



Union Education Society's

# MAHILA MAHAVIDYALAYA, SOLAPUR

## Field Projects Students Name List

Sr. No	Projects Name List
1	Noise Pollution in Solapur City
2	Bio- Medical Waste Management
3	Air Pollution in Solapur City
4	Deforestation
5	Water Pollution in Solapur City
6	Disaster Management
7	Solid Waste Management in Solapur City

**Under the guidance of**

**Dr. Z. A. Nayab**

**Mrs. Patel F. H.**

**Year of Submission**

**2022-2023**

*Anneb*  
NAAC Co-Ordinator  
U.E.S. Mahila Mahavidyalaya  
Solapur




*JM*  
I/c. Principal  
U. E. S. Mahila Mahavidyalaya,  
Solapur



<b>Sr. No</b>	<b>Roll No</b>	<b>Name of the Students</b>	<b>Name of the Project</b>
1	2001	Lalkot Amreen Saba Munir Ahemad	Disaster Management
2	2002	Karajagi Shafiya Anjum Abdul Qadar	Disaster Management
3	2003	Nadaf Umza Mustak	Solid Waste Management
4	2004	Darzi Saleha Mohammad Qasim	Bio-Medical waste Management
5	2005	Jahagirdar Sakina Bashid	Bio-Medical waste Management
6	2006	Jahagirdar Sofiya Shakeel	Solid Waste Management
7	2007	Bagwan Iram Naz Mohammed Afzal	Air Pollution in Solapur City
8	2008	Shaikh Zahira Mohammed Salim	Bio-Medical waste Management
9	2009	Peerzade Rafiya Ejaz	Bio-Medical waste Management
10	2010	Jahagirdar Swaleha Murtuz Pasha	Bio-Medical waste Management
11	2011	Patel Taskeen Khalid	Bio-Medical waste Management
12	2012	Chanda Misbah Moinoddin <b>(Cancell)</b>	
13	2013	Moholkar Mahek Shah Abdul Haq	Bio-Medical waste Management
14	2014	Tangsal Mahewash A.Rehman	Disaster Management
15	2015	Shaikh Saniya Mainuddin	Bio-Medical waste Management
16	2016	Qazi Tahurairam Ahesanullah	Bio-Medical waste Management
17	2017	Inamdar Zakiya Juned Ali	Air Pollution in Solapur City
18	2018	Tumke Ayesha Sikandar	Air Pollution in Solapur City
19	2019	Jamadar Saniya Riyaz Ahmed	Air Pollution in Solapur City
20	2020	Madki Alishah Mohammed Ayyub	Water Pollution in Solapur City
21	2021	Shaikh Shireen Ishaque	Disaster Management
22	2022	Sayyed Tayyeba Saifulmulk	Air Pollution in Solapur City
23	2023	Nadaf Saeeda Maheboob	Deforestation
24	2024	Shaikh Saniya Hasan	Noise Pollution in Solapur City
25	2025	Shaikh Sumaiyya Hasan	Air Pollution in Solapur City
26	2026	Shaikh Sumayya M.Farooque	Solid Waste Management
27	2027	Kosgi Shaziya Mohammed Rafique	Noise Pollution in Solapur City
28	2028	Kosgi Bushra Abdul Qadar	Solid Waste Management

29	2029	Tangsal Misbah Shakeel	Disaster Management
30	2030	Ansari Suhana Hammad Rabbani	Water Pollution
31	2031	Jamkhandi Siddiqua Mohammed Ali	Disaster Management
32	2032	Shaikh Fayeka Moula	Water Pollution
33	2033	Shaikh Tahura Haji	Water Pollution
34	2034	Shaikh Sauda M.Javeed	Water Pollution
35	2035	Jakler A Isafa Javed	Noise Pollution in Solapur City
36	2036	Pathan Afifa Bakhtiyar	Noise Pollution in Solapur City
37	2037	Karajgi Shabana Dadapeer	Deforestation
38	2038	Shaikh Alfiya Mushtaque	Solid Waste Management
39	2039	Mulla Suhana Maheboob	Air Pollution in Solapur City
40	2040	Hatture Aasiya Yasin	Disaster Management
41	2041	Shaikh Mohammadi Mohammed Arif	Water Pollution
42	2042	Khan Abida Md.Foujdar	Water Pollution
43	2043	Tamboli Aasma Aziz	Deforestation
44	2044	Shaikh Tanzim Fayyaz	Solid Waste Management
45	2045	Shahbhai Muskan Usman	Solid Waste Management
46	2046	Shahbhai Nikhat Usman	Solid Waste Management
47	2047	Chitapure Adeeba Mohammed Husain	Air Pollution in Solapur City
48	2048	Shaikh Misba Noushad	Solid Waste Management
49	2049	Shaikh Taslima Muzammil	Solid Waste Management
50	2050	Tamboli Afrin Saifan	Deforestation
51	2051	Qureshi Bibi Safura Ayaz Ahmed	Water Pollution
52	2052	Kharadi Atiya Md. Iliyas	Deforestation
53	2053	Shaikh Taiyyaba Rizwan	Air Pollution in Solapur City
54	2054	Shaikh Uzra Aejaz	Noise Pollution in Solapur City
55	2055	Shaikh Tanzila Saleem	Deforestation
56	2056	Qureshi Misba Afsar	Water Pollution
57	2057	Lalkot Bibi Aayesha Shabbir	Deforestation
58	2058	Peerzade Misbah Iqbal	Deforestation
59	2059	Bagalkote Mahek Javed	Solid Waste Management
60	2060	Bagban Afsha Matin Ahmed	Disaster Management
61	2061	Zartar Munazza Muzammil	Disaster Management
62	2062	Pathan Muskan Ishrat	Noise Pollution in Solapur City
63	2063	Chhuri Aaliya Shakeel	Disaster Management
64	2064	Punekar Sajida Salauddin	Deforestation

65	2065	Shaikh Fiza Altaf	Noise Pollution in Solapur City
66	2066	Kalyani Sanobar Ashfaque	Solid Waste Management
67	2067	Jamadar Javeriya Sameer	Disaster Management
68	2068	Qureshi Mohammadi Begum Fakhru	Water Pollution
69	2069	Shaikh Bibi Aiman Ishaque	Solid Waste Management
70	2070	Nadaf Shifa Mohammed Javed	Deforestation
71	2071	Charke Afifa Dawood	Water Pollution
72	2072	Shaikh Maher Afroz Ziyauddin	Deforestation
73	2073	Kalyani Saniya Shakeel	Disaster Management
74	2074	Inamdar Sayyed Yasmeen Fatema Yusuf	Water Pollution
75	2075	Peerzade Tarannum Saifuddin	Solid Waste Management
76	2076	Qazi Jasmeen Murtuz	Water Pollution
77	2077	Ansari Ammara Shafique Ahmed	Deforestation

  
NAAC Co-Ordinator  
U.E.S. Mahila Mahavidyalaya  
Solapur.



  
I/c. Principal  
U. E. S. Mahila Mahavidyalaya,  
Solapur.

UNION EDUCATION SOCIETY'S  
MAHILA MAHAVIDYALAYA,  
141-A SIDDHESHWAR PETH,  
SOLAPUR-413001



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I/C Prin. : Mrs.Dr.F.M.Shaikh

Ref No. UES/2023/25/1284  
Date :- 31-5-2023

प्रति,  
व्यवस्थापक,  
वायु प्रदूषण कंट्रोल बोर्ड,  
सोलापूर.

मा. महोदय,

आमच्या महिला महाविद्यालयातील बी.ए. भाग-२ मधील पर्यावरण विषयाच्या विद्यार्थिनी वायु प्रदूषण कंट्रोल बोर्ड ला भेट देण्यासाठी दिनांक ३०-०५-२०२३ रोजी येत आहेत. तरी आपण विद्यार्थिनींना माहिती देऊन सहकार्य करावे हि विनंती.

धन्यवाद.

समन्वयक  
पेटल कर्जनास हुजेग.

आपली विश्वासू  
प्रभारी प्राचार्य  
यु. ई. एस. महिला महाविद्यालय,  
सोलापूर.

Sub. Regional Officer  
M. P. C. Board



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I/C Prin. : Mrs.Dr.F.M.Shaikh

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[www.uesmahilamahavidyalaya.org](http://www.uesmahilamahavidyalaya.org)

Ref No.UES/2023/25/1276CA)

Date :- 30-05-2023

प्रति,  
व्यवस्थापक,  
Pollution Control Board,  
सोलापूर.

मा. महोदय,

आमच्या महिला महाविद्यालयातील बी.ए. भाग-२ मधील पर्यावरण विषयाच्या विद्यार्थिनी  
Pollution Control Board ला भेट देण्यासाठी दिनांक ३०-०५-२०२३ रोजी येत आहेत. तरी आपण  
विद्यार्थिनींना माहिती देऊन सहकार्य करावे हि विनंती.

धन्यवाद.

O/C

Received  
J.F. Kharas  
31-05-2023  
कनिष्ठ लिपीक  
उप-प्रादेशिक कार्यालय,  
महाराष्ट्र प्रदुषण नियंत्रण मंडळ  
सोलापूर

आपली विश्वासू

I/c. Principal

U. E. S. Mahila Mahavidyalaya,

Solapur.

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I/C Prin. : Mrs.Dr.F.M.Shaikh

Ref No.UES/2023/25/1285  
Date :- 31-05-2023

प्रति,  
व्यवस्थापक,  
जल प्रदूषण कंट्रोल बोर्ड,  
सोलापूर.

मा. महोदय,

आमच्या महिला महाविद्यालयातील बी.ए. भाग-२ मधील पर्यावरण विषयाच्या विद्यार्थिनी जल प्रदूषण कंट्रोल बोर्ड ला भेट देण्यासाठी दिनांक ३०-०५-२०२३ रोजी येत आहेत. तरी आपण विद्यार्थिनींना माहिती देऊन सहकार्य करावे हि विनंती.

धन्यवाद.

समन्वयक

पेटल करजाना ह्येग

आपली विश्वासू  
प्रभारी प्राचार्य  
यु. ई. एस. महिला महाविद्यालय,  
सोलापूर.



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I/C Prin. : Mrs.Dr.F.M:Shaikh

Ref No.UES/2023/25/1286  
Date :- 31-5-2023

प्रति,  
व्यवस्थापक,  
ध्वनी प्रदूषण कंट्रोल बोर्ड,  
सोलापूर.

मा. महोदय,

आमच्या महिला महाविद्यालयातील बी.ए. भाग-२ मधील पर्यावरण विषयाच्या विद्यार्थिनी ध्वनी प्रदूषण कंट्रोल बोर्ड ला भेट देण्यासाठी दिनांक ३०-०५-२०२३ रोजी येत आहेत. तरी आपण विद्यार्थिनींना माहिती देऊन सहकार्य करावे हि विनंती.

धन्यवाद.

समन्वयक  
पटल कर्जना हुशंग.

आपली विश्वासू  
प्रभारी प्राचार्य  
यु. ई. एस. महिला महाविद्यालय,  
सोलापूर.



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I/C Prin. : Mrs.Dr.F.M.Shaikh

Ref No.UES/2022-23/25/1246  
Date :- 02/05/2023

प्रति,  
मा. मुख्य सफाई अधीक्षक  
घन-कचरा व्यवस्थापन विभाग,  
सोलापूर महानगरपालिका,  
सोलापूर.

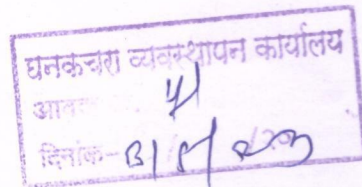
मा. महोदय,

आमच्या महिला महाविद्यालयातील बी.ए. भाग-२ मधील विद्यार्थिनी पर्यावरण प्रकल्पांतर्गत क्षेत्र प्रकल्पासाठी घन-कचरा व्यवस्थापन (Solid Waste Management) विभागाला भेट देण्यासाठी दिनांक ०४-०५-२०२३ रोजी येणार आहेत. तरी आपण विद्यार्थिनींना माहिती देऊन सहकार्य करावे हि विनंती.

धन्यवाद.

आपली विश्वासू

dlc



5/5/23

  
I/c. Principal  
U. E. S. Mahila Mahavidyalaya,  
Solapur.

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I/C Prin. : Mrs.Dr.F.M.Shaikh

Ref No.UES/2022-23/25/1246  
Date :- 02/05/2023

प्रति,  
मा. मुख्य सफाई अधीक्षक  
घन-कचरा व्यवस्थापन विभाग,  
सोलापूर महानगरपालिका,  
सोलापूर.

मा. महोदय,

काढावणी विभाग, प्रखंड  
उ. क. प्रखंडाक प्रतिगमनी

आमच्या महिला महाविद्यालयातील बी. ए. भाग-२ मधील विद्यार्थिनी पर्यावरण प्रकल्पांतर्गत क्षेत्र प्रकल्पासाठी घन-कचरा व्यवस्थापन (Solid Waste Management) विभागाला भेट देण्यासाठी दिनांक ०४-०५-२०२३ रोजी येणार आहेत. तरी आपण विद्यार्थिनींना माहिती देऊन सहकार्य करावे हि विनंती.

धन्यवाद.

आपली विश्वासू

I/c. Principal  
U. E. S. Mahila Mahavidyalaya,  
Solapur.

मुख्य सफाई अधीक्षक  
व्यवस्थापन विभाग  
महानगरपालिका



सा. सादर

सदर पक्षा नुसार आज  
दि. ०४/०५/२०२३ रोजी लेप्रसी रम  
धनकचरा व्यवस्थापन विभाग येथे  
माहिता महाविद्यालय चे विद्यार्थी  
येथून कचरा वृद्धल माहिती  
विचारी अस्था कचरा ची माहिती  
देताना मुख्य आरोग्य निरीक्षक श्री.  
अनवर शेख व शब्जिल नसामदु यांनी  
कीर्ती प्रकारचे कचरा अस्त त्या  
वृद्धल स्वविस्तार माहिती दिली  
व विद्यार्थींचे प्रश्नांचे उत्तर दिले  
धटावाडी च्या माहिती दिली.



मुख्य आरोग्य निरीक्षक  
विभागीय कार्यालय क्र. ७

U. E. S. Mohite  
U. E. S. Mohite  
U. E. S. Mohite

कायदा विभाग  
महाराष्ट्र सरकार  
पुणे



**P.A.H. SOLAPUR UNIVERSITY,  
SOLAPUR**



**UNION EDUCATION SOCIETY'S  
MAHILA MAHAVIDYALAYA**

SIDDESHWAR PETH , SOLAPUR . 413001

**A PROJECT REPORT ON  
BIO-MEDICAL WASTE MANAGEMENT**



IN

**SHRI MARKANDEYA SOLAPUR SAHAKARI RUGNALAYA & RESEARCH CENTER  
NIYAMIT , SOLAPUR .**

**SUBMITTED BY**

Miss - Jahagir Dar Sakina Bashid

**Under the guidance of**

**Dr. Z.A. Nayab**

**Miss. Patel Farzana**

**YEAR OF SUBMISSION**

**2022 -2023**



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P.A.H. SOLAPUR UNIVERSITY, SOLAPUR

**UNION EDUCATION SOCIETY'S**

**MAHILA MAHAVIDYALAYA**

**SIDDESHWAR PETH, SOLAPUR . 413001**

**ENVIRONMENTAL STUDIES**

**CERTIFICATE**

Exam No - .....

Date- 31-5-2023

*This is to certify that Miss*

*.....Tahagirdar Sakina Bashid.....*

*Has satisfactorily carried out the required field/project work by the Solapur University, Solapur . For the BA-II / B.com-II Course in Environmental Studies and this field/ project work report represents his /her confide work report in the year 2022 to 2023.*

*Dr. Z. A. NAYAB*

Examiner



*Dr. F.M. SHAIKH*

Principal

I/c. Principal

U. E. S. Mahila Mahavidyalaya,  
Solapur.



## DECLARATION OF THE STUDENT

I Jahagirdar Sakina Bashid ..... Of B.A.II

Roll No - 2005 I hereby declared that the project of **ENVIRONMENTAL STUDIES** entitled '**BIO-MEDICAL WASTE MANAGEMENT**' In **Shri Markandeya Solapur Sahakari Rugnalaya & Research Center Niyamit, Solapur**. Is the original work and not submitted anywhere for the publication.



Sakina  
Signature of the student

Name of the student

[Miss - Jahagirdar Sakina Bashid]

Place – SOLAPUR

Date - 31-5-2023



## DECLARATION OF THE SUPERVISOR

I, the undersigned supervisor for the environmental science project hereby declare that the project of Jahagirdar.....  
Sakina Bashid..... Of B.A.II Year has carried out the research project entitled '**BIO-MEDICAL WASTE MANAGEMENT**' 'In Shri Markandeya Solapur Sahakari Rughalaya & Research Center Niyamit, Solapur .is for the partial fulfillment of the certificate course in environmental science proposed by Solapur University, Solapur is the original work and not submitted elsewhere for the publication.



*Z.A. NAYAB*

Dr. Z.A .NAYAB

PLACE - SOLAPUR

DATE - 31/ 5/ 2022-23

## ACKNOWLEDGEMENT

We are feel proud to present our field visit project in Environmental Studies on the "BIO-MEDICAL WASTE Its MANAGEMENT ". We create "Environmental Awareness and management of waste in hospital" The subject Environmental Studies is made compulsory at B.A.II year. The task of completing this project successful with the great efforts from several individuals. This project would not have been feasible without proper rigorous guidance of environment teachers Dr. Z.A. Nayab & Miss. Farzana Patel. Who guided me throughout this project in every possible way. We would like to show our gratitude to Mrs. Anisha A. Kota (I.C.O) in Solapur Rugnalya for giving us a good information about bio medical waste and its management. Also we would like to thanks Mrs. Pathan Haseena for helping throught the field visit in Hospital.We are also thankful to our college principal Dr.F.M. Shaikh. For extending their Co-operation and support in making this task easy .

Then we are like to thanks our parents and friends who have helped me with their valuable suggestion and guidance has been very helpful in various phase of the completion of the project.

At last, we are end up by thanking all who helped me in finalizing the project within the limited time frame.





## INTRODUCTION

Biomedical waste management has recently emerged as an issue of major concern not only to hospitals, nursing home authorities but also to the environment. The bio-medical waste generated from health care units depend upon a number of factors such as waste management methods, type of health care units, occupancy of healthcare units, specialization of healthcare units, ratio of reusable item in use , availability of infrastructure and resources etc.

The proper management of biomedical waste has become a worldwide humanitarian topic today . Although hazards of poor management of biomedical waste have aroused to concern world over, especially in the light of its far-reaching effects on human, health and the environment.

### DEFINITION:

According to Biomedical Waste (Management and Handling )Rules, 1998 of India “ Any waste is generated during the diagnosis, treatment or immunization of human beings or animals or in research activities pertaining there to or in the production or testing of biological”.

The Government of India specifies that Hospital waste management is a part of hospital hygiene and maintenance activities. This involves management of range of activities, which are mainly engineering functions, such as collection, transportation ,operation or treatment of processing systems, and disposal of wastes.

World Health Organization states that 85% of hospital wastes are actually non-hazardous, whereas 10% are infectious and 5%are non-infectious but they are included in hazardous wastes.

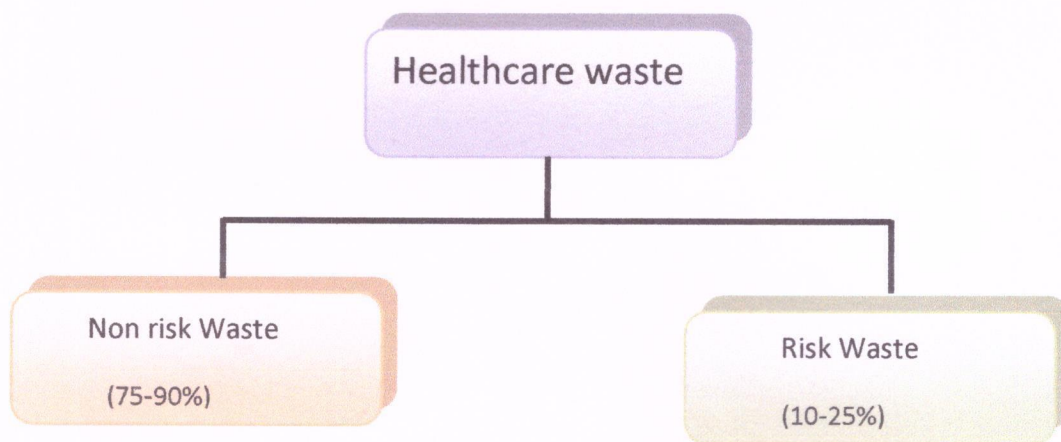


## OBJECTIVE OF BMW MANAGEMENT:

- To minimize the production/ generation of infective waste.
- Recycle the waste after treating to the extent possible.
- Treat the waste by safe and environmentally acceptable methods.
- Adequate care in handling to prevent HAI.
- Safety precaution during handling to BMW.



# Healthcare Waste



## SOURCES OF BIO-MEDICAL WASTE

### Major Sources

- Hospitals
- Labs
- Research centers
- Animal research
- Blood banks
- Nursing homes
- Mortuaries
- Autopsy Centers

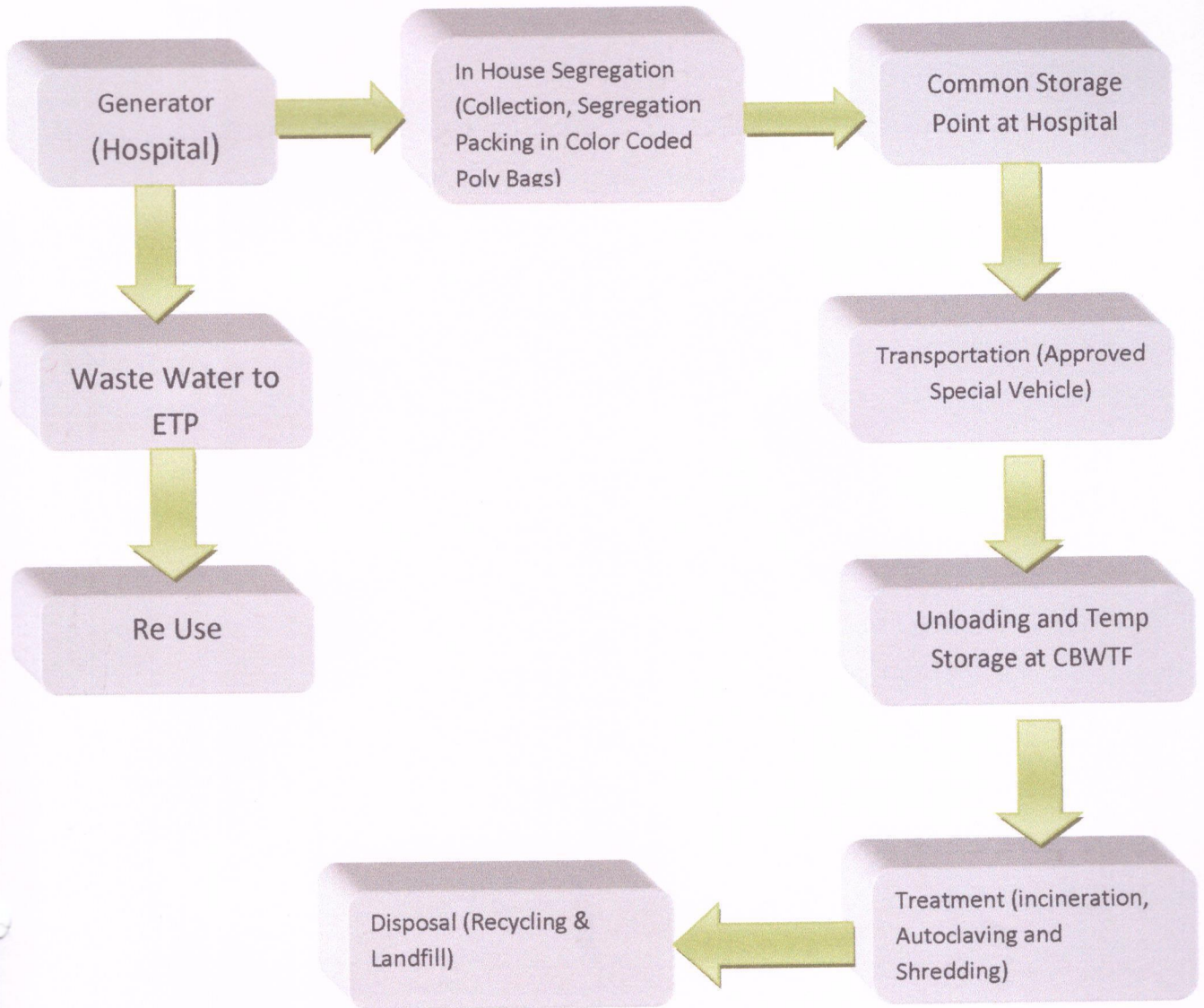
### Minor Sources

- Clinics
- Dental clinic
- Home care
- Cosmetic clinics
- Paramedics
- Funeral services
- Institutions



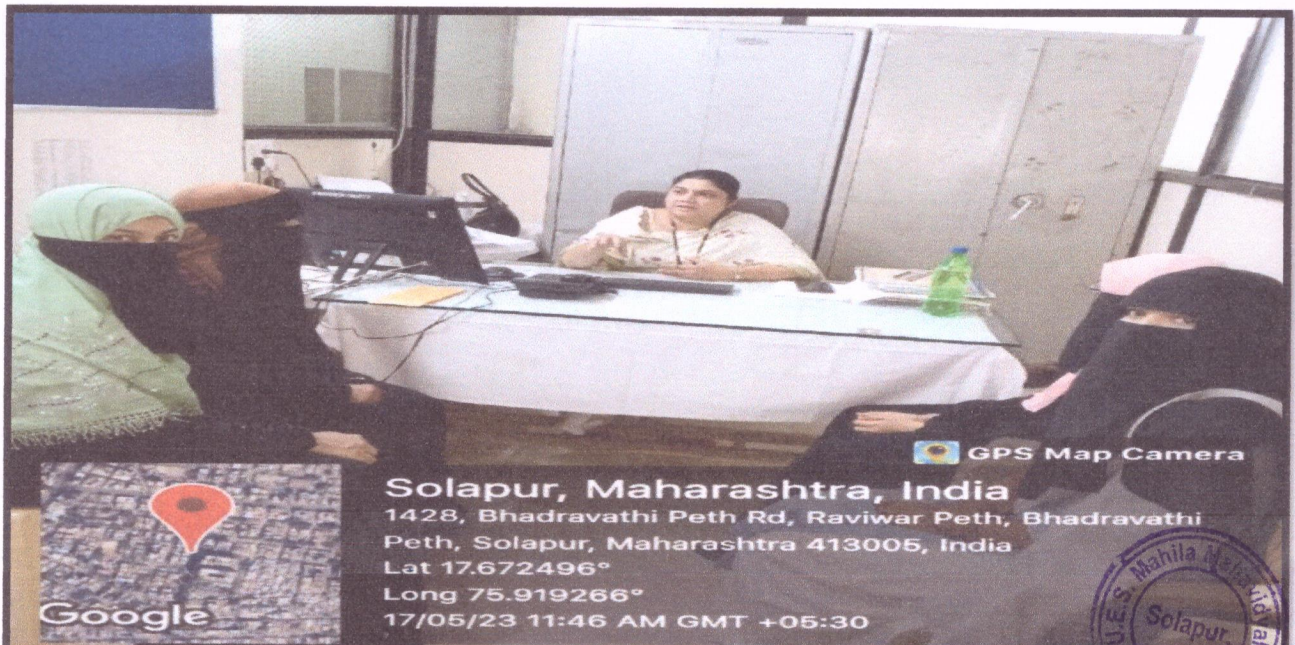


# BIO-MEDICAL WASTE FLOW CHART





**Shri Markandeya solapur sahakari Rugnalaya & Research  
Centre Niyamit, Solapur. Visted Photos**





## Biomedical Waste Management Process

There is a big network of Health Care Institutions in India. The hospital waste like body parts, organs, tissues, blood and body fluids along with soiled linen, cotton, bandage and plaster casts from infected and contaminated areas are very essential to be properly collected, segregated, stored, transported, treated and disposed of in safe manner to prevent nosocomial or hospital acquired infection.

1. Waste collection
2. Segregation
3. Transportation and storage
4. Treatment & Disposal
5. Transport to final disposal site
6. Final disposal

## Biomedical Waste Treatment and Disposal

Health care waste is a heterogeneous mixture, which is very difficult to manage as such. But the problem can be simplified and its dimension reduced considerably if a proper management system is planned.

## Incineration Technology

This is a high temperature thermal process employing combustion of the waste under controlled condition for converting them into inert material and gases. Incinerators can be oil fired or electrically powered or a combination thereof. Broadly, three types of incinerators are used for hospital waste: multiple hearth type, rotary kiln and controlled air types. All the types can have primary and secondary combustion chambers to ensure optimal combustion. These are refractory lined."



## **Non-Incineration Technology**

Non-incineration treatment includes four basic processes: thermal, chemical, irradiative, and biological. The majority of non-incineration technologies employ the thermal and chemical processes. The main purpose of the treatment technology is to decontaminate waste by destroying pathogens. Facilities should make certain that the technology could meet state criteria for disinfection."

### **Autoclaving**

The autoclave operates on the principle of the standard pressure cooker .

The process involves using steam at high temperatures .

The steam generated at high temperature penetrates waste material and kills all the micro organism

These are also of three types: Gravity type, Pre-vacuum type and Retort type.

In the first type (Gravity type), air is evacuated with the help of gravity alone. The system operates with temperature of 121 deg. C, and steam pressure of 15 psi. for 60-90 minutes. Vacuum pumps are used to evacuate air from the Pre vacuum autoclave system so that the time cycle is reduced to 30-60 minutes. It operates at about 132 deg. C. Retort type autoclaves are designed much higher steam temperature and pressure. Autoclave treatment has been recommended for microbiology and biotechnology waste, waste sharps, soiled and solid wastes. This technology renders certain categories (mentioned in the rules) of bio-medical waste innocuous and unrecognizable so that the treated residue can be land filled.

### **Microwave Irradiation**

The microwave is based on the principle of generation of high frequency waves.

These waves cause the particles within the waste material to vibrate, generating heat.

This heat generated from within kills all pathogens.

### **Chemical Methods**

1% hypochlorite solution can be used for chemical disinfection

### **Plasma Pyrolysis**

Plasma pyrolysis is a state-of-the-art technology for safe disposal of medical waste. It is an environment-friendly technology, which converts organic waste into commercially useful byproducts. The intense heat generated by the plasma enables it to dispose all types of waste including municipal solid waste, biomedical waste and hazardous waste in a safe and reliable manner.





## Biomedical Waste Management Rules

Safe disposal of biomedical waste is now a legal requirement in India. The Biomedical Waste Management & Handling) Rules, 1998 came into force on 1998. In accordance with these rules, it is the duty of every "occupier" i.e. a person who has the control over the institution or its premises, to take all steps to ensure that waste generated is handled without any adverse effect to human health and environment. It consists of six schedules.

*Schedule I*

*Schedule II*

*Schedule III*

*Schedule IV*

*Schedule V*

*Schedule VI*



## Schedule 1 . Categories of Biomedical Waste







WASTE CATEGORY	TYPE OF WASTE	TREATMENT AND DISPOSAL OPTION
Category No.1	Human Anatomical Waste (Human tissues ,organs, body parts)	Incineration @ /deep burial*
Category No.2	Animal Waste (Animal tissues, organs ,body parts, carcasses, fluid, blood and experimental animals used in research, waste generated by veterinary hospitals and colleges, discharge from hospitals, animal houses)	Incineration @ /deep burial
Category No.3	Microbiology & Biotechnology Waste (Wastes from laboratory cultures, stocks or specimen of live micro organisms or attenuated vaccines, human and animal cell cultures used in research and infectious agents from research and industrial laboratories, wastes from production of biological , toxins and devices used for transfer of cultures)	Local autoclaving/ microwaving / incineration@
Category No.4	Waste Sharps (Needles, syringes, scalpels, blades, glass, etc. that may cause puncture and cuts. This includes both used and unused sharps)	Disinfecting (chemical treatment / autoclaving/ microwaving and mutilation/ shredding
Category No.5	Discarded Medicine and Cytotoxic drugs (Wastes comprising of outdated, contaminated and discarded medicines)	Incineration / destruction and drugs disposal in secured
Category No.6	Soiled Waste (Items contaminated with body fluids including cotton, dressings, soiled plaster casts, lines, bedding other materials contaminated with blood.)	Incineration@/autoclaving/ microwaving
Category No.7	Solid Waste (Waste generated from disposable items other than the waste sharps such as tubing, catheters, intravenous sets, etc.)	Disinfecting by chemical treatment@@/autoclaving/ microwaving and mutilation/ shredding##
Category No.8	Liquid Waste (Waste generated from Disinfecting by chemical treatment and discharge in to the laboratory and washing,cleaning, house keeping and disinfecting activities)	Disinfecting by chemical treatment and discharge into drains
Category No.9	Incineration Ash (Ash from incineration of any biomedical waste)	Disposal in municipal landfill
Category No.10	Chemical Waste (Chemicals used in production of biological, chemicals used in disinfecting, as insecticides, etc.)	Chemical treatment and discharge into drains for liquid & landfill for solid







**Schedule II: Colour Coding And Type Of Container for Disposal Of Bio-Medical Wastes**

As per Schedule I of the Bio Medical Waste Management Rules, 2016 following colour coding and type of container/bags is needed to be used by the HCFs for segregation and collection of generated Bio Medical Waste from the facility.

Sr.No.	Category	Types of Waste	Types of Container
1.	<p>Yellow Category</p> 	<ul style="list-style-type: none"> <li>- Human Anatomical Waste</li> <li>- Animal Anatomical Waste</li> <li>- Soiled Waste</li> <li>- Discarded or Expired Medicine</li> <li>- Microbiology, Biotechnology and other clinical laboratory waste</li> <li>- Chemical Waste (yellow-e)</li> <li>- Chemical Liquid Waste</li> </ul>	<p>Yellow Coloured Non-Chlorinated Plastic Bags</p>  <p>Note: (i) Chemical waste (yellow-e) comprising of un-used, residual or date expired liquid chemicals including spent hypo of X-Ray, should be stored in yellow container</p>
2.	<p>Red Category</p> 	<p>Contaminated Waste (Recyclable) Tubing ,Catheters.</p>	<p>Red Coloured Non Chlorinated Plastic Bags (having thickness equal to more than 50 µ) and Containers</p> 
3	<p>White Category</p> 	<p>Waste Sharps including metals White</p>	<p>Waste Sharps including metals White Coloured translucent, puncture proof, leak proof, Temper Proof containers</p> 

4.	<p>Blue Category</p> 	<p>Glass ware Metalic body implants</p>	<p>Puncture proof, leak proof boxes or containers with blue coloured marking</p> 
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### Schedule III: Label for Bio-medical Waste Containers/Bags

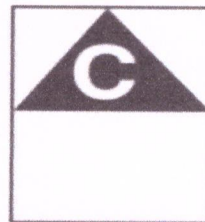
All the bags/ containers/ bins used for collection and storage of bio-medical waste, must be labelled with the Symbol of Bio Hazard or Cytotoxic Hazard as the case may be as per the type of waste in accordance with the BMW Rules, 2016. Bio-medical waste bags / containers are required to be provided with bar code labels in accordance with CPCB guidelines for "Guidelines for barcode System for Effective Management of Biomedical Waste".

**BIOHAZARD SYMBOL**  
जैविक परिसंकेत चिन्ह



**BIOHAZARD**  
जैविक परिसंकेत

**CYTOTOXIC HAZARD SYMBOL**  
कोषिकाविष परिसंकेत चिन्ह



**CYTOTOXIC**  
कोषिकाविष



OR





## Schedule IV:

Label for Transport of Bio-Medical Waste Containers/Bags

Day ..... Month..... Year.....

Date of generation.....

Waste category No.....

Waste class

Waste description

Sender's Name & Address Receiver's Name & Address

Phone No..... Phone No.....

Telex. N.....Telex No.....

Fax No.....Fax No.....

Contact Person.....

In case of emergency please contact Name & Address:

Phone No.....

Note: Label shall be non-washable and prominently visible.



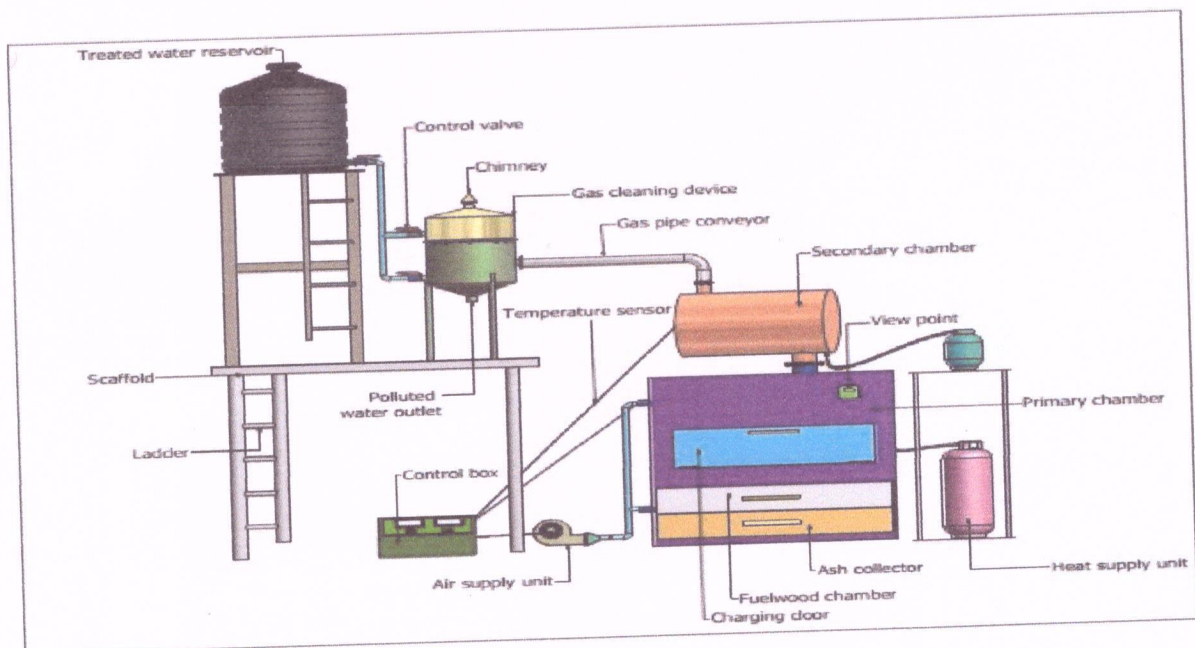


## Schedule-V

Standards for Treatment and Disposal of Bio-Medical Wastes Standards For Incinerators

## Schedule-VI

Schedule for Waste Treatment Facilities like Incinerator/Autoclave/Microwave System.  
(Source- The Bio Medical Waste (Management and Handling) Rules, 1998).



## Benefits of Biomedical Waste Management

- Reduction in the incidence of hospital acquired and general infections.
- Reduction in the cost of infection control within the hospital.
- Reduction in the possibility of disease and death due to reuse and repackaging of infectious disposables.
- Reduction in the cost of waste management and generation of revenue through appropriate treatment and disposal of waste.
- Improved image of the healthcare establishment and increase the quality of life.
- Protecting the health of healthcare workers, the public, and the environment.
- Preventing the spread of infectious diseases.
- Protecting workers from exposure to hazardous materials.
- Reducing the risk of contamination of the environment.





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**P.A.H. SOLAPUR UNIVERSITY,  
SOLAPUR**



**UNION EDUCATION SOCIETY'S  
MAHILA MAHAVIDYALAYA**

SIDDESHWAR PETH , SOLAPUR . 413001

**A PROJECT REPORT  
ON  
DEFORESTATION**

**SUBMITTED BY**

Miss - *Karajgi Shabana DaddPeer*

**Under the guidance of**

**Dr. Z.A. Nayab**

**Miss. Patel Farzana**



**YEAR OF SUBMISSION**

**2022 -2023**

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**UNION EDUCATION SOCIETY'S**

**MAHILA MAHAVIDYALAYA**

SIDDESHWAR PETH , SOLAPUR . 413001

**ENVIRONMENTAL STUDIES**

**CERTIFICATE**

Exam No - \_\_\_\_\_

Date- 31-05-2023

***This is to certify that Miss***

Karajgi Shabana Dadapeer.

***Has satisfactorily carried out the required field/project work by the Solapur University, Solapur . For the BA-II / B.com-II Course in Environmental Studies and this field/ project work report represents his /her confide work report in the year 2022 to 2023.***

  
Dr. Z. A. NAYAB

Examiner



  
Dr. F.M. SHAIKH

Principal  
I/c. Principal  
U. E. S. Mahila Mahavidyalaya,  
Solapur.

## DECLARATION OF THE STUDENT

I Karajgi Shabana Dadapeer Of B.A.II

Roll No - 2037 I hereby declared that the project of **ENVIRONMENTAL STUDIES** entitled '**Deforestation**'. Is the original work and not submitted anywhere for the publication.

Shabanak

Signature of the student

Name of the student

[Miss - Karajgi Shabana Dadapeer]

Place – SOLAPUR

Date - 31-05-2023





## DECLARATION OF THE SUPERVISOR

I, the undersigned supervisor for the environmental science project hereby declare that the project of Karajgi.....  
Shabana Dadapeer..... Of B.A.II Year has carried out the research project entitled '**Deforestation**'.is for the partial fulfillment of the certificate course in environmental science proposed by Solapur University, Solapur is the original work and not submitted elsewhere for the publication.

  
Dr. Z.A .NAYAB

PLACE - SOLAPUR

DATE 31/05/2022-23



## ACKNOWLEDGEMENT

We are feel proud to present our field visit project in Environmental Studies on the “ Deforestation’. we create ‘ Environmental Awareness and controls its pollution’. The subject Environmental Studies is made compulsory at B.A.II year. The task of completing this project successful with the great efforts from several individuals. This project would not have been feasible without proper rigorous guidance of environment teachers Dr. Z.A. Nayab & Miss. Farzana Patel. Who guided me throughout this project in every possible way.. We are also thankful to our college principal Dr.F.M. Shaikh. For extending their Co-operation and support in making this task easy .

We are grateful to the supreme court of India for introducing this subject and making it compulsory and solapur university , solapur.

At last, we are end up by thanking all who helped me in finalizing the project within the limited time frame.





## INTRODUCTION

The year 2011 is 'The International Year of Forests'. This designation has generated momentum bringing greater attention to the forests worldwide. Forests cover almost a third of the earth's land surface providing many environmental benefits including a major role in the hydrologic cycle, soil conservation, prevention of climate change and preservation of biodiversity (She ram, 1993). Forest resources can provide long-term national economic benefits. For example, at least 145 countries of the world are currently involved in wood production (Anon., 1994a). Sufficient evidence is available that the whole world is facing an environmental crisis on account of heavy deforestation. For years removal and destruction of forests has been going on and we have not been able to comprehend the dimension until recently. Nobody knows exactly how much of the world's rainforests have already been destroyed and continue to be razed each year. Data is often imprecise and subject to differing interpretations. However, it is obvious that the area of tropical rainforest is diminishing and the rate of tropical rain forest destruction is escalating worldwide, despite increased environmental activism and awareness.

Deforestation is the conversion of forest to an alternative permanent non-forested land use such as agriculture, grazing or urban development (van Kooten and Bulte, 2000). Deforestation is primarily a concern for the developing countries of the tropics (Myers, 1994) as it is shrinking areas of the tropical forests (Barrac lough and Ghimire, 2000) causing loss of biodiversity and enhancing the greenhouse effect (Angelsen *et al.*, 1999). FAO considers a plantation of trees established primarily for timber production to be forest and therefore does not classify natural forest conversion to plantation as deforestation (but still records it as a loss of natural forests). However, FAO does not consider tree plantations that provide non-timber products to be forest although they do classify rubber plantations as forest. Forest degradation occurs when the ecosystem functions of the forest are degraded but where the area remains forested rather cleared (Anon., 2010). Thirty per cent of the earth's land area or about 3.9 billion hectares is covered by forests. It was estimated that the original forest cover was approximately six billion hectares (Bryant *et al.*, 1997).

The Russian Federation, Brazil, Canada, the United States of America and China were the most forest rich countries accounting to 53 per cent of the total forest area of the globe. Another 64 countries having a combined population of two billions was reported to have forest on less than ten per cent of their total land area and unfortunately ten of these countries have no forest at all. Among these countries 16 are such which had relatively substantial forest areas of more than one million hectares each and three of these countries namely Chad, the



Islamic Republic of Iran and Mongolia each had more than ten million hectares of forest. The forest area remained fairly stable in North and Central America while it expanded in Europe during the past decade. Asian continent especially in India and China due to their large scale forestation programme in the last decade registered a net gain in forest area. Conversely the South America, Africa and Oceania had registered the net annual loss of forest area (Anon., 2010; 2011a).





## **OBJECTIVE OF DEFORESTATION :**

- **To reduce resources depletion and to preserve resources that are primarily used for future generations or posterity.**
- **To raise awareness that people not cutting off the trees for development project by cleaning.**
- **To ensure that planting trees provide education to the local surrounds to make sure that they know the importance of conserving the environment for the presents .**
- **To identify the socio economic effect of tree cutting.**
- **Protection of the environment in order to promote sustainable development.**
- **Protection and conservation of flora, fauna, forests and wildlife.**
- **The goal is to control deforestation and forest land deterioration.**





## World deforestation:

According to Professor Norman Myers, one of the foremost authorities on rates of deforestation in tropical forests, "the annual destruction rates seems set to accelerate further and could well double in another decade" (Myers, 1992). Mostly deforestation has occurred in the temperate and sub-tropical areas. Deforestation is no longer significant in the developed temperate countries now and in fact many temperate countries now are recording increases in forest area (Anon., 1990a; 2010). In most instances developed nations are located in temperate domains and developing nations in tropical domains. However deforestation was significantly less in tropical moist deciduous forest in 1990-2000 than 1980-1990 but using satellite imagery it was found that FAO overestimated deforestation of tropical rainforests by 23 per cent (Anon., 2001a; b). However the definition of what is and what is not forest remains controversial. The tropical rainforests capture most attention but 60 per cent of the deforestation that occurred in tropical forests during 1990-2010 was in moist deciduous and -dry forests. However extensive tropical deforestation is a relatively modern event that gained momentum in the 20th century and particularly in the last half of the 20th century. The FAO FRA 2001 and 2010 reports indicate considerable deforestation in the world during 1990-2010 but this was almost entirely confined to tropical regions (Anon., 2001a; 2010). A summary of deforestation during the decades 1990-2010 is given in tables 1 and 2. These tables show there was considerable deforestation in the world during 1990-2010 but this was almost entirely confined to tropical regions. Rowe *et al.* (1992) estimated that 15 percent of the world's forest was converted to other land uses between 1850 and 1980.

Deforestation occurred at the rate of 9.2 million hectares per annum from 1980-1990, 16 million hectares per annum from 1990-2000 and decreased to 13 million hectares per annum from 2000-2010. The net change in forest area during the last decade was estimated at -5.2 million hectares per year, the loss area equivalent to the size of Costa Rica or 140 km<sup>2</sup> of forest per day, was however lesser than that reported during 1990-2000 which was 8.3 million hectares per year equivalent to a loss of 0.20 per cent of the remaining forest area each year. The current annual net loss is 37 per cent lower than that in the 1990s and equals a loss of 0.13 per cent of the remaining forest area each year during this period. By contrast some smaller countries have very high losses per year and they are in risk of virtually losing all their forests within the next decade if current rates of deforestation are maintained. Indeed some 31 countries do not even make the list because they have already removed most of their forests and even if that remain are seriously fragmented and degraded. The changes in area of forest by region and sub region are shown in table 1.





Region / subregion	1990-2000		2000-2010	
	1000 ha/year	%	1000 ha/year	%
<b>Eastern and Southern Africa</b>	-1841	-0.62	-1839	-0.66
<b>Northern Africa</b>	-590	-0.72	-41	-0.05
<b>Western and Central Africa</b>	-1637	-0.46	-1535	-0.46
<b>Total Africa</b>	-4067	-0.56	-3414	-0.49
East Asia	1762	-0.81	2781	1.16
<b>South and Southeast Asia</b>	-2428	-0.77	-677	-0.23
<b>Western and Central Asia</b>	72	0.17	131	0.31
<b>Total Asia</b>	-595	-0.10	2235	0.39
<b>Russian Federation (RF)</b>	32	N.S	-18	N.S
<b>Europe excluding RF</b>	845	0.46	694	0.36
<b>Total Europe</b>	877	0.09	676	0.07
<b>Caribbean</b>	53	0.87	50	0.75
<b>Central America</b>	-374	-1.56	-248	-1.19
<b>North America</b>	32	N.S	188	0.03
<b>Total North and Central America</b>	-289	-0.04	-10	0.00
<b>Total Oceania</b>	-41	-0.02	-700	-0.36
<b>Total South America</b>	-4213	-0.45	-3997	-0.45
<b>World</b>	-8327	-0.20	-5211	-0.13

Table 1. Annual change in forest area by region and subregion, 1990-2010  
(Source: Anon., 2010)

South America with about four million hectares per year suffered the largest net loss of forests during the last decade followed by Africa with 3.4 million hectares annually and the least Oceania with seven lakh hectares annually. Oceania suffered mainly due to Australia where severe drought and forest fires from 2000 AD had exacerbated their loss. Both Brazil and Indonesia had the highest net loss of forest during the decade of 1990 but has significantly reduced their rate of loss after this decade. Brazil and Indonesia dominate accounting for almost 40 per cent of net forest loss over the decade of 1990s. Even though Brazil was the top deforesting country by area, the forests in Brazil are so extensive that this represents a loss of 0.4 per cent per year. The forest area in North and Central America remained stable during the past decade.

The forest area in Europe continued to expand although at a slower rate of seven lakh hectare per year during the last decade than in the 1990s with nine lakh hectares per year. Asia lost some six lakh hectares annually during 1990s but gained more than 2.2 million hectares per year during the last decade. The ten countries with the largest net loss per year in the period



1990-2000 AD had a combined net loss of forest area of 7.9 million hectares per year. In the period 2000-2010 AD this was reduced to six million hectares per year as a result of reductions in Indonesia, Sudan, Brazil and Australia (table 1). There were 28 countries and areas which have an estimated net loss of one per cent or more of their forest area per year. The five countries with the largest annual net loss for 2000-2010 AD were Comoros (-9.3 per cent), Togo (-5.1 per cent), Nigeria (-3.7 per cent), Mauritania (-2.7 per cent) and Uganda (-2.6 per cent). The area of other wooded land globally decreased by about 3.1 million hectares per year during 1990-2000 AD and by about 1.9 million hectares per year during the last decade. The area of other wooded land also decreased during the past two decades in Africa, Asia and South America.

COUNTRY	ANNUAL CHANGE 1990-2000		COUNTRY	ANNUAL CHANGE 1990-2000	
	1000 ha/year	%		1000 ha/year	%
Brazil	-2890	-0.51	Brazil	-2642	-0.49
Indonesia	-1914	-1.75	Australia	-562	-0.37
Sudan	-589	-0.85	Indonesia	-498	-0.51
Myanmar	-435	-1.17	Nigeria	-410	-3.67
Nigeria	-410	-2.68	Tanzania	-403	-1.13
Tanzania	-403	-1.02	Zimbabwe	-327	-1.88
Mexico	-354	-0.52	The congo	-311	-0.20
Zimbabwe	-327	-1.58	Myanmar	-310	-0.93
Congo	-311	-0.20	Bolivia	-290	-0.49
Argentina	-293	-0.88	Venezuela	-288	-0.60
Total	-7926	-0.71	total	-6040	-0.53

Table 2. Countries with largest annual net loss of forest area, 1990-2010 (Source: Anon., 2010)





## The causes of deforestation:

As Myers pointed out, "we still have half of all tropical forests that ever existed" (Myers, 1992). The struggle to save the world's rainforests and other forests continues and there is a growing worldwide concern about the issue. In order to save forests, we need to know why they are being destroyed. Distinguishing between the agents of deforestation and its causes is very important in order to understand the major determinants of deforestation. The agents of deforestation are those slash and burn farmers, commercial farmers, ranchers, loggers, firewood collectors, infra-structure developers and others who are cutting down the forests. Causes of deforestation are the forces that motivate the agents to clear the forests. However, most of the existing literature typically distinguishes between two levels of specific factors: direct and indirect causes of deforestation. Direct agents and causes of deforestation, also typically referred to as sources of deforestation, first level or proximate causes (Panayotou, 1990; Barbier *et al.*, 1994; Caviglia, 1999) are relatively easy to identify but the indirect causes which are usually the main drivers of deforestation are the ones that cause most disagreement and the ones that are hardest to quantify (Bhatnagar, 1991; Mather, 1991; Humphreys, 2006; Sands, R. 2005).

Similarly, Pearce and Brown (1994) identified two main forces affecting deforestation.

They are:

- Competition between humans and other species for the remaining ecological niches on land and in coastal regions. This factor is substantially demonstrated by the conversion of forest land to other uses such as agriculture, infrastructure, urban development, industry and others.
- Failure in the working of the economic systems to reflect the true value of the environment. Basically, many of the functions of tropical forests are not marketed and as such are ignored in decision making. Additionally, decisions to convert tropical forests are themselves encouraged by fiscal and other incentives. The former can be regarded as the direct and latter as indirect cause of deforestation.





## Direct causes:

### **1. Expansion of farming land**

About 60 per cent of the clearing of tropical moist forests is for agricultural settlement (Myers, 1994; Anon., 1991) with logging and other reasons like roads, urbanization and Fuelwood accounting for the rest (Anon., 1994b). Tropical forests are one of the last frontiers in the search for subsistence land for the most vulnerable people worldwide (Myers, 1992). Millions of people live on the tropical forest with less than a dollar a day where a third of a billion are estimated to be foreign settlers. However, as the land degrades people are forced to migrate, exploring new forest frontiers increasing deforestation (Wilkie *et al.*, 2000; Amor, 2008; Amor and Pfaff, 2008). Deforestation is proxied by the expansion of agricultural land. This is because agricultural land expansion is generally viewed as the main source of deforestation contributing around 60 per cent of total tropical deforestation. Shifting agriculture also called slash and burn agriculture is the clearing of forested land for raising or growing the crops until the soil is exhausted of nutrients and/or the site is overtaken by weeds and then moving on to clear more forest. It is been often reported as the main agent of deforestation. Smallholder production in deforestation and the growing number of such producers notably shifting cultivators were the main cause of deforestation (Anon., 1990b; c; Dick, 1991; Anon., 1992a; b; Barbier *et al.*, 1993; Ascher, 1993; Dove, 1993;1996;)

### **2. Forest and other plantations**

Plantations are a positive benefit and should assist in reducing the rate of deforestation. The fact that plantations remove the timber pressure on natural forests does not translate eventually into less, but rather into more deforestation. Indeed, it is feared that agricultural expansion which is the main cause of deforestation in the tropics might replace forestry in the remaining natural forests (Anon., 2002; Cossalter and Pye-Smith, 2003; Anon., 2005). The impact of timber plantations could thus turn out to be quite detrimental to tropical forest ecosystems (Kartodihardjo and Supriono, 2000). Tree crops and rubber in particular plays a more important role in deforestation in Indonesia than subsistence-oriented shifting cultivation (Chomitz and Griffiths, 1996).

Unfortunately about one-half of the plantations in the tropics are established on native forest cleared for the purpose. Moreover plantations can promote deforestation by constructing roads that improve access of the shifting cultivators and others to the forest frontier.

### **3. Logging and fuel wood**

Logging does not necessarily cause deforestation. However, logging can seriously degrade forests (Putz *et al.*, 2001). Logging in Southeast Asia is more intensive and can be quite destructive. However, logging provides access roads to follow-on settlers and log scales can help finance the cost of



clearing remaining trees and preparing land for planting of crops or pasture. Logging thus catalyzes deforestation (Chomitz *et al.*, 2007). Fuelwood gathering is often concentrated in tropical dry forests and degraded forest areas (Repetto, 1988; 1990; Rowe *et al.*, 1992; Anon., 1994a). Fuelwood is not usually the major cause of deforestation in the humid tropics although it can be in some populated regions with reduced forest area such as in the Philippines, Thailand and parts of Central America. Fuelwood gathering was considered to be the main cause of deforestation and forest degradation in El Salvador (Repetto, 1990). In the drier areas of tropics, Fuelwood gathering can be a major cause of deforestation and degradation.

#### **4. Overgrazing**

Overgrazing is more common in drier areas of the tropics where pastures degraded by overgrazing are subject to soil erosion. Clear cutting and overgrazing have turned large areas of Qinghai province in China into a desert. Overgrazing are causing large areas of grasslands north of Beijing and in Inner Mongolia and Qinghai province to turn into a desert. One man who lived in a village on the eastern edge of the Qinghai-Tibet plateau that was being swallowed up by sand told the New York Times, "The pasture here used to be so green and rich. But now the grass is disappearing and the sand is coming." Huge flocks of sheep and goats strip the land of vegetation. In Xillinggol Prefecture in Inner Mongolia, for example, the livestock population increased from 2 million in 1977 to 18 million in 2000, turning one third of the grassland area to desert. Unless something is done the entire prefecture could be uninhabitable by 2020. Overgrazing is exacerbated by sociological phenomena called "the tragedy of the common." People share land but raises animals for themselves and try to enrich them by rising as many as they can. This leads to more animals than the land can support. Grassland in Qinghai that can support 3.7 million sheep had 5.5 million sheep in 1997. Animals remove the vegetation and winds finished the job by blowing away the top soil, transforming grasslands into desert. When a herder was asked why he was grazing goats next to a sign that said "Protect vegetation, no grazing,"

#### **5. Urbanization/industrialization and infra-structure**

Expanding cities and towns require land to establish the infrastructures necessary to support growing population which is done by clearing the forests (Mather, 1991; Sands, 2005). Tropical forests are a major target of infrastructure developments for oil exploitation, logging concessions or hydropower dam construction which inevitably conveys the expansion of the road network and the construction of roads in pristine areas (Kaimowitz and Angelsen, 1998). The construction of roads, railways, bridges, and airports opens up the land to development and brings increasing numbers of people to the forest frontier. Whether supported or not by the governmental programmes, these settlers have usually colonized the forest by using logging



trails or new roads to access the forest for subsistence land (Wilkie *et al.*, 2000; Amor, 2008; Amor and Pfaff, 2008). (Wilkie *et al.*, 2000; Amor, 2008; Amor and Pfaff, 2008). The development of these infrastructure projects are of worldwide concern, since tropical forest clearing accounts for roughly 20 percent of anthropogenic carbon emissions destroying globally significant carbon sinks (Anon., 2001c) and around 21 per cent of tropical forests have been lost worldwide since 1980 (Bawa *et al.*, 2004).

## 6. Wars and role of the military

It is well established that military operations caused deforestation during the Vietnam War and elsewhere (Mather, 1991; Sands, 2005). More recently, linkages have been documented between the civil war in Myanmar and the timber trade between Myanmar and Thailand. Myanmar regime sells timber to the Thais to finance its civil war against the Karen hill tribe. Forest destruction in El Salvador has resulted from war. Apart from military involvements in wars, the role of military in deforestation has been documented in Southeast Asia and South America (Mather, 1991; Sands, 2005). The authors also observed that role of powerful military in Brazilian politics are a major cause of Amazonian forest destruction.

## 7. Tourism

National parks and sanctuaries beyond doubt protect the forests, but uncautioned and improper opening of these areas to the public for tourism is damaging. Unfortunately, the national governments of tropical and sub-tropical countries adopt tourism for easy way of making money sacrificing the stringent management strategies. Further, many companies and resorts who advertise themselves as eco-tourist establishments are in fact exploiting the forests for profit. In Cape Tribulation, Australia, for example, the rain forest is being threatened by excessive tourism (Colchester and Lohmann, 1993). Similarly, in the Terai Duars of eastern India foothill Himalaya, eco-tourism is encouraged and we fear this is being done without developing adequate management plans. For instance, the Chilapatta Reserve Forest in this area is opened for eco-tourism for its ancient ruins deep in the forest and a tree species *Myristica longifolia* that exudes a blood like sap when injured. The site has become a popular eco-tourist destination because of the ruins and for this blood exuding tree. In the whole forest only eight individuals were found but two of the trees in the near vicinity of the ruins completely dried away due to repeated injuries caused to the plants by the curious tourists (Shukla, 2010). In fact, in the name of eco-tourism, infra-structure development is taking place mostly by the private players in these wilderness areas which are further detrimental in terms of attracting peoples other than tourists also, causing deforestation especially deep in the forest.





## Indirect causes:

The World Rainforest Movement's 'Emergency Call to Action for the forests and their Peoples' asserts that "deforestation is the inevitable result of the current social and economic policies being carried out in the name of development" (Anon., 1990d). It is in the name of development that irrational and unscrupulous logging, cash crops, cattle ranching, large dams, colonisation schemes, the dispossession of peasants and indigenous peoples and promotion of tourism is carried out. Harrison Ngau, an indigenous tribesman from Sarawak, Malaysia and winner of the Goldman Environment Award in 1990 puts the cause of tropical deforestation like this, "the roots of the problem of deforestation and waste of resources are located in the industrialized countries where most of our resources such as tropical timber end up. The rich nations with one quarter of the world's population consume four fifth of the world's resources. It is the throw away culture of the industrialized countries now advertised in and forced on to the Third World countries that is leading to the throwing away of the world. Such so-called progress leads to destruction and despair" (Anon., 1990d)

### **1. Colonialism**

Erstwhile colonies of the colonial powers like Britain, France, Spain or Portugal are now the Third World Countries or the developing nations mostly have the tropical rainforests except Australia and Hawaii were exploited for their natural resources and their indigenous people's rights destroyed by the colonial powers. All these countries have indigenous populations who had their own system of land management and/or ownership in place for thousands of years before the intervention of colonists from rich industrialized nations. Colonialism turned previously self-sufficient economies into zones of agriculture export production. This process continues even today in different form of exploitation and the situation is worsening (Colchester and Lohmann, 1993).

### **2. Exploitation by industrialized countries**

Wealthy countries or the erstwhile colonial powers having deficit of their own natural resources are mainly sustaining on the resources of the financially poorer countries those are generally natural resource rich. Twenty per cent of the world's population is using 80 percent of the world's resources. Unfortunately also the governments of these poor resource rich countries had generally adopted the same growth-syndrome as their western neighbours or their erstwhile colonial master giving emphasis on maximizing exports, revenues and exploiting their rich natural resources unsustainably for short-term gains. The problem is further worsened by the low price World exports being realized in the international market (Colchester and Lohmann, 1993).



### 3. Overpopulation and poverty

The role of population in deforestation is a contentious issue (Mather, 1991; Colchester and Lohmann, 1993; Cropper and Griffiths, 1994; Ehrhardt-Martinez, 1998; Sands, 2005). The impact of population density on deforestation has been a subject of controversy. Poverty and overpopulation are believed to be the main causes of forest loss according to the international agencies such as FAO and intergovernmental bodies. It is generally believed by these organizations that they can solve the problem by encouraging development and trying to reduce population growth. Conversely, the World Rainforest Movement and many other NGOs hold unrestrained development and the excessive consumption habits of rich industrialized countries directly responsible for most forest loss. However there is good evidence that rapid population growth is a major indirect and over-arching cause of deforestation. More people require more food and space which requires more land for agriculture and habitation. This in turn results in more clearing of forests. Arguably increasing population is the biggest challenge of all to achieve sustainable management of human life support systems and controlling population growth is perhaps the best single thing that can be done to promote sustainability. Overpopulation is not a problem exclusive to Third World countries. An individual in an industrialized country is likely to consume in the order of sixty times as much of the world's resources as a person in a poor country. The growing population in rich industrialized nations are therefore responsible for much of the exploitation of the earth and there is a clear link between the overconsumption in rich countries and deforestation in the tropics (Colchester and Lohmann, 1993).

### 4. Transmigration and colonisation schemes

Transmigration of people to the forest frontier whether forced or voluntary due to development policy or dislocation from war is the major indirect cause of deforestation (Mather, 1991; Colchester and Lohmann, 1993; Sands, 2005). Moreover, governments and international aid agencies earlier believed that by encouraging colonisation and transmigration schemes into rainforest areas could alleviate poverty of the areas in the financially poorer countries. Such schemes have miserably failed but hurted the indigenous people and the environment. In Indonesia, the *Transmigrasi* Program of 1974 had caused annual deforestation of two lakh hectares (Colchester and Lohmann, 1993). Dispossessed and landless people bring increased population pressure to the forest frontier. Further, new migrants in the area increase demand for food and other agricultural products which can induce the farmers at the forest frontier to increase their agricultural production by expanding agricultural land by clearing the forests (Levang, 2002). Moreover, the new migrants may not care for conservation of the forests in their new home which further accelerates deforestation of the area.





## **5. Land rights, land tenure and inequitable land distribution and resources**

Cultivators at the forest frontier often do not hold titles to land (absence of property rights) and are displaced by others who gain tenure over the land they occupy (Mather, 1991; Deacon, 1999; Sands, 2005). This means they have to clear more forest to survive. Poorly defined tenure is generally bad for people and forests (Chomitz *et al.*, 2007). In many countries government have nominal control of forests but are too weak to effectively regulate their use. This can lead to a tragedy of the commons where forest resources are degraded. In frontier areas deforestation is a common practice and legalized way of declaring claim to land and securing tenure (Schneider, 1995).

## **6. Economic causes - development/land conversion value, fiscal policies, markets and consumerism**

The relationship between development and deforestation is complex and dynamic (Humphreys, 2006; Mather, 1991; Sands, 2005). One point of view is that development will increase land productivity and thereby reduce the need to clear forests to meet food requirements. Another is that development will produce further capital and incentive to expand and clear more forest. The latter may be the case when food demand may not be satisfied owing to a continuing export market and rising internal population with rising levels of consumption. Profits from deforestation vary from less than a dollar to thousand dollars per hectare depending on location, technologies and land use systems It is also argued by the workers that richer farmers were better able to finance deforestation while a poor farmer can't afford to clear much forest. Conversely, through transfers, stronger credit markets and better opportunities for off-season employment can increase income as well as deforestation by small land holders. Moreover, land offering higher rents encourage quicker deforestation. Higher prices for crops and lower prices for farm inputs also spur faster deforestation (Chomitz *et al.*, 2007). Wage increase can also stimulate deforestation (Barbier and Cox, 2004). Technological innovations make farming more profitable either prompting the expansion of farms into forest or attract new farmers to forest frontiers (Angelsen and Kaimowitz, 2001; Angelsen, 2006). Even when the increase in commodity price is only temporary, it tends to raise expectation about future prices, increasing the expected probability from land clearance and conversion to agriculture (Angelsen, 1995; Sunderlin *et al.*, 2000). Many development policies have failed because they have supported either wittingly or unwittingly the development of those who already have land, power, influence and political clout. This further alienates the rural poor and puts the pressure back on the forests.



Poor farm households or commercial loggers have little incentive to care about the environmental effects of their actions. Such unaccounted costs give rise to economic failures such as local market failures, policy failures and global appropriation failures (Panayotou, 1990). Market fails due to unregulated market economy which does not produce an optimal outcome. Prices generated by such market does not reflect the true social costs and benefits from resource use and convey misleading information about resource scarcity, providing inadequate incentives for management, efficient utilization and enhancement of natural resources. For instance, lack of respect of traditional land rights make property rights to forest land uncertain and could encourage short-term exploitation of forests rather than long-term sustainable use.

## **7 . Undervaluing the forest**

Forests gain value only when they are cleared for obtaining legal title through 'improvement' (Mather, 1991; Sands, 2005). The extraction of non-wood forest products has been suggested as a way to add value to the forest but it is not economical when compared to clearing options. If some means could be devised where those who benefit from the environmental values could pay the forest owners or agents of deforestation for them, then the option to not clear would become more competitive. Alternatively, if the national governments value the environmental benefits, it could apply a tax or disincentives to clear. However, even though maintenance of the environmental services is essential for sustained economic development, deforesting nations usually have more immediate goals and are unprepared to take this step.

## **8. Corruption and political cause**

The FAO identified forest crime and corruption as one of the main causes of deforestation in its 2001 report and warned that immediate attention has to be given to illegal activities and corruption in the world's forests in many countries (Anon., 2001b). Illegal forest practices may include the approval of illegal contracts with private enterprises by forestry officers, illegal sale of harvesting permits, under-declaring volumes cut in public forest, underpricing of wood in concessions, harvesting of protected trees by commercial corporations, smuggling of forest products across borders and allowing illegal logging, processing forestraw materials without a license (Contreras-Hermosilla, 2000; 2001).



## Effects of deforestation:

### **1. Climate change**

It is essential to distinguish between microclimates, regional climate and global climate while assessing the effects of forest on climate (Gupta *et al.*, 2005) especially the effect of tropical deforestation on climate (Dickinson, 1981). Deforestation can change the global change of energy not only through the micrometeorological processes but also by increasing the concentration of carbon dioxide in the atmosphere (Pinker, 1980) because carbon dioxide absorbs thermal infrared radiation in the atmosphere. Moreover deforestation can lead to increase in the albedo of the land surface and hence affects the radiation budget of the region (Charney, 1975; Rowntree, 1988; Gupta *et al.*, 2005). Deforestation affects wind flows, water vapour flows and absorption of solar energy thus clearly influencing local and global climate (Chomitz *et al.*, 2007). Deforestation on lowland plains moves cloud formation and rainfall to higher elevations (Lawton *et al.*, 2001). Deforestation disrupts normal weather patterns creating hotter and drier weather thus increasing drought and desertification, crop failures, melting of the polar ice caps, coastal flooding and displacement of major vegetation regimes. In the dry forest zones, land degradation has become an increasingly serious problem resulting in extreme cases in desertification (Dregne, 1983). Desertification is the consequence of extremes in climatic variation and unsustainable land use practices including overcutting of forest cover (Anon., 1994b).

### **2. Water and soil resources loss and flooding**

Deforestation also disrupts the global water cycle (Bruijnzeel, 2004). With removal of part of the forest, the area cannot hold as much water creating a drier climate. Water resources affected by deforestation include drinking water, fisheries and aquatic habitats, flood/drought control, waterways and dams affected by siltation, less appealing water related recreation, and damage to crops and irrigation systems from erosion and turbidity (Anon., 1994a; Bruijnzeel *et al.*, 2005). Urban water protection is potentially one of the most important services that forest provides (Chomitz *et al.*, 2007). Filtering and treating water is expensive. Forests can reduce the costs of doing so either actively by filtering runoff or passively by substituting for housing or farms that generate runoff (Dudley and Stolton, 2003). Deforestation can also result into watersheds that are no longer able to sustain and regulate water flows from rivers and streams. Once they are gone, too much water can result into downstream flooding, many of which have caused disasters in many parts of the world. This downstream flow causes soil erosion thus also silting of water courses, lakes and dams. Deforestation increases flooding mainly for



two reasons. First, with a smaller 'tree fountain' effect, soils are more likely to be fully saturated with water. The 'sponge' fills up earlier in wet season, causing additional precipitation to run off and increasing flood risk. Second, deforestation often results in soil compaction unable to absorb rain. Locally, this causes a faster response of stream flows to rainfall and thus potential flash flooding (Chomitz *et al.*,2007). Moreover deforestation also decrease dry season flows.

### **3. Decreased biodiversity, habitat loss and conflicts**

Forests especially those in the tropics serve as storehouses of biodiversity and consequently deforestation, fragmentation and degradation destroys the biodiversity as a whole and habitat for migratory species including the endangered ones, some of which have still to be catalogued. Tropical forests support about two thirds of all known species and contain 65 per cent of the world's 10, 000 endangered species (Myers and Mittermeier, 2000). Retaining the biodiversity of the forested areas is like retaining a form of capital, until more research can establish the relative importance of various plants and animal species (Anon., 1994a). According to the World Health Organization, about 80 per cent of the world's population relies for primary health care at least partially on traditional medicine. The biodiversity loss and associated large changes in forest cover could trigger abrupt, irreversible and harmful changes. These include regional climate change including feedback effects that could theoretically shift rainforests to savannas and the emergence of new pathogens as the growing trade in bushmeat increases contact between humans and animals (Anon., 2005).

### **4 .Social consequences**

Deforestation, in other words, is an expression of social injustice (Colchester and Lohmann,1993). The social consequences of deforestation are many, often with devastating long-term impacts. For indigenous communities, the arrival of civilization usually means the destruction/change of their traditional life-style and the breakdown of their social institutions mostly with their displacement from their ancestral area. The intrusion of outsiders destroys traditional life styles, customs and religious beliefs which intensifies with infra-structure development like construction of roads which results into frontier expansion often with social and land conflicts (Schmink and Wood, 1992). The most immediate social impact of deforestation occurs at the local level with the loss of ecological services provided by the forests. Forests afford humans valuable services such as erosion prevention, flood control, water treatment, fisheries protection and pollination functions that are particularly important to the world's poorest people who rely on natural resources for their everyday survival. By destroying the forests we risk our own quality of life, gamble with the stability of climate and local weather, threaten the existence of other species and undermine the valuable services provided by biological diversity.





## **5. Strategies to reduce deforestation**

Ways to reducing deforestation must go hand in hand with improving the welfare of cultivators at the forest frontier. Any policy that does without the other is unacceptable. There are no general solutions and strategies since these will vary with region and will change over time. All strategies require cooperation and goodwill. Effective implementation is essential including stakeholder participation, development of management plans, monitoring and enforcement. The strategies should be such that on one hand they should recognize the critical roles of national, state and municipal governments and on other hand empower the civil society and the private sector to take a pro-active role in reducing deforestation, often working in conjunction with government.

### **1. Reduce population growth and increase per capita incomes**

Reduction of population growth is pivotal in reducing deforestation in the developing countries. Consequent of reduced population, increase in per capita income will occur as a consequence of increased incomes and literacy rates which will reduce pressure on the remaining forests for new human settlement and land use change.

### **2. Reducing emissions from deforestation and forest degradation**

Many international organizations including the United Nations and the World Bank have begun to develop programmes to curb deforestation mainly through Reducing Emissions from Deforestation and Forest Degradation (REDD) which use direct monetary or other incentives to encourage developing countries to limit and/or roll back deforestation. Significant work is underway on tools for use in monitoring developing country adherence to their agreed REDDS targets (Chomitz *et al.*, 2007).

### **3. Increase the area and standard of management of protected areas**

The provision of protected areas is fundamental in any attempt to conserve biodiversity (Myers, 1994; Myers and Mittermeier, 2000; Nepstad *et al.*, 2006). Protected areas alone, however, are not sufficient to conserve biodiversity. They should be considered alongside, and as part of, a wider strategy to conserve biodiversity. The minimum area of forest to be protected is generally considered to be 10 per cent of total forest area. It is reported that 12.4 per cent of the world's forest are located within protected areas. Tropical and temperate forests have the highest proportions of their forests in protected areas and boreal forests have the least. The Americas have the greatest proportion while Europe the least proportion of protected areas (Anon., 2010).

### **4. Promote sustainable management**

In order to promote sustainable forest management, it must be sustainable ecologically, economically and socially. Achieving ecological sustainability means that the ecological values of the forest must not be degraded and if possible they should be improved. This means that silviculture and management should not reduce biodiversity, soil erosion should be controlled, soil fertility should not be lost, water



quality on and off site should be maintained and that forest health and vitality should be safeguarded. However, management for environmental services alone is not economically and socially sustainable.

### **5. Strengthen government and non-government institutions and policies**

Strong and stable government is essential to slow down the rate of deforestation. FAO (2010) considered that half of the current tropical deforestation could be stopped if the governments of deforesting countries were determined to do so (Anon., 2010). Environmental NGO's contribution towards conservation management has been enormous. They have the advantage over government organizations and large international organizations because they are not constrained by government to government bureaucracy and inertia. They are better equipped to bypass corruption and they are very effective at getting to the people at the frontier who are in most need.

### **6. Participatory forest management and rights**

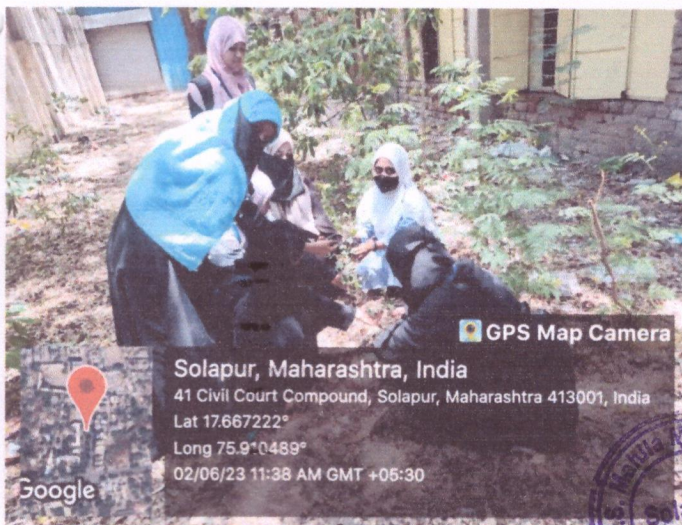
In frontier areas much of the forest is nominally owned by the state, but the reach of government and the rule of law are weak and property rights insecure. In order for forest management to succeed at the forest frontier, all parties with an interest in the fate of the forest should be communally involved in planning, management and profit sharing. But forest ownership and management rights are almost always restricted and restrictions on ownership and use define alternative tenure systems. The balance of rights can be tilted strongly toward society in the form of publicly owned strictly protected areas. State ownership and management can be retained but with sustainable timber extraction allowed. As of now much of the world's tropical forest are state owned but community participation in forest ownership and management needs to be encouraged with restrictions on extraction and conversion (Chomitz *et al.*, 2007). Land reform is essential in order to address the problem deforestation. However an enduring shift in favour of the peasants is also needed for such reforms to endure (Colchester and Lohmann, 1993). Moreover the rights of indigenous forest dwellers and others who depend on intact forests must be upheld. Therefore, the recognition of traditional laws of the indigenous peoples as indigenous rights will address the conflicts between customary and statutory laws and regulations related to forest ownership and natural resource use while ensuring conservation of forest resources by the indigenous communities. Central to this is the right to 'Prior Informed Consent', ensuring the indigenous communities to know what they are agreeing to. A means must be found to reconcile conservation and development by involving local/indigenous populations more closely in the decision-making process and by taking the interactions between 'societies' and forest resource more fully into account (Chakravarty *et al.*, 2008).





## Save trees

Trees should be saved as they provide us with food to live. Trees and deep forests are the sinks of carbon dioxide – a green house gas and the producers of oxygen without which life on earth can't sustain . trees give us shelter. Most of our home décor and furniture are made of tree barks. Trees also source of fuel . trees gives us medicines .trees give us rubber, clothes, and many more which the humans are dependent on.





## Conclusion

Economic globalization combined with the looming global land scarcity increases the complexity of future pathways of land use change. In a more interconnected world, agricultural intensification may cause more rather than less cropland expansion. The apparent tradeoff between forest and agriculture can be minimized through spatial management and the use of degraded or low competition lands (Lambin and Meyfroidt, 2011). This can be further addressed by community based forest management which builds on political goodwill and strong community institutions. New challenges from climate change require urgent action to explore and protect the local value of forests for livelihood even more. This is particularly true in the case of emerging activities undertaken as part of REDD+ activities where broad forest governance are aligned with it along with people's participation ensuring livelihood benefits of the people dependant on forests. These renewed activities will safeguard traditional ways of life and the environmentally important forest ecosystems of the world.





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**P.A.H. SOLAPUR UNIVERSITY,  
SOLAPUR**



**UNION EDUCATION SOCIETY'S  
MAHILA MAHAVIDYALAYA**

SIDDESHWAR PETH, SOLAPUR. 413001

**A PROJECT REPORT ON  
AIR POLLUTION IN SOLAPUR CITY**

**UNDER THE GUIDENCE**

**MR. NIKHIL JALINDAR MORE, DEPUTY OF REGIONAL  
OFFICER SOLAPUR.**

**SUBMITTED BY**

Miss: Bagwan Tramnaz Md. Afzal .

**Under the guidance of**

**Dr. Z.A. Nayab**

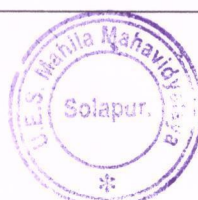
**Miss. Patel Farzana**



**YEAR OF SUBMISSION  
2022-2023**

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PAH SOLAPUR UNIVERSITY, SOLAPUR

UNION EDUCATION SOCIETY'S

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ENVIRONMENTAL STUDIES

CERTIFICATE

ROLL NO. 2007

DATE- 27/05/2023

THIS IS TO CERTIFY THAT MISS:

Bagwan Iramnaz Mohammed Afzal.

SATISFACTORILY CARRIED OUT THE REQUIRED FIELD/PROJECT WORK OF THE SOLAPUR UNIVERSITY, SOLAPUR. FOR THE BA-II/B.COM-II COURSE IN ENVIRONMENTAL STUDIES AND THIS FIELD/ PROJECT WORK REPORT REPRESENTS HIS /HER CONFIDE WORK REPORT IN THE YEAR 2022 TO 2023.

  
Z.A. NAYAB

MINER

DR. F.M.SHAIKH





## DECLARATION OF STUFENT

I HEREBY DECLARE THAT. THE PROJECT ENTITLED IS AN  
OUTCOME OF MY OWN EFFORTS UNDER THE GUIDANCE OF  
PROF.DR. Z.A .NAYAB

THE PROJECT IS SUBMITTED TO THE UNIVERSITY OF THE  
SOLAPUR. FOR THE PARTIAL FULFILLMENT OF THE BACHELOR  
OF ARTS

ADMINISTRATION EXAMINATION 2022-23. I ALSO DECLARE  
THAT THIS PROJECT REPORT HAS NOT BEEN PREVIOUSLY  
SUBMITTED  
TO ANY OTHER UNIVERSITY.

Bagwan

NAME OF STUDENT: Bagwan Irramnaz Md. Afzal.

DATE: 27 /05 /2023

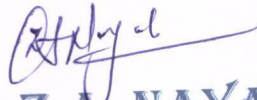




## DECLARATION OF THE SUPERVISOR

THE UNDERSIGNED SUPERVISOR FOR THE ENVIRONMENTAL SCIENCE PROJECT HEREBY DECLARE THAT THE PROJECT OF....

OF B.A. II YEAR HAS CARRIED OUT THE RESEARCH PROJECT ENTITLED 'AIR POLLUTION' IN MR. NIKHIL JALINDAR MORE, DEPUTY OF REGIONAL OFFICER SAAT RASTA SOLAPUR, SOLAPUR IS FOR THE PARTIAL FULFILLMENT OF THE CERTIFICATE COURSE IN ENVIRONMENTAL SCIENCE PROPOSED BY SOLAPUR UNIVERSITY, SOLAPUR IS THE ORIGINAL WORK AND NOT SUBMITTED ELSEWHERE FOR THE PUBLICATION.

  
DR. Z.A. NAYAB

PLACE-SOLAPUR

DATE - 27/05/2022-23



## ACKNOWLEDGEMENT

We are feel proud to present our field visit project in Environmental Studies on the "AIR POLLUTION ". We create "Environmental Awareness on Air Pollution" The subject Environmental Studies is made compulsory at B.A.II year. The task of completing this project successful with the great efforts from several individuals. This project would not have been feasible without proper rigorous guidance of environment teachers Dr. Z.A. Nayab & Miss. Farzana Patel. Who guided me throughout this project in every possible way. We would like to show our gratitude to Mr. Nikhil Jalindar More, Deputy of Regional Officer solapur for giving us a good information about Air Pollution and how to control it. We are also thankful to our college principal Dr.F.M. Shaikh. For extending their Co-operation and support in making this task easy.

Then we are like to thanks our parents and friends who have helped me with their valuable suggestion and guidance has been very helpful in various phase of the completion of the project.

At last, we are end up by thanking all who helped me in finalizing the project within the limited time frame.





## INTRODUCTION OF POLLUTION

Pollution has become the first enemy of the mankind. Industrial revolution of 19th century led to environmental disaster. The whole world is now more afraid of pollution rather than nuclear blast. Technological advancement has brought revolutionary changes in life style and national economy with overwhelming power over nature. The protection of environment has become a major issue around the global for the well being of the people and economic development.

Types of pollution

- 1) Air pollution
- 2) Water pollution
- 3) Noise pollution

## INTRODUCTION OF AIR POLLUTION

Air is essential for life it self, without it we could survive only a few minutes.

It constitutes immediate physical environment of living organisms. The atmosphere is layered in to four distinct which are: Troposphere, stratosphere, mesosphere, and thermosphere.



# DATA OF AIR POLLUTION IN SOLAPUR CITY

Solapur	WIT Campus	Saat Rasta	Mahatma Phule Vegetable Market, Near Fire Brigade Office, Barshi Nagar Parishad - 413 401	Barbole Shopping Centre, Pimpalekar Chowk - 413 401	Ujani Jalshuddikaran Kendra, Gadegaon Road - 413 401	Rupabhawani Chowk, Solapur - 413 255	Indradhanu (Backside), Degaon Road - 413 255
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Air Quality Stations in Solapur

## Ambient Air Quality Monitored at Solapur







**Location :** Municipal Corporation Premises

**Program Name :** CAAQMS

**Frequency:** Continuous Monitoring

**Type :** Residential

**Status:** In operation

AQI	Quality classification	Remarks	Colour code
0-50	Minimal Impact	Good	
51-100	Minor breathing discomfort to sensitive people	Satisfactory	
101-200	Breathing discomfort to the people with lung, heart disease, children and older adults	Moderate	
201-300	Breathing discomfort to people on prolonged exposure	Poor	
301-400	Respiratory illness to the people on prolonged exposure	Very Poor	
>401	Respiratory effects even on healthy people	Severe	





Sr.No.	Date	SO2 µg/m <sup>3</sup>	NOx µg/m <sup>3</sup>	RSPM µg/m <sup>3</sup>	AQI					
<b>Standards</b>		80.00	80.00	100.00						
<b>April</b>										
1	04-04-2023	47	56	138	125					
2	05-04-2023	51	56	183	155					
3	06-04-2023	24	33	100	100					
4	07-04-2023	17	30	78	78					
5	08-04-2023	29	35	106	104					
6	10-04-2023	36	41	115	110					
7	11-04-2023	33	43	121	114					
8	12-04-2023	37	41	117	111					
9	13-04-2023	37	33	92	92					
10	14-04-2023	22	23	108	105					
11	17-04-2023	37	48	106	104					
12	18-04-2023	32	50	113	109					
13	19-04-2023	34	49	115	110					
14	20-04-2023	38	45	131	121					
15	21-04-2023	26	42	118	112					
16	22-04-2023	28	45	89	89					
17	23-04-2023	31	52	112	108					
18	24-04-2023	27	38	105	103					
19	25-04-2023	33	39	123	115					
20	26-04-2023	28	32	130	120					
21	27-04-2023	30	34	123	115					
22	28-04-2023	24	34	114	109					
23	29-04-2023	18	25	105	103					
24	30-04-2023	23	49	103	102					
<b>Total</b>		<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>
24		17	51	30.92	23	56	40.54	78	183	114.38



**Ambient Air Quality Monitored at WIT Campus**

**Location :** WIT Campus Ashok Chawk ,Solapur

**Type :** Residential

**Program Name :** NAMP

**Status:** In operation

**Frequency:** Two days in a week

AQI	Quality classification	Remarks	Colour code
0-50	Minimal Impact	Good	
51-100	Minor breathing discomfort to sensitive people	Satisfactory	
101-200	Breathing discomfort to the people with lung, heart disease, children and older adults	Moderate	
201-300	Breathing discomfort to people on prolonged exposure	Poor	
301-400	Respiratory illness to the people on prolonged exposure	Very Poor	
>401	Respiratory effects even on healthy people	Severe	

Sr.No.	Date	SO2 µg/m <sup>3</sup>			NOx µg/m <sup>3</sup>			RSPM µg/m <sup>3</sup>			SPM µg/m <sup>3</sup>			AQI
<b>Standards</b>		80.00			80.00			100.00			---			
<b>April</b>														
1	06-04-2023	10			14			75			95			75
2	10-04-2023	9			12			80			75			80
3	13-04-2023	10			12			70			85			70
4	17-04-2023	9			14			75			65			75
5	20-04-2023	10			11			80			85			80
6	24-04-2023	11			12			75			80			75
7	27-04-2023	9			10			80			90			80
<b>Total</b>		<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>	
7		9	11	9.71	10	14	12.14	70	80	76.43	65	95	82.14	

Concentration of Air Pollutants





**Ambient Air Quality Monitored at Saat Rasta**

**Location :** Saat Rasta Opp. ST Bus stand, Chitale Clinic Solapur

**Type :** Residential

**Program Name :** NAMP

**Status:** In operation

**Frequency:** Two days in a week

AQI	Quality classification	Remarks	Colour code
0-50	Minimal Impact	Good	
51-100	Minor breathing discomfort to sensitive people	Satisfactory	
101-200	Breathing discomfort to the people with lung, heart disease, children and older adults	Moderate	
201-300	Breathing discomfort to people on prolonged exposure	Poor	
301-400	Respiratory illness to the people on prolonged exposure	Very Poor	
>401	Respiratory effects even on healthy people	Severe	

Sr.No.	Date	SO <sub>2</sub> µg/m <sup>3</sup>			NO <sub>x</sub> µg/m <sup>3</sup>			RSPM µg/m <sup>3</sup>			SPM µg/m <sup>3</sup>			AQI
<b>Standards</b>		80.00			80.00			100.00			---			
<b>April</b>														
1	04-04-2023	13			15			90			95			90
2	07-04-2023	10			12			70			80			70
3	11-04-2023	9			11			80			85			80
4	14-04-2023	10			12			75			80			75
5	18-04-2023	8			12			75			80			75
6	21-04-2023	10			12			85			90			85
7	25-04-2023	9			12			75			80			75
8	28-04-2023	7			9			75			90			75
<b>October</b>														
9	19-10-2108	15			33			59			177			59
<b>Total</b>		<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>	
		7	15	10.11	9	33	14.22	59	90	76.00	80	177	95.22	



**Ambient Air Quality Monitored at Rupabhawani Chowk, Solapur - 413 255**

**Location :** Solapur

**Type :** Commercial

**Program Name :** SAMP

**Status:** Inoperation

**Frequency:** Two times in a week

AQI	Quality classification	Remarks	Colour code
0-50	Minimal Impact	Good	
51-100	Minor breathing discomfort to sensitive people	Satisfactory	
101-200	Breathing discomfort to the people with lung, heart disease, children and older adults	Moderate	
201-300	Breathing discomfort to people on prolonged exposure	Poor	
301-400	Respiratory illness to the people on prolonged exposure	Very Poor	
>401	Respiratory effects even on healthy people	Severe	

Sr.No.	Date	SO <sub>2</sub> µg/m <sup>3</sup>			NO <sub>x</sub> µg/m <sup>3</sup>			RSPM µg/m <sup>3</sup>			SPM µg/m <sup>3</sup>			AQI
<b>Standards</b>		80.00			80.00			100.00			---			
<b>April</b>														
1	04-04-2023	16			27			80			144			80
2	06-04-2023	17			29			78			142			78
3	11-04-2023	17			28			84			143			84
4	13-04-2023	17			28			79			149			79
5	18-04-2023	17			29			79			147			79
6	20-04-2023	18			29			83			143			83
7	25-04-2023	18			30			85			148			85
8	27-04-2023	18			30			86			141			86
<b>Total</b>		<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>	
8		16	18	17.25	27	30	28.75	78	86	81.75	141	149	144.62	



**Ambient Air Quality Monitored at Indradhanu (Backside), Degaon Road-413 255**

**Location :** Solapur

**Type :** Residential

**Program Name :** SAMP

**Status:** Inoperation

**Frequency:** Two times in a week

AQI	Quality classification	Remarks	Colour code
0-50	Minimal Impact	Good	
51-100	Minor breathing discomfort to sensitive people	Satisfactory	
101-200	Breathing discomfort to the people with lung, heart disease, children and older adults	Moderate	
201-300	Breathing discomfort to people on prolonged exposure	Poor	
301-400	Respiratory illness to the people on prolonged exposure	Very Poor	
>401	Respiratory effects even on healthy people	Severe	

Sr.No.	Date	SO <sub>2</sub> µg/m <sup>3</sup>			NO <sub>x</sub> µg/m <sup>3</sup>			RSPM µg/m <sup>3</sup>			SPM µg/m <sup>3</sup>			AQI
<b>Standards</b>		80.00			80.00			100.00			---			
<b>April</b>														
1	05-04-2023	16			29			77			142			77
2	10-04-2023	18			30			81			144			81
3	12-04-2023	17			30			83			150			83
4	17-04-2023	17			28			78			146			78
5	19-04-2023	17			29			79			138			79
6	24-04-2023	17			31			81			142			81
7	26-04-2023	17			26			79			143			79
<b>Total</b>		<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>	
7		16	18	17.00	26	31	29.00	77	83	79.71	138	150	143.57	

Concentration of Air Pollutants







**Solapur, Maharashtra, भारत**

plot no 4 , bali building, Saat Rasta, below यूनीक अकादमी, Navi Peth, Solapur, Maharashtra 413003, भारत

Lat 17.656029°

Long 75.906433°

01/06/23 12:12 PM GMT +05:30

GPS Map Camera



## SAAT RASTA BELOW UNIQ ACCADEMY , NAVI PETH , SPOLAPUR, MAHARASHTRA 413003



**Solapur, Maharashtra, भारत**

plot no 4 , bali building, Saat Rasta, below अकादमी, Navi Peth, Solapur, Maharashtra 413003, भारत

Lat 17.65608°

Long 75.906597°

01/06/23 12:00 PM GMT +05:30

GPS Map Camera



**Solapur, Maharashtra, भारत**

plot no 4 , bali building, Saat Rasta, below यूनीक अकादमी, Navi Peth, Solapur, Maharashtra 413003, भारत

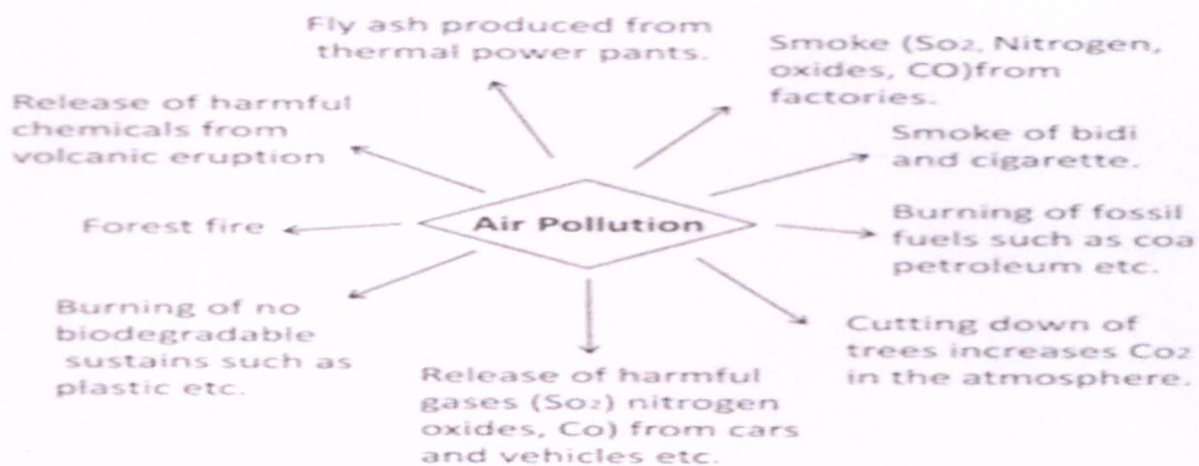
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GPS Map Camera





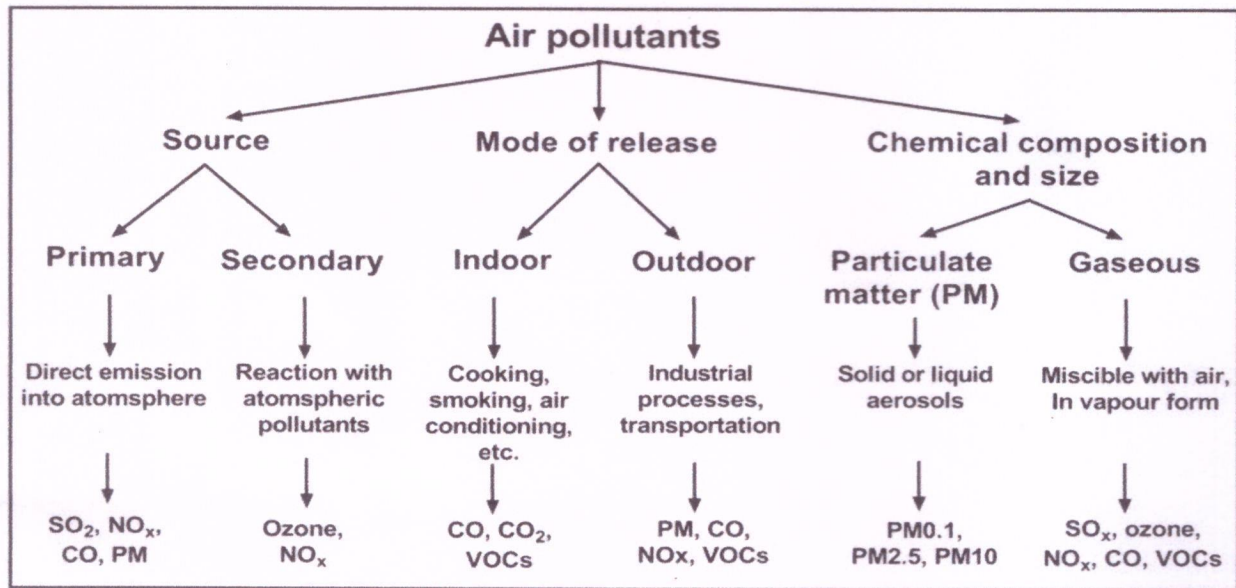
## OBJECTIVES OF AIR POLLUTION

- 1) .To study the air pollution in solapur city .
- 2) .Air equality in solapur city.
- 3) .AQI Solapur WIT sat rasta ujni dam
- 4) Describe the five-layered structure of the atmosphere and the % composition of gases within it.
- 5) List and describe the six major types of air pollutants, distinguishing between primary and secondary air pollutants.
- 6) Explain the occurrence of urban smog and the impact of topography and climate on it.
- 7) List indoor sources of air pollution.
- 8) Describe the effect of air pollution on the ecosystem through acid deposition, global warming and ozone depletion.
- 9) Explain how air pollution can be mitigated.



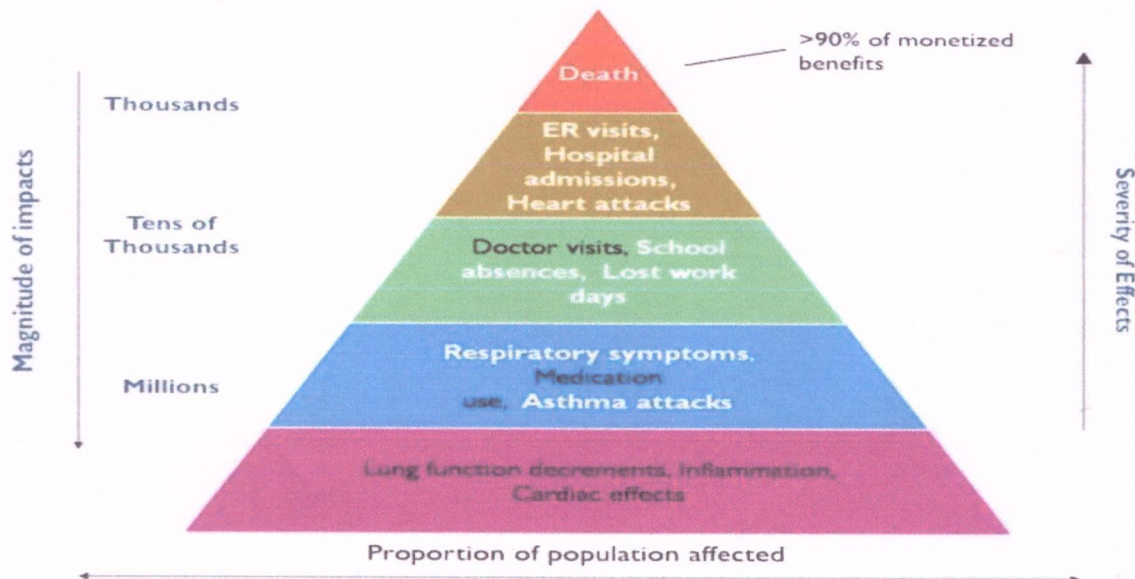
# AIR POLLUTANT

Air pollution is a mixture of solid particles and gases in the air. Car emissions, chemicals from factories, dust, pollen and mold spores may be suspended as particles. Ozone, a gas, is a major part of air pollution in cities. When ozone forms air pollution, it's also called smog.



## EFFECTS OF AIR POLLUTION

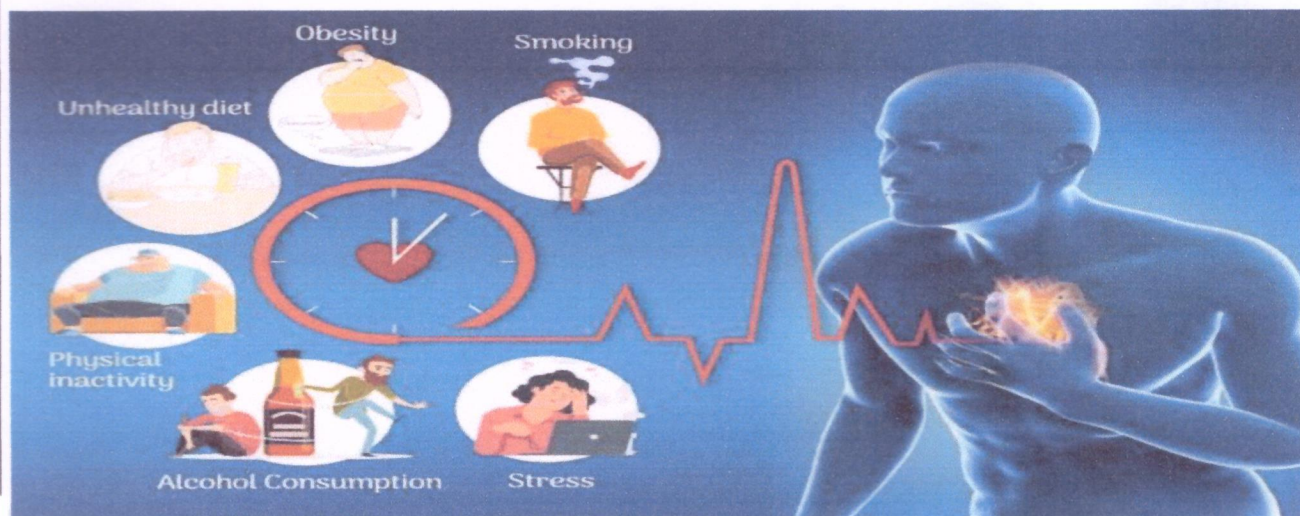
### A "Pyramid of Effects" from Air Pollution





# DISEASES CAUSED BY AIR POLLUTION

## 1) CARDIOVASCULAR DISEASES



Pollution has been linked to an increased risk of cardiovascular disease. It can lead to inflammation and damage to the heart and blood vessels. Studies have shown that exposure to air pollution can increase the **risk of heart attack**, stroke, and other forms of **heart disease**.

There are a few ways in which air pollution can contribute to cardiovascular disease:

- Particulate matter can enter the lungs and cause inflammation. This can lead to an increase in **blood pressure** and damage to the lining of the arteries.
- Pollutants can trigger changes in heart rate and rhythm, which can lead to arrhythmias or cardiac arrest.
- Long-term exposure to air pollution has been linked with an increased risk of atherosclerosis, or hardening of the arteries.





## 2)CANCER



**Cancer** is one of the most common air pollution diseases. It is caused by exposure to carcinogenic airborne particles, such as those released from burning fossil fuels.

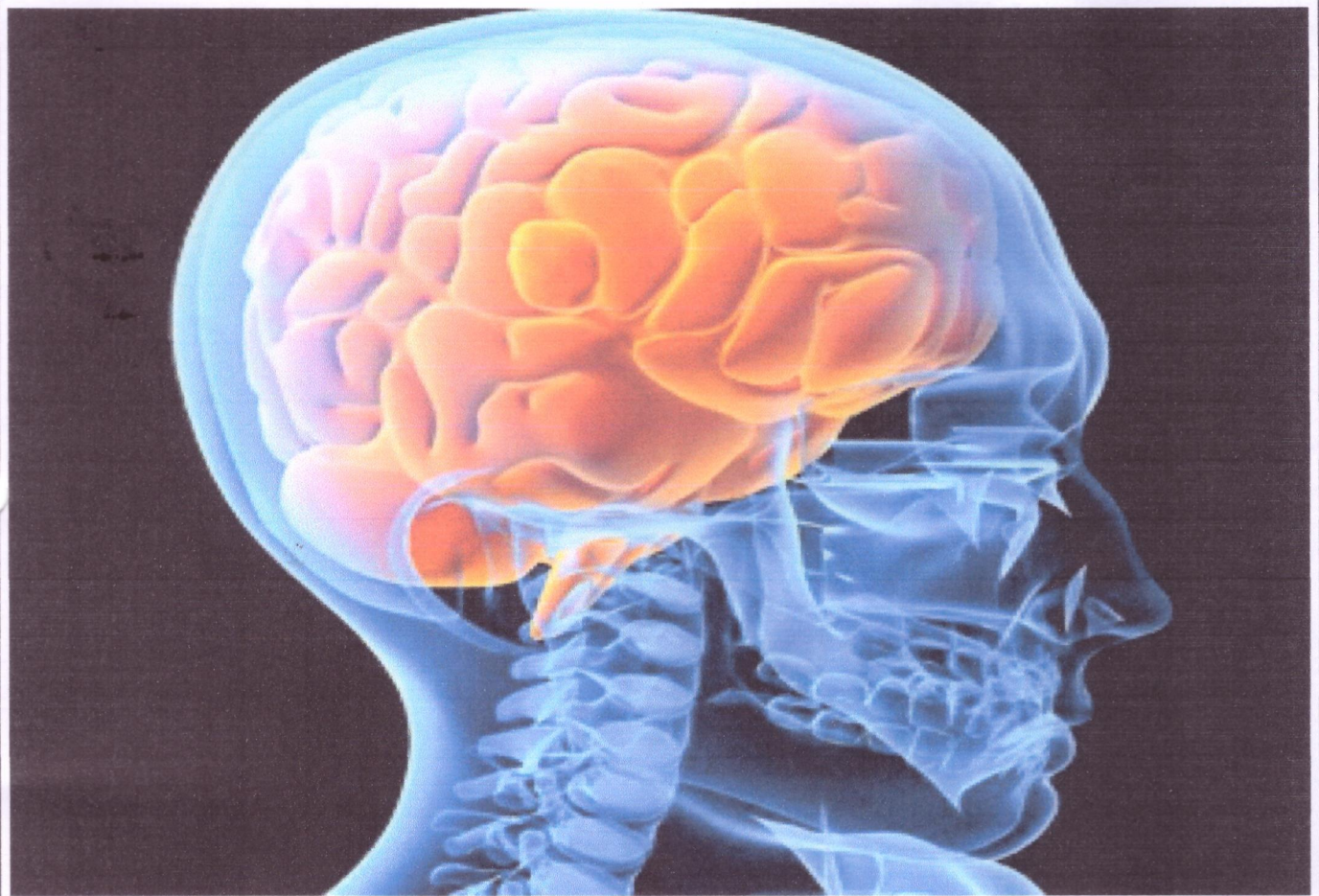
Cancer can develop in any organ of the body. But, it is most commonly found in the lungs. Non-small cell lung cancer is a more common type of lung cancer. It accounts for about 80% of all cases. It is generally less aggressive than small-cell lung cancer and has a better prognosis.

Smoking is the leading cause of lung cancer too. It is responsible for about 85% of all cases. Other risk factors include exposure to secondhand smoke, radon gas, asbestos, and air pollution.





### 3) NEUROLOGICAL DISORDERS



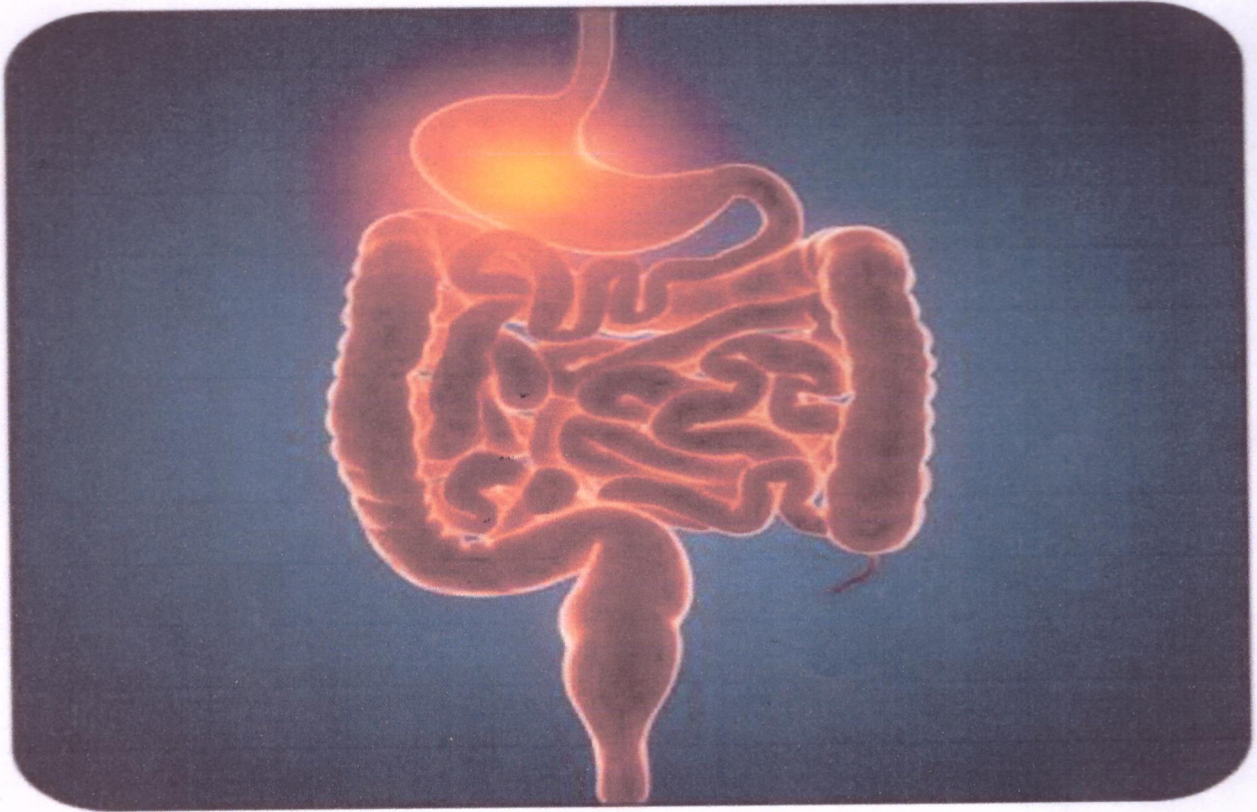
Air pollution has been linked to a variety of neurological disorders as well. Some of the illnesses include **Alzheimer's disease** and Parkinson's disease.

Alzheimer's disease is a degenerative brain disorder. It leads to memory loss and cognitive decline. Studies have shown that air pollution can accelerate the progression of Alzheimer's disease.

Parkinson's disease is a neurodegenerative disorder. It affects movement and coordination. Air pollution has been linked to an increased risk of developing Parkinson's disease.



#### 4) GASTROINTESTINAL DISORDERS



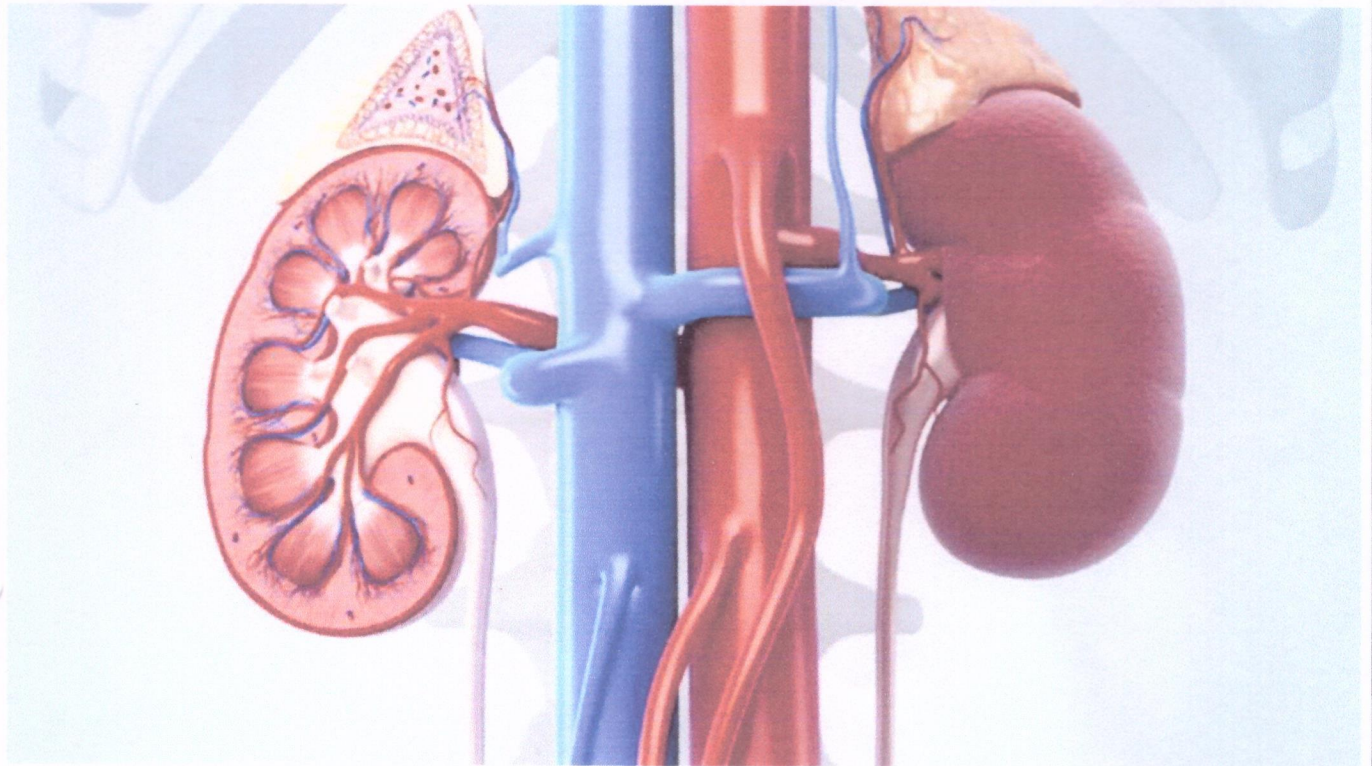
Several gastrointestinal disorders have been linked to air pollution, including irritable bowel syndrome, Crohn's disease, and ulcerative colitis. Studies have shown that people who live in areas with high levels of air pollution are more likely to suffer from these conditions.

Symptoms of **gastrointestinal** disorders include abdominal pain, **diarrhoea**, **constipation**, and bloating. Gastrointestinal disorders can be very serious and even life-threatening if they are not treated properly.





## 5) KIDNEY DISEASES



Several **kidney diseases** can be caused by air pollution, including:

-Chronic kidney disease: This is a long-term condition that can lead to kidney failure. It is caused by the accumulation of toxins in the body, including those from air pollution.

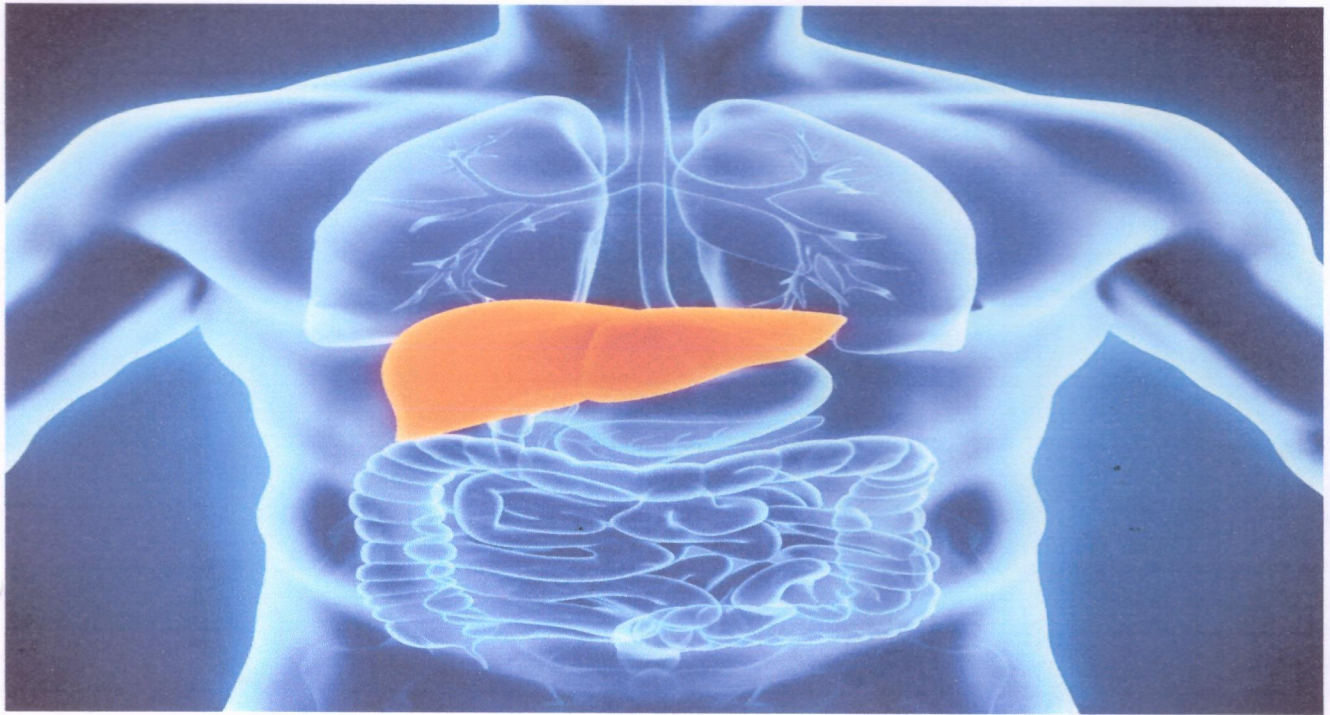
-Acute kidney injury: This is a sudden and potentially reversible loss of kidney function. It can be caused by exposure to high levels of air pollution, particularly particulate matter.

-Dialysis: This is a treatment used for people with renal failure. It involves filtering the blood to remove waste products and excess fluid.





## 6) LIVER DISEASES

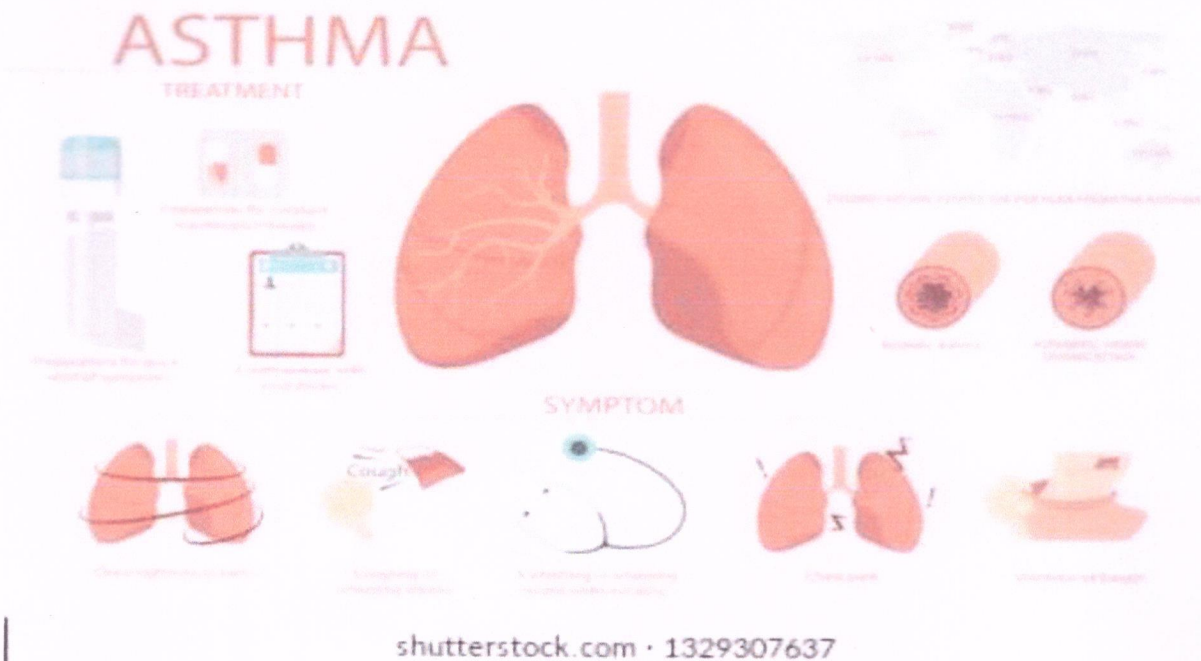


Exposure to air pollution is associated with an increased risk of metabolic dysfunction-linked fatty liver disease. Fatty liver disease is the accumulation of fat in the liver, which can lead to inflammation and scarring. **Hepatitis** is an inflammation of the liver that can be caused by a virus or other infection. Cirrhosis is a chronic condition that results in the hardening and scarring of the liver.





## 7) ASTHMA



**Asthma** is a condition in which the airways narrow and swell, and produce extra mucus. This can make breathing difficult and trigger coughing, wheezing, and shortness of breath.

Asthma is often triggered by environmental factors such as air pollution, cold weather, or pollen. It is important to be aware of these triggers and try to avoid them if possible. If you have asthma, it is also important to have an asthma action plan in place so that you know what to do if you have an asthma attack.



## 8) BRONCHITIS

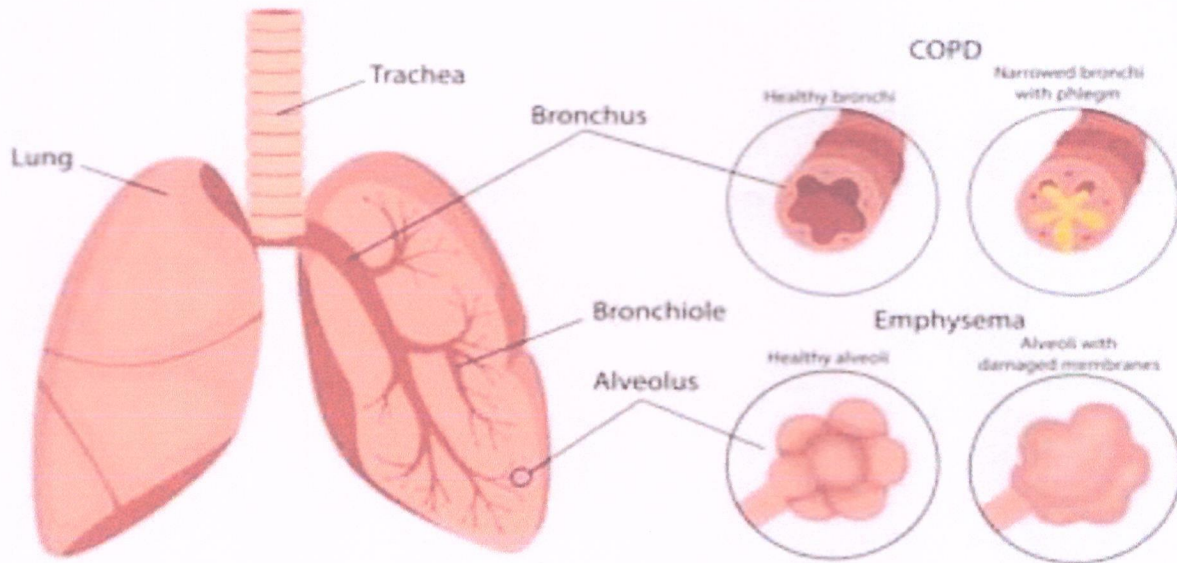


Bronchitis is another common air pollution-related disease. It occurs when the bronchi, or airways, become inflamed and irritated. This can be caused by exposure to airborne irritants, such as **smoke**, dust, or chemical fumes. Bronchitis can also be caused by viral infections. Symptoms of bronchitis include coughing, wheezing, shortness of breath, and chest pain. Bronchitis is often treated with medications, such as bronchodilators and corticosteroids. In severe cases, hospitalisation may be necessary.





## 9) CHRONIC OBSTRUCTIVE PULMONARY DISEASE



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Chronic Obstructive Pulmonary Disease (COPD) is a lung condition that makes it hard to breathe. COPD is caused by long-term exposure to harmful particles in the air, such as smoke from cigarettes or factory emissions. People with COPD often experience symptoms like shortness of breath, wheezing, and coughing. In severe cases, COPD can be fatal.



## CONTROL MEASURES FOR AIR POLLUTION

**Minimising Air Pollutant:** This is accomplished through efficient distribution of land by making proper plans for establishing industries and building residential apartments.

**Diffusion of Source Locations:** To a large extent. Pollution can be controlled by diffusing various sources of pollutants. Tall stacks should be used for industries and thermal power plants

### THE MAIN SOURCES OF AIR POLLUTION

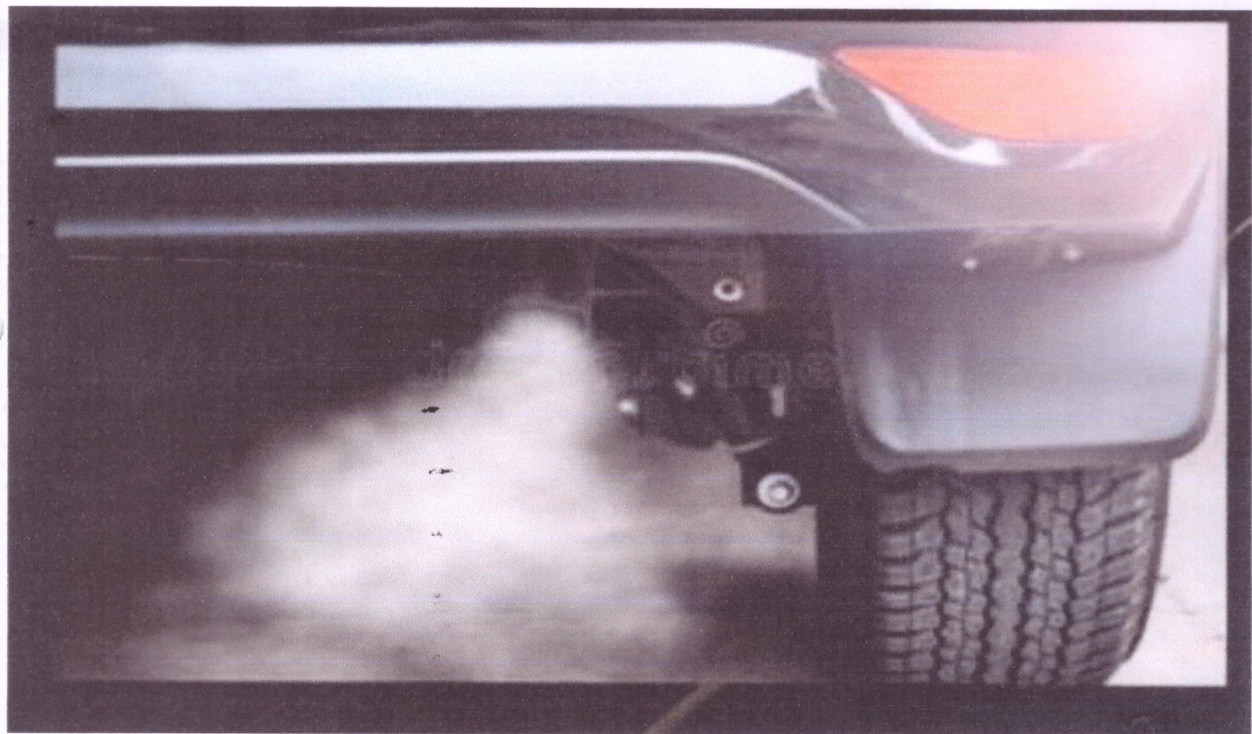
#### (a) AUTOMOBILES:

Motor vehicles are a major source of air pollution throughout the urban areas.

They emit hydrocarbons, carbon monoxide, lead, nitrogen oxides and particulate matter.

In strong sunlight, certain of these hydrocarbons and oxides of nitrogen may be converted in the atmosphere into "photochemical" pollutants of oxidizing nature.

In addition, diesel engines, when misused or badly adjusted are capable of emitting black smoke and malodorous, fumes.





## B) INDUSTRIES



- Combustion of fuel to generate heat and power produces smoke, sulphur dioxide, nitrogen oxides and fly ash.

Petrochemical industries generate hydrogen fluoride, hydrochloric acid and organic halides.

Many industries discharge carbon monoxide, carbon dioxide, ozone, hydrogen sulphide and sulphur dioxide.

Industries discharge their wastes from high chimneys at high temperature and high speed.





### C) DOMESTIC SOURCES:

Domestic combustion of coal, wood or oil is a major source of smoke, dust, sulphur dioxide and nitrogen oxides.

### (D) TOBACCO SMOKE:

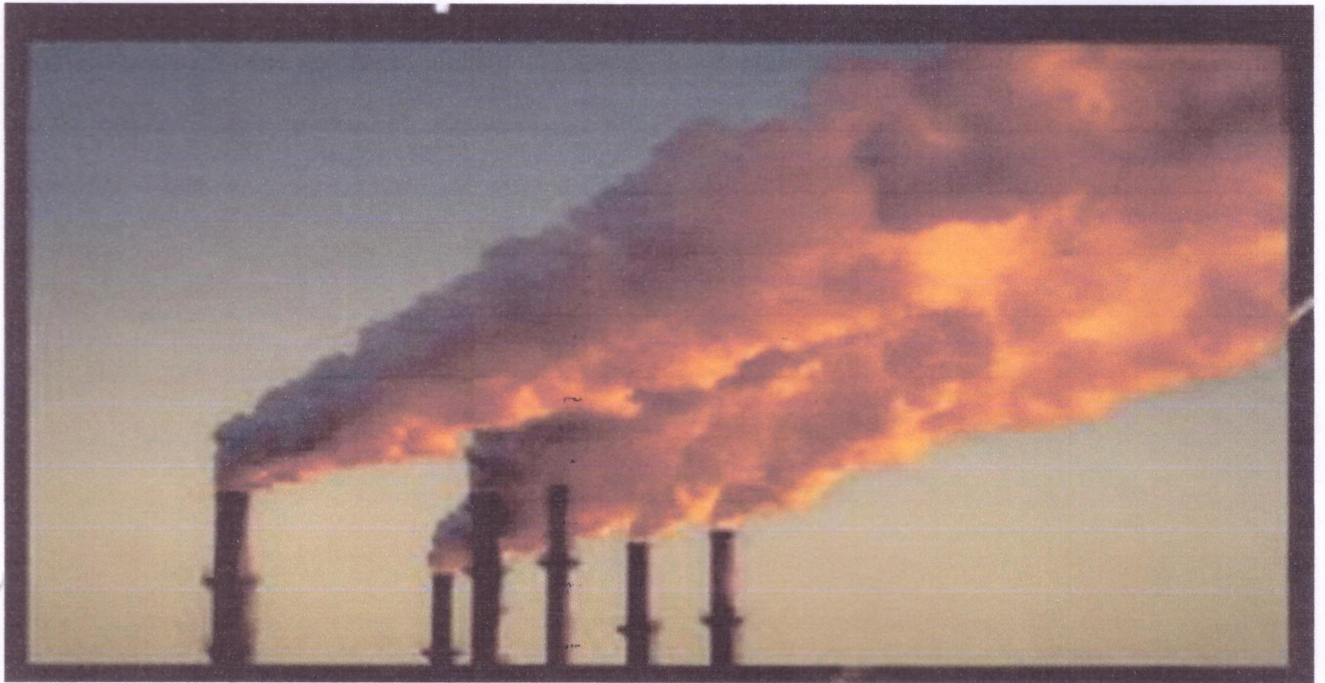


The most direct and important source of air pollution affecting the health of many people. Even those who do not smoke may inhale the smoke produced by others ("passive smoking").





## (E) MISCELLANEOUS



These comprise burning refuse, incinerators, pesticide spraying, natural sources (e.g., wind borne dust, fungi, molds, bacteria) and nuclear energy programmes. All these contribute to air pollution.



## CONCLUSION OF AIR POLLUTION

Air pollution is a serious global problem that contributes to a wide range of diseases. Many of these diseases are preventable. So, it is important to be aware of them and take steps to protect yourself from air pollution. We hope this list has helped you understand the risks associated with air pollution. Now, it is your responsibility to avoid them. If you showcase any of the above symptoms, consult a doctor for better guidance. Visit your nearest Metropolis lab to get professional help and accurate test results.

In many countries heart disease is a leading cause of death and even a small contribution from air pollution could mean a significant and important effect on public health. On an individual level, the risk to health from air pollution is very much smaller than that posed by active cigarette smoking or accidents.





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**P.A.H. SOLAPUR UNIVERSITY,  
SOLAPUR**



**UNION EDUCATION SOCIETY'S  
MAHILA MAHAVIDYALAYA**

SIDDESHWAR PETH, SOLAPUR. 413001

**A PROJECT REPORT ON  
NOISE POLLUTION IN SOLAPUR CITY  
UNDER THE GUIDENCE  
MR. NIKHIL JALINDAR MORE, DEPUTY OF REGIONAL  
OFFICER SOLAPUR.**

● SUBMITTED BY

Miss: Pathan Muskan Ishrat

Under the guidance of

Dr. Z.A. Nayab

Miss. Patel Farzana



**YEAR OF SUBMISSION  
2022-2023**



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Union Education Society's  
**MAHILA MAHAVIDYALAYA**  
141/A, Siddheshwar Peth, Solapur-413001

**Students List**

Sr. No	Name of The Students
1	Pathan Muskan Ishrat
2	Pathan Afifa
3	Bagalkote Mahek Javeed
4	Kosgi Shaziya Md. Rafique
5	Mulla Suhana Mehboob
6	Shaikh Tanzim
7	Shaikh Uzra
8	Jamadar Javeriya Saleem
9	Shaikh Fiza





# P.A.H. Solapur University, Solapur



Union Education Society's  
**MAHILA MAHAVIDYALAYA**  
141/A, Siddheshwar Peth, Solapur-413001

## ENVIRONMENTAL STUDIES

Exam No: \_\_\_\_\_

Date: 31/05/2023

This is to certify that Miss. Pathan Muskan Ishtat

has satisfactorily carried out the required field/ project work by the P.A.H. Solapur University, Solapur. For the B. A. II course in Environmental Studies and this field/ project work report represents his/her confide work in the year 2021-2022.

**Dr. Z. A. Nayab**

Examiner

**Dr. F.M. Shaikh**

I/C/Principal

I/c. Principal

U. E. S. Mahila Mahavidyalaya,  
Solapur.



## DECLARATION OF STUFENT

I HEREBY DECLARE THAT. THE PROJECT ENTITLED IS AN  
OUTCOME OF MY OWN EFFORTS UNDER THE GUIDANCE OF  
PROF.DR. Z.A .NAYAB

THE PROJECT IS SUBMITTED TO THE UNIVERSITY OF THE  
SOLAPUR. FOR THE PARTIAL FULFILLMENT OF THE BACHELOR  
OF ARTS

ADMINISTRATION EXAMINATION 2022-23. I ALSO DECLARE  
THAT THIS PROJECT REPORT HAS NOT BEEN PREVIOUSLY  
SUBMITTED  
TO ANY OTHER UNIVERSITY.

NAME OF STUDENT: Pathan Muskan Ishrat

DATE: 31-05-2023





**DECLARATION OF THE  
SUPERVISOR**

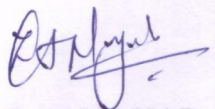
**THE UNDERSIGNED SUPERVISOR FOR THE ENVIRONMENTAL  
SCIENCE PROJECT HEREBY DECLARE THAT THE PROJECT OF...**

OF B.A. II YEAR HAS CARRIED OUT THE RESEARCH PROJECT ENTITLED  
'NOISE POLLUTION' IN MR. NIKHILJALENDRA MORE, DEPUTY OF  
REGIONAL OFFICER SAATRASTA SOLAPUR, SOLAPUR IS FOR THE  
PARTIAL FULFILMENT OF THE CERTIFICATE COURSE IN  
ENVIRONMENTAL SCIENCE PROPOSED BY SOLAPUR UNIVERSITY,  
SOLAPUR IS THE ORIGINAL WORK AND NOT SUBMITTED ELSEWHERE  
FOR THE PUBLICATION.

PLACE - SOLAPUR

DATE - 31/05/2022-23



  
DR. Z. A. NAYAB

## ACKNOWLEDGMENT

I Would like to express my special thanks of gratitude to the honorable principal Dr. Shaikh F. M. and our environmental studies teacher Dr. Nayab Z.A. and Mrs. Patel Farzana to give me the golden opportunity to do this wonderful project of environmental studies on Noise Pollution and also helping me completing my project.

I Would like to thanks my project and friends who helped me a lot in finalizing this project within the limited timeframe



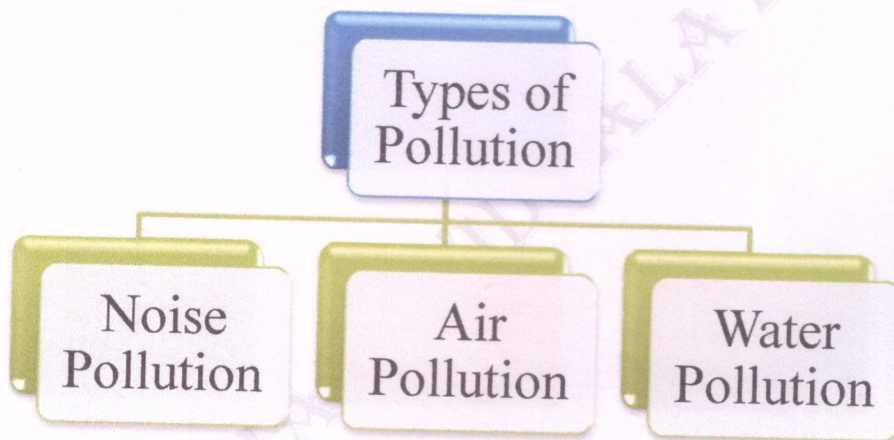


## INTRODUCTION OF NOISE POLLUTION

Pollution has become the first enemy of the mankind. Industrial revolution of 19th century led to environmental disaster. The whole world is now more afraid of pollution rather than nuclear blast.

Technological advancement has brought revolutionary changes in life style and national economy with overwhelming power over nature. The protection of environment has become a major issue around the global for the well-being of the people and economic development.

### Types of Pollution:

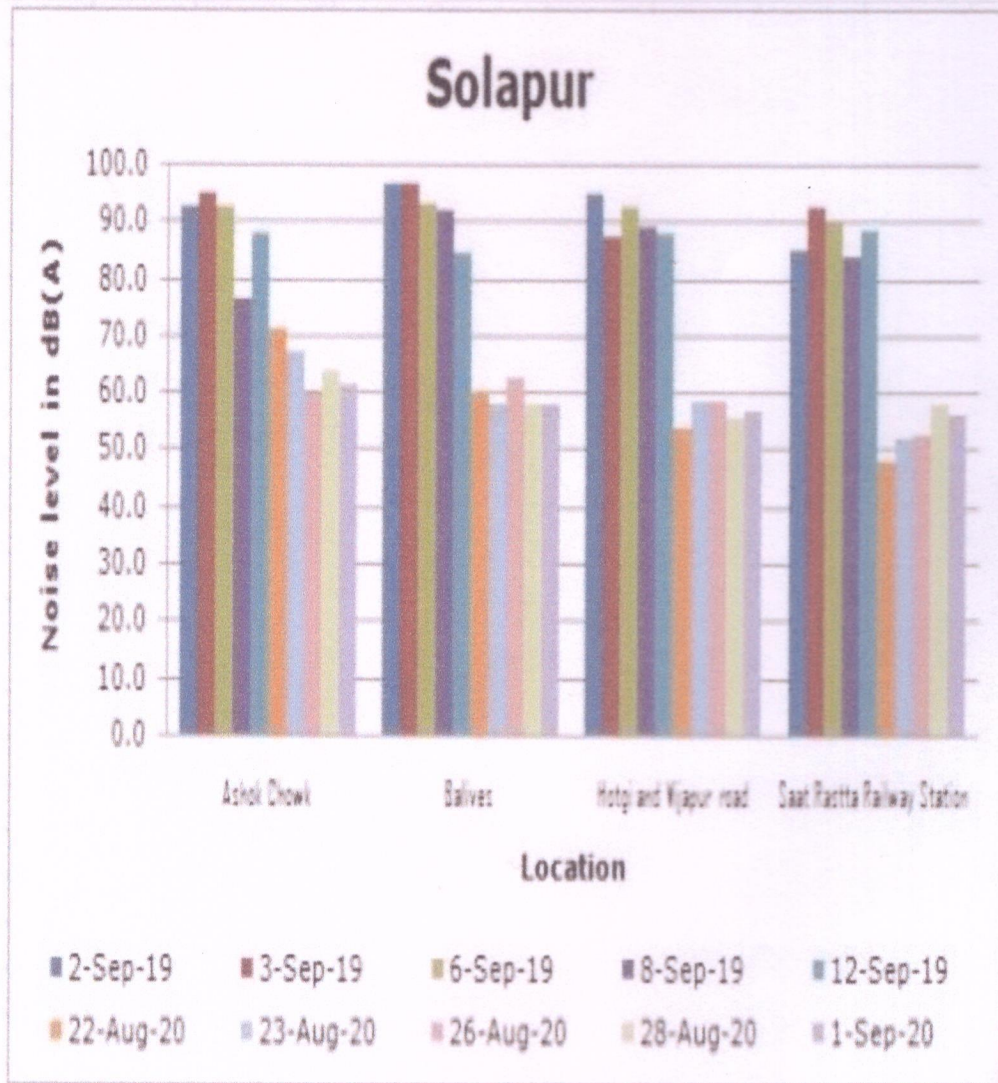


Pollution is a necessary evil of all development. Due to lack of development of a culture of pollution control, there has resulted a heavy backlog of gaseous, liquid and solid pollution in environment. It has to be cleaned. Pollution control is a recent environmental concern. Pollution is a man-made problem, mainly of affluent countries. The developed countries have been exploiting every bit of natural resource to convert them into goods for their comfort, and to export them to needy developing world. In doing so, the industrialized countries dump lot of materials in their environment which becomes polluted. In one-way pollution has been "exported" to developing countries and around the world.





**Solapur:** Solapur also had lesser noise level on all 5 days of monitoring as compared to last year.





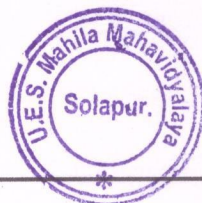
Noise Level Monitoring on <i>Bhaubij</i> (Diwali)- for the year 2019 and 2020				
Dates	16-Nov-20	29-Oct-19	16-Nov-20	29-Oct-19
Time Slots	Day Time (6 am to 10pm)		Night Time (10pm to 6 am )	
Standards	65 dBA (C)		55 dBA (C)	
City	$L_{eq}$ dBA	$L_{eq}$ dBA	$L_{eq}$ dBA	$L_{eq}$ dBA
Mumbai South	70.6	68.5	60.8	58.9
Mumbai Western Sub	72.5	69.4	64.1	61.4
Mumbai Eastern Sub	72.1	69.8	61.5	58.7
Navi Mumbai	69.9	70.3	62.1	63.5
Thane	75.9	66.5	63.6	58.1
Panvel	71.8	69.1	61.4	58.1
Pune	71.9	74.8	59.6	63.4
Nashik	65.2	69.9	61.1	64.9
Aurangabad	63.8	64.1	53.6	53.8
Nagpur	66.5	66.5	58.0	59.1
Kalyan	70.2	68.3	59.3	62.3
Amravathi	68.1	68.5	59.0	59.9
Jalgaon	71.3	75.2	59.7	63.9
Kolhapur	74.1	80.6	63.4	69.4
Sangli	70.4	78.0	53.9	58.7
Mira-Bhayander	73.4	68.2	59.8	57.4
Vasai-Virar	71.3	70.0	56.2	62.0
Ulhasnagar	74.8	68.6	64.0	60.9
Bhiwandi-Nizampur	66.3	74.0	62.5	66.3
Chandrapur	72.8	73.3	62.3	65.0
Nanded-Waghala	63.7	63.5	49.5	50.2
Ahmednagar	65.3	66.9	59.8	65.4
Dhule	65.3	67.8	60.0	62.7
Malegaon	64.7	68.7	60.2	65.7
Pimpri-Chinchwad	70.7	72.5	57.7	60.4
Parbhani	64.6	61.8	52.3	44.5
Latur	63.0	63.6	51.0	48.2
Akola	73.7	73.2	61.9	59.8
Solapur	74.2	79.4	56.4	71.1





### Noise Level Monitoring During Diwali- for the year 2019 and 2020

Dates	14-Nov-20	27-Oct-19	14-Nov-20	27-Oct-19
Time Slots	Day Time (6 am to 10 pm)		Night Time (10 pm to 6 am)	
Standards	65 dBA (C)		55 dBA (C)	
City	L <sub>eq</sub> dBA	L <sub>eq</sub> dBA	L <sub>eq</sub> dBA	L <sub>eq</sub> dBA
Mumbai South	70.1	70.6	59.0	60.3
Mumbai Western Suberbs	70.7	65.8	59.0	62.3
Mumbai Eastern Suberbs	71.1	69.4	60.9	60.9
Navi Mumbai	68.4	67.4	59.4	60.8
Thane	72.7	68.3	65.0	59.1
Panvel	73.7	66.2	61.2	59.0
Pune	76.0	80.2	66.4	70.7
Nashik	71.1	71.6	71.0	70.8
Aurangabad	64.0	64.9	54.3	55.6
Nagpur	70.2	68.7	66.9	63.0
Kalyan	69.7	70.1	59.4	61.8
Amravathi	70.6	70.6	60.2	60.7
Jalgaon	71.8	76.3	63.8	71.7
Kolhapur	75.5	79.3	59.8	65.4
Sangli	76.6	87.5	55.7	65.7
Mira-Bhayander	64.9	66.2	55.5	63.8
Vasai-Virar	64.8	69.6	58.2	59.3
Ulhasnagar	70.5	69.0	59.0	58.0
Bhiwandi-Nizampur	69.5	69.7	57.0	61.1
Chandrapur	73.0	75.0	61.6	65.6
Nanded-Waghala	63.2	63.6	54.3	52.8
Ahmednagar	68.0	66.8	64.4	64.1
Dhule	67.8	68.8	63.8	64.9
Malegaon	68.5	66.9	60.6	62.7
Pimpri-Chinchwad	77.1	81.6	66.8	68.9
Parbhani	65.5	62.0	56.1	45.2
Latur	64.2	62.5	54.5	52.8
Akola	76.9	75.2	66.6	59.7
Solapur	68.9	79.3	59.8	74.7





### 26.Solapur

Location name (details)	2-Sep-19	22-Aug-20
Balives	96.6	60.5
Ashok Chowk	93.0	71.4
Hotgi and Vijapur road	94.9	53.7
Saat Rastta Railway Station	85.5	48.1
	3-Sep-19	23-Aug-20
Balives	97.1	58.2
Ashok Chowk	95.0	67.6

Solapur	Balives	96.6	60.5	97.1	58.2	93.5	62.5	92.1	57.8	84.9	58.2
Solapur	Ashok Chowk	93.0	71.4	95.0	67.6	92.6	59.5	76.6	63.6	88.3	61.3
Solapur	Hotgi and Vijapur road	94.9	53.7	87.8	58.4	92.7	58.4	89.1	55.9	88.3	57.0
Solapur	Saat Rastta Railway Station	85.5	48.1	92.5	52.0	89.7	53.1	83.9	57.9	88.8	56.4



Table 4.26: Noise Levels in Solapur

Location	Date	Day Time (6AM-10PM) values in dB(A)					
		L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>50</sub>	L <sub>90</sub>
Balives	21.02.2021	74.4	58.7	78.5	78.0	73.1	64.7
Bijapur Road	21.02.2021	69.5	55.0	75.3	72.3	67.0	58.3
Ashok Chowk	21.02.2021	75.8	56.2	80.7	79.3	74.6	61.0
Location	Date	Night Time (10PM-6AM) values in dB(A)					
		L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>50</sub>	L <sub>90</sub>
Balives	21.02.2021	59.0	45.9	66.3	62.8	50.8	45.9
Bijapur Road	21.02.2021	58.5	46.7	63.8	63.7	51.3	46.7
Ashok Chowk	21.02.2021	57.7	45.5	63.3	61.7	53.5	46.4
Location	Date	Day Time (6AM-10PM) values in dB(A)					
		L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L <sub>10</sub>	L <sub>50</sub>	L <sub>90</sub>
Balives	22.02.2021	78.4	54.0	82.4	81.6	78.5	61.8
Bijapur Road	22.02.2021	74.1	56.6	78.3	78.0	73.4	58.0
Ashok Chowk	22.02.2021	77.1	54.3	84.6	81.6	71.1	58.3





Visit Solapur Unique Academy  
(Maharashtra Pollution Center)



Google

Solapur, Maharashtra, भारत

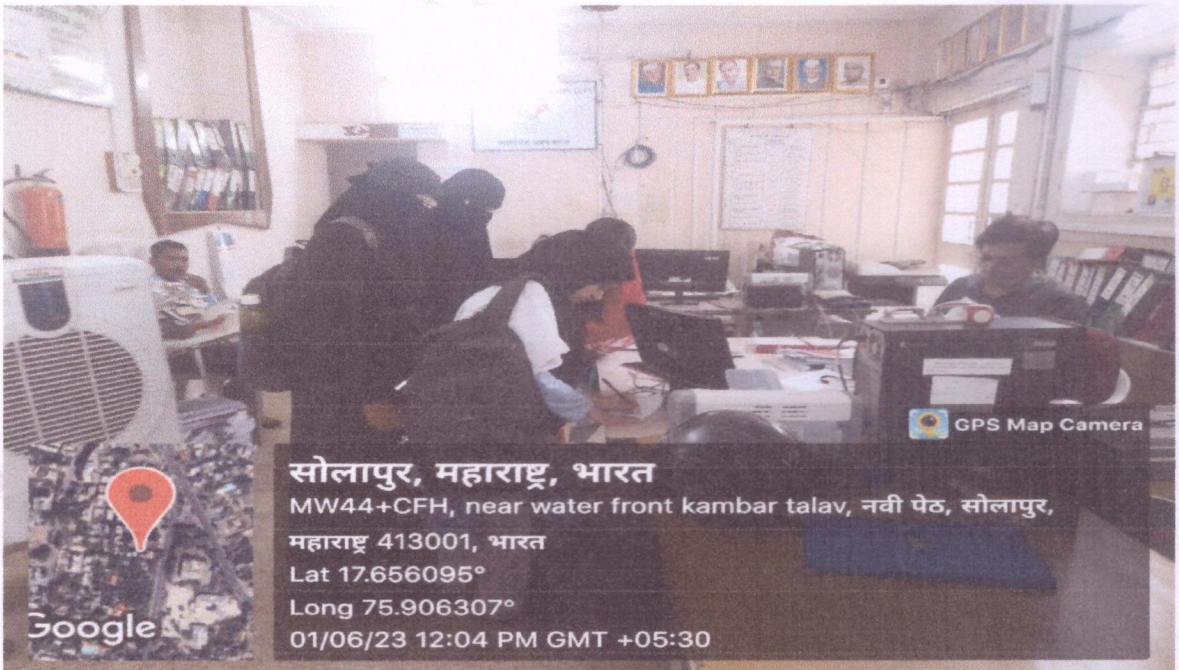
plot no 4 , bali building, Saat Rasta, below यूनीक अकादमी, Navi

Peth, Solapur, Maharashtra 413003, भारत

Lat 17.656081°

Long 75.906542°

01/06/23 12:00 PM GMT +05:30



Google

सोलापुर, महाराष्ट्र, भारत

MW44+CFH, near water front kambar talav, नवी पेठ, सोलापुर,

महाराष्ट्र 413001, भारत

Lat 17.656095°

Long 75.906307°

01/06/23 12:04 PM GMT +05:30



## OBJECTIVES OF NOISE POLLUTION

- 1. Protect human health:** Reducing noise pollution can help prevent various health issues such as hearing loss, cardiovascular problems, stress, and sleep disturbances.
- 2. Improve quality of life:** Minimizing noise pollution can enhance the overall quality of life by providing a more peaceful and pleasant environment for people to live, work, and relax in.
- 3. Enhance cognitive function:** Excessive noise can negatively impact cognitive abilities, including attention, memory, and problem-solving skills. Reducing noise pollution can promote better cognitive function.
- 4. Protect wildlife:** Noise pollution can disrupt animal communication, migration patterns, and feeding behaviors. Reducing noise levels can help protect wildlife and maintain ecological balance.
- 5. Preserve natural habitats:** Many natural habitats, such as forests and wetlands, are adversely affected by noise pollution. By mitigating noise, we can help preserve these ecosystems and the species that depend on them.

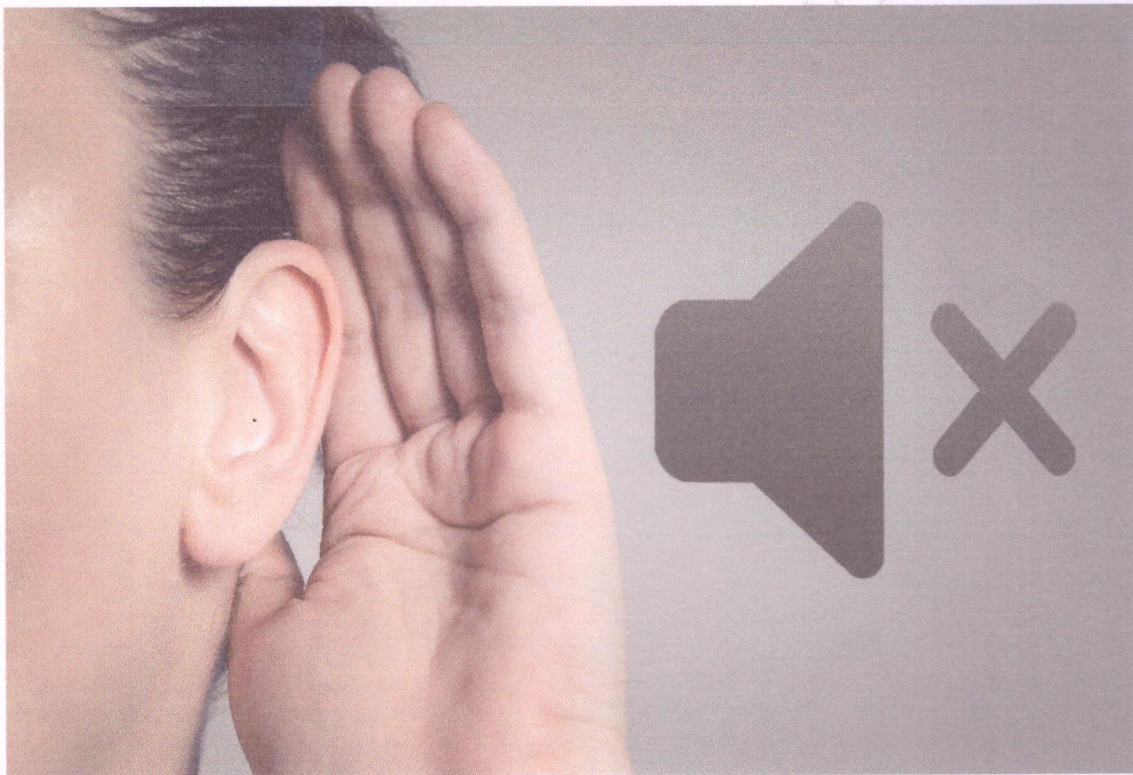




## DISEASER CAUSED BY NOISE POLLUTION

To mitigate the effects of noise pollution, various measures can be taken, such as implementing noise regulations and standards, using noise barriers and insulation in buildings, promoting quieter technologies, and raising public awareness about the importance of reducing noise levels in different settings.

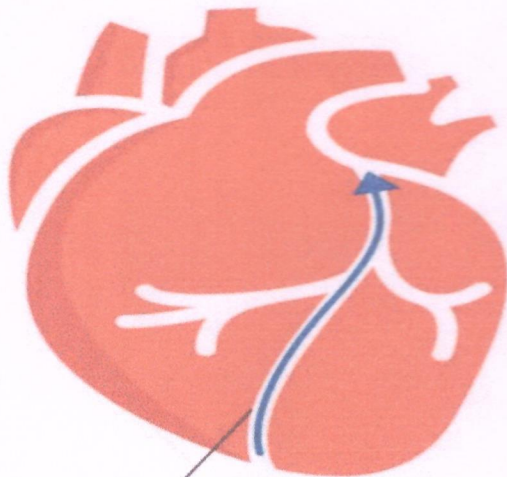
Noise pollution can have various negative effects on human health, including several diseases and health conditions. Here are some examples:



1. **Hearing Loss:** Prolonged exposure to high levels of noise can lead to permanent or temporary hearing loss. This is commonly seen in individuals working in noisy environments like construction sites, airports, or factories, without proper ear protection.

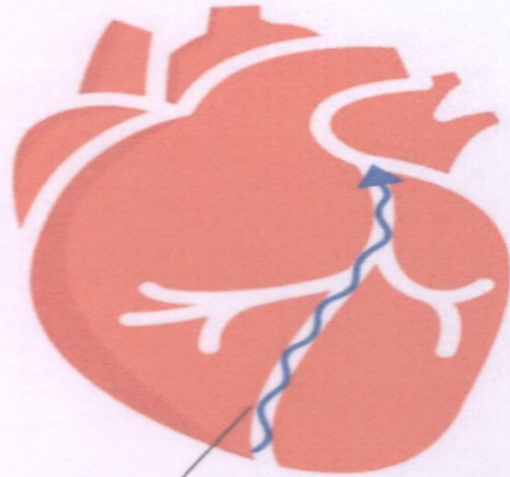


**No Hypertension**  
Heart Pumping Normally



Blood flows easily  
through vessels

**Hypertension**  
Heart Pumping Harder



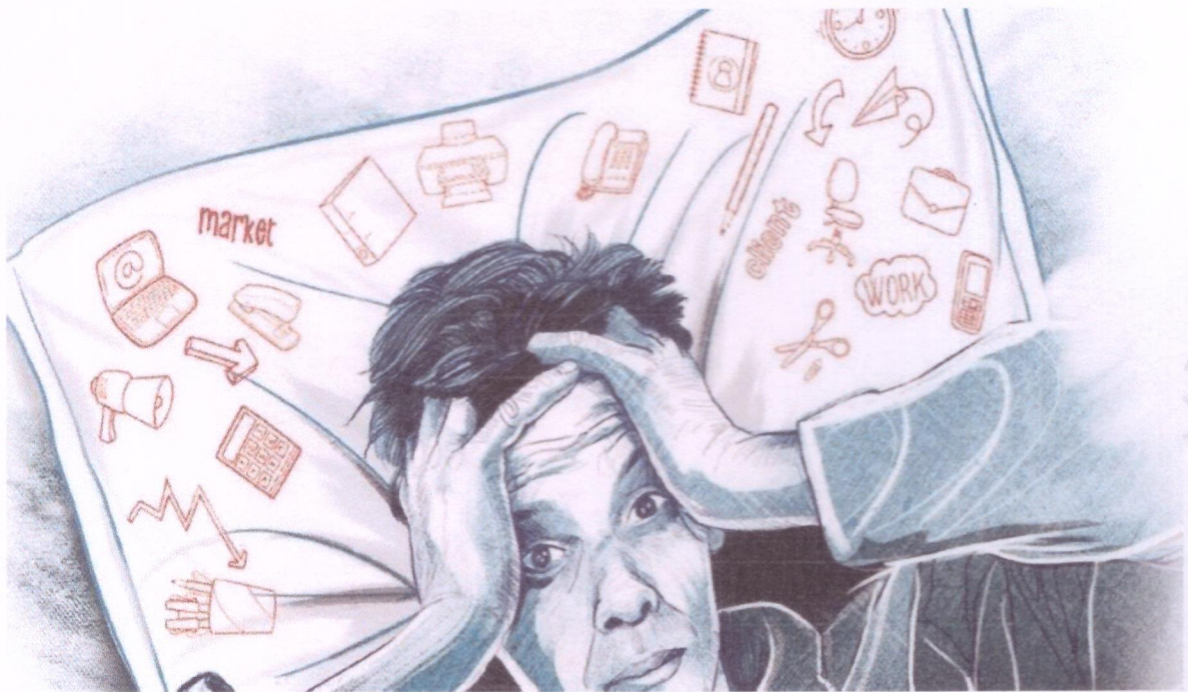
Blood may not flow  
easily through vessels

2. Hypertension: Exposure to constant or chronic noise pollution can contribute to elevated bloodpressure levels, leading to hypertension. Prolonged hypertension can increase the risk of heart disease, stroke, and other cardiovascular problems.

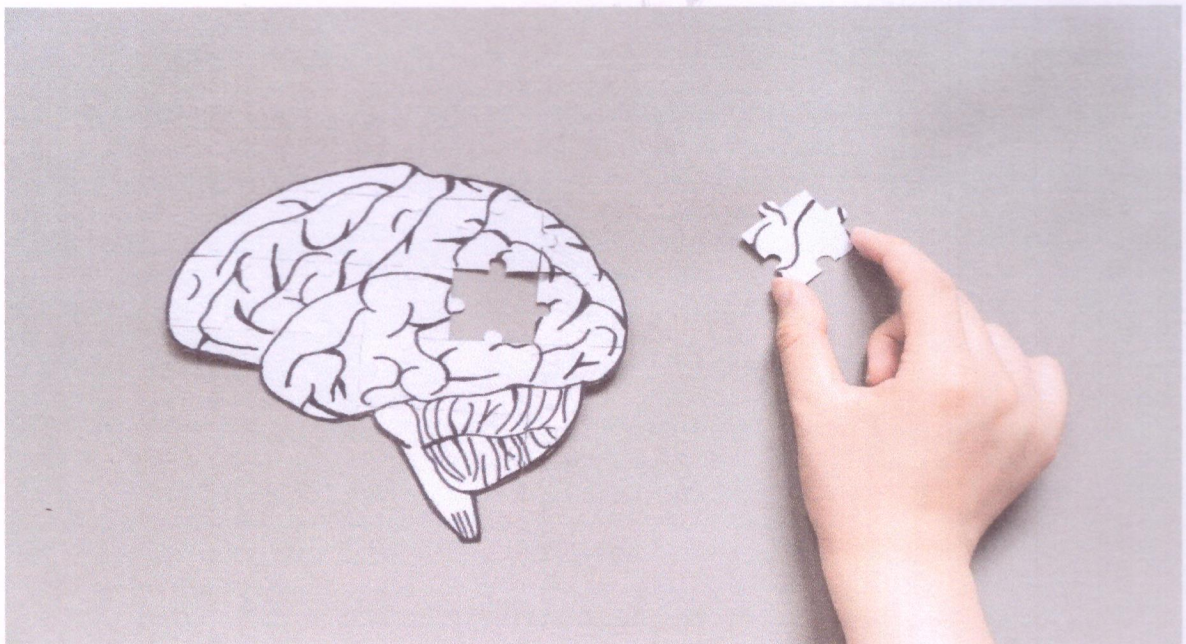


3. Sleep Disturbances: Continuous exposure to loud noise during sleep can disrupt sleep patterns and lead to insomnia or fragmented sleep. Lack of quality sleep can have a detrimental impact on overall health and well-being.



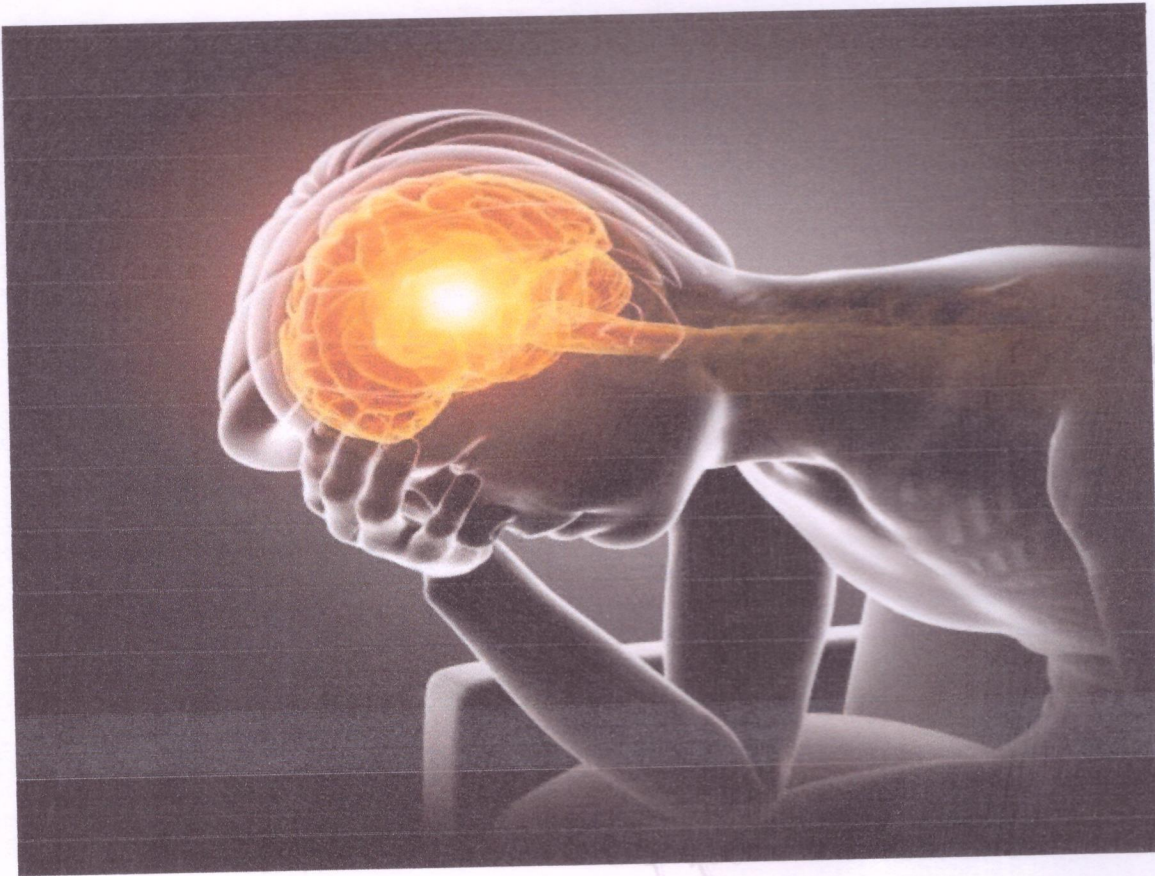


4. Stress and Anxiety: Noise pollution can induce stress responses and contribute to feelings of anxiety. Constant exposure to unwanted noise can increase the release of stress hormones, which may negatively impact mental health



5. Cognitive Impairment: Research suggests that chronic exposure to noise pollution, especially in children, can affect cognitive development and academic performance. Noise interference can impair concentration, attention, memory, and problem-solving abilities.





8. Psychological Effects: Continuous exposure to high levels of noise can contribute to feelings of annoyance, irritability, and even psychological distress. It may worsen existing conditions such as anxiety and depression, and it can also impact overall quality of life and subjective well-being.





## Control Measure of Noise Pollution

Controlling noise pollution involves implementing various measures to minimize or mitigate the adverse effects of excessive noise. Here are some commonly employed control measures for noise pollution:

1. **Legal Regulations:** Governments often establish noise regulations and guidelines that set permissible noise levels for different types of activities, such as industrial operations, construction sites, transportation, and residential areas. These regulations help ensure that noise emissions are within acceptable limits.
2. **Noise Barriers:** Constructing physical barriers, such as walls or fences, can help block or absorb noise and reduce its transmission to sensitive areas. These barriers are commonly used alongside highways, railways, and industrial sites to shield nearby communities from excessive noise.
3. **Land Use Planning:** Proper urban planning can help minimize noise pollution by strategically locating residential areas away from noisy sources like airports, highways, and industrial zones. Creating buffer zones or green spaces between noise-emitting sources and sensitive receptors can also help mitigate the impact.
4. **Building Design:** Designing buildings with soundproofing materials, double-glazed windows, and adequate insulation can significantly reduce noise transmission from outside sources. This approach is particularly important for structures located near busy roads, airports, or other noise-intensive environments.
5. **Noise Control in Industries:** Industries can employ various techniques to control noise emissions, such as implementing noise reduction technologies, using sound-absorbing materials, and employing noise enclosures or barriers around noisy machinery or equipment.



6. **Vehicle Noise Control:** Regulations and advancements in vehicle design have helped reduce noise emissions from automobiles. The use of noise-reducing technologies, such as improved engine and exhaust system design, noise-absorbing tires, and stricter enforcement of noise standards, contribute to quieter roadways.
7. **Education and Awareness:** Creating public awareness about the harmful effects of noise pollution and promoting responsible noise behavior can encourage individuals to take measures to reduce noise at the source. This includes activities such as promoting the use of quieter machinery, encouraging the use of headphones in public spaces, and educating individuals about noise etiquette.
8. **Noise Monitoring and Enforcement:** Regular monitoring of noise levels, particularly in industrial areas or high-noise zones, allows for early detection of violations and enforcement of noise regulations. This may involve employing noise meters or conducting noise impact assessments to ensure compliance.
9. **Noise Reduction in Construction:** Implementing measures to reduce noise during construction activities, such as using quieter construction equipment, scheduling noisy activities during less sensitive hours, and implementing noise control measures at construction sites, can help minimize the impact on nearby residents.
10. **Community Involvement:** Encouraging community involvement and participation in noise control initiatives can help identify specific noise-related issues, promote local initiatives, and foster a sense of responsibility towards noise reduction in neighborhoods.





## Conclusion

In conclusion, noise pollution is an urgent issue that demands our immediate attention and action. As we navigate through our bustling modern lives, the excessive noise that surrounds us can have detrimental effects on our health, well-being, and overall quality of life. From the relentless roar of traffic to the incessant clamor of construction sites, noise pollution permeates our cities, homes, and even natural environments.

However, it is not a hopeless battle. By raising awareness, implementing stricter regulations, and adopting innovative technologies, we can mitigate the adverse impacts of noise pollution. Creating quieter cities, designing noise-reducing infrastructure, and promoting sustainable transportation are just a few steps we can take towards a quieter future.

Reducing noise pollution is not only a matter of preserving our auditory senses but also of safeguarding our mental and physical health. By

decreasing noise levels, we can enhance our ability to concentrate, sleep peacefully, and foster healthier relationships. We can create spaces where children can learn undisturbed, where wildlife can thrive, and where tranquility can reign.

Let us come together as individuals, communities, and societies to tackle noise pollution head-on. Through collective efforts, we can make our cities and surroundings more harmonious, providing a respite from the cacophony of everyday life. By doing so, we not only improve our own well-being but also pave the way for a more serene and sustainable world for future generations.

It is time to silence the noise and let peace and quiet prevail. Together, let us tune into a future where the symphony of nature and the serenity of silence can once again be cherished and enjoyed by all. It's important to note that the effectiveness of these measures can vary depending on the specific circumstances and local regulations. Noise control measures should be tailored to the unique characteristics of each situation to achieve the desired reduction in noise pollution.



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U.E.S. MAHILA MAHAVIDYALAYA, SOLAPUR



**P.A.H. SOLAPUR UNIVERSITY, SOLAPUR**

**UNION EDUCATION SOCIETY'S MAHILA**

**MAHAVIDYALAYA**

**SIDDESHWAR PETH, SOLAPUR . 413001**



A PROJECT REPORT ON

**SOLID WASTE MANAGEMENT IN  
SOLAPUR CITY**

SUBMITTED BY

Miss -

*Nadaf Uzma Mustak*

Under the guidance of

**Dr. Z.A. NAYAB**

**Miss F. PATEL**



Year of submission

2022-2023



# INDEX

	Title	Sign
1	<b>Certificate</b>	
2	<b>Declaration of Student</b>	
3	<b>Declaration of Supervisor</b>	
4	<b>Acknowledgement</b>	
5	<b>Introduction of solid waste management</b>	
6	<b>Objectives</b>	
7	<b>Methodology</b>	
8	<b>Definition, What is solid waste?</b>	
9	<b>Introduction to Solapur City</b>	
10	<b>Types of solid waste</b>	
11	<b>Causes of solid waste</b>	
12	<b>Reasons of solid waste</b>	
13	<b>Effects of solid waste</b>	
14	<b>Importance of solid waste management</b>	
15	<b>Solid Waste Management</b>	
16	<b>How to Get Rid of Waste?</b>	
17	<b>Results and discussion</b>	
18	<b>Conclusion</b>	
19	<b>Bibliography</b>	





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**UNION EDUCATION SOCIETY'S**

**MAHILA MAHAVIDYALAYA**

**SIDDESHWAR PETH, SOLAPUR. 413001**

**ENVIRONMENTAL STUDIES**

**CERTIFICATE**

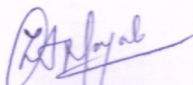
Exam No- \_\_\_\_\_

Date- 31/5/2023

*This is to certify that Miss*


----- Nadaf Uzma Mustafa -----

*Is bonafide student of this college studying in BA-II year has satisfactorily carried out the required field/project work entitled "Solid Waste Management In Solapur City" for the partial fulfillment of the requirement of BA-II / B.com-II Course in Environmental Studies and submitted to UES Mahila Mahavidyalay and this field/ project work report represents his /her confide work report in the year 2022 to 2023.*

  
Dr. Z.A. NAYAB

Examiner



Dr. F.M. Shaikh  
  
Principal  
I/c. Principal  
U. E. S. Mahila Mahavidyalaya,



## DECLARATION OF STUDENT

To,  
The Principal,  
UES Mahila Mahavidyalaya,  
Senior College of Arts, Solapur.

Respected Ma'am

I undersigned hereby declare that the project report entitled "SOLID WASTE MANAGEMENT IN SOLAPUR CITY" prepared and submitted under the guidance of Dr. Z.A. NAYAB and Miss F. PATEL it's my original work. The empirical findings in this project are based on the data collected by myself while preparing this project. I have not copied from any other project report

I understood that, any such copying is liable to be punished in a way the University authorities may deem fit.



Signature of the student

Name of the student

[Miss - Nadaf Uzma ]

Place - SOLAPUR

Date - 31/5/2023

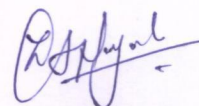




## DECLARATION OF THE SUPERVISOR

I, the undersigned supervisor for the environmental science project hereby declare that the project of

Nadaf Uzma Mustak Of B.A.II Year has carried out the research project entitled ' SOLID WASTE MANAGEMENT IN SOLAPUR CITY ' is for the partial fulfillment of the certificate course in environmental science proposed by Solapur University, Solapur is the original work and not submitted elsewhere for the publication.



**Dr. Z.A. NAYAB**  
**Miss. F. PATEL**

**PLACE - SOLAPUR**

**DATE 3/5 / 2022-23**



A REPORT ON

**'SOLIDWASTE MANAGEMENT' IN  
SOLAPUR CITY**

**ACKNOWLEDGEMENT**

We create 'Environmental Awareness and control its pollution' the subject 'Environmental studies' is made compulsory at B.A.-II Level .The task of completing this project successfully because of the great efforts from several individuals .

We are grateful to the Supreme Court of India for introducing this subject and making it compulsory and Solapur University , Solapur .

We are also thankful to:

1. Dr .F.M. Shaikh - Principal
2. Dr. Z.A. Nayab - Head of Environmental Studies
3. Miss F. Patel - Asst. Professor

For extending their Co-operation and support in making this task easy.

Besides , we also thankful to Anwar Shaikh and his workers of co-operation to completing this project successfully was indeed a pleasurable job for us .



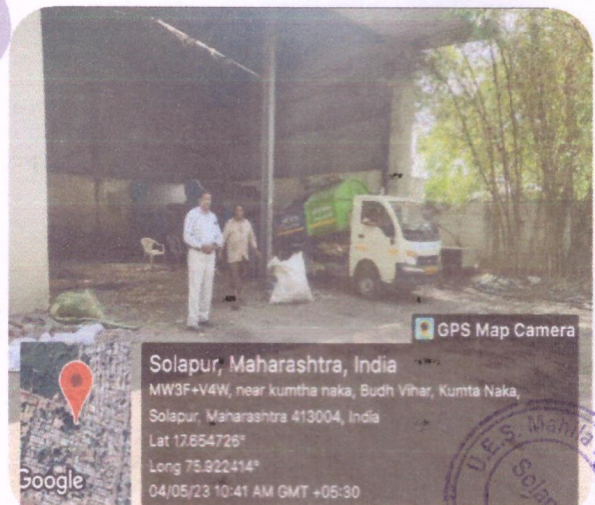
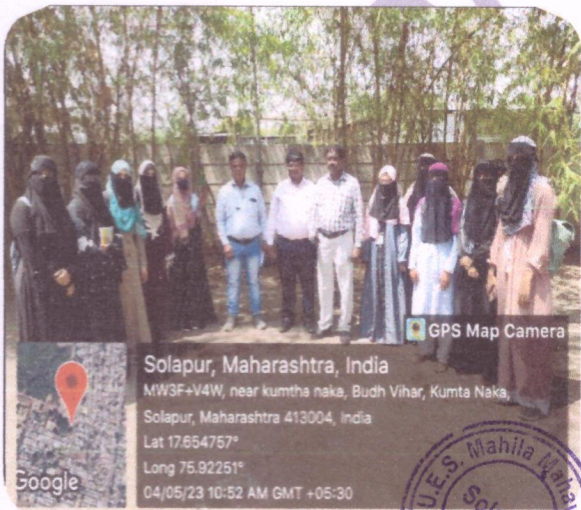


## INTRODUCTION:

Solid waste management is a term that is used to refer to the process of collecting and treating solid wastes. It also offers solutions for recycling items that do not belong to garbage or trash. As long as people have been living in settlements and residential areas, garbage or solid waste has been an issue. Waste management is all about how solid waste can be changed and used as a valuable resource.

Solid waste management should be embraced by each and every household, including the business owners across the world. The industrialization has brought a lot of good things and bad things as well. One of the adverse effects of industrialization is the creation of solid waste.

Solid-waste management, the collecting, treating, and disposing of solid material that is discarded because it has served its purpose or is no longer useful. Improper disposal of municipal solid waste can create unsanitary conditions, and these conditions in turn can lead to pollution of the environment and to outbreaks of vector-borne-disease—that is, diseases spread by rodents and insects.





## OBJECTIVES:

- ❖ To ensure the protection of the environment through effective waste management measures.
- ❖ To protect the health and wellbeing of people by providing an affordable waste collection service.
- ❖ Grow the contribution of the waste sector to GDP.
- ❖ Ensure the design and manufacture of products that avoid or minimize waste generation.
- ❖ Discourage waste generation through cost reflective and volume based tariffs.
- ❖ Ensure an efficient and effective solid waste management.
- ❖ Support the diversion of high calorific waste from landfill to recovery options.
- ❖ Encourage the establishments of Material Recovery Facilities (MRF's)
- ❖ Implement contaminated land measures in the Waste Act.





## METHODOLOGY:

- ⊕ Solid waste management until now has only been a social responsibility of the corporate world or one of the services to be provided by the municipality and non-priority for national governments.
- ⊕ Following are the effective methods of waste management except ocean dumping which has been controlled, regulated and banned in some cases in order to stop the hazardous materials to be dumped into the sea:
  - ✓ Ocean dumping
  - ✓ Sanitary landfill
  - ✓ Incineration
  - ✓ Composting
  - ✓ Waste separation, recycling and recovery
  - ✓ Mechanical and biological waste treatment
  - ✓ Mechanical sorting of wastes





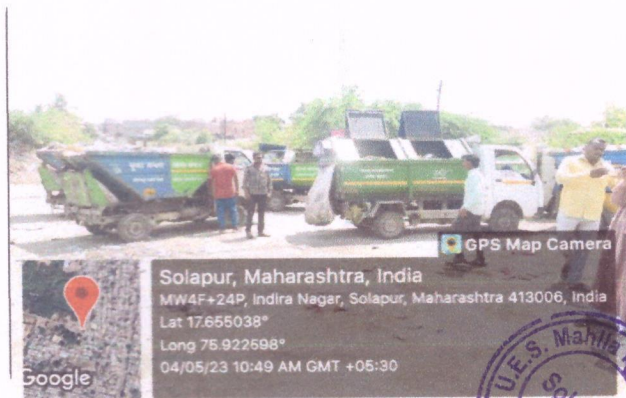
## DEFINITION:

**Definition of Solid Waste:** It is a term for man-made (basically consisting of plastic litter) discarded in the environment and often found in the sea or along the coastline, either floating on the surface or submerged.

**Definition of Solid Waste Management:** According to OECD (Organization for Economic Cooperation and Development) defines solid waste management as "the supervised handling of waste material from generation at the source through the recovery processes to disposal.

### What is Solid Waste?

RCRA states that "solid waste" means any garbage or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, resulting from industrial, commercial, mining, and agricultural operations, and from community activities.





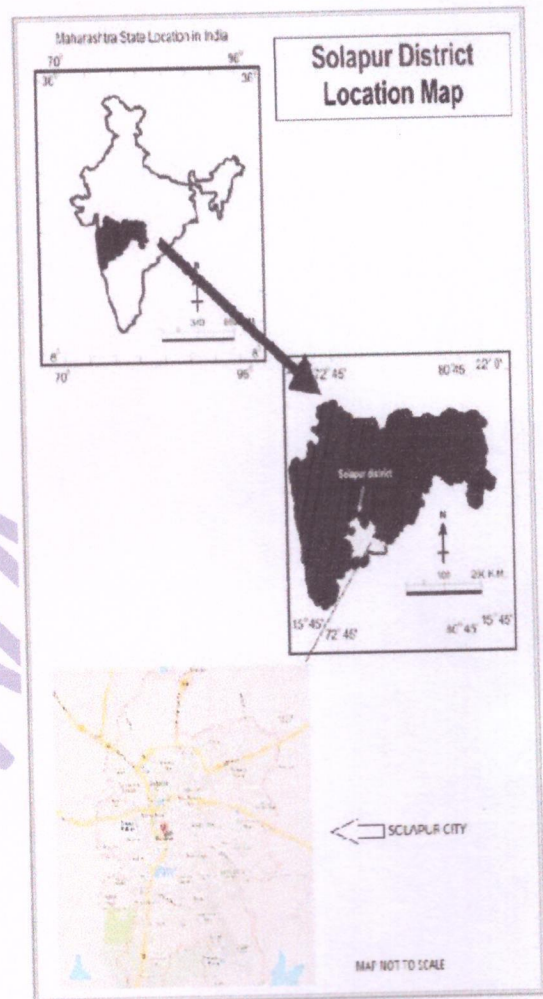
## INTRODUCTION TO SOLAPUR CITY

India is a country of many beautiful destinations, is one of these destinations. The beautiful city of Solapur. The city is administered as Municipal Corporation. It is in the south eastern part of Maharashtra state, near the Karnataka border. Solapur is the administrative headquarters of Solapur district, which consists of eleven Tahsils. Solapur was famous as a textile capital and was even known as the labour city in ancient times. The city is having separate importance because of having on the boarder of three states namely, Maharashtra, Andhra Pradesh and Karanataka. The city is having mix population migrated and settled from these three states and mix of community in addition to its native population. According to 1991 census the city was having population of 620846 which was increased 8, 73,009 in 2001 causing a population growth of 40% and spread an area of 179 Sq. km. Geographically, Solapur is located between  $17.10^{\circ}$  to  $18.32^{\circ}$  to the north latitude while it is about  $74.42^{\circ}$  to  $76.15^{\circ}$  to the east longitude[8]. Solapur is an important junction situated on the north-south railway line and provides connectivity between Maharashtra, Andhra Pradesh and Karnataka. It is also connected by both road and rail to most of the cities around and districts and provides easy access to Solapur, and the reason for its flourish in industries and fast growth.





Solapur has many small and medium scale industries, mainly the cotton mills and power looms. Chaddars, towels and bed sheets fabricated and produced in Solapur have earned a special reputation in the international market and fame for their durability and novel designs. The Solapur city has the largest industry in Maharashtra for Beedi production. Beedi rolling is classed as a cottage industry. Beedi typically made by women working from home. It is processed in much the same way as that of other handmade cigarettes. Due to scanty and uneven rains the scarcity conditions prevail in different parts of the Solapur district. That has adversely affected the socio-economic condition of peoples. The main language spoken in Solapur district is Marathi. Other languages used in Solapur include Hindi, Telugu and Kannada especially in border areas.





## TYPES OF SOLID WASTE:

### + Biodegradable :

Biodegradable is a type of waste, typically originating from plant or animal sources, which may be degraded by other living organisms

### + Non-biodegradable:

Non-biodegradable waste are those that cannot be decomposed or dissolved by natural agents. They remain on earth for thousands of years without any decomposition.

### Further it is divided into:

#### 1. Organic waste:

Organic waste is any material that is biodegradable and comes from either a plant or animal source.

#### 2. Plastic waste:

Plastic waste or plastic pollution is the accumulation of plastic objects and particles in the Earth's environment that adversely affects humans, wildlife and their habitats. It is included in Non-biodegradable waste.

#### 3. Metal waste:

Metal waste or scrap metal is any product that's broken or no longer useable, which is made completely or mostly from a metal material. It is included in Non-biodegradable waste.

#### 4. Glass waste:

Glass waste is another waste material that is produced in large quantities and is difficult to eliminate. It is included in Non-biodegradable waste.





5. **Paper waste:**

Paper waste, such as newspapers, printer papers, cardboard and product boxes are included in the biodegradable waste.

6. **E-waste:**

E-waste refers to all items of electrical and electronic equipment and its parts that have been discarded by its owner as waste without the intent of re-use. It is included in Non-biodegradable waste.

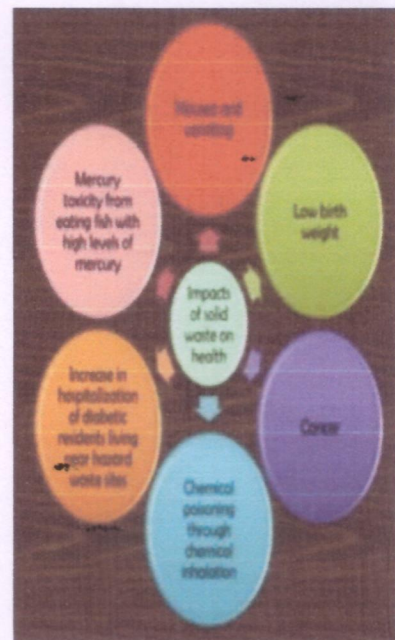
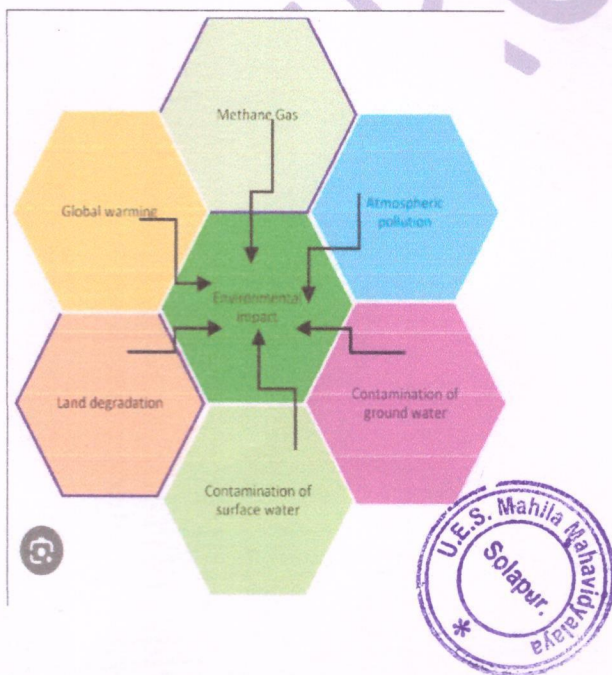
**Types of Solid Wastes**





## EFFECTS OF SOLID WASTE POLLUTION:

- ◆ Human health is adversely affected due to solid waste pollution. Solid waste dumping areas become breeding grounds for disease causing microorganisms.
- ◆ Leaching of solid waste to groundwater, lakes, rivers leads to the pollution of water resources.
- ◆ Animal lives and health is also affected due to above-mentioned reasons.
- ◆ Plants take up solid, semi-solid waste through their roots thereby causing diseases and less yield. Affected crops also affect humans.
- ◆ Solid waste pollution is interlinked with air, water pollution, and one feeds into another.
- ◆ Many of the solid wastes are non-degradable. They remain in the environment for many decades.
- ◆ Choking of drains because of plastics, papers, scraps due to solid waste pollution leads to accumulation of dirty water.
- ◆ Solid waste pollution in the present will affect the lives of future generations.
- ◆ Solid waste pollution disturbs the aesthetic and beauty of the natural environment.





## IMPORTANCE:

- Planning for Proper Disposal of Solid waste management and recycling for all the rubbish produced in this country is an enormous task which involves both logistical planning and scientific knowledge and understanding in order to balance the impact on the environment and the cost effectiveness of the process.
- Waste management and recycling companies are also feeling an extra pressure to perform their role in the greenest ways possible. It is important to remember that the India's resources and landfill sites are limited and this has a major bearing on the kind of activities that are carried out.
- Waste collection and rubbish disposal play an extremely important role in the global cleanliness and sustainability drive, with people's health and the conservation of resources being the responsibility of every government.
- To ease the pressure on government agencies, numerous privately-managed organizations also play a part in these waste management and recycling programs.
- In many cities it means that local government agencies have been left with the responsibility of overseeing the work done by these privately held organizations. The main Reason For proper disposal is the protection of Environmental.





## CAUSES OF SOLID WASTE POLLUTION:

- ❑ Residential and household wastes (Municipal Solid Wastes) are one of the major causes of solid waste pollution. The garbage from these places includes consumer goods like food waste, plastic, paper, glass, leather, cardboard, metals, ash and electronic waste such as IC boards, wires, batteries, etc.
- ❑ Commercial places like shops, malls, markets, hotels cause solid waste pollution by improper disposal of papers, cups, plastic plates, packaging materials, cans, bottles, polythene bags, etc.
- ❑ Light and heavy manufacturing units produce industrial waste like metals, dyes, chemicals which if not disposed of properly cause solid waste pollution.
- ❑ Construction and mining areas produce dust, concrete, scrap metals, and wood.
- ❑ Biomedical waste generated during diagnosis, treatment or prevention of diseases by hospitals include sponges, syringes, needles, bandages. It also includes infectious fluids or materials.
- ❑ Spoiled agricultural and dairy produce from farmland, orchards, dairies too cause solid waste pollution.
- ❑ Left out bodies of dead animals on roads, rivers and lakes causes organic solid waste pollution.
- ❑ Digitalisation of our world has led to rise in use of electronic gadgets like television, mobile phones, laptops, digital watches. And short shelf life of these items and social trends around these gadgets leads to early disposal, thereby leading to electronic solid waste pollution.

The reason for exponential rise in generation of solid wastes and rise in solid waste pollution is attributed to uncontrolled human population growth, rapid urbanization and industrialization.





## REASONS FOR THE RISE OF SOLID WASTE POLLUTION:

- Careless behavior, lack of awareness and 'throw away culture' has amplified the problem of solid waste pollution.
- Disbelief in science and scientific prediction has led to inaction regarding matters of solid waste pollution.
- Lack of public funding in infrastructure for solid waste management like incineration plants, boilers, and in awareness generation has caused accumulation of solid wastes in landfills, open areas leading to more solid waste pollution.
- Less emphasis on research and development in solid waste management technologies has slowed down the rate of proper disposal of solid waste, whereas the rate of solid waste generation and solid waste pollution is increasing with each passing day.
- Manpower to actually work on issues of solid waste pollution, management, mitigation, prevention, reuse recycle is also lacking.





## SOLID WASTE MANAGEMENT:

Collection, treatment, and disposal of solid waste is called Solid Waste Management.

Various processes and techniques are adopted to treat and dispose solid waste, and reduce solid waste pollution.

1. **Open dump field:**

Away from residential areas, here wastes are dumped untreated, unsegregated. This type of disposal is being phased out.

2. **Landfills :**

Pits are dug in ground and solid wastes are dumped. After the pits get filled, it is covered with thick layers of mud and sealed.

3. **Sanitary landfills:**

These are modified versions of landfills. The bottom and sides of the pits are lined with plastic, clay or concrete to prevent leaching of waste to underground water.

4. **Incineration plants:**

Solid wastes are burned in large furnaces at high temperature.





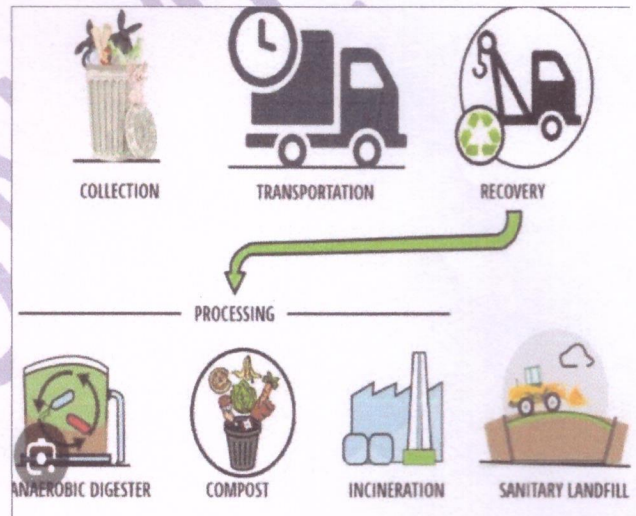
## HOW TO GET RID OF WASTE?

The various known disposal methods are :

- **Garbage Dump:**
- **Incineration:**
- **Biogas Production:**
- **Compaction of Waste:**
- **Compost:**
- **Vermicompost:**

### 1) Garbage Dump:

- i. In this process, waste types include non-recyclable materials distributed on land or in certain low altitude thin layers. These areas are dug deep where the debris is removed internally, and then a layer of soil is used to cover it.
- ii. These areas have been declared unsuitable for activities such as building construction for the next 20 years.
- iii. This site may be used to build parks and playgrounds soon.
- iv. This is one of the most common ways to remove large amounts of waste.



### 2) Incineration:

- i. Incinerators are considered to be extremely dangerous to the environment, as by-products are placed in landfills and ultimately are heavy metals that pollute the air, waste, and soil. However, this process has many advantages, including reduced waste volume, energy, and heat generation, reduced pollution, elimination of waste transport, noise and odour control, and elimination of chemical and harmful bacteria.

### 3) Biogas Production:





- i. Food, animal waste municipal waste, vegetable/fruit peels, and organic industrial waste are biodegradable wastes that can be degraded by bacteria and other organisms.
- ii. This waste produced biogas on a small to large scale, and bacteria, fungi, and other microorganisms can easily break down the substance. Biodegradable organic materials that break down or need to break down serve as food for microorganisms.
- iii. The biogas production process can be carried out anaerobically, i.e. without oxygen, and aerobically, i.e. with oxygen. As a result, biogas is used as fuel and the surplus is used as compost in fields and plantations.
- iv. Biogas is mainly a mixed gas of methane and carbon dioxide. This type of disposal method is advantageous because it is used to produce useful waste.



#### 4) Compaction of waste:

- i. Waste compression includes the paper technique of crushing the waste, pressing it, mixing it well, and arranging it to fill the gap. Higher waste densities lead to reduced waste volume and size, which ultimately reduces pollution to the environment.
- ii. Recycling is also one of the best ways to reduce waste and can be used in cans, PET bottles, cardboard, paper, metals, textiles, electronics, batteries, tires and more. This type of waste can be reused by recycling.

#### 5) Compost:

- i. Compost is one of the waste methods that started in our kitchen.
- ii. It processes all organic matter such as food waste, food waste, fruit and vegetable peels.
- iii. If these substances are buried and left underground for several days, they will be decomposed by the action of microorganisms such as bacteria and fungi. As a result, decomposition occurs, forming a humus-like substance called compost.





- iv. It is very beneficial to use as compost or fertilizer because it is rich in nutrients that can replenish the soil to grow crops and plants. It is also known to improve the water retention of soil and is the best alternative to harmful chemical fertilizers.

6) Vermicomposition:

- i. Vermicomposting, also known as earthworm composting, is a method of removing waste that uses white worms, red mosquitoes, earthworms, and other insects to break down organic matter such as plants and food waste
- ii. It is done by the process. Vermicast is the final product resulting from the decomposition of organic waste by earthworms
- iii. Vermicompost is used as a fertilizer because it is highly water-soluble and functions as an excellent source of nutrients. It is regularly mixed with soil in standard proportions or added as a liquid fertilizer.



Landfill



Incineration



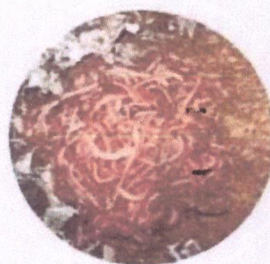
Waste Compaction



Biogas Generation



Composting



Vermicomposting





## RESULTS AND DISCUSSION:

### 1. Population-

The population of Solapur as per city census 1991 was reported to be 6, 20,846 and increased to 8, 73,009 as per 2001 city census. The growth rate of Solapur city is 0.4% in terms area with 179 Sq. Km. The population density of each zone is as below:

**Table 1: Zone wise details of Area, Population and Total Household in Solapur City**

Zone	No. of Wards	Area in Sq. Km	Population as of (2011)	No. of Households
Zone 1	16	33.189	1,42,321	31,148
Zone 2	17	25.674	1,54,664	33,618
Zone 3	16	11.585	1,40,462	30,776
Zone 4	16	22.522	1,43,023	31,297
Zone 5	16	46.999	1,42,110	31,116
Zone 6	17	44.097	1,49,809	32,645

### 2. Waste Generation –

Solapur city has in all 98 wards. These are divided in six Zones. Each zone consists of 16 to 17 wards. The existing solid waste management in Solapur city is scheduled zone wise. Total waste generated in Solapur corporation area is 420MT/day. The total quantity of solid waste generation is 75,000 Kg/d of which 50% is biodegradable (dry), 25% recyclable 15.3% green (wet) and 9.9% debris and silt. The solid waste in zone 4 has 53.33% biodegradable, 16.6% recyclable, 9.3% debris and silt, 20.6% green and vegetable waste. The green waste is maximum 21.4% in zone 6 due to vegetable markets as compared to other zones. More commercial activities involving us the use of plastic, glass, and paper, cardboard and metal sheets has constituted 24.6% waste as recyclable in zone 5. About 51% of the total solid waste collected from entire city is biodegradable processing the energy potential, if harnessed with anaerobic digestion, gasification or palletization technologies.

**Table.2 Details of Solid Waste generation and its nature in each zone of the Solapur city**

Sr. No.	Zone No.	Biodegradable (Kg/d)	Recyclable (Kg/d)	Debris & Silt (Kg/d)	Green Waste (Kg/d)	Total (Kg/d) 100%
1	Zone 1	35,000 (50.05%)	20,000 (28.6%)	6,000 (8.6%)	9,000 (12.9%)	70,000





2	Zone 2	37,500 (49.8%)	18,750 (24.9%)	7,500 (9.9%)	11,500 (15.3%)	75,000
3	Zone 3	34,000 (52.4%)	15,500 (23.9%)	6,200 (9.5%)	9,300 (14.3%)	65,000
4	Zone 4	40,000 (53.2%)	12,500 (16.6%)	7,000 (9.3%)	15,500 (20.6)	75,000
5	Zone 5	32,000 (49.2%)	16,000 (24.6%)	7,000 (10.7%)	10,000 (15.4%)	65,000
6	Zone 6	34,000 (48.6%)	15,000 (21.4)	6,000 (8.6%)	15,000 (21.4%)	70,000
	<b>Total</b>	<b>2,12,500 (51%)</b>	<b>97,750 (23.5%)</b>	<b>39,700 (9.5%)</b>	<b>70,050 (16.8%)</b>	<b>4,20,000</b>

### 3. Institutional arrangement –

Zone 2 has wide spread and generates high quantity of solid waste, hence requires involvement of 183 personal in its management. Zone 3 is relatively dense and requires less manpower (81). The total work manpower involved in solid waste collection is 736 and is controlled by the department incharge of SWM unit.

**Table. 3 Institutional manpower involved for solid waste collection and transportation in each zone of the Solapur city.**

Zones	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
Department	incharge of SWM in the city - 1					
Total no. of supervisory staff	CSI-1 SI-9	CSI-1 SI-9	CSI-1 SI-9	CSI-1 SI-9	CSI-1 SI-9	CSI-1 SI-9
Total no. of subordinate staff	Jamadar-0 Bigari-92 Driver-9	Jamadar 1 1 Bigari- 153 Driver-9	Jamadar-7 Bigari-54 Driver-10	Jamadar-4 Bigari-91 Driver-6	Jamadar-5 Bigari-107 Driver-6	Jamadar-4 Bigari-101 Driver-7
<b>Total 736+1</b>	<b>111</b>	<b>183</b>	<b>81</b>	<b>111</b>	<b>128</b>	<b>122</b>

### 4. Zone wise Details of collection System –

Prevention of littering and storage- To enable citizens to dispose waste, community bins are provided at reasonable distances depending on local requirement. But still in some areas the people throw the waste in open spaces. In Solapur there are 949 community bins and 553 open spaces where people throw the waste.





**Table.4 Zone wise solid waste collection provision in Solapur city.**

Zone	Container	Square Bin	Round Bin	Open Spaces
Zone 1	46	82	16	98
Zone 2	23	64	54	86
Zone 3	35	117	27	93
Zone 4	21	36	44	78
Zone 5	16	100	87	97
Zone 6	46	93	42	101
Total	187	492	270	553

#### 5. Waste Collection-

Generation of waste in Solapur is 420 MT /day out of which 347 MT/day is collected by the Corporation solid waste management authorities and 73 MT /day remain uncollected which constitutes about 20% of the waste generated that remains uncollected daily. It causes the environmental problems and affects human society many ways.

**Table.5 Door to door solid waste collection in each zone and total labours involved.**

Zone	Solid waste Generated (MTD)	Solid Waste collected through hand carts through door to door collection (In MTD)	Number of hand carts	Labour
Zone 1	70	1.6	8	8
Zone 2	75	1.2	6	6
Zone 3	65	2.4	12	12
Zone 4	75	2.0	10	10
Zone 5	65	3.2	16	16
Zone 6	70	1.6	8	8
<b>Total</b>	<b>420</b>	<b>12.0</b>	<b>60</b>	<b>60</b>

#### 6. Efficiency of collection of Municipal Solid Waste –

7. The city generates solid waste to the tune of 425 MTD of which 364 MTD is collected. Out of this 12 MTD is collected through door to door collection and 154.52 MTD is collected from community bins. Waste collected through other sources and street sweeping, market waste, commercial establishments is 201.28 MTD.





**Table.6 Comparison of total quantity of solid waste collection by door to door collection, bins and other sources**

Zones	Total Solid Waste Generated (In MTD)	Door to Door collection (In MTD)	Waste from community bins (MTD)	Waste from other sources (sweeping, markets, commercial establishments etc)	Total Solid Waste collected (In MTD)
1	73.00	1.6	30.88	38.52	71.00
2	75.00	1.2	24.48	30.32	62.00
3	67.00	2.4	29.04	37.76	62.00
4	75.00	2.0	22.16	29.04	52.00
5	65.00	3.2	21.40	31.8	55.00
6	70.00	1.6	26.56	33.84	62.00
<b>Total</b>	<b>425.00</b>	<b>12.0</b>	<b>154.52</b>	<b>201.28</b>	<b>364.00</b>

#### 8. Vehicles and transportation-

The waste generated is collected daily with the vehicles like truck, dumper placer, Compactor, tempo, etc. The transportation adds to the city air pollution of planned properly. Most of these vehicles carry the waste in open manner creating nuisance of odour and smell.

**Table.7 Zone wise transportation arrangement for solid waste in Solapur city.**

Zone	Truck	No. of trips /day	dumper placer	No. of trips /day	compactor	No. of trips /day	407 temp	No. of trips / day	Distanc efrom the disposa lsite
zone 1	3	9	2	11	1	1	1	3	3 KM
zone 2	3	9	2	10	1	3	0	0	5 KM
zone 3	3	9	2	10	1	2	0	0	6 KM
zone 4	2	4	2	8	1	3	0	0	11KM
zone 5	3	9	2	10	1	3	0	0	11KM
zone 6	2	7	2	10	1	3	1	3	10KM
<b>Total</b>	<b>16</b>	<b>47</b>	<b>12</b>	<b>59</b>	<b>6</b>	<b>15</b>	<b>2</b>	<b>6</b>	<b>-</b>

#### 9. Disposal –

The waste is disposed daily to the landfill site located on Tuljapur road and Bhogaon. The disposal is dumped in landfill and open giving rise to contamination and the treatment process is not followed. Most of the waste dumped on open. The landfill sites are not well maintained, which create the threat of groundwater contamination due to lechate percolation. Open dumped garbage serves as breeding ground for disease vector such as flies, mosquitoes,



cockroaches, and rats affects the other pests. The waste sometimes is taken by local farmers as fertilizer. Most of the waste remains laying down in open causing pollution with the odour and smell unless degrades naturally. A treatment plant of anaerobic digestion is in progress to extract energy from organic waste generating the biogas.

#### 10. **Impact on workers –**

The information on health impacts was collected by personal interview conducted; data details are beyond the scope of this paper. The general impacts are summarized in following lines. Workers, who are associated with the process solid waste management at different level, are vulnerable as far as health hazards are concerned due to constant and long time direct contact with solid waste. Workers get health problems like accidental injuries like individual cuts from scarp waste materials and they may also lead the poisoning from chemical wastes. Sometimes injuries caused by infected sharp metal waste. Further eye and skin infections due to exposure of infected dust are also reported in workers.

Apart from these health problems, workers also face problems like asthma, T.B., and some respiratory diseases. Sweepers are suffering from back-ache due to regularly sweeping for a considerable distance per day. Those workers who are loading garbage into trucks are facing eye problems and it was observed in field work that their eyes were red in color.

During waste loading processes dust particles spread in the surrounding air and it creates problem of air pollution. The impacts of solid waste on the workers can be minimized by following the guidelines and prescribed rules.

#### 11. **Impact on Raggickers -**

The Raggickers are also suffered from pathogenic diseases and they do not get any medicals facilities for health problems. These people belong to poorest categories and they cannot afford even two squares meal in one day. The society people are not accepts as friends of the society who helps to keep their locality clean. In and surroundings areas of landfills sites and dumping places are suffered from many problems. [17,18,19]. Due to open dumping of solid waste, it emits badsmell due to presence of dead animal waste and biodegradable components. Rodents and dogs are feeding on such dumping place and they may bite peoples present in those areas. Such dumping sites are spoiling environment of nearby villages surrounding the dumping site.



## CONCLUSION

Solapur is one of the leading urban centers in India. The management and disposal of solid waste is not scientific and it creates serious environmental problems. In-sanitary method of waste disposal is also a serious health concern, particularly in rainy season. Lechate and high humid conditions increases the risk of health problems. The combined effects of uncollected wastes, poor handling and inadequate disposal safeguards for municipal wastes have always implications for public health leading to the chances of transmission of diseases, the spread of epidemics and loss of healthy urban and amenable environment.

Human ways of life have placed pressure on the environment and have caused imbalance in the ecosystems by the producing, consuming and wasting of natural resources. Most countries evidently have major effects on the environment due to SW generation with economic development since the natural resources are used, and waste and pollution are produced. Therefore, the concern towards the management of solid waste as an integral part for sustainable development has increased.

In summary, the research findings revealed that there are significant issues with unauthorized waste disposal practices due to the lack of proper waste management process. The lack of Public waste bins and proper waste collection processes have significantly affected the unauthorized waste disposal practices.





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**P.A.H.Solapur University, Solapur**



Union Education Society's  
**MAHILA MAHAVIDYALAYA**  
Siddheshwar Peth Solapur -413001

A Project Report on  
**DISASTER MANAGEMENT**

Submitted by

Miss:

*Shaiikh Sheena T Saq*

Under the guidance of

**Dr. Z. A. Nayab**

**Mrs. Farzana Patel**

Year of Submission

Year 2022-2023



# P.A.H. Solapur University, Solapur



## Union Education Society's Mahila Mahavidyalaya, Solapur

### Project on Disaster Management

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Union Education Society's  
**MAHILA MAHAVIDYALAYA**  
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Certificate

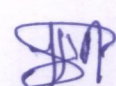
**ENVIRONMENTAL  
STUDIES**

Exam No: 2021

Date: 27 / 05 / 2023

This is to certify that Miss. Shaiikh Sheerin Jsaq  
has satisfactorily carried out the required field/ project work by the P.A.H.  
Solapur University, Solapur. For the B. A. II course in Environmental Studies and  
this field/ project work report represents his/her confide work in the year 2022-  
2023.

  
Dr. Z. A. Nayab  
Examiner

  
Dr. F.M. Shaikh  
I/C/Principal  
I/c. Principal  
U. E. S. Mahila Mahavidyalaya,  
Solapur.

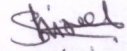


## Declaration of the Student

I Sheikh Sheerin Jsaq Student of B.A.  
II bearing Roll No 2021 is hereby declared that the project of  
environmental studies entitled **“Disaster Management”** is the Original  
Work and not submitted anywhere for the publication.

Date : 27/05/2023

Place : Solapur

  
Signature of the  
Student

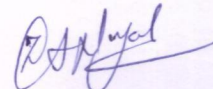
U.E.S MAHILA MAHAVIDYALAYA, SOLAPUR

## Declaration of the Supervisor

I, the undersigned supervisor for the environmental studies project hereby declared that the project of Shaukh Sheerin Jsaq Student of B.A. II has carried out the field project entitled "Disaster Management" is for the partial fulfilment of the certificate course in environmental studies proposed by P.A. H. Solapur University, Solapur is the original work and not submitted elsewhere for the publication.

Date : 27/05/2023

Place : Solapur

  
Dr. Z. A. Nayab



## ACKNOWLEDGMENT

I hereby acknowledge all these to directly or indirectly help me in drafting of the project report. It would not be possible for me to complete the task without help and guidance.

First of all, I would like to thank Dr. Nayab Z.A. and the coordinator who gave me the opportunity to do this project work. They also the important instruction from the university time to time. Secondly I am very much obliged of Mrs. Patel Farzana for giving guidance for competing the project.

Last but not the list I am thankful to the university of Solapur for offering project in the syllabus I must mention my hearty gratitude to words my family and my friends to supported me to go ahead with the project.



## ABSTRACT

India has been traditionally vulnerable to natural disaster on account of its unique geo-climate conditions. Floods, droughts, cyclones, earthquakes, and landslides have been a recurrent phenomena. About 60% of the landmass is prone to earthquake of various intensities; over 40 million hectares is prone to floods; about 8 % of total area is prone to cyclones and 68% of the areas is susceptible to drought. In the decade 1990-2000, an average of about 4344 people lost their lives about 30 million people were affected by disaster every year. The loss in terms of private, community and public assets has been astronomical. At the global level, there has been considerable concern over natural disaster. Even as substantial scientific and material progress is made, the loss of life and property due to disaster has not decreased. In fact human toll and economic losses have mounted. It was in this background that the UN general assembly in 1989 declared 1990-2000 as the International decade of natural disaster reduction with the objective to reduce loss of lives and property and restrict socioeconomic damage through concerted international action. The Government of India have adopted mitigation and prevention as essential components of their development strategies. The Tenth Five Year Plan documents have a detailed chapter on Disaster Management. The plan emphasizes the fact that development cannot be sustainable without mitigation being built into development process. Each State is supposed to prepare a plan scheme for disaster mitigation in accordance with the approach outlined in the plan. In brief, mitigation is being institutionalized into development planning. The Finance Commission makes recommendation with regard to devolution of funds between Central Government and State Government as also outlays for relief and rehabilitation. The Government of India have issued guidelines that where there is a self of projects, projects addressing mitigation with be given priority. It has also been mandated that each projects in a hazard prone area will have disaster prevention/mitigation as a term of reference and the project documents has to reflect as-to how project addresses that term of reference. In the sections are discussed the measures shortcoming, measures taken for the mitigation of the disaster.



## INTRODUCTION

India has been traditionally vulnerable to natural disasters on account of its unique geo-climatic conditions. Floods, droughts, cyclones, earthquakes and landslides have been a recurrent phenomena. About 60% of the landmass is prone to earthquakes of various intensities; over 40 million hectares is prone to floods; about 8% of the total area is prone to cyclones and 68% of the area is susceptible to drought. In the decade 1990-2000, an average of about 4344 people lost their lives and about 30 million people were affected by disasters every year. The loss in terms of private, community and public assets has been

At the global level, there has been considerable concern over natural disasters. Even as substantial scientific and material progress is made, the loss of lives and property due to disasters has not decreased. In fact, the human toll and economic losses have mounted. It was in this background that the United Nations General Assembly, in 1989, declared the decade 1990-2000 as the International Decade for Natural Disaster Reduction with the objective to reduce loss of lives and property and restrict socio-economic damage through concerted international action, specially in developing countries.

The super cyclone in Orissa in October, 1999 and the Bhuj earthquake in Gujarat in January, 2001 underscored the need to adopt a multi dimensional endeavour involving diverse scientific, engineering, financial and social processes; the need to adopt multi disciplinary and multi sectoral approach and incorporation of risk reduction in the developmental plans and strategies.

Over the past couple of years, the Government of India have brought about a paradigm shift in the approach to disaster management. The new approach proceeds from the conviction that development cannot be sustainable unless disaster mitigation is built into the development process. Another corner stone of the approach is that mitigation has to be multi-disciplinary spanning across all sectors of development. The new policy also emanates from the belief that investments in mitigation are much more cost effective than expenditure on relief and rehabilitation.

Disaster management occupies an important place in this country's policy framework as it is the poor and the under-privileged who are worst affected on account of calamities/disasters. The steps being taken by the Government emanate from the approach outlined above. The approach has been translated into a National Disaster Framework [a roadmap] covering institutional mechanisms, disaster prevention strategy, early warning system, disaster mitigation, preparedness and response and human resource development. !



## What Is A Disaster?

A disaster is a natural or man-made (or technological) hazard resulting in an event of substantial extent causing significant physical damage or destruction, loss of life, or drastic change to the environment. A disaster can be extensively defined as any tragic event stemming from events such as earthquakes, floods, catastrophic accidents, fires, WAES, or explosions. It is a phenomenon that can cause damage to life and property and destroy the economic, social and cultural life of people.

In contemporary academia, disasters are seen as the consequence of inappropriately managed risk. These risks are the product of a combination of both hazard/s and vulnerability. Hazards that strike in areas with low vulnerability will never become disasters, as is the case in uninhabited regions.

Developing countries suffer the greatest costs when a disaster hits – more than 95 percent of all deaths caused by disasters occur in developing countries, and losses due to natural disasters are 20 times greater (as a percentage of GDP) in developing countries than in industrialized countries.

### *Types of DISASTERS*

There is no country that is immune from disaster, though vulnerability to disaster varies. There are four main types of disaster.

- **Natural disasters.** These disasters include floods, hurricanes, earthquakes and volcano eruptions that can have immediate impacts on human health, as well as secondary impacts causing further death and suffering from floods causing landslides, earthquakes resulting in fires, tsunamis causing widespread flooding and typhoons sinking ferries
- **Environmental emergencies.** These emergencies include technological or industrial accidents, usually involving hazardous material, and occur where these materials are produced, used or transported. Large forest fires are generally included in this definition because they tend to be caused by humans.
- **Complex emergencies.** These emergencies involve a break-down of authority, looting and attacks on strategic installations. Complex emergencies include conflict situations and war.
- **Pandemic emergencies.** These emergencies involve a sudden onset of a contagious disease that affects health but also disrupts services and businesses, bringing economic and social costs.



## What is Disaster Management?

**Disaster management (or emergency management)** is the discipline of avoiding and dealing with both natural and man-made disasters. It involves preparedness, response and recovery plans made in order to lessen the impact of disasters.

Preparedness training may be done by private citizens, as by the Federal Emergency Management Agency (FEMA) in the United States.

All aspects of disaster management deal with the processes used to protect populations or organizations from the *consequences of disasters*, wars and acts of *terrorism*. This can be seen through government publications such as the National Strategy for Homeland Security which detail how individuals and varying levels of government respond during the different phases of a disaster.

Emergency management can be further defined as "the discipline and profession of applying science, technology, planning and management to deal with extreme events that can injure or kill large numbers of people, do extensive damage to property, and disrupt community life" (Drabek, 1991a, p. xvii).

An 'emergency' is 'an unplanned event that can cause deaths or significant injuries to employees, customers or the public; or that can shut down your business, disrupt operations, may cause physical or environmental damage, or threaten the facility's financial standing or public image' (FEMA, 1993).

Emergency events can include terrorist attacks, industrial sabotage, fire, natural disasters (such as earthquakes, severe weather, etc.), public disorder, industrial accident, communications failure and loss, or corruption of critical information. Some examples of catastrophic incidents are:

1. The 1995 Kobe, Japan, earthquake, which killed more than 6000 people and left another 30,000 injured.
2. The 1994 Northridge, California, earthquake, which resulted in approximately \$33 billion in damages.

These individual events are significant enough, but the losses are even more dramatic when accumulated over time. Between 1989 and 1999, the average natural disaster loss in the US was \$1 billion each week.

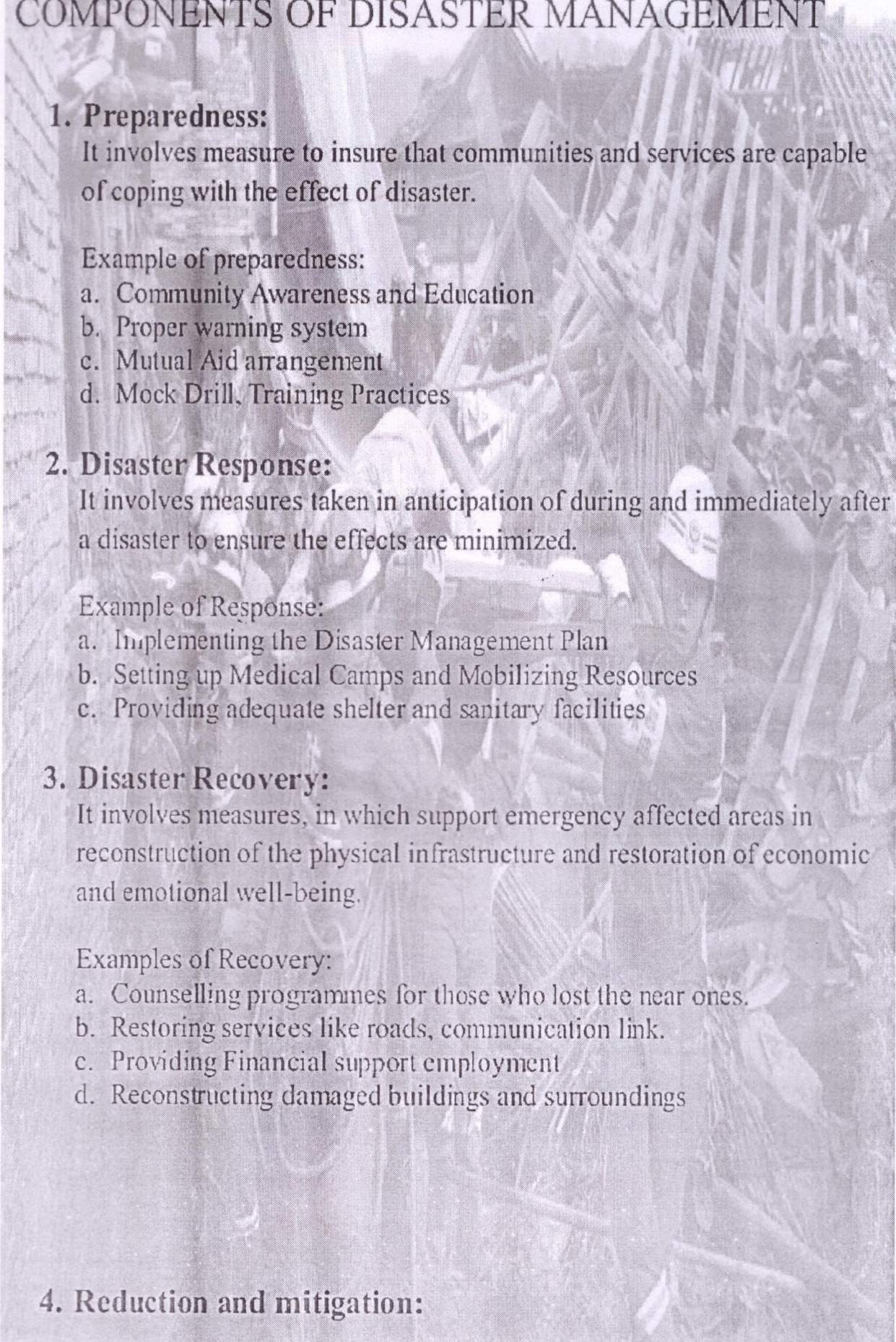
Disaster management does not necessarily avert or eliminate the *threats* themselves, although the study and prediction of the threats are an important part of the field. The basic levels of emergency management also include the various kinds of search and rescue activity.

In simple words Disaster Management is

'Disaster management can be defined as the organization and management of resources and responsibilities for dealing with all humanitarian aspects of emergencies, in particular preparedness, response and recovery in order to lessen the impact of disasters'.



# COMPONENTS OF DISASTER MANAGEMENT



## 1. Preparedness:

It involves measure to insure that communities and services are capable of coping with the effect of disaster.

Example of preparedness:

- a. Community Awareness and Education
- b. Proper warning system
- c. Mutual Aid arrangement
- d. Mock Drill, Training Practices

## 2. Disaster Response:

It involves measures taken in anticipation of during and immediately after a disaster to ensure the effects are minimized.

Example of Response:

- a. Implementing the Disaster Management Plan
- b. Setting up Medical Camps and Mobilizing Resources
- c. Providing adequate shelter and sanitary facilities

## 3. Disaster Recovery:

It involves measures, in which support emergency affected areas in reconstruction of the physical infrastructure and restoration of economic and emotional well-being.

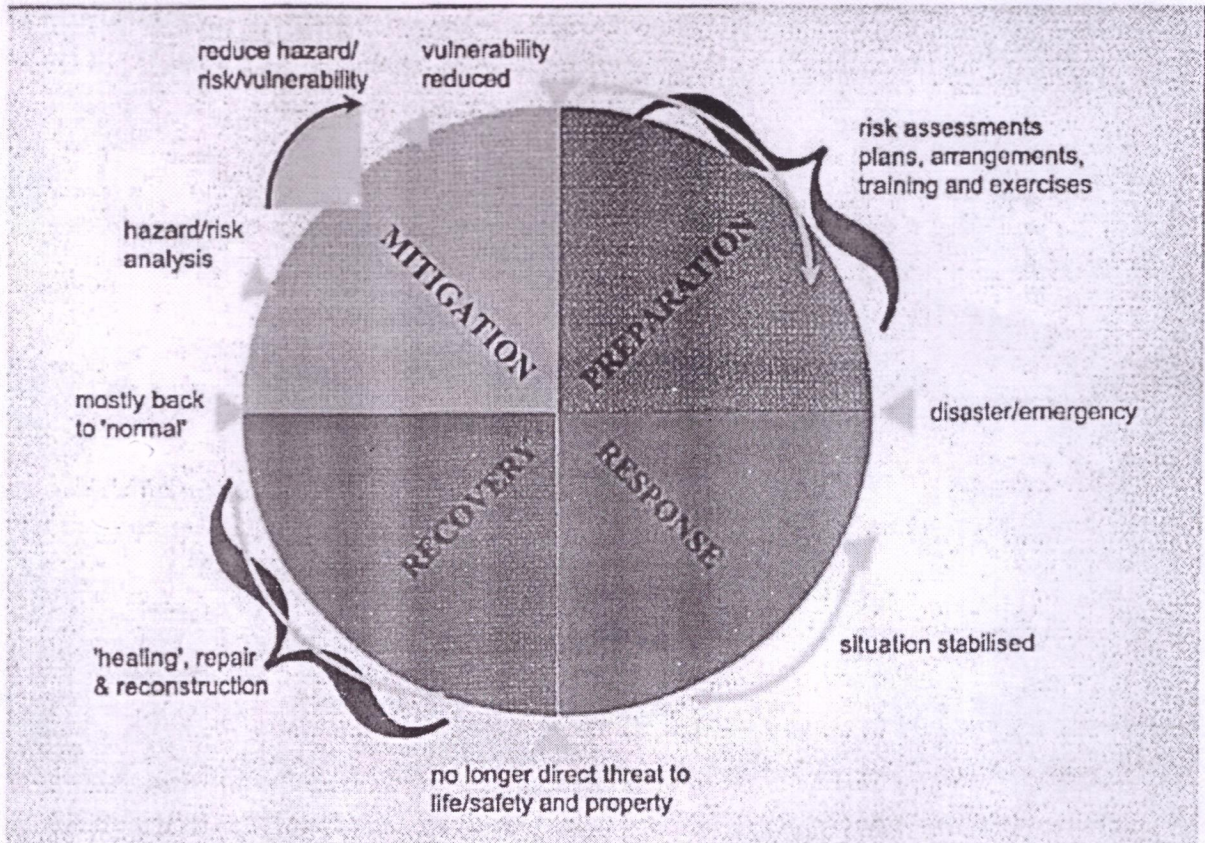
Examples of Recovery:

- a. Counselling programmes for those who lost the near ones.
- b. Restoring services like roads, communication link.
- c. Providing Financial support employment
- d. Reconstructing damaged buildings and surroundings

## 4. Reduction and mitigation:



It involves measures to reduce or eliminate the incidence or severity of disasters.





Many international organisations, voluntary agencies and national governments have been working towards reducing the impact of disasters and minimise the loss of life and property on account of man-made and natural disasters. These efforts have been directed at identifying the vulnerability of areas and local communities and developing organisational systems and institutional capacity for risk reduction and disaster response programmes.

In India, the Disaster Management Act, 2005 was enacted on December 26, 2005 to develop plans for prevention and mitigation, and procedures to strengthen capacity building and awareness among people. The Act also permits states to have their own legislation on disaster management.

Under the Act, a ten-member National Disaster Management Authority (NDMA) was constituted with the prime minister as the chairperson. The Authority, with the assistance of the National Executive Committee (NEC) of Secretaries is responsible for:

- Preparing national policies, plans and guidelines for disaster management.
- Approving disaster management plans developed by the states.
- Coordinate enforcement and implementation of the policy and plan,
- Arrange for funds and take effective measures for disaster prevention, mitigation, preparedness and capacity management.
- Provide assistance to countries affected by disasters

Each state has its own disaster management authority, which is chaired by the chief minister. The state authority, assisted by a State Executive Committee, forms policies and plans for disaster management in the state. A district disaster management authority has also been established by every state in each district. The district authority is headed by the district magistrate.

The local authority trains its officers and employees and maintains the necessary tools and equipments for relief and rescue operations. It also ensures that all construction projects conform to the standards and specifications laid down by the state government.



- National Disaster Response Force, consisting of eight central paramilitary battalions
- National Institute of Disaster Management: responsible for planning and promoting training and research in the area of disaster management
- National Fund for Disaster Response for which the funds are decided by the central government. This is made available to the NEC, which meets the expenses towards emergency response, relief and rehabilitation
- National Fund for Disaster Mitigation will be directly managed by the National Disaster Management Authority, and will be used exclusively for the purpose of mitigation.

The Act requires every ministry or department of the Government of India to set aside funds in its annual budget for the activities and programmes set out in its disaster management plan.

Schemes for financing expenditure on relief and rehabilitation in the wake of natural calamities are governed by the recommendations of Finance Commissions appointed by the Government of India every five years.

Under the Tenth Finance Commission, in operation for the period 1995-2000, each state had a corpus of funds called the Calamity Relief Fund (CRF), administered by a state level committee, headed by the chief secretary of the state government. The size of the corpus was determined on the basis of the vulnerability of the state to different natural calamities and the magnitude of expenditure normally incurred by the state on relief operations. The corpus was built by annual contributions from the union government and the state governments concerned in the ratio 3:1.

The Eleventh Finance Commission modified the financial arrangements under the Tenth Finance Commission and recommended the setting up of a National Calamity Contingency



The Twelfth Finance Commission, for the period 2005-10, has recommended that the Calamity Relief Fund should continue in its present form with contributions from the Centre and states in the ratio of 75:25.

### *India's Vulnerability to Disasters*

- ◆ *57% land is vulnerable to earthquakes. Of these, 12% is vulnerable to severe earthquakes.*
- ◆ *68% land is vulnerable to drought.*
- ◆ *12% land is vulnerable to floods.*
- ◆ *8% land is vulnerable to cyclones.*
- ◆ *Apart from natural disasters, some cities in India are also vulnerable to chemical and industrial disasters and man-made disasters.*

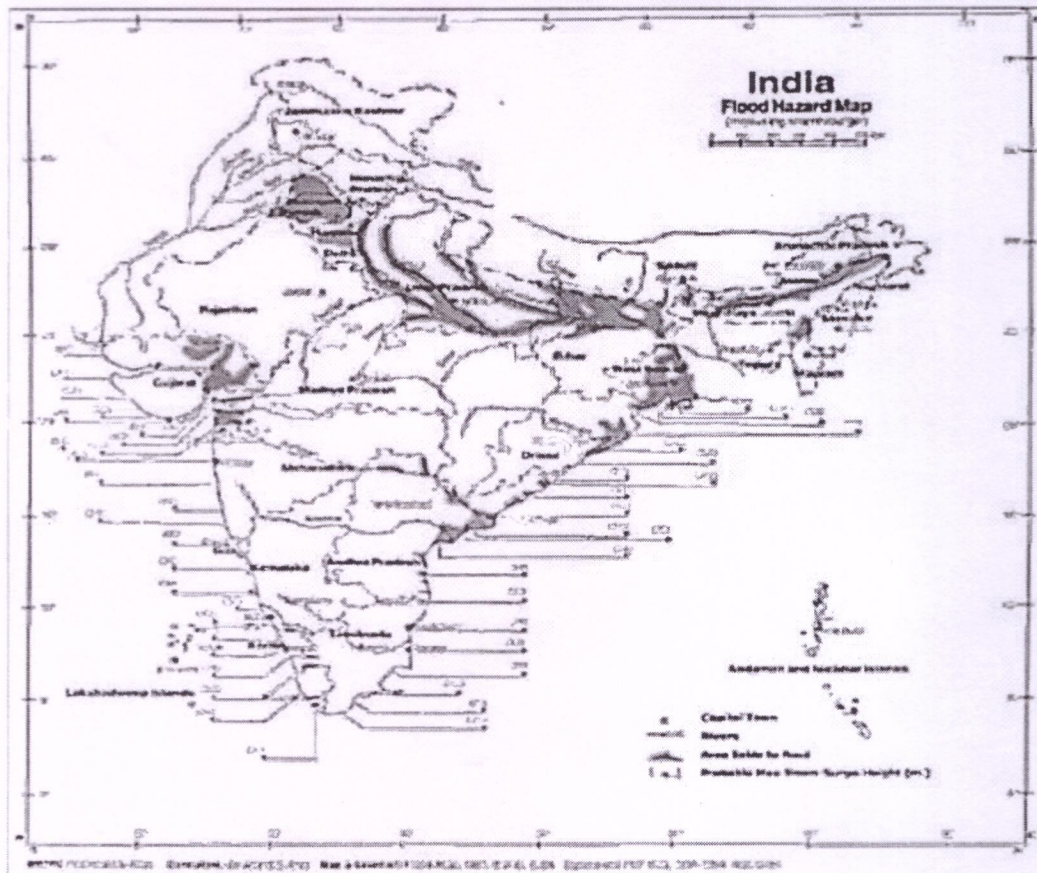
Below are the following maps showing disaster prone areas:

#### **1. Flood Map**





2.

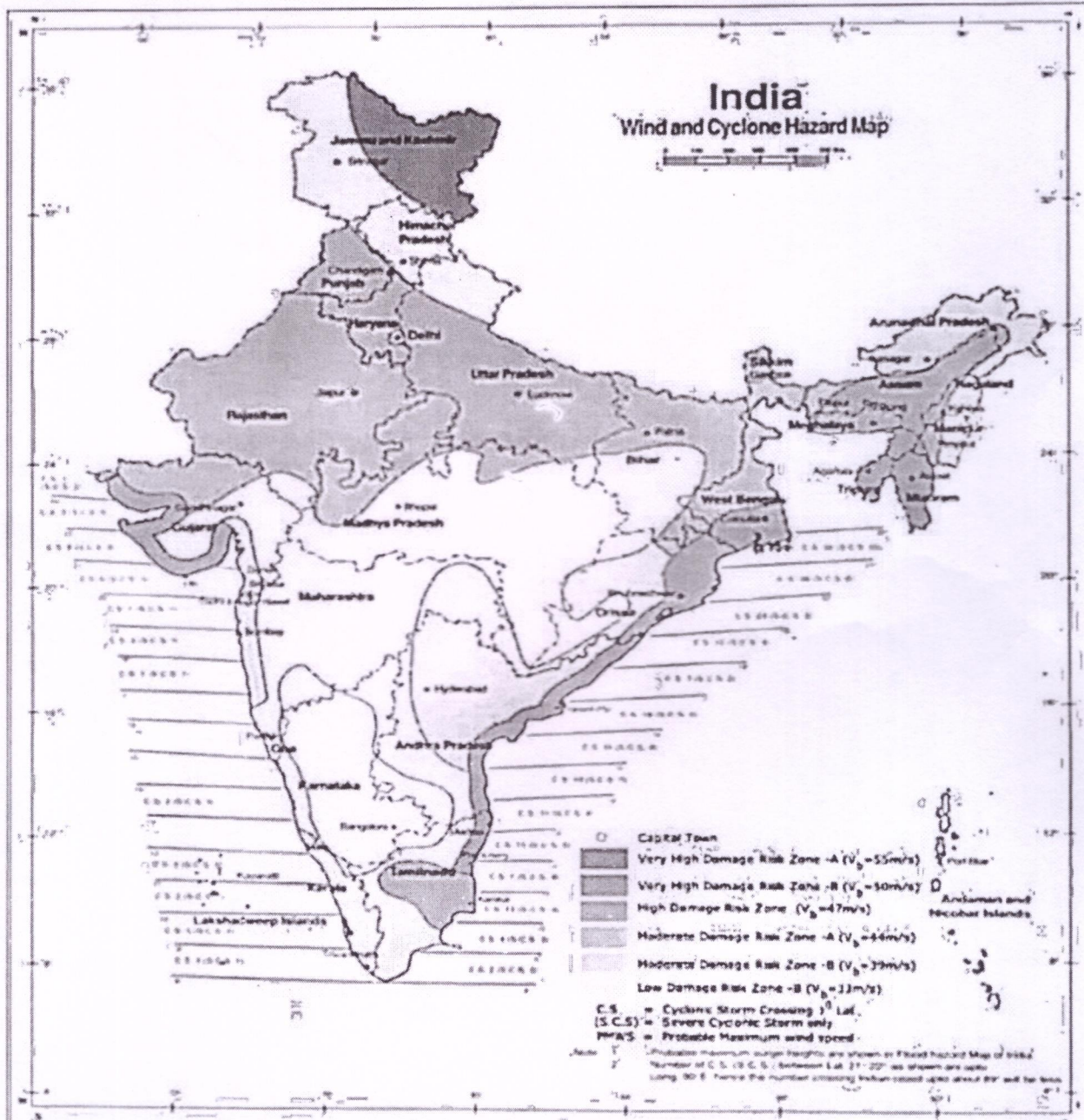


*Wind and Cyclone hazard map:*



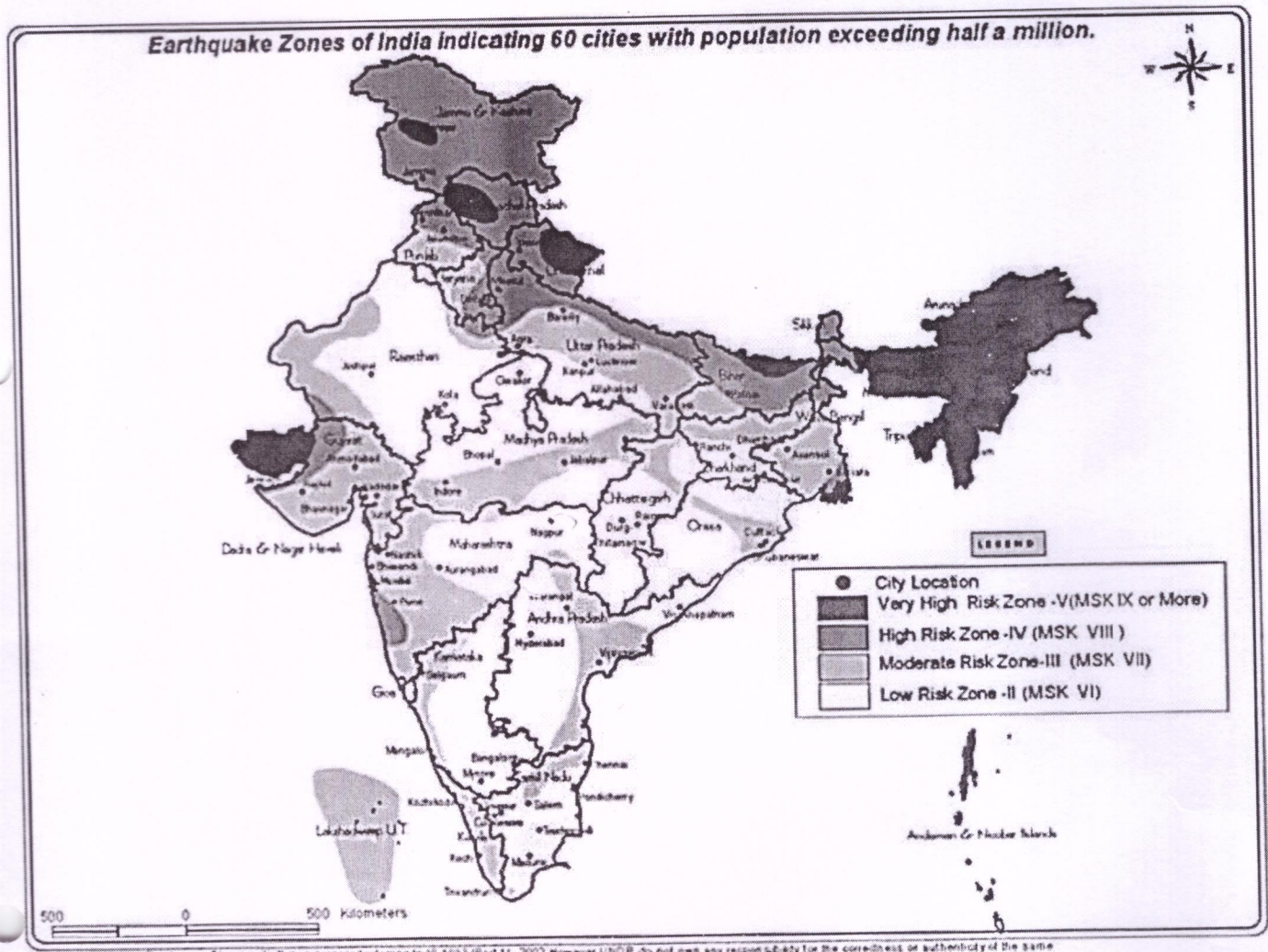
# India

## Wind and Cyclone Hazard Map





### 3. Earthquake Zone:





## NATIONAL DISASTER MANAGEMENT AUTHORITY (NDMA)

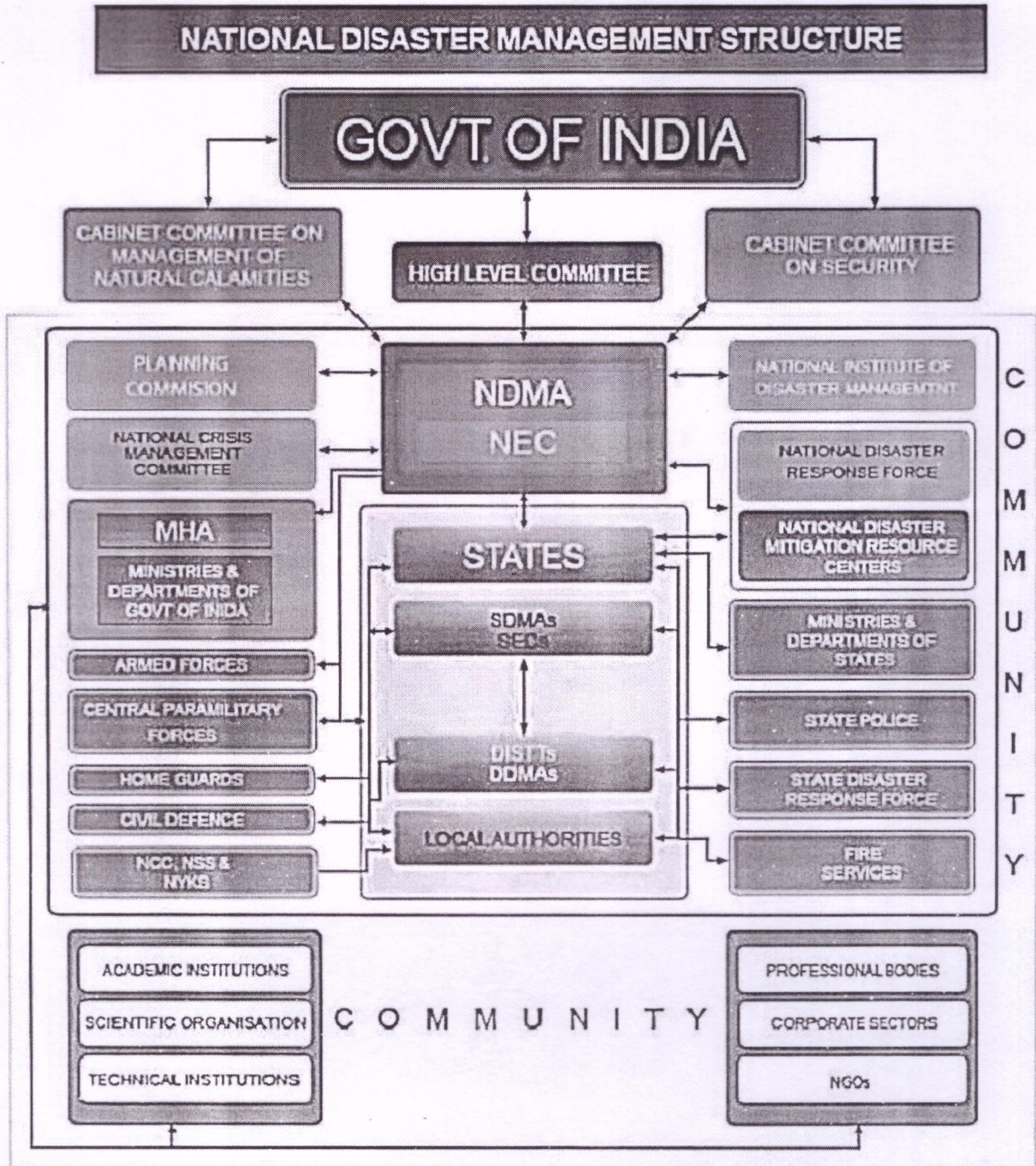
NDMA as the apex body is mandated to lay down the policies, plans and guidelines for Disaster Management to ensure timely and effective response to disasters. Towards this, it has the following *Responsibilities:-*

- ⌘ Lay down policies on disaster management;
- ⌘ Approve the National Plan;
- ⌘ Approve plans prepared by the Ministries or Departments of the Government of India in accordance with the National Plan;
- ⌘ Lay down guidelines to be followed by the State Authorities in drawing up the State Plan;
- ⌘ Lay down guidelines to be followed by the different Ministries or Departments of the Government of India for the Purpose of integrating the measures for prevention of disaster or the mitigation of its effects in their development plans and projects;
- ⌘ Coordinate the enforcement and implementation of the policy and plan for disaster management;
- ⌘ Recommend provision of funds for the purpose of mitigation;
- ⌘ Provide such support to other countries affected by major disasters as may be determined by the Central Government;
- ⌘ Take such other measures for the prevention of disaster, or the mitigation, or preparedness and capacity building for dealing with the threatening disaster situation or disaster as it may consider necessary;
- ⌘ Lay down broad policies and guidelines for the functioning of the National Institute of Disaster Management.

National Disaster Management Authority has been constituted with the Prime Minister of India as its Chairman, a Vice Chairman with the status of Cabinet Minister, and eight members with the status of Ministers of State. Each of the members has a well defined functional domain covering various states as also disaster specific areas of focus and concern to carry out the mandated functions, NDMA has evolved a lean and professional organization which is IT-enabled and knowledge based. Skills and expertise of the specialists are extensively used to address all the disaster related issues. A functional and operational infrastructure has been built which is appropriate for disaster management involving uncertainties coupled with desired plans of action.



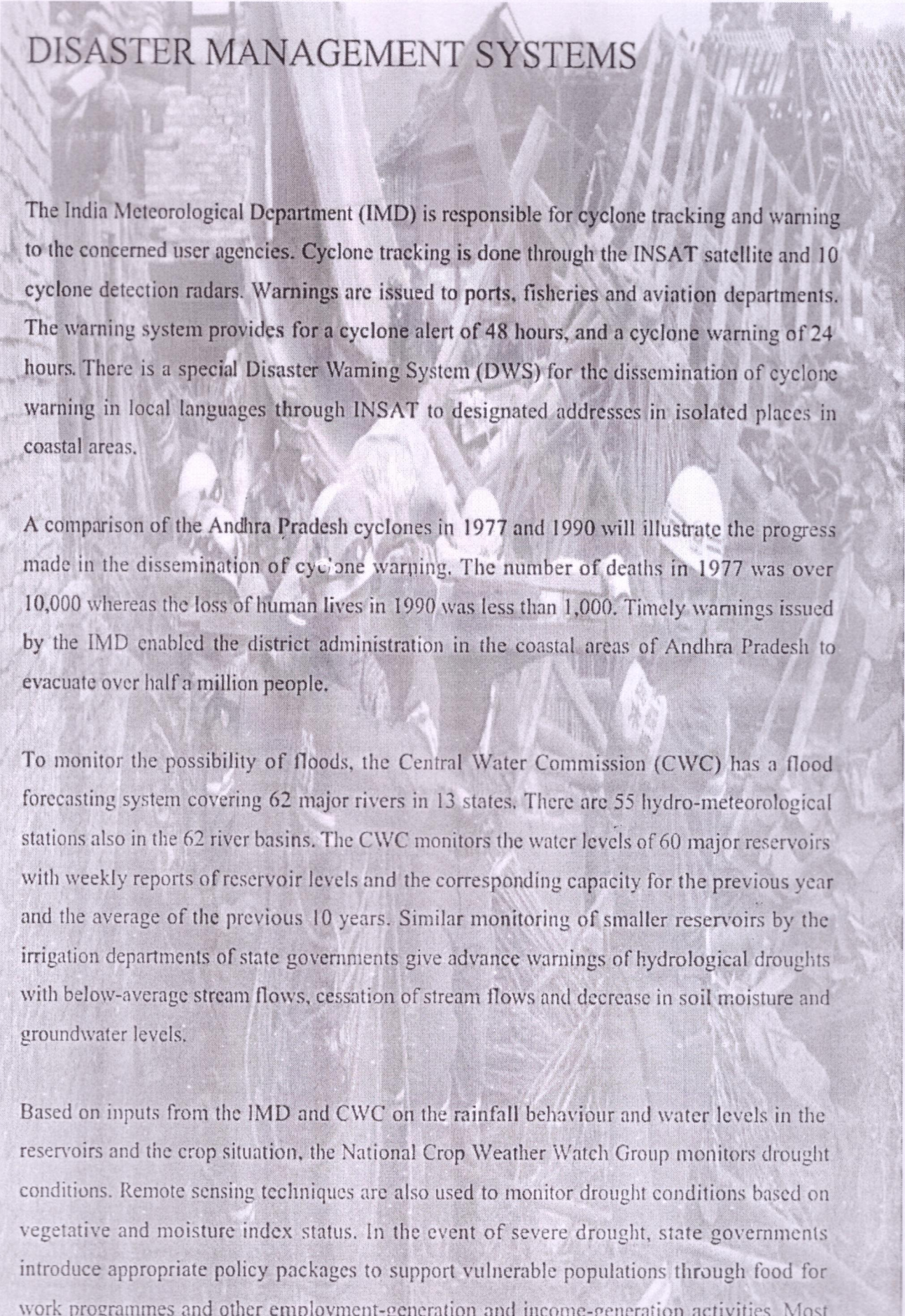
# STRUCTURE MECHANISM OF NDMA











## DISASTER MANAGEMENT SYSTEMS

The India Meteorological Department (IMD) is responsible for cyclone tracking and warning to the concerned user agencies. Cyclone tracking is done through the INSAT satellite and 10 cyclone detection radars. Warnings are issued to ports, fisheries and aviation departments. The warning system provides for a cyclone alert of 48 hours, and a cyclone warning of 24 hours. There is a special Disaster Warning System (DWS) for the dissemination of cyclone warning in local languages through INSAT to designated addresses in isolated places in coastal areas.

A comparison of the Andhra Pradesh cyclones in 1977 and 1990 will illustrate the progress made in the dissemination of cyclone warning. The number of deaths in 1977 was over 10,000 whereas the loss of human lives in 1990 was less than 1,000. Timely warnings issued by the IMD enabled the district administration in the coastal areas of Andhra Pradesh to evacuate over half a million people.

To monitor the possibility of floods, the Central Water Commission (CWC) has a flood forecasting system covering 62 major rivers in 13 states. There are 55 hydro-meteorological stations also in the 62 river basins. The CWC monitors the water levels of 60 major reservoirs with weekly reports of reservoir levels and the corresponding capacity for the previous year and the average of the previous 10 years. Similar monitoring of smaller reservoirs by the irrigation departments of state governments give advance warnings of hydrological droughts with below-average stream flows, cessation of stream flows and decrease in soil moisture and groundwater levels.

Based on inputs from the IMD and CWC on the rainfall behaviour and water levels in the reservoirs and the crop situation, the National Crop Weather Watch Group monitors drought conditions. Remote sensing techniques are also used to monitor drought conditions based on vegetative and moisture index status. In the event of severe drought, state governments introduce appropriate policy packages to support vulnerable populations through food for work programmes and other employment-generation and income-generation activities. Most



of the food for work programmes will be undertaken to desilt the existing water tanks, deepen the tanks, and carry out the construction of water harvesting structures. Sometimes, the state governments may also include the restoration of public utilities and creation of social infrastructure in such food for work programmes in drought-affected districts. The ambitious Rural Employment Guarantee Scheme launched in 2006 which guarantees 100 days of work to every rural household that asks for it, can also generate such assets, particularly in developing water sources, which is a priority under the scheme

Multi-purpose dams and reservoirs have been built to reduce the impact of floods. Control of premature siltation of multi-purpose reservoirs and checking degradation of catchment areas is attempted through a scheme of soil conservation and river valley projects in the catchments of major rivers. The scheme covers 581 watersheds in 27 catchments spread over 17 states.

During 1960s to 1980s there has been a greater reliance on structural measures. As structural measures alone have not yielded the desired results and flood damage continues to increase, non-structural measures such as flood forecasting, flood plain zoning, flood proofing of the civic amenities of the affected villages, changing the cropping pattern and public participation in flood management works are being given greater emphasis.

As the Indian Ocean was not previously considered a tsunami zone, the December 2004 tsunami took everybody by surprise. There were no tsunami warning systems in the Indian Ocean to detect tsunamis or to warn the general populace living around the ocean.

Although a tsunami cannot be prevented, the impact of a tsunami can be reduced through timely warnings, and effective response. Nearly three years after the tsunami, India managed to set up a tsunami warning system in Hyderabad, which is expected to minimise the effect of disasters and reduce loss of lives in the future. It is located at the Indian National Centre for Ocean Information Services (INCOIS). It receives data via satellite from six ocean buoys — four in the Bay of Bengal and two in the Arabian Sea — equipped with water pressure sensors to detect any rise in water levels. This warning system will issue alerts of high intensity waves within 30 minutes of an earthquake.



The centre has been established by the Ministry of Earth Sciences at a cost of Rs.125 crore in collaboration with the Department of Science and Technology, the Department of Space and the Council of Scientific and Industrial Research.

This network enables early warning centre to disseminate warnings to the Ministry of Home Affairs, as well as to the state emergency operations centres.

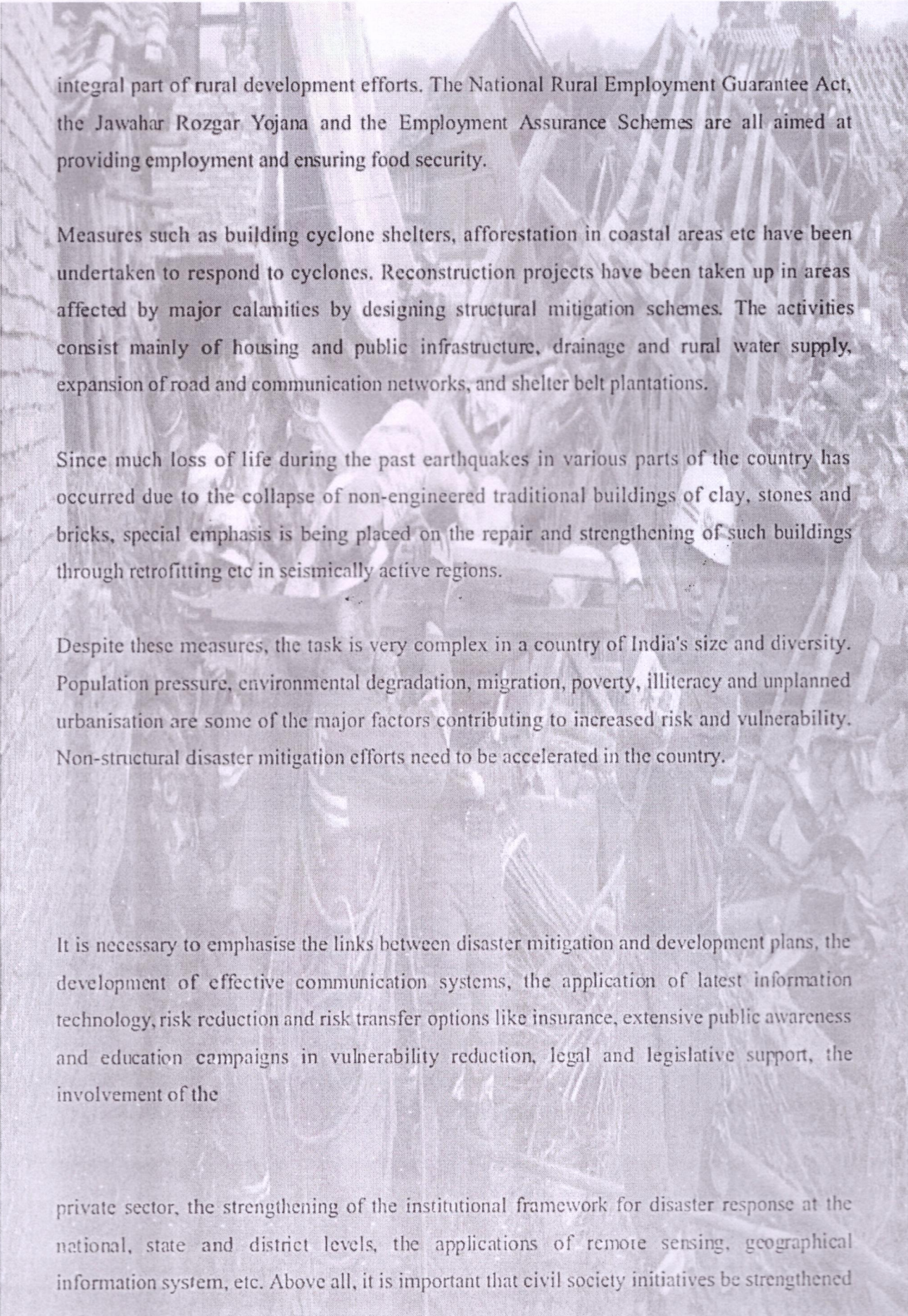
The Drought Prone Areas Programme (DPAP) is operational since 1973, in 971 blocks of 183 districts in 16 states. The Desert Development Programme (DDP) has been implemented in 15 blocks of 40 districts in seven states. Seventy per cent of India's cultivated land is in rainfed areas, which often suffer a decline in agricultural production in years of low rainfall, and face drought conditions.

A programme titled National Watershed Development Project for Rainfed Areas (NWDPA) which was launched in 1990-91 is under implementation in drought-prone areas of all the states. This programme adopts development measures for all the spatial components of watersheds, that is, arable land, non-arable land and drainage lines as one organic geo-hydrological entity. The objective is to achieve conservation of rain water, control of soil erosion, regeneration of green cover and promotion of dryland farming systems including horticulture, agro-forestry, pasture development and livestock management as well as household production systems. In the first four years of the Tenth Plan, an area of 1.59 million hectares was developed at an expenditure of Rs 793.82 crore.

There are large areas of degraded land of over 100 million hectares in the country which could be reclaimed. Most of the land needs only basic water and soil conservation measures and some amount of plantation and protection work. By protecting, regenerating and restoring the degraded land the pressure on remaining land, forests and pastures can be reduced. A National Wasteland Development Board has been constituted to promote integrated wasteland development.

Natural disasters, particularly droughts, result in huge unemployment and under-employment problems in the rural areas. Providing wage employment to the rural poor has been an





integral part of rural development efforts. The National Rural Employment Guarantee Act, the Jawahar Rozgar Yojana and the Employment Assurance Schemes are all aimed at providing employment and ensuring food security.

Measures such as building cyclone shelters, afforestation in coastal areas etc have been undertaken to respond to cyclones. Reconstruction projects have been taken up in areas affected by major calamities by designing structural mitigation schemes. The activities consist mainly of housing and public infrastructure, drainage and rural water supply, expansion of road and communication networks, and shelter belt plantations.

Since much loss of life during the past earthquakes in various parts of the country has occurred due to the collapse of non-engineered traditional buildings of clay, stones and bricks, special emphasis is being placed on the repair and strengthening of such buildings through retrofitting etc in seismically active regions.

Despite these measures, the task is very complex in a country of India's size and diversity. Population pressure, environmental degradation, migration, poverty, illiteracy and unplanned urbanisation are some of the major factors contributing to increased risk and vulnerability. Non-structural disaster mitigation efforts need to be accelerated in the country.

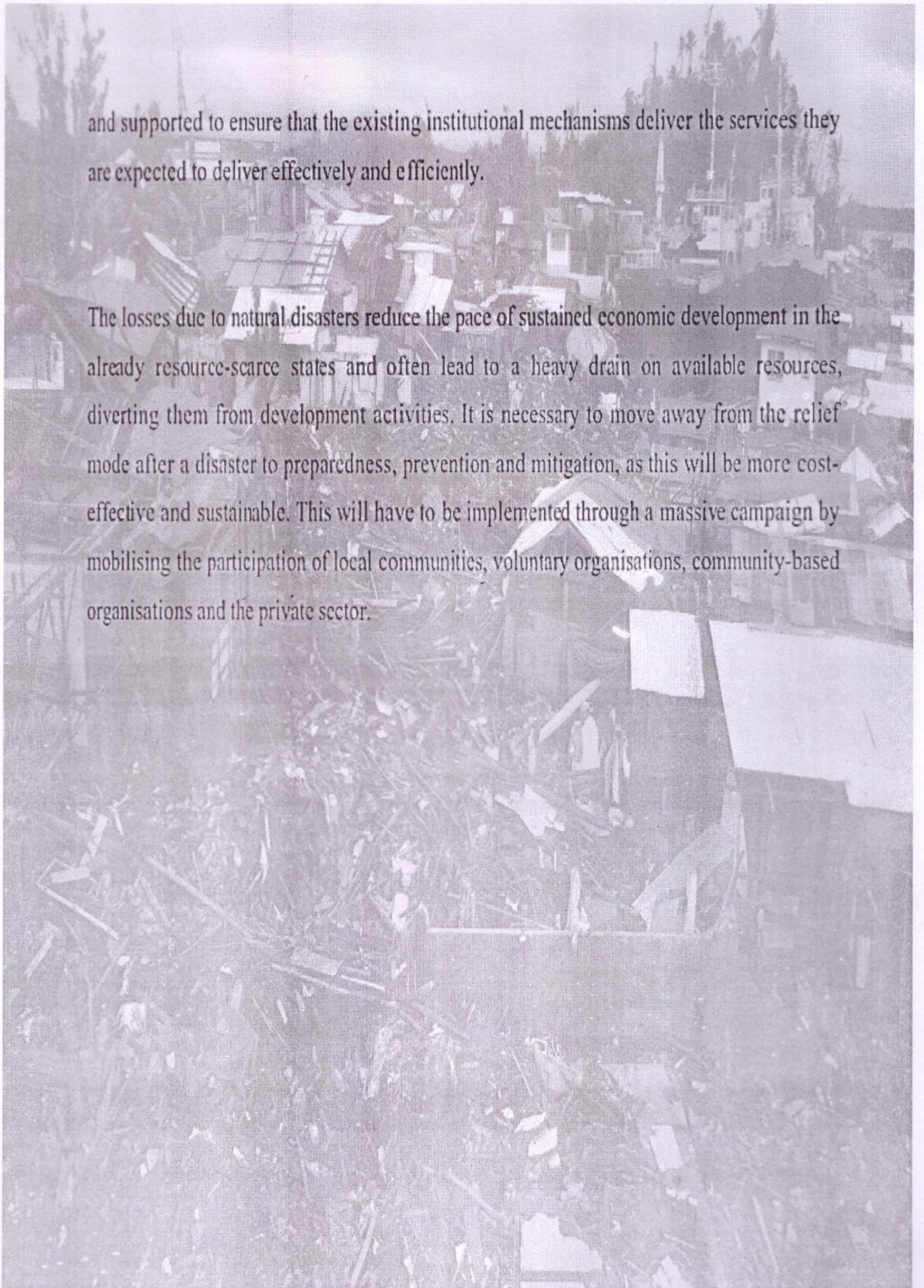
It is necessary to emphasise the links between disaster mitigation and development plans, the development of effective communication systems, the application of latest information technology, risk reduction and risk transfer options like insurance, extensive public awareness and education campaigns in vulnerability reduction, legal and legislative support, the involvement of the

private sector, the strengthening of the institutional framework for disaster response at the national, state and district levels, the applications of remote sensing, geographical information system, etc. Above all, it is important that civil society initiatives be strengthened



and supported to ensure that the existing institutional mechanisms deliver the services they are expected to deliver effectively and efficiently.

The losses due to natural disasters reduce the pace of sustained economic development in the already resource-scarce states and often lead to a heavy drain on available resources, diverting them from development activities. It is necessary to move away from the relief mode after a disaster to preparedness, prevention and mitigation, as this will be more cost-effective and sustainable. This will have to be implemented through a massive campaign by mobilising the participation of local communities, voluntary organisations, community-based organisations and the private sector.

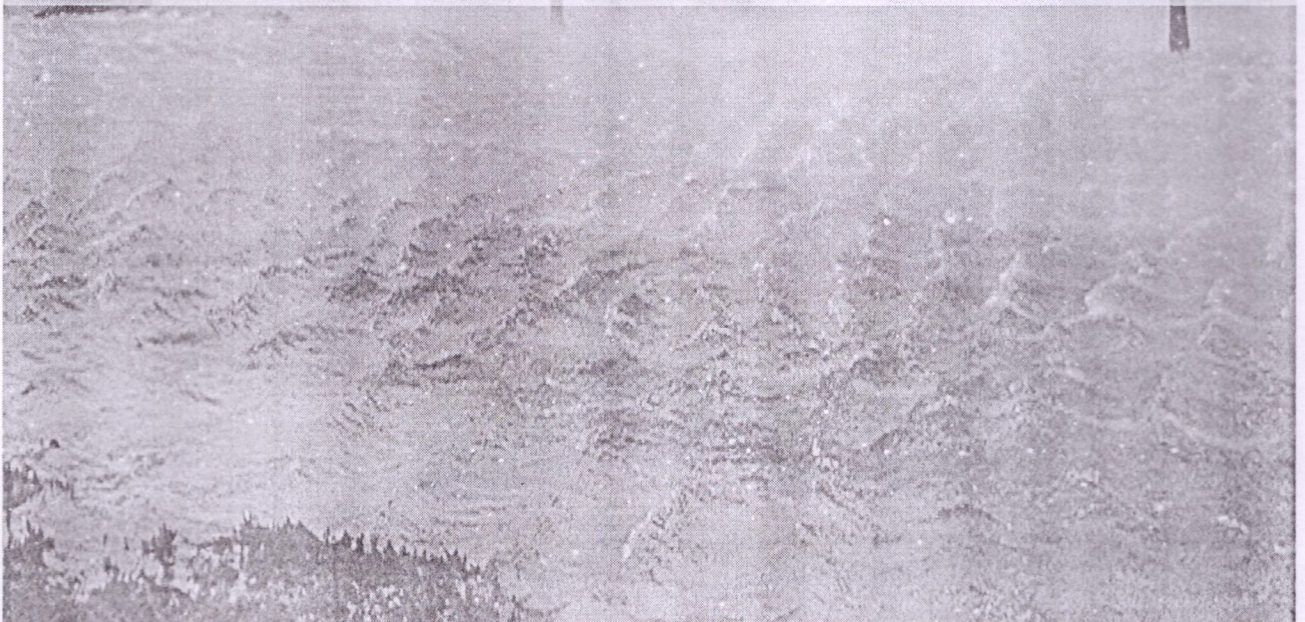




## CONCLUSION AND FUTURE SCOPE

India in the recent years have made significant development in the area of disaster management. A new culture of preparedness, quick response, strategic thinking and prevention is being ushered. The administrative framework is being streamlined to deal with the various disasters. Effort are also being made to make disaster management a community movement wherein where is greater participation of the people. However, a lot more need to be done to make disaster management a mass movement in near future.

It is impossible to anticipate natural disasters such as flash floods. However, disaster preparedness plans and protocols in the civil administration and public health systems could be very helpful in rescue and relief and in reducing casualties and adverse impact on the human life and socio economic conditions. However, the health systems in India lack such disaster preparedness plans and training. In the present case, presence of the Indian Army that has standard disaster management plans and protocols for planning, training, and regular drills of the army personnel, logistics and supply, transport, and communication made it possible to immediately mount search, rescue, and relief operations and mass casualty management. Not only the disaster management plans were in readiness, but continuous and regular training and drills of the army personnel in rescue and relief operations, and logistics and communication, could effectively facilitate the disaster management operations.





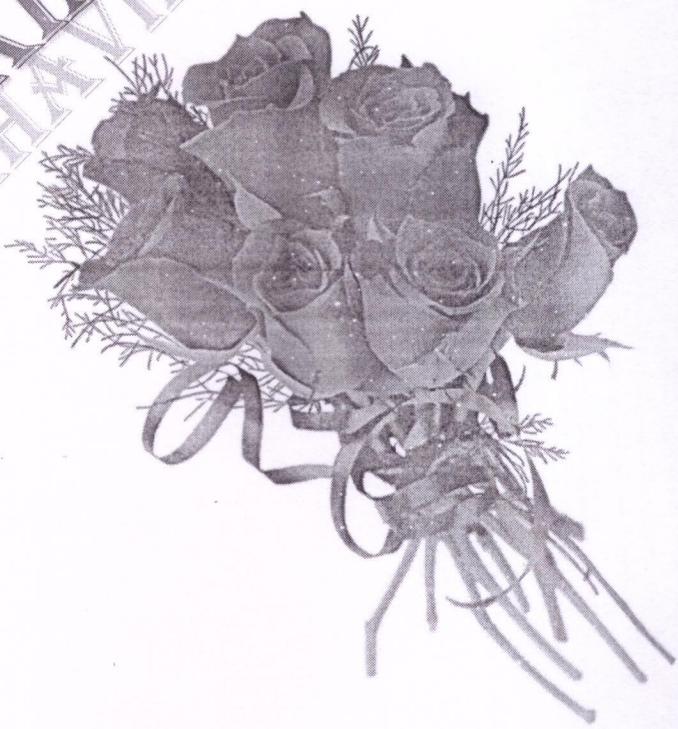
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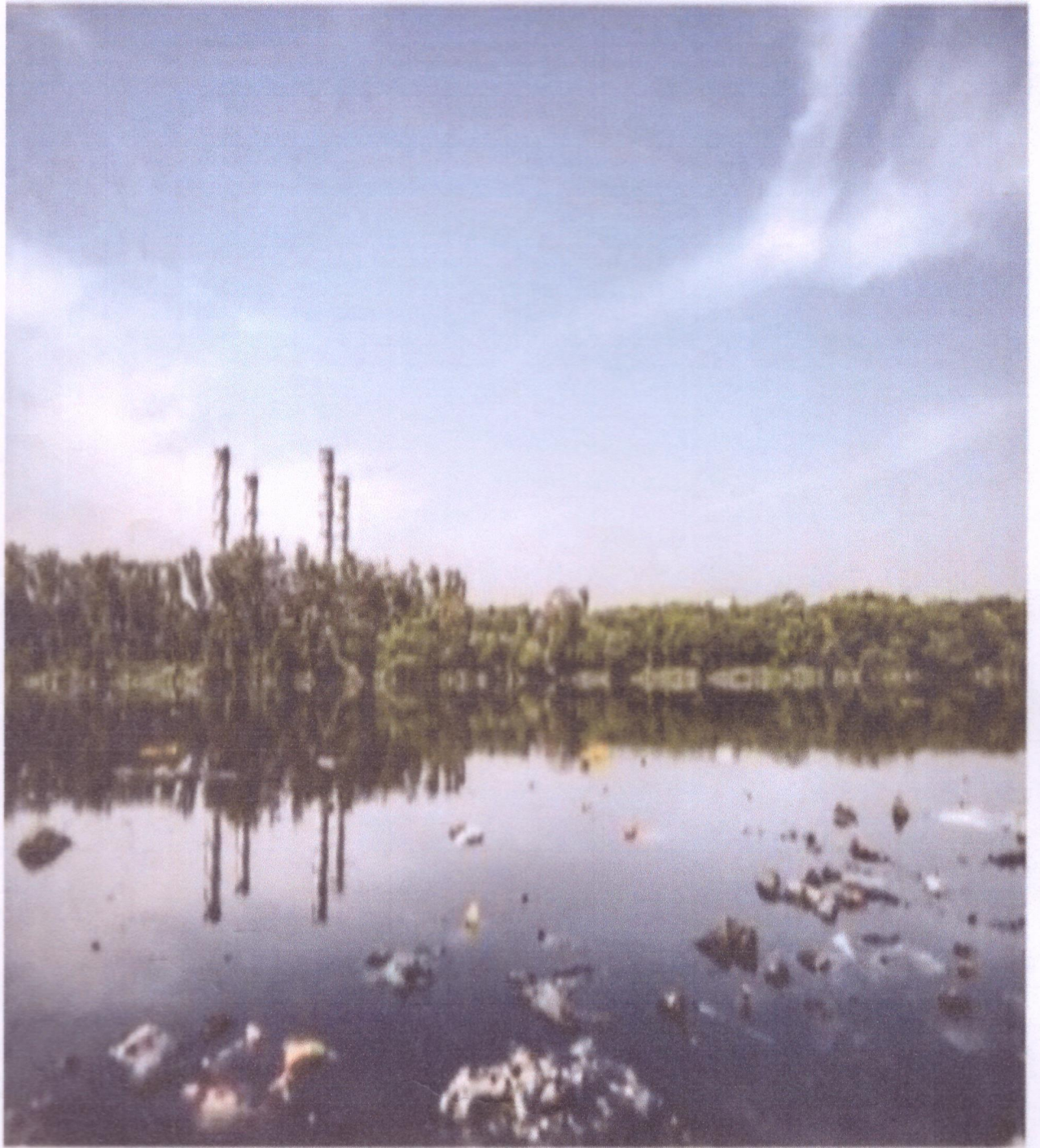


THANKS FOR ALL  
TO HELP US TO

U.S. MAHILA MAHAVIDYALAYA, SOLAPUR



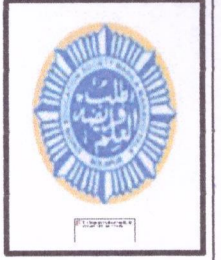








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UNION EDUCATION SOCIERY'S

**MAHIL MAHAVIDYALAYA, SOLAPUR**

SIDDESWAR PETH, SOLAPUR.413001

A PROJECT REPORT ON

**WATER POLLUTION IN SOLAPUR CITY**

UNDER THE GUIDENCE

**MR. NIKHIL JALINDAR MORE**

DEPUTY OF REGIONAL OFFICER SOLAPUR.

**SUBMITTED BY**

MISS: Madki Alishah Md. Ayyub

UNDER THE GUIDANCE OF

**DR. Z. A. NAYAB**

**MISS. PATEL FARZANA**

YEAR OF SUBMISSION

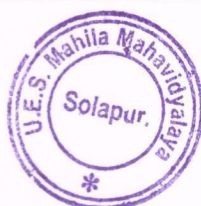
2022-2023





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15	BIBLIOGRAPHY	





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UNION EDUCATION SOCIETYS

**MAHILA MAHAVIDYALAYA, SOLAPUR**

SIDDESHWAR PETH, SOLAPUR - 413001

**ENVIORNMENTIAL STUDIES**

**CERTIFICATE**

DATE: 28-05-23

ROLL NO: 2020

THIS IS TO CERTIFY THAT MISS:  
Madki Alishah Md. Ayyub SATISFACTORILY CARRIED OUT  
THE REQUIRED FIELD /PROJECT WORK OF THE SOLAPUR UNIVERSITY,  
SOLAPUR FOR THE BA-II /B. COM-II COURSE IN "ENVIRONMENTAL STUDIES"  
AND THIS FIELD/PROJECT WORK REPORT REPRESENTS HIS/HER CONFIDE  
WORK REPORT IN THE YEAR 2022 TO 2023.

DR. Z.A. NAYAB



MINER

DR.F.M SHAIKH

PTRINCIPAL

U.E.S.



I/c. Principal  
U. E. S. Mahila Mahavidyalaya,  
Solapur.



Declaration of Student

I HEREBY DECLARE THAT. THE PROJECT ENTITLED IS AN OUTCOME OF MY OWN EFFORTS UNDER THE GUIDANCE OF PROF. DR. Z.A. NAYAB THE PROJECT IS SUBMITTED TO THE UNIVERSITY OF THE SOLAPUR. FOR THE PARTIAL FULFILMENT OF THE BACHELOR OF ARTS ADMINISTRATE EXAMINATION 2022-23. I ALSO DECLARE THAT THIS PROJECT REPORT HAS NOT BEEN PREVIOUSLY SUBMITTED TO ANY OTHER UNIVERSITY.

**NAME OF STUDENT :**

Madki Alishah Maham

**DATE**


: 30/05/2023





## DECLARATION OF THE SUPERVISOR

THE UNDERSIGNED SUPERVISOR FOR THE ENVIRONMENTAL SCIENCE PROTECT HEREBY DECLARE THAT THE PROJECT OF B.A. II YEAR HAS CARRIED OUT THE RESEARCH PROJECT ENTITLED "WATER POLLUTION" IN MR. NIKHIL JALINDAR MORE, DEPUTY OF REGIONAL OFFICER SAAT RASTA, SOLAPUR, SOLAPUR IS FOR THE PARTIAL FULFILMENT OF THE CERTIFICATE COURSE IN ENVIRONMENTAL SCIENCE PROPOSED BY SOLAPUR UNIVERSITY, SOLAPUR IS THE ORIGINAL WORK AND NOT SUBMITTED ELSEWHERE FOR THE PUBLICATION

  
DR. Z.A. NAYAB

PLACE : SOLAPUR

DATE: 30/05/2022-2023





## ACKNOWLEDGEMENT

WE ARE FEEL PROUD TO PRESENT OUR FIELD VISIT PROJECT IN ENVIRONMENTAL STUDIES ON THE "WATER POLLUTION". WE CREATE

"ENVIRONMENTAL AWARENESS ON WATER POLLUTION" THE SUBJECT ENVIRONMENTAL STUDIES IS MADE COMPULSORY AT B.A II YEAR.

THE TASK OF COMPLETING THIS PROJECT SUCCESSFUL WITH THE GREAT EFFORTS FROM SEVERAL INDIVIDUALS. THIS PROJECT WOULD NOT HAVE BEEN FEASIBLE WITHOUT PROPER RIGOROUS GUIDANCE OF ENVIRONMENT TEACHER DR.Z.A. NAYAB & MISS. FARZANA PATEL. WHO GUIDED ME THROUGHOUT THIS PROJECT IN EVERY POSSIBLE WAY. WE WOULD LIKE TO SHOW OUR GRATITUDE TO MR. NIKHIL JALINDHAR MORE, DEPUTY OF REGIONAL OFFICER SOLAPUR FOR GIVING US A GOOD INFORMATION ABOUT WATER POLLUTION AND HOW TO CONTROL IT. WE ARE ALSO THANKFUL TO OUR COLLEGE PRINCIPAL DR.F.M. SHAIKH. FOR EXTENDING THEIR CO-OPERATION AND SUPPORT IN MAKING THIS TASK EASY.

THEN WE ARE LIKE TO THANKS OUR PARENTS AND FRIENDS WHO HAVE HELPED ME WITH THEIR VALUABLE SUGGESTION AND GUIDANCE HAS BEEN VERY HELPFUL IN VARIOUS PHASE OF THE COMPLETION OF THE PROJECT.

AT LAST, WE ARE END UP BY THANKING ALL WHO HELPED ME IN FINALIZING THE PROJECT WITHIN THE LIMITED TIME FRAME.





## ➤ INTRODUCTION OF POLLUTION

POLLUTION HAS BECOME THE FIRST ENEMY OF THE MANKIND. INDUSTRIAL REVOLUTION OF 19<sup>TH</sup> CENTURY LED TO ENVIRONMENTAL DISASTER. THE WHOLE WORD IS NOW MORE AFRAID OF POLLUTION RATHER THAN NUCLEAR BLAST.

TECHNOLOGICAL ADVANCEMENT HAS BROUGHT REVOLUTIONARY CHANGE IN LIFE STYLE AND NATIONAL ECONOMY WITH OVERWHELMING POWER OVER NATURE. THE PROTECTION OF ENVIRONMENT HAS BECOME A MAJOR ISSUE AROUND THE GLOBAL FOR THE WELL-BEING OF THE PEOPLE AND ECONOMIC DEVELOPMENT.

TYPES OF POLLUTION:

- 1) WATER POLLUTION
- 2) AIR POLLUTION
- 3) NOISE POLLUTION

## ❖ INTRODUCTION OF WATER POLLUTION

WATER IS PRIME NECESSITY OF LIFE. MAN USES WATER FOR DIFFERENT PURPOSE LIKE DRINKING, DISPOSAL OF WASTE, IRRIGATION, GENERATING ELECTRICITY, COOLING AND MANUFACTURING DIFFERENT PRODUCT AND DISPOSAL OF SEWAGE.

DURING ALL THESE PROCESS, UNDESIRABLE SUBSTANCE GET ENTRY TO THE WATER SOURCES AND THEREFOR 20% OF RIVER, STREAM & SURFACE WATER IN INDIA ARE POLLUTED. TODAY, MANY OF THE RIVERS OF WORLD RECEIVE MILLIONS OF LITERS OF SEWAGE, DOMESTIC, INDUSTRIAL & AGRICULTURE WASTE VARYING FROM SIMPLE NUTRIENT TO THE HIGHLY TOXIC SUBSTANCE I.E. CD, HG, NITRATE, & HYDROCARBONS ETC.



## Objectives of Water Pollution Control..

Systems designed to remove waterborne wastes from communities, industries, and so on while protecting the health of people and the environment (1) to clean, but wastewater could also be used for groundwater recharge or even recycled to water supply to remove water pollutants that would produce adverse impacts to the receiving water or adversely affect the health of people subsequently using the water and (4) to do all the above in a cost-effective

### Examples of Water Pollutants of Concern

Suspended solids Causes the water to be turbid and contain other pollutants

Pathogens Disease-causing microorganism Nutrients such as phosphorus and nitrogen: Cause accelerated growth of toxic plants Toxic chemicals Heavy metals such as mercury

### Wastewater Collection Systems

of pipes sewer to collect water and associated wastes Sanitary Sewers drain wastewater from homes, commercial establishments, institutions, and so on. Storm Sewers collect storm runoff and associated wastes so as to minimize flooding within community Design of wastewater





## Wastewater Treatment...

Wastewater can be treated to several levels - each level removing successively more pollutants than the last. The various levels of wastewater treatment are summarized as follows:

### Pre-treatment...

**Objective of Treatment:** To remove pollutants from wastewater at their source - usually industrial. **Typical Methods of Treatment:** Pollution prevention, waste minimization, wastewater treatment at source. **Removal Efficiencies:** Depends on pollutant and source.

### Preliminary Treatment...

**Objective of Treatment:** To remove or reduce size of large solids to protect equipment. **Typical Methods of Treatment:** Bar screens, comminutors, grit chambers. **Removal Efficiencies:** Not applicable (waste strength measured after this level of treatment).

### Primary Treatment...

**Objective of Treatment:** To remove settleable and floatable solids. **Typical Methods of Treatment:** Sedimentation tanks (rectangular and circular), microscreens. **Removal Efficiencies:** 40 to 60 % of suspended solids, ~ 30 % of BOD, ~ 50 % of fecal