. There are also disadvantages to using alternative energy; high initial cost, some forms of alternative energy are not continuous, some impacts on nature takes a lot of space to install, and some forms of energy still produce pollutants. Renewable energy has more benefits than drawbacks. Installing solar-panels, wind turbines, hydroelectricity plants, and biomass plants is the easiest way to green for Sri Lanka.

Ms.N.A.D.M.M.Perera
Level III Student
Environmental Science

Environmental Talk Series

Talk - 03 (21st August 2021)

Topic: Organic farming and pest controlling.

Speakers: Mrs.N.R.N.Silva (ADA (Res.) - Soil Fertility & Nutrient Management, Department of Agriculture, Gannoruwa, Sri Lanka)
Mr.K.M.D.W.P.Nishantha (Additional Director - Plant Protection Service, Department of Agriculture, Gannoruwa, Sri Lanka)

Talk - 04 (26th September 2021)

Topic 01: Organic 3.0, will be the opportunity to handle climate change?

Speaker: Dr.N.Sriskantharaya (Professor Emeritus with Dept of Urban and Rural Development, Swedish University of Agricultural Sciences, Sweden)

Topic 02: Making resources from wastes

Speaker: Dr.A.Nanthakumaran (Dean/ Senior Lecturer, Faculty of Applied Science, University of Vavuniya, Sri Lanka)

ROVE BEETLE - ACID FLY

Genus Name: *Paederus*



Rove beetles are found worldwide. This beetle is usually found in paddy fields and open fields. It is a carnivorous insect. It biologically controls 'paddy pests'. It migrates to dry areas during heavy rains. During the daytime, this beetle can be seen crawling fast with hidden wings like an ant. When disturbed, it can lift its abdomen and fly in a threatening position like a scorpion. This beetle's entire body (except the wings) contains a toxin called 'pederin' ($C_{24}H_{43}O_9N$). This is 12 times more poisonous than cobra venom. Strong winds blowing over paddy fields help them to fly towards brightly light high-rise buildings.

Effects on humans

This beetle can cause conjunctivitis and severe dermatitis. Symptoms include swellings, rashes, or a burning sensation. It begins with a red spot and then develops a sore spot.

Precautions to avoid acid fly biting

- Switch off or minimize lighting indoors and close doors/windows.
- Use mosquito nets, aerosol insect spray, or glue traps.
- If this beetle lands on your body, don't squash it. just blow it away.



- Wash the affected area with soap & water immediately.
- If someone suffers from severe skin reactions, they should seek medical attention.

Ms.S.M.Y.P.Subasinghe
2018/2019 Batch
Environmental Science

WATER NECESSITY & SUSTAINABLE WATER USAGE

The necessity for water is more increased and it is increasing rapidly due to the growing world population. Each person needs 20-50 liters of safe freshwater a day for drinking, cooking, and cleaning. More than one billion people (one in six people worldwide) do not have access to this amount of safe freshwater. By 2025, two-thirds of the world population could be under water stress conditions. Because of this higher water necessity rate and higher water consumption rate, there may be not enough amount of water to use for the future generation. There for the term "sustainability" has become a priority concept.

Sustainable water usage

Do you know what sustainable water usage is? Sustainable water usage means to use water resources carefully so that ecosystems are not destroyed and water is available for future generations.

Here are the few major actions that can be taken for sustainable water usage and protection of water resources.

- Remove garbage away from water.
- Treat the wastewater before discharge.
- Re-use the wastewater after proper purification.
- Use fresh water without wasting.

Therefore, we must protect water and use without compromising the ability of using pure water of future generations.



Ms.L.G.C.Hansika
2018/2019 Batch
Environmental Science

I WANT YOU!



I call you "greenie"
You make my heart feel beauty.
I call you "greenie"
You make my brain feels my duty.
I call you "woody" You fire up yourself
To light up the life of myself Without being
angry.
I call me "foodie"
You ask help from the sun, water, and air to
cure being hungry.
I feel thirsty
You fill the clouds with evaporation to shower
the rain.
I feel lazy
You bloom your flowers to refresh the vein.
I feel dizzy
You purify the air and fill my lungs to make me
breathe.
I feel sickly
You treat me with your herbs.
I feel stressful
You joint with wind and birds
To relax me by composting the euphonious
music.
You show various dimensions to live my life
with perfection.
But I cut you without any emotions.
Hey, trees! I will plant you Because I want you.

Ms.M.F.Sahnas
2016/2017 Batch
Environmental Science

PLANTATION PROGRAM



The plantation program was done by Faculty of Applied Science students at their home gardens due to the pandemic situation. The ENSOC arranged the program (2020).

Community awareness program about safety measures to live with covid-19



In order to enhance and integrate Environmental Education Programs with Outcome-Based Education (OBE), Environmental Science students (2017/2018 Batch) prepared Banners on 'Safety measures to live with COVID-19' and displayed them in six identified public locations in Vavuniya. (2020)

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