



Parvatibai Chowgule College of Arts and Science
Autonomous

Accredited by NAAC with Grade 'A' (CGPA Score 3.41 on a 4 Point Scale in 3rd cycle)
Best affiliated College-Goa University Silver Jubilee Year Award

GREEN INITIATIVES

2020-2021



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GREEN INITIATIVES / ENVIRONMENT PROTECTION INITIATIVES -2020-2021

BY

STUDENTS OF SEC COURSE ON WASTE MANAGEMENT TECHNIQUES

Guiding teachers: Dr. Nandini Vaz Fernandes, Ms. MadhuBalekai, Ms. Tessa Vaz & Ms. Gautami Manakikar

E-POSTERS: The SEC students designed E-posters in order to create awareness on the various Waste Management techniques. The students used posters to explain about the adverse effects caused on the environment and human health by the waste generated. They also created awareness on the different sources of waste and how one can segregate and dispose the waste safely without harming the environment. They emphasized on the hazardous effect of E-waste on the environment and suggested methods of disposing the E-waste generated. The main aim of this activity was to reignite the awareness regarding the ill aspects of improper waste management.

NAME OF STUDENT	PHOTOGRAPHS
Stena Rebello	
Tahoora Shaikh	

RadhaShirsat

DEPARTMENT OF ZOOLOGY
E-WASTE MANAGEMENT
 SEC PAPER ON WASTE MANAGEMENT TECHNIQUES 2023-2024
 RADHA SHIRSAT-SYBSc-SU190089

Electronic pollution in the form of pollution caused by the discarded electronic E-waste is often overlooked and unthoughtful form of pollution that is slowly creeping into the environment and has been increasing steadily over time.

Electronic waste also called e-waste is created when an electronic product is discarded after the end of its useful life. Discarded electronic waste, also known as e-waste, needs recycling, reusing, or disposing after the technological product. Examples include electronic computers with computer parts, refrigerators, tape recorders, video cameras, facsimile, answering machines, laundry, a hair shaver, and other electrical appliances.

How can e-waste be recycled and reused?
 E-waste is made up of various electronic devices such as computers, mobile phones, televisions, and other electronic products. These devices contain hazardous and toxic substances that can be recycled and reused. For example, the metal parts of a computer can be recycled and used to make new computer parts. The plastic parts of a computer can be recycled and used to make new plastic products. The glass parts of a computer can be recycled and used to make new glass products.

Why is there a need to manage e-waste?
 E-waste is a growing global environmental and public health issue. In the world, there has been a rapid increase in the amount of e-waste generated. This e-waste contains hazardous and toxic substances that can be recycled and reused. If not managed properly, e-waste can cause environmental and health problems. It can also be a source of valuable materials that can be recycled and reused.

Government's initiative to manage e-waste:
 The Ministry of Environment and Forests (MoEF) has initiated a number of initiatives to manage e-waste. One of the initiatives is the E-waste Management and Handling Rules, 2011. This rule requires all e-waste generators to register with the MoEF and to follow the rules for e-waste management. Another initiative is the E-waste Recycling and Reuse Scheme, 2011. This scheme provides financial incentives to e-waste recyclers and reusers.

How can we help in managing e-waste?
 We can help in managing e-waste by following the 3R's: Reduce, Reuse, and Recycle. We can reduce the amount of e-waste we generate by using electronic products for a longer period of time. We can reuse electronic products by donating them to a charity or by selling them. We can recycle e-waste by taking it to a recycling center or by using a recycling service.

October 14 is celebrated as International E-Waste Day. It was introduced by the IEEE in 2019 to encourage consumers to responsibly reuse and recycle electronic devices.

Some of the E-waste collection agencies are:
 Recycling Centre, Mumbai; Green Recycling, Pune; E-waste Recycling, Bangalore; E-waste Recycling, Chennai; E-waste Recycling, Hyderabad; E-waste Recycling, Kolkata; E-waste Recycling, Lucknow; E-waste Recycling, Patna; E-waste Recycling, Raipur; E-waste Recycling, Thiruvananthapuram.

Shruti Kale

DEPARTMENT OF ZOOLOGY
SHRUTI KALE-SU190003-SYBSC
RESIDENTIAL WASTE MANAGEMENT

WASTE MANAGEMENT IS DEFINED AS THE APPLICATION OF TECHNIQUES TO ENSURE AN ORDERLY EXECUTION OF VARIOUS FUNCTIONS OF SEGREGATION, COLLECTION AND DISPOSAL OF WASTE. IT MEANS ANY REFUSE GENERATED ON THE PREMISES AS A RESULT OF RESIDENTIAL ACTIVITIES. RESIDENTIAL WASTES INCLUDE GARBAGE, TRASH AND REFUSE, DERIVED FROM HOUSEHOLDS THAT NEEDS PROPER SEGREGATION, COLLECTION AND DISPOSAL.

SEGREGATION
 KEEP SEPARATE CONTAINERS FOR DRY AND WET WASTES IN THE KITCHEN. KEEP TWO BAGS FOR DRY WASTE COLLECTION PAPER AND PLASTIC. FOR THE BEST OF THE HOUSEHOLD WASTE. KEEP PLASTIC FROM THE KITCHEN CLEAN AND DRY AND DROP INTO THE DRY WASTE BIN.

COLLECTION
 DOOR TO DOOR: HOUSEHOLDS ARE GIVEN A SET OF TWO DISPOSABLE BINS TO COLLECT DRY WASTE. THE WASTE IS COLLECTED DAILY BY THE MUNICIPALITY.
 COMMUNITY BINS: THE COMMUNITY MUST BE MOTIVATED TO DEPOSIT THEIR DRY RECYCLABLE WASTE INTO THESE BINS. MUST BE EMPTY TO AVOID POLLUTION FROM LITTER, GROUND AND RAINWATER.

DISPOSAL
 SANITARY LANDFILL: GARBAGE IS LAYERED OUT IN THIN LAYERS COVERED WITH CLAY OR PLASTIC FOAM. SPERMAL WELLS ARE DRILLED TO MONITOR IF ANY LEAKAGE IS CONTAMINATING GROUND WATER.
 INCINERATION: SOLID ORGANIC WASTE ARE SUBJECTED TO COMBUSTION TO CONVERT THEM INTO RESIDUE.
 PYROLYSIS: CHEMICALLY DECOMPOSES ORGANIC MATERIALS BY HEAT IN THE ABSENCE OF OXYGEN.
 COMPOSTING: BIOLOGICAL PROCESS IN WHICH MICROORGANISMS CONVERT ORGANIC WASTE INTO HUMUS.

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Renvill Luis

MANAGEMENT OF MEDICAL WASTE
 Smt. Parvatibai Chowgule college of Arts and Science
 Dept Of Zoology | SEC Waste Management | Renvill A. Luis
 -SU190091 (S.Y.Bsc)

Biomedical waste or hospital waste contains infectious (or potentially infectious) materials. Examples of Medical waste include potentially contaminated used or unused discarded needles, scalpels, lancets and other devices capable of harming the skin.

Biomedical waste is generated from biological and medical courses and activities, such as the diagnosis, prevention, or treatment of diseases. Medical facilities generate waste hazardous chemicals and radioactive materials.

Poor medical waste management causes environmental pollution, unpleasant smell, growth and multiplication of insects, rodents, and worms, and may lead to transmission of diseases like typhoid, cholera, and hepatitis.

CONCLUSION: Considering its impact on the environment, biomedical waste management requires immediate academic assessment to increase the awareness during training courses.

Treatment Methods

- Incineration
- Autoclaving
- Microwaving
- Chemical
- Biological

Medical Waste Facts

- 5.9 Million Tons Per Year
- 85% is Non-Hazardous
- 16 Billion Injections Per Year
- 2 Million Needles Per Day
- 800,000 Needle Sticks Per Year, per NIOSH

REFERENCE: 1) Medical Waste. (2017, November 07). Retrieved December 03, 2020, from <https://www.epa.gov/toxics/medical-waste>

13 Health Care Waste Management and Best Management Practices. (2020). Retrieved 2 December 2020, from <https://www.epa.gov/epaospp/13-health-care-waste-management-and-best-management-practices>

AnushaRaut

SOLID WASTE MANAGEMENT
DEPARTMENT OF ZOOLOGY

NAME: ANUSHA RAUT
ROLLNO: SU190064
CLASS: SYBSc

INTRODUCTION

Solid waste management is the process of collecting and treating solid wastes. Solid wastes are generated from municipal, industrial, and agricultural activities. The waste can be collected by door-to-door collection method, community bins are placed in the locality. After collection, the solid waste is transported via trucks and then it can be treated to reduce the total volume and weight of the materials. This treatment changes the form of the waste and makes it easier to handle. The methods of solid waste management includes sanitary landfills, composting, incineration, pyrolysis.

METHODS OF SOLID WASTE MANAGEMENT

Sanitary landfill
It is the most common method of solid waste management. The landfills are designed in such a way that the bottom of the landfill is covered with an impervious liner, which is made up of several layers of thick plastic and sand. This liner protects the ground water from being contaminated because of leaching. When the landfill is full, it is covered with the layers of soil and clay to prevent seepage of water.




Fig: sanitary landfill
Author: kot-coll
Source https://live.staticflickr.com/7195/7000513786_4e183bcf79.jpg
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Incineration
In this method the solid waste are burnt at high temperature. It is burned inside a properly designed furnace under very controlled conditions. The volume of the combustible waste is reduced considerably by burning waste. In the case of off-site pits, it is an most appropriate method to minimize scavenging.

CONCLUSION

Waste management is an important element of environmental protection. The improper disposal of solid waste can create unhygienic conditions which can lead to pollution and various disease. Using recovered material generates less solid waste. The sanitary landfill method is most preferred waste management method.

SOURCES OF SOLID WASTE



Residential waste is main Source of solid waste. Others include Industrial, Commercial, construction and demolition areas.

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VineetNerurkar

DEPT OF ZOOLOGY (SEC-WASTE MANAGEMENT)
MANAGEMENT OF MEDICAL WASTE
Vineet nerurkar -SU 190298 SYBSC

Medical waste is a subset of wastes generated at health care facilities, such as hospitals, physicians' offices, dental practices, blood banks, and veterinary hospitals/clinics, as well as medical research facilities and laboratories.

conclusion

There is lack of sufficient knowledge among dental students regarding management of biomedical waste and recycling or reusing of dental materials. Considering its impact on the environment, biomedical waste management requires immediate academic assessment to increase the awareness during training courses.

Alternative Treatment and Disposal Technologies for Medical Waste

Thermal treatment, such as microwave technologies; Steam sterilization, such as autoclaving; Electroplyolysis; and Chemical mechanical systems, among others.

REFERENCE: Medical Waste (2017, November 07), Retrieved December 03 2020, from <https://www.epa.gov/rcra/medical-waste>
J Int Soc Prev Dent. 2016 Sep-Oct; 6(5): <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5109807/>

AkarshaFaldessai

COMPOSTING



COMPOSTING

Composting is a method for treating solid waste in which organic material is broken down by microorganisms in the presence of oxygen to a point where it can be safely stored, handled and applied to the environment.

TYPES OF COMPOSTING:

- Composting basins
- Onsite composting
- Vermicomposting
- Aerated window composting
- Aerated static pile composting
- In-vessel composting

Advantages:

- Enriches soil, helping retain moisture and suppress plant diseases and pests.
- Reduces the need for chemical fertilizers.
- Encourages the production of beneficial bacteria and fungi that break down organic matter to create

Disadvantages:

Drawbacks of composting by – products are cost for site preparation and equipment, the lengthy treatment period, targeting final use of compost product, and environmental issues such as odors and dust. Some investment in equipment and site preparation is required or recommended.

(Doroshenko, R. B. (2015, July 22). The importance of composting. Retrieved from https://www.researchgate.net/publication/275444444_The_importance_of_composting

Bhagyashree Mahajan

SEWAGE WASTE MANAGEMENT

Bhagyashree Mahajan , roll no. SU190341, SYBSc Zoology - Waste Management

What is sewage?

Sewage is the term used for wastewater that often contains faeces, urine and laundry waste. It is characterized by volume, rate of flow, physical condition, chemical and toxic constituents and its bacteriological status.

Problems of sewage waste.

1. Untreated sewage water can contaminate the environment and cause diseases such as diarrhoea. It also enters into various water bodies causing them to be polluted. Hence sewage treatment is essential.
2. Sewage disposal is a major problem in developing countries as many people don't have access to sanitary conditions and clean water.

What is sewage treatment?

Sewage treatment is the process of removing contaminants from municipal wastewater, containing mainly household sewage and industrial wastewater.

Sewage Treatment

- Primary treatment basically involves physical removal of particles from sewage through filtration and sedimentation.
- Secondary or biological treatment removes dissolved and suspended biological matter. It is performed by indigenous, waterborne microorganisms in managed habitat. Treated sewage is then released into local waterways.

Lizanne Cardozo

- ➔ Have your household sewer line inspected and replaced if necessary
- ➔ Use strainers in sinks to catch food scraps and empty them into trash for disposal
- ➔ Don't put fats, oils or grease down the drain

Sewage is the waste-water that contains faeces, urine and laundry waste. As a result aquatic organisms are unable to survive. Typhoid fever and cholera are some examples of diseases carried by sewage. To prevent sewage; use fleeces with low capacity, fix leakages in sewer pipes. Alternative methods of sewage disposal are septic tanks, biogas plants.

PREVENTING POLLUTION DUE TO SEWAGE

"STOP THE POLLUTION QUICK, DON'T MAKE THE WATER SICK"

"THINK OUTSIDE THE SINK!"



"Polluted Malad Creek at Lohandwala, Mumbai" (Ravi Khemka)
License: CC BY 2.0
<https://creativecommons.org/licenses/by/2.0/>



"Tannery sewage" (MagnusFranklin)
License: CC BY-NC 2.0
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Mayuri Verlekar

Parvatibai Chougule College of Arts and Science

Name: Mayuri Verlekar
Roll No.: SU190296
Department: Zoology

MEDICAL WASTE

INTRODUCTION

Medical waste is the waste that contains potentially infectious material. This waste includes waste that is generated by healthcare workers like hospitals, laboratories or medical research facilities.

Effects of medical waste

- Soil, air and water contamination
- It can lead to the spread of diseases like HIV, Tuberculosis, hepatitis.
- The radioactive elements can seep in the ground water through the landfill and can lead to serious diseases.

• 5.9 Million tones of medical waste is generated per year.
• 16 Billion injections are disposed annually.

HOW CAN MEDICAL BE TREATED?

Treatment methods include:

- Incineration
- Autoclaving
- Microwaving
- Chemical treatment
- Biological treatment



Source: <https://www.gettyimages.com/detail/stock-photo/1174944444>



Source: <https://www.gettyimages.com/detail/stock-photo/1174944444>

DISCUSSION

How can we handle medical waste?

- Know the healthcare waste rules regulated by DOT, EPA, OSHA and DEA.
- Avoid putting non-hazardous waste in with rest to prevent overreacting.
- Separate waste based on sharps, pharmaceutical, chemical, pathological and non-hazardous.
- Use the medical waste disposal color code.

CONCLUSION

Incineration of biomedical waste is one of the techno-economical viable scheme. Individual awareness and participation is very important. Safe and effective management is not only a legal necessity but also a social responsibility.

Reference: Unknown.(2020). What Is Medical Waste? Definition, Types, Examples & More. Retrieved from MedPro Disposal: <https://www.medprodisposal.com/medical-waste-disposal/what-is-medical-waste-definition-types-examples-and-more/>

Manoj S. (2019) Impact Of Biomedical Waste On Human Health. *Environmental Claims Journal*, 31:1-334.

DhanayaNaik

E -WASTE MANAGEMENT

WHAT IS E -WASTE?

- It refers to all the electronic waste generated which is unwanted, broken or outdated.

SOURCES:

- It includes all the electronic gadgets like television, computer, cellular phones, refrigerator, VCRs, lamps, tablets, bulbs and etc.

FACT: 20 to 50 million metric tons of e-waste are disposed worldwide every year.

PREVENTIVE MEASURES:

- If you have parts and equipment that are still working, try repairing the electronic device before getting a new one.
- Recycle no matter what you have, it's important to always dispose of your e-waste properly.
- Buy environmentally friendly electronics. Look for products labelled Energy Star or certified by the Electronic Product Environmental Assessment Tool.

HAZARDOUS EFFECTS OF E- WASTES

HEALTH:

- Chemical poisoning through inhalation. other effects includes nausea, neurological disorders, congenital malformations, vomiting, cancer.

ENVIRONMENT:

- Degrade water and soil quality.
- It result in high algal population in aquatic conditions.
- Change in climate and ozone layer destruction.
- Waste break down to give one of the potent greenhouse gas –methane.

Gauri Pandit




"Beach litter" by Jason Kern is licensed under CC BY-ND 2.0

"The Problem is not the Litter" by Kasper Dreyer is licensed under CC BY 3.0

80% OF LITTER IN OCEANS COMES FROM LAND BASED ACTIVITIES. MOST OF IT IS SINGLE USED PLASTIC



STOP OCEAN PLASTIC POLLUTION, WWW.DEPOSITS.COM

START THE FIGHT AGAINST PLASTIC TODAY, FOR BFTTR

Yohan Rodrigues



DEPARTMENT OF ZOOLOGY
SEWAGE MANAGEMENT
ROLL.NO SU190072 SYBSC

Introduction

What is sewage waste ?

Sewage waste is considered to be the major issue in waste management it is basically considered as wastewater produced by the community it is characterized by volume or rate of flow, physical condition, chemical and toxic constituents, and its bacteriologic status it basically includes waste water from sinks, bathtubs, showers, dishwashers, and clothes washers etc. water from toilets these are then collected through a system of sewer pipes and then taken to the disposal. The system of sewers is called sewerage. sewage treatment is removing contaminants mainly from municipal sewage plus some industrial wastewater. so these e-poster is about how the sewage waste is treated and collected in order to tackle the major waste hazards of the world and this issue is considered to be the major issue.

method

A "13 A Possible Sewage Plant in Connecticut or Rhode Island" by CthulhuWho1 (Will Hart) is licensed under CC BY 2.0

Conclusion

Why to treat sewage water ?

- Sewage water contains bacteria, viruses etc. Which reduces the dissolved oxygen level in water as a result marine life will be affected.
- Treated water from sewage treatment plant can be made used for domestic uses (for gardening, washing, etc.)
- And as it will reduce overall water contamination

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AakanshaPatil

AAKANSHA PATIL
ROLL NO. SU190094
CLASS - SYBSC ZOOLOGY

DEPARTMENT OF ZOOLOGY
WASTE SEGREGATION



Segregation is the most important step for the waste treatment. Diverse waste materials requires different ways of treatment.

WHY WE NEED WASTE SEGREGATION ?

India is getting buried under mounds of garbage as the country has been generating more than 1.50 lakh metric tonne (MT) of solid waste every day. Worse - approximately 90 per cent (1,35,000 MT per day) of the total amount is collected waste. Nearly 15,000 MT of garbage remain exposed every day, resulting in almost 55 lakh MT of solid waste disposed in open areas each year, which leads to "severe" pollution level. Of the total collected waste, only 20 per cent (27,000 MT per day) is processed and the remaining 80 per cent (1,08,000 MT per day) is dumped in landfill sites. At times the "highly polluting" unprocessed solid waste in the dump sites reaches 3 crore MT. The solid waste in landfill sites and the uncollected trash - of the total 5.4 crore MT of solid waste generated annually - 4.5 crore MT are unprocessed. The Ministry of Environment, Forests and Climate Change (MoEFCC) provided the details of the ever-growing garbage citing a 2016-17 report by the Ministry of Housing and Urban Affairs.

There are number of important reasons that encourages waste segregation; legal obligations, cost savings and protection of human health and the environment.

Here are some steps to manage and segregate waste:

1. Keep separate containers for dry and wet waste in the kitchen.
2. Keep two bags for dry waste collection- paper and plastic, for the rest of the household waste.
3. Keep plastic from the kitchen clean and dry and drop into the dry waste bin.

The benefits of waste segregation are a huge part of the process of waste management. Generating waste materials is something that is practically unavoidable in the world of today. Segregating and disposing of waste properly will not only reduce the amount of toxins entering the atmosphere but is a way of saving the planet and lives of people.

Bibliography

Ceejel Pinto

What exactly is sewage?

Sewage is the waste water which is produced in a community of people and can be categorized by volume, toxic/chemical components, physical conditions, etc. This sewage is flows in the water bodies contaminating them and leading to land and water pollution.

Why sewage treatment is necessary?

If the sewage is left unchecked and is not treated properly before releasing into the water bodies there can be

Waste water treatment

sewage is treated in three phases: primary, secondary and tertiary treatment. Primary treatment is where the solid substances get settles at the bottom which are collected and the lighter substances such as oils, fats which float on the top are scrapped off. In secondary treatment with the help of the aerobic bacteria the waste is broken down. And the last phase which is the tertiary phase acts like a filter where the nutrients and other particles harmful to the ecosystem are drained off.

Consequences

groundwater will be polluted, High risk of diseases, Increase of pollution, Wastage of energy.

References-

Mudge, S.M (1964). Retrieved from sciencedirect: <https://www.sciencedirect.com/topics/agricultural-biological-sciences/topics>.
Sudhan, H. (2019, april 8). Why is sewage treatment necessary. Retrieved from quora: <https://www.quora.com/why-is->

SanjanaKanguri

REDUCE WASTE

NAME : SANJANA KANGURI :
SU190357: SYBSC

WHAT IS WASTE MANAGEMENT ?
Waste management includes the activities and action required to manage waste from its inception.

REDUCE: THE BEST TO MANAGE WASTE IS NOT PRODUCE IT. REDUCING MEANS USING FEWER RESOURCES IN THE FIRST PLACE BY REDUCING CONSUMPTION AND BUYING LESS.

RECYCLE: RECYCLING EXTRACTS VALUABLE MATERIAL FROM ITEMS THAT MIGHT OTHERWISE BE CONSIDERED TRASH AND TURNS THEM INTO PRODUCTS.

REUSE: IT TAKES ECONOMICAL AND ENVIRONMENTAL SENSE TO REUSE PRODUCTS AND SOMETIMES CREATIVITY . RATHER THEN THROWING OUT THINGS REUSE THEM IN BETTER WAY.

One of the bigger reasons to **reduce waste** is to conserve space in our landfills and **reduce** the need to build more landfills which take up valuable space and are a source of air and water pollution. By **reducing our waste**, we are also conserving our resources

REFERENCE: MICHAEL DAVIDSON(AUG, 03, 2018) THE IMPORTANCE OF WASTE MANAGEMENT RETRIVED FROM <https://www.solo.com>.
Paul N. Chermisinoff (2016) waste reduction retrived from <https://www.sciencedirect.com>

Rukaiya Khan

Sewage treatment

◆ Introduction
Sewage is the wastewater generated by a community, namely: a) domestic wastewater from bathrooms, toilets, kitchens, etc., b) raw or treated industrial wastewater discharged in the sewerage system, and sometimes c) rain-water and urban runoff. The main components in sewage are suspended solids, soluble organic compounds and fecal pathogenic microorganisms, a variety of chemicals like heavy metals, trace elements, detergents, solvents, pesticides, and other unusual compounds like pharmaceuticals, antibiotics, and hormones can also be detected in sewage. With urban runoff come potentially toxic compounds like oil from cars and pesticides that may reach the treatment plant and, eventually, a water body






Photo by Wikimedia/05April2019

Classification of sewage



Domestic sewage

Domestic sewage : It is composed of human waste and waste water resulting from personal washing institutions and other waste products of normal living

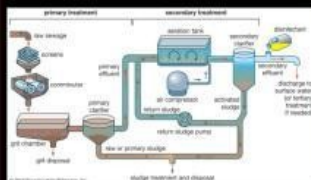


Industrial Sewage

Industrial sewage : These are waste that result from an industrial process or the production or manufacture of goods

Sewage treatment

Primary treatment – physical separation for removal of bulky solids and oil/grease
Secondary treatment – bioreactor primarily intended to reduce BOD



Sources of domestic waste water (Samuel 2005)

Misha Almeida

Managing Waste

Misha Almeida
SU190027
Waste Management

Reduce and Reusing waste

Reducing waste at the source is achieved by expanding recycling efforts and providing food waste-treatment facilities at residential and commercial properties. This reduces heavy reliance on raw materials that are continuously getting exhausted.



<https://images.app.goo.gl/0L3h1g5NATVj3717>

Recovery and Recycling

In recovery of waste the items are transformed into a product that could be used for some other purposes instead of throwing it out. Recycling involves converting trash into new products to reduce the production of fresh materials and conserve energy. It also reduces energy usage, decreases air and water pollution, reduces the volume of trash sent to landfills, and decreases greenhouse gas emissions.

Landfills

In Landfills, waste is buried inside the land and odours and the risk of toxic substances seeping into the ground and contaminating water sources are eliminated.



<https://images.app.goo.gl/0L3h1g5NATVj3717>

Incerination

Municipal solid waste which cannot be recycled is burned at a high temperature and hence reduces 80% of its volume. This method is used to generate heat, gas and steam for power.

Sarha Khan

DEPARTMENT OF ZOOLOGY E-WASTE MANAGEMENT

MISHA ALMEIDA
SU190027

WHAT IS E-WASTE?

E-waste, also known as e-scrap or the trash generated from surplus, broken, and obsolete electrical devices. They are unwanted, non-working electronic products that are awaiting or at the end of their "useful life". Some of the e-waste products are computers, telephones, PCs, servers, printers, and fax machines.

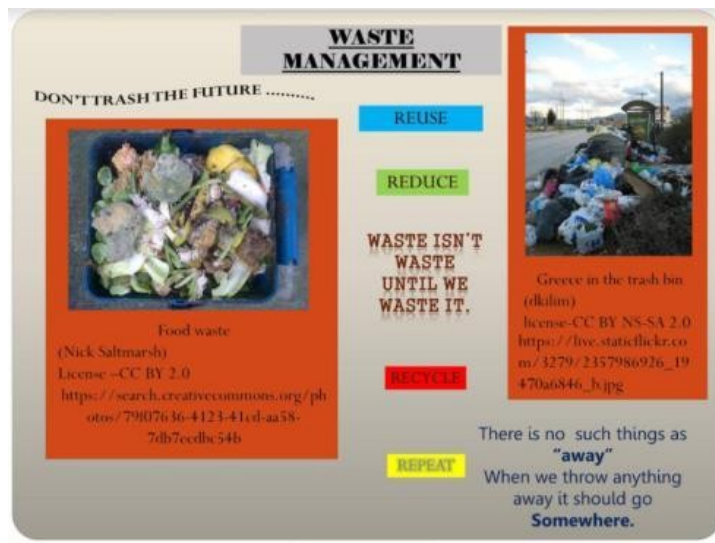
TOXIC CONSTITUENTS IN E-WASTE

Lead	Lead and cadmium
Mercury	Mercury
Cadmium	Cadmium
Chromium	Chromium
Polychlorinated biphenyls (PCBs)	Polychlorinated biphenyls (PCBs)
Polymers	Polymers
Phenols	Phenols
Hydrocarbons	Hydrocarbons
Fluorinated hydrocarbons	Fluorinated hydrocarbons
Organic acids	Organic acids
Organic bases	Organic bases
Organic solvents	Organic solvents
Organic peroxides	Organic peroxides
Organic phosphates	Organic phosphates
Organic sulfates	Organic sulfates
Organic nitrates	Organic nitrates
Organic halides	Organic halides
Organic amines	Organic amines
Organic alcohols	Organic alcohols
Organic esters	Organic esters
Organic ketones	Organic ketones
Organic aldehydes	Organic aldehydes
Organic acids	Organic acids
Organic bases	Organic bases
Organic solvents	Organic solvents
Organic peroxides	Organic peroxides
Organic phosphates	Organic phosphates
Organic sulfates	Organic sulfates
Organic nitrates	Organic nitrates
Organic halides	Organic halides
Organic amines	Organic amines
Organic alcohols	Organic alcohols
Organic esters	Organic esters
Organic ketones	Organic ketones
Organic aldehydes	Organic aldehydes
Organic acids	Organic acids
Organic bases	Organic bases
Organic solvents	Organic solvents
Organic peroxides	Organic peroxides
Organic phosphates	Organic phosphates
Organic sulfates	Organic sulfates
Organic nitrates	Organic nitrates
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Organic phosphates	Organic phosphates
Organic sulfates	Organic sulfates
Organic nitrates	Organic nitrates
Organic halides	Organic halides
Organic amines	Organic amines
Organic alcohols	Organic alcohols
Organic esters	Organic esters
Organic ketones	Organic ketones
Organic aldehydes	Organic aldehydes
Organic acids	Organic acids
Organic bases	Organic bases
Organic solvents	Organic solvents
Organic peroxides	Organic peroxides
Organic phosphates	Organic phosphates
Organic sulfates	Organic sulfates
Organic nitrates	Organic nitrates
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TanviAmonkar



FranzilaCrasto



Giselle Fernandes

Department of zoology
 Ways of managing waste.
 Name: Giselle fernandes
 Roll no: SU190065
 Class: 5Y.BSc



Lavina Gama

DEPARTMENT OF ZOOLOGY
PREVENTION OF POLLUTION DUE TO MEDICAL WASTE
 LAVINA GAMA -SYBSC -SU190235

Managing the medical waste disposal is one of the major challenges faced by healthcare field. Medical waste is a waste that contains infectious material generated by healthcare facilities. There are different types of medical waste: biological, clinical, hazardous, biohazardous.

Medical waste is the byproduct of healthcare industries. Some of the examples of the medical waste are: radioactive, infectious, cytotoxic, chemical, pharmaceutical. Medical waste is disposed by either off-site (truck, mail) or on-site (hospital).

Medical waste is treated by incineration, autoclaving, microwaving, chemically and biologically. If the waste is not treated properly it can cause several health hazards to the health care employees and general public. These waste can cause diarrhea, infection, allergies. Medical waste is generated by private physician, retail health clinic, hospitals, veterinary and laboratories.

Medical waste is any contaminated byproduct generated from medical services. Poor management of medical waste exposes health care workers, patients and general public to infection, toxic effects and increases the environmental pollution.

Healthcare waste management can be achieved by proper handling, storing, transporting, treatment and disposal of waste. Raising awareness of the risks pertaining improper disposal of this medical waste amongst people might help to some extent. Support from the government in managing this waste is also needed.

Waste generated during treatment, chemicals and infectious waste can cause land and soil pollution. The biomedical waste dumped in low lying areas can contain liquid wastes that can leach into the ground causing ground water pollution.

Akshay Velguenkar

SEWAGE WASTE MANAGEMENT [DEPARTMENT OF ZOOLOGY]
 Paper- SEC-WASTE MANAGEMENT [2020-2021]

NAME: AKSHAY PRABHU VELGUENKAR
 ROLL NO.: SU190284
 SYBSC ZOOLOGY

After treatment, the treated industrial wastewater (or effluent) may be reused or released to a sanitary sewer or to a surface water in the environment. • minimize wastewater production or to recycle treated wastewater within the production process

SEWAGE WASTE MANAGEMENT
 Sewage is water-carried wastes, in either solution or suspension that flow away from a community. It is also known as waste water flows or used water supply of the community.

Composting
 If you're looking for the greenest way of disposing of food waste, composting is the answer. You can pick up a small compost bin to sit in your kitchen to house things like egg shells, coffee grounds, tea bags, potato peels or leftover food on a plate.

Waste disposal company
 A popular way of getting rid of food scraps is to use a garbage disposal located under your kitchen sink. Call a waste disposal company for more information on having one installed.

Animals
 If you live in an area where you can keep farm animals like pigs or goats, you'll have very little food waste. Of course, they can't be fed everything, but animals will eat many items that usually end up in the garbage.

When used water is eventually discharged back into natural water as it benefits ecosystems, improving streamflow, nourishing plant life and recharging aquifers, as part of the natural water cycle.

SEWAGE TREATMENT PLANTS

Recycled water is used irrigation of gardens and agricultural fields or replenishing surface water and groundwater (i.e., groundwater recharge). Recycled water may also be directed toward fulfilling certain needs in residences (e.g. toilet flushing), businesses, and industry, and could even be treated to reach drinking water standards. This last option is called either "direct potable reuse" or "indirect potable" reuse, depending on the approach.

Origin of sewage

INDUSTRIAL EFFLUENTS **KITCHEN**

REUSE THE PAST, RECYCLE THE PRESENT, SAVE THE FUTURE

Krutitika Jan

Department of zoology
'Bio-medical Waste Management'
 Name- Krutitika Jan, SEC paper- Waste Management Techniques, Year- 2020-21, Class- S.V. B.Sc., Roll No.- SU190191

ABSTRACT - Bio-medical waste pose threat not only to public health but also to the environment. The amount of biomedical waste is increasing due to different factors such as high population density, new generation in the field of outbreak of some diseases such as Covid-19 virus, deteriorating health of people and demand for large number of instruments and disposables. Safe and reliable disposal of waste is of paramount importance to reduce the risk of infection from the waste and its treatment products. In a country like India, Bio-medical Waste Management (BMW) norms regulate the disposal of waste generated. Globally, greater research in this field is required to develop new techniques for treatment and device ways to reduce generation of waste.

INTRODUCTION

What is Bio-medical waste?
 BMW is any waste, which is generated during the diagnosis, treatment or transmission of human beings or animals or in research or in the use of biological or in health camps.

In the waste generated detrimental?
 This waste is Non-hazardous whereas 25% waste is hazardous and infectious.

Generators of bio-medical waste-
 Hospitals, nursing homes, research centers, bio-banks, medical shops and over-the-counter areas.

Risk due to bio-medical waste-
 If waste is not disposed after proper treatment it can be main or major source of pollution, some examples are:

1. Source of soil pollution as the waste most disposed area and incinerators show presence of heavy metals, including changes in the chemistry and toxicity of soil.
2. Disposal of waste leads to food safety, growth and multiplication of insects, pests and viruses which leads to soil-borne of cholera, typhoid and etc.
3. Release of bio-medical waste release harmful gases in the atmosphere, affecting the air quality.
4. Leachate from dump reach out to water bodies, making it unfit to consume.

Bio-medical waste management

As of now it is very clear that if bio-medical waste generated is not handled and controlled after proper treatment, it will lead to many diseases, not only in countries with lesser life but also in other countries of the environment.

So proper handling and disposal of bio-medical waste is important, it is the responsibility of every individual involved in the process from generation to disposal.

MANAGEMENT OF BIO-MEDICAL WASTE
 The only way to the prevention of pollution generated by bio-medical waste is managing the waste from the point of generation to the treatment and disposal. The major responsibility of the relation in an medical health services and other hospital and research center and the diagnostic waste are also a source for bio-medical waste and this proper disposal should be done by people. In our other waste management, focus on segregation of waste, the same is applicable to bio-medical waste. Infectious waste first needs to be identified before any other treatment. Animal and human waste needs different treatment, rather than disinfection or decontamination. Therefore, segregation prior to treatment is waste management.

Another important area that is to minimize the waste generation, to achieve this steps such as reducing, recycling, reusing, repairing, cleaning and photo-recycling waste management can be taken.

BWM IN INDIA, BMW rules give a very important role in country regarding waste management. India was one of the first country to implement BMW rules in the year 1986, amended as dated in 2001, 2011, 2016, 2018. The quantity of waste produced differs in every country and depends upon health care establishments, so in our nation, annually 8.33 tons of bio-medical waste is generated and our average India 0.25 kg per day per ton. The rules state different categories of clinical and anatomical wastes. The categories are as follows, either they include waste such as human anatomical waste, chemical waste, and infectious, recyclable, pathological waste, which includes waste, sharps, flammable, glass waste and metallic implants.

IDENTIFICATION AND MANAGEMENT OF BIO-MEDICAL WASTE

Segregation - First step is to separate bio-medical waste into bio-medical waste, followed by segregation based on disposal between: waste into are followed based on their activity.

Packaging - Packed into bags or containers of reported color, only the package is then bio-medical waste. The amount of waste from bio-medical waste treatment facility shall depend the waste from the treatment methods. Different methods are employed based on type of waste. The processes involved are bio-medical, biological or chemical, container treatment use deep-frozen autoclave.

SIGNIFICANCE AND CONCLUSION

The management of bio-medical waste is of paramount importance for avoiding infection and environmental pollution due to it. Effective management is not only a legal necessity but also a social responsibility. The bio-medical waste management practices in a country are guided by bio-medical waste management rules. To have better implementation of rules, the health workers should be given proper training.

The three main steps: segregation, packaging and transport should be practiced in a strict manner. This can be followed by proper treatment and disposal methods, such as deep-frozen, incineration.

The current scenario of Covid-19 has worsen the situation regarding the bio-medical waste. Masks can be considered as bio-medical waste, bio-medical waste which needs to be disposed properly.

REFERENCES

ShanayaPhaldesai

WASTE MANAGEMENT AT HOME
 SHRI PARVATIBAI CHOWGULE COLLEGE OF ARTS AND SCIENCE
 DEPARTMENT OF ZOOLOGY
 PAPER- CA2 SEC WASTE MANAGEMENT 2020-2022

Name- Shanaya S Phal Desai
 Roll.no- SU190128
 SYBSc

Types of household waste

- Liquid waste** includes dirty water, waste detergents, organic liquid and also rainwater.
- Solid waste**
 - Plastic waste** - bags, jars, containers, flower pots, bottles, and many other plastic products
 - Paper waste** - newspapers, cartboards, packaging materials, and other products
 - Glass and Ceramics** - serving dishes, glasses, plates, home decors.
- Organic waste** - It includes garden waste, food waste, anything that is biodegradable

Did you know?
 The annual value of food waste globally is \$1 trillion, and it weighs 1.3 billion tonnes

How does our waste harm the environment?

- Landfills- the wastes taken by the municipality are dumped into landfills. Sometimes the hazardous substances gets leached down through the layers of soil and pollutes the ground water. Soil pollution is another major impact of landfills.
- Incineration- controlled burning of waste. Many waste items incinerated releases toxic gases into the environment.

How else can you help?
 It is responsibility of the citizens and not only of the authorities of the proper disposal of the waste.

- > Non - biodegradable needs to be properly segregated before disposal.
- > Encourage awareness about proper segregation and disposal, recycle-able waste, composting and re-using among the neighbours

COMPOSTING
 Composting is an alternative for organic waste, transforming it into organic fertilizer that can be used as agricultural nutrients, avoiding its disposal in landfills.

Composting can be done at various places ranging from your kitchen, balcony, terrace or roof.

- **Segregate your waste** - into dry- newspapers, packaging materials, saw dust, dried leaves and wet waste- peels, leftovers cooked food, rotten vegetables and fruits or used tea powder.
- **Select a container** - it can be anything, from a bucket to a normal dustbin or a garden pot.
- **Drill some holes** in the pot for aeration.
- **Layer the bottom layer** of the pot with dry leaves and soil.
- **To maintain the dry waste and wet waste balance**, add food waste and wet waste of alternate levels in the pot.
- **To aid the process** you can use **earthworms** which you can find outside in your garden.
- **Keep turning your compost** for enough aeration and sprinkle water if the compost gets too dried off.
- **Your compost** will be ready to use in 1-2 months as manure to healthy growing plants.

Did you know?
 By segregating, recycling and composting, a family of 4 can reduce their waste from 1000 kg to less than 100 kg every year

Reuse
 Re-use is a great alternative that just disposing away the unwanted things. One can reuse glass jars to store things, reuse plastic bags, old clothes or toys which is no longer in use can be donated to the needy ones or orphanages

Recycle
 Recycle your news papers, glass, card boards, metals and any other recycle-able waste.

Re-create
 An addition to the 3 R's. Re-creating new items from the old unwanted products.
 -> Old cans or plastic bottle can be used as plant holders
 -> Old clothes can be used to make cloth bags.

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 5. <https://www.earth.org/our-work/education/curriculum/grades-1-5/grades-1-5-waste-management/>

Reuse the past, Recycle the present, Save the future!

Kusbhu Yadav

Management of Solid Waste
 Shri. Parvati Bai Chowgule College of Arts and Science, Dept. of Zoology (S.Y)
 Paper: SEC Waste Management Kusbhu Devi Yadav- SU190127

Causes of solid waste pollution are many. Every day tons of solid wastes are dumped at various landfills. These wastes come from various places such as homes, shops, companies, industrial establishments, construction and demolition activities.

One of the major causes of solid waste pollution can be attributed to various industries that manufacture numerous products. The actual amount of waste generated may vary by countries.

SOLID WASTE MANAGEMENT

Due to improper disposal of solid waste particularly by waste management organizations, the collected material gets heap up and become a problem for both the environment and also for the public.

CONCLUSION: The most important reason for waste collection is the protection of the environment and the health of the population. Rubbish and waste can cause air and water pollution. Rotting garbage is also known to produce harmful gases.

REFERENCE: (Solid waste management / Definition, Methods, Importance, & Facts, Encyclopedia Britannica (2020), Retrieved 1 December 2020, from <https://www.britannica.com/technology/solid-waste-management/>)

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Poster Maker

MuskaanPattegurder

WASTE SEGREGATION

Muskaan Pattegurder
 SU190115
 SYBSc Zoology

BIODEGRADABLE

Wet Waste

NON-BIODEGRADABLE

Dry Waste

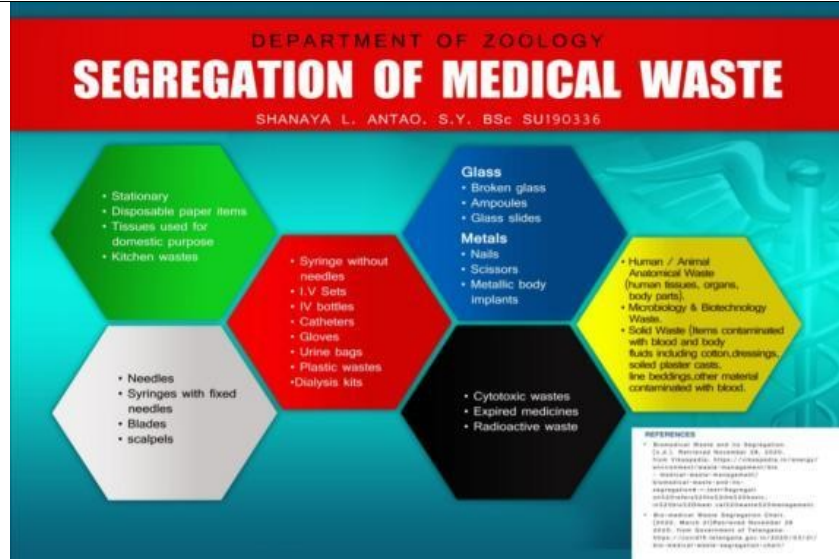
SAY NO TO MIXED WASTE FOR CLEAN AND GREEN ENVIRONMENT

Materials which decompose by the action of microorganism

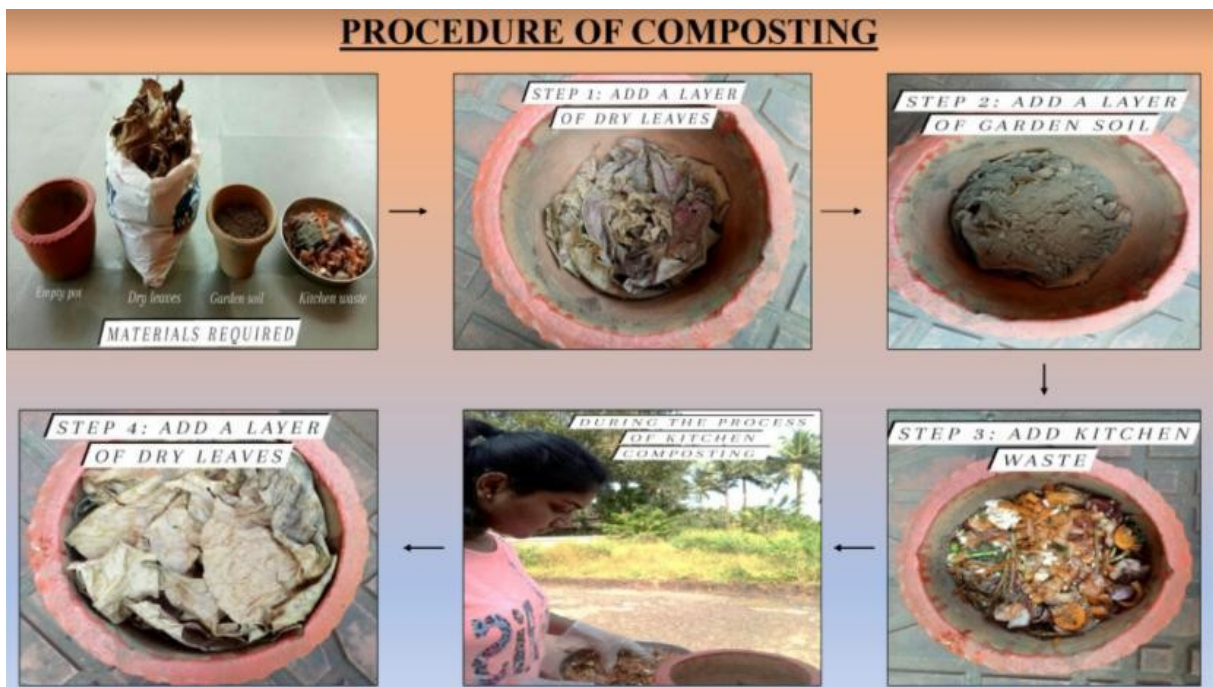
Material which cannot be broken down by natural organism and act as a source of pollution

- Organic waste can be composted
- Plastic paper and metal can be reused and sold to scrap dealers for recycling
- The amount of waste that goes to landfill site is reduced considerably.

ShanayaAntao



ORGANICCOMPOSTING: Organic composting mainly reduces the amount of organic waste generated. It cuts down the usage of chemical fertilizers and is used to remediate soils contaminated by hazardous waste. The students were explained the basic concept of organic composting and were given instructions on how to prepare kitchen compost effectively at home. The main aim of this activity was to encourage the students to use and promote organic composting as an ideal way of managing kitchen waste.

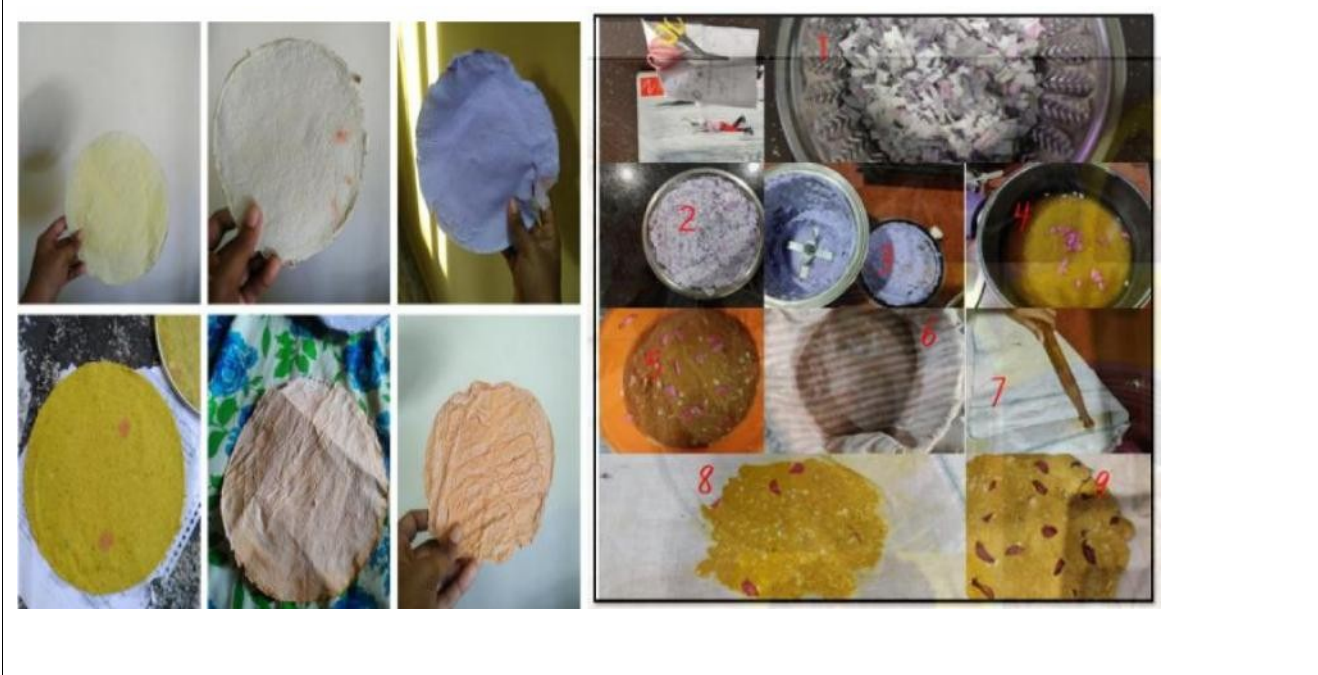




HANDMADE PAPER : As handmade papers are made from recycled papers, it is an effective method of decreasing the amount of waste generated. The use of recycled paper also reduces the number of trees cut down and promotes sustainable development. Handmade paper can be used to make diverse products such as bags, diaries, envelopes, packaging, office accessories and even cards. The students were given instructions on the process of handmade paper and encouraged to create various products using it. The main aim of this activity was to promote recycling paper and reduce the amount of waste generated.

PROCEDURE OF MAKING HANDMADE PAPER







Parvatibai Chowgule College of Arts and Science

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Best affiliated College-Goa University Silver Jubilee Year Award

GREEN INITIATIVES / ENVIRONMENT PROTECTION INITIATIVES -2020-2021

BY

STUDENTS OF SEC COURSE ON WASTE MANAGEMENT TECHNIQUES

Guiding teachers: Dr. Nandini Vaz Fernandes, Ms. MadhuBalekai, Ms. Tessa Vaz & Ms. Gautami Manakikar

ORGANICCOMPOSTING: Organic composting mainly reduces the amount of organic waste generated. It cuts down the usage of chemical fertilizers and is used to remediate soils contaminated by hazardous waste. The students were explained the basic concept of organic composting and were given instructions on how to prepare kitchen compost effectively at home. The main aim of this activity was to encourage the students to use and promote organic composting as an ideal way of managing kitchen waste.





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REPORT OF MANGROVE DAY CELEBRATION	
Title:	Mangrove day Celebration
Date and year:	26 th July 2021
Resource person	Department Of Zoology
Organising Committee	Department of Zoology And Mangrove Society of India
No. of Participants	15
Objective	To spread awareness on the importance of mangrove diversity.
Summary of the proceedings	<p>Department of Zoology organised competitions for the students on the occasion of World Mangrove Day on 26th July, 2021 in association with Mangrove Society of India. Slogan writing, Elocution competition and photography competition were organized for students of BSC Zoology.</p> <p>Winners of the competitions:</p> <ol style="list-style-type: none">Slogan Competition: The theme of the competitions was "Conservation of Mangrove ecosystem". Best slogan: Ms. Shanaya Phal Desai – SYBSc ZoologyElocution competition: Topic: 1. Threats to mangrove ecosystem. 2. Importance of Mangrove. 3. Issues and challenges of mangrove conservation. Best elocution: Ms. Shanaya Phal Desai – SYBSc ZoologyPhotography Competition: Theme "Mangrove Fauna" Best photograph: Ms Antara Poi Raiturker- TYBSc Zoology
Photographs	

MANGROVE DAY CELEBRATION-2021

**SLOGAN WRITING
COMPETITION**

THEME: CONSERVATION OF MANGROVE ECOSYSTEM

GUIDELINES:

1. Number of entries per participant: 01
2. The slogan must illustrate and emphasize on the theme.
3. The entries must be submitted in A3 size paper.
4. The slogan must be short, creative and original.

LAST DATE OF SUBMISSION: 24TH JULY 2021
SUBMIT THE SLOGAN AS A SOFT COPY TO ZOOLOGY@CHOWGULES.AC.IN

MANGROVE DAY CELEBRATION-2021

**PHOTOGRAPHY
COMPETITION**

THEME: MANGROVE FAUNA

GUIDELINES:

1. NUMBER OF ENTRIES PER PARTICIPANT: 01
2. SIZE OF THE PHOTOGRAPH: A4 (PORTRAIT/LANDSCAPE SHOTS ACCEPTED)
3. ADD A SUITABLE CAPTION FOR THE PHOTOGRAPH BASED ON THE THEME.

LAST DATE OF SUBMISSION: 24TH JULY 2021
SUBMIT THE PHOTOGRAPH AS A SOFT COPY TO ZOOLOGY@CHOWGULES.AC.IN

MANGROVE DAY CELEBRATION-2021

**ELOCUTION
COMPETITION**

GUIDELINES:

1. Make a video on any one topic from the list mentioned.
2. Video should not exceed 01 minute.
3. The video can be in English/Konkani/Marathi.

TOPICS:
1. THREATS TO MANGROVE ECOSYSTEM
2. IMPORTANCE OF MANGROVE
3. ISSUES AND CHALLENGES OF MANGROVE CONSERVATION

LAST DATE OF SUBMISSION: 24TH JULY 2021
SUBMIT THE VIDEO TO ZOOLOGY@CHOWGULES.AC.IN



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GREEN INITIATIVES / ENVIRONMENT PROTECTION INITIATIVES -2020-2021

BY

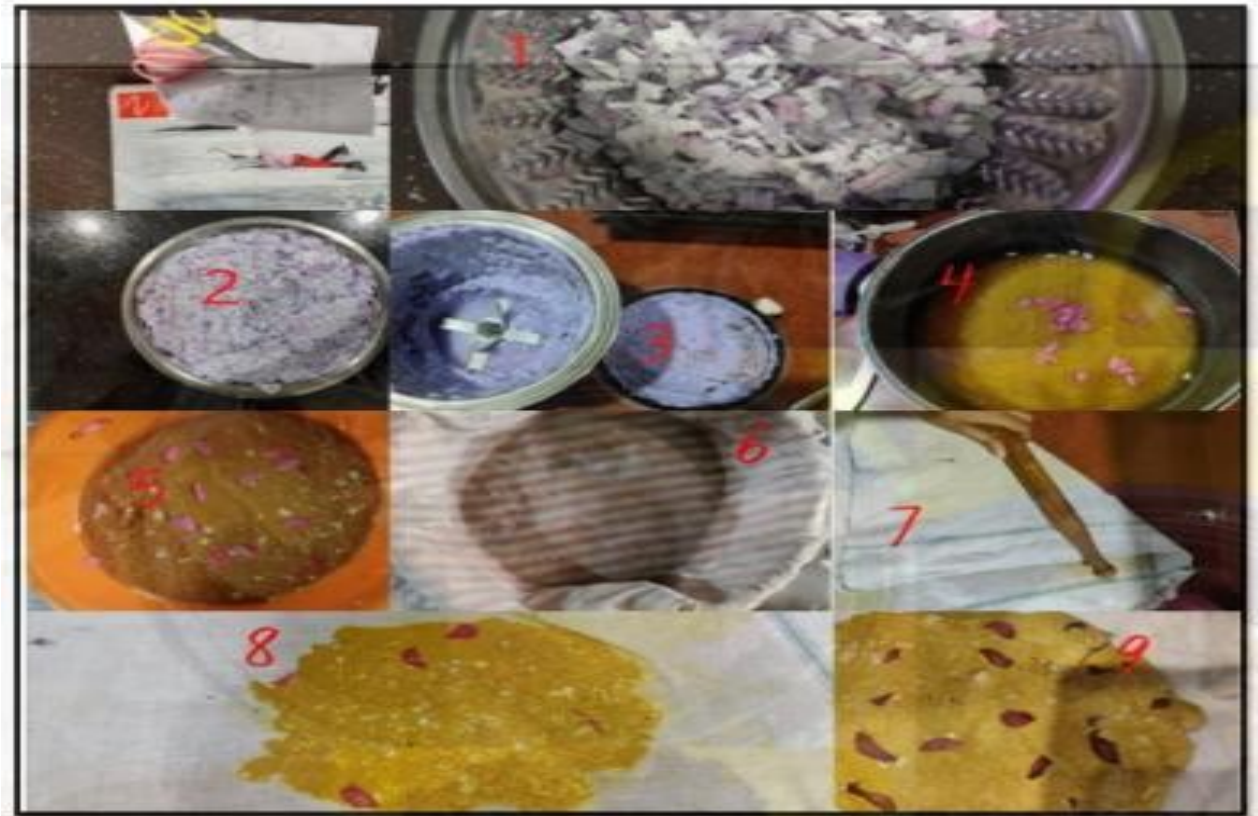
STUDENTS OF SEC COURSE ON WASTE MANAGEMENT TECHNIQUES

Guiding teachers: Dr. Nandini Vaz Fernandes, Ms. MadhuBalekai, Ms. Tessa Vaz & Ms. Gautami Manakikar

HANDMADE PAPER : As handmade papers are made from recycled papers, it is an effective method of decreasing the amount of waste generated. The use of recycled paper also reduces the number of trees cut down and promotes sustainable development. Handmade paper can be used to make diverse products such as bags, diaries, envelopes, packaging, office accessories and even cards. The students were given instructions on the process of handmade paper and encouraged to create various products using it. The main aim of this activity was to promote recycling paper and reduce the amount of waste generated.

PROCEDURE OF MAKING HANDMADE PAPER





HANDMADE PAPER – BY STUDENTS



NSS ACTIVITY REPORT

Parvatibai Chowgule College of Arts and Science, Autonomous

- **Title of the Activity:** Sapling plantation on the occasion of World Environment Day
- **Date:** 05th June 2021

NSS volunteers clicked a Photo/recorded a Video while planting the sapling and shared it on the social media platform.

Student Volunteers	Male	Female	Total
	15	89	104

Some of the screenshots of the Photo/Video shared on social by by NSS volunteers while planting the sapling





Report made by: **Dr. Mayuri Naik, NSS Programme Officer**



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Title:	Departmental activity	
Date and year:	20/06/2021- 22/06/2021	
Resource person/s:	Department of Zoology	
No. of Participants	31	
Objective:	To sensitise the students on the importance of wildlife, Covid vaccination and wildlife trade.	
Summary of the proceedings	<p>Department of Zoology organised competitions for the students as a part of departmental activity in the month of June from 20-06-2021 to 22-06-2021. Photography, poster and painting competitions were organized, in which 15 students actively participated. The theme of the competitions were ' My backyard wildlife', 'Importance on covid vaccination' and 'wildlife Trade' respectively.</p> <p>Winners of the competitions: Photography Competition: 1st place: Mr. Akshay Velguenkar- SYBSc 2nd place: Ms. Ferzeen Shaikh- TYBSc 3rd place: Ms. Antara Poi Raiturkar-TYBSc Painting competition: Best painting: Lizanne Cardozo, SY BSc E-Poster Competition: Winner:Radha Shirsat - SYBSc</p>	
Photographs	Name of the participant	Photograph
	1st place: Mr. Akshay Hanumanth Velguenkar	
	2nd place: Ms. Ferzeen Shaikh	

**3rd place:
Ms. Antara
Poi
Raiturker**



**Painting
competition:
Winner
Lizanne
Cardozo-
SYBSc**



**E-poster
Competition:
Winner
Radha
Shirsat-
SYBSc**

COVID VACCINATION

can keep you from getting the virus

help keep you from getting seriously ill if you get COVID-19

Benefits of taking COVID-19 vaccine

Getting vaccinated also protect people around who are at risk

Best and safest way to prevent disease

It will help put an end to the pandemic

India has been administering Covishield, Covaxin and Sputnik V vaccines to the people. The vaccines are safe and are advised for everyone above 18 years.

LET'S GET
VACCINATED!

Walk-in vaccination is now open!

References: <https://images.app.goo.gl/MK8erM4BH0Mz8559>
<https://images.app.goo.gl/1a0TasN18E8uzQ5CTA>
 Benefits of Getting a COVID-19 Vaccine (2021, June 15). Centers for Disease Control and Prevention. <https://www.cdc.gov/media/releases/2021/s0615-covid-19-vaccine-benefits.html>
 COVID-19 Vaccines (2021, June 23). World Health Organization. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/covid-19-vaccines>
<https://images.app.goo.gl/e3M99mTKF9eNcC8M9>

Report of World Environment Day

NSS unit of Parvatibai Chowgule College of Arts and Science, Autonomous organised Poster making event for NSS volunteers on the occasion of “**World Environment Day**” on 5th June 2020. The main theme for the event was “Time for Nature” with sub themes being a) Environmental Awareness, b) Man-Environment relationship and c) Changing Environment and Natural disaster. Total 26 posters were received from 25 NSS volunteers (23 female and 02 male) who participated in this event.

Dr. Nandkumar Sawant was invited as a Resource Person and delivered a talk on **Rejuvenating the coastal landscape** at the international webinar on Time for Nature, Post COVID-19 challenges to environmental challenges, organized by CHEC – INDIA, Jaipur on 5th June, 2020 on the eve world environment day.

Dr. Nandkumar Sawant was invited as a Resource Person and delivered a talk on Perspectives of Sustainable Tourism on 9th June 2020 organised by Shristi Nature club, PES College, Farmagudi.

Dr. Mayuri M. Naik, NSS Programme Officer conducted a 2 hour online workshop on **Swachhta and Jalshakti** (Under Online Workshop on Swachhta Action Plan, an initiative by Mahatma Gandhi National Council of Rural Education) for NSS volunteers on 23rd June 2020. Total 24 NSS volunteers (24 female, 0 male) participated in this online workshop.





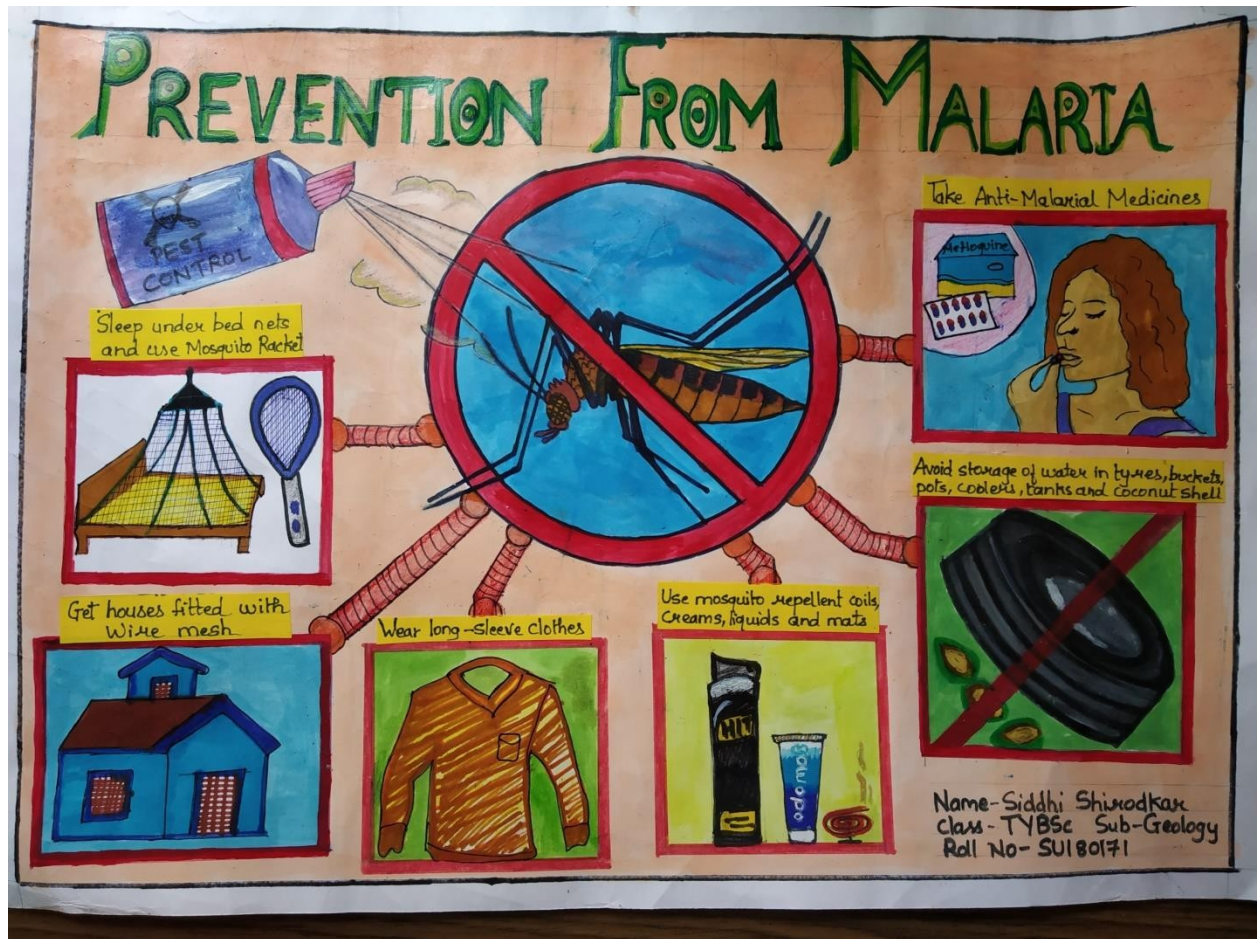
Report- Posters on Vector borne diseases

Date of submission:09/10/2020

NSS Volunteers participated- 37

Female- 37

Male- NIL



VECTOR BORNE DISEASE DENGUE



What is Dengue?

It is an infectious disease transmitted by a female mosquito.



ONE BITE
THREAT TO
life

Symptoms

<p>Sudden high fever</p>	<p>Headache</p>	<p>Vomiting</p>
<p>Joint pain</p>	<p>Skin irritation</p>	<p>Pain behind the eyes</p>

Simple measures to protect you & your family



Keep your surrounding clean



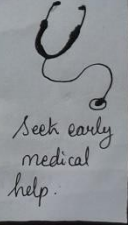
Get rid of Stagnant Water



Use of insect repellent

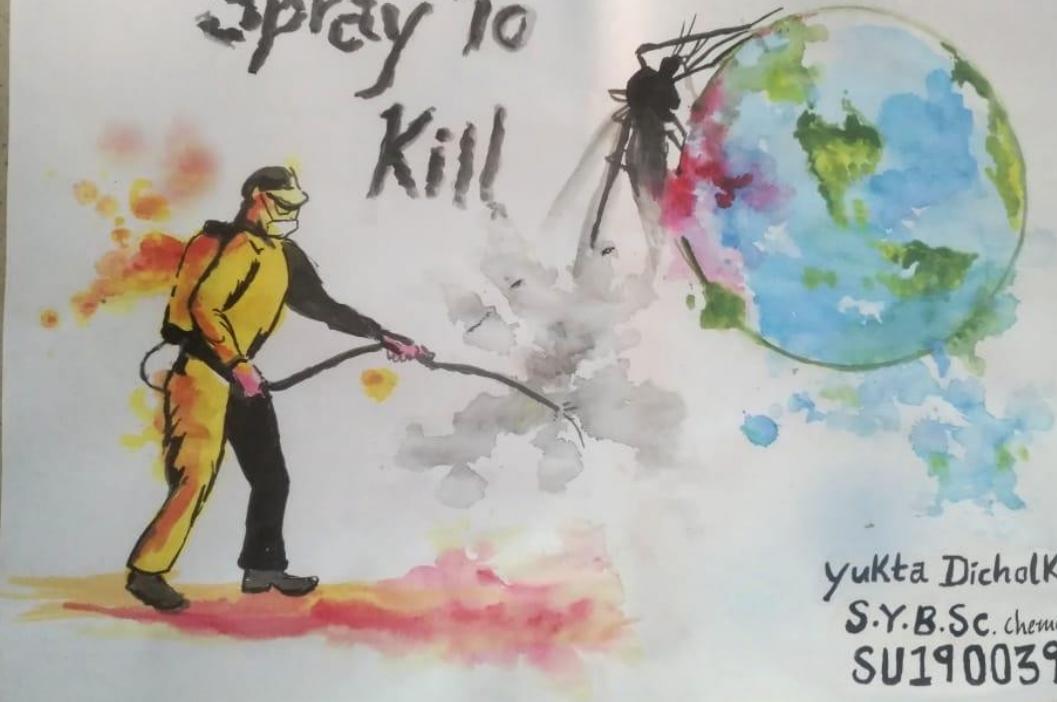


Use of insect nets while sleeping



Seek early medical help.

Spray To
Kill



yukta Dicholkar
S.Y.B.Sc. Chemistry
SU190039



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REPORT OF FACULTY PARTICIPATION

Title:	'Bird Walk'
Date and year:	05 th to 07 th February 2021
Organising Committee	Goa Forest Department
No. of Participants	25
Objective	To expose students to various birds found at carambolim and maina Curtorim.
Summary of the proceedings	Dr. Nandini Vaz Fernandes and Mr. Stephen Dias, Department of Zoology coordinated the 'Bird Walk' organised by Goa Forest Department from 05 th to 07 th February 2021. Bird walks were conducted at two sites viz. Carambolim Lake and Curtorim-Raia Lake (Maina-Curtorim Wetland Complex). Mr. Stephen Dias, Ms. Gautami Manakikar, Ms. Prasanna Naik Gaonkar and Ms. Pratibha Tripathi conducted the birdwalks for the general public on behalf of the forest department.

Photographs







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<u>REPORT OF FACULTY PARTICIPATION</u>	
Title:	Pre-Bird Festival Webinars'
Date and year:	29 th to 31 st January 2021
Organising Committee	Goa Forest Department
Resource person:	Dr. Nandini Vaz Fernandes Parag Ragnekar Amit raj Golda DaCosta Shalma Mascarenha Pronoy Baidya Jalmesh Karapurkar
No. of Participants	60
Objective	To understand the biodiversity conservation-prospects and challenges
Summary of the proceedings	Dr. Nandini Vaz Fernandes, Associate Professor, Department of Zoology was invited as a resource person by Forest Department, Govt. of Goa, for the 'Pre-Bird Festival Webinars' organised from 29 th to 31 st January 2021. Her session on "Introduction to Birdwatching" was the opening session of the Pre-bird festival, which was live streamed for general public all over Goa. The Pre-Bird Festival was organised by Forest department as an initiative to create awareness on the importance of bird conservation and to share the knowledge of various birds and their role in the environment and the benefits of birding

**

Photographs



Goa Forest Department

Presents

Pre-Bird Festival Webinars

29 Jan- 01 Feb 2021



Dr. Nandini Vaz Fernandes
An Introduction to Birdwatching
29 Jan-15:30-16:30



Parag Rangnekar
Bird Diversity of Goa and its
potential as a bird tourism hotspot
29 Jan-16:30-17:30



Shalma Mascarenhas
Endemic Birds of Western Ghats
in Goa
30 Jan-15:30-16:30



Amit Raj
Birds in Reels
30 Jan-16:30-17:30



Pronoy Baidya
Birding for a Better Tomorrow
31 Jan-16:30-17:30



Golda D'Costa
Wetland Birds of Goa
01 Feb-15:30-16:30



Jalmesh Karapurkar
Denizens of the Night: Night
Birds of Goa
01 Feb-16:30-17:30

Image: Colleen O'Dell



Goa Forest Department

Presents

Pre-Bird Festival Webinars

29 January 2021



Dr. Nandini Vaz Fernandes
An Introduction to Birdwatching
15:30-16:30



Parag Rangnekar
Bird Diversity of Goa and its
potential as a bird tourism hotspot
16:30-17:30

Live Streaming on



<https://www.facebook.com/100180528770151/live/>

Image: Colleen O'Dell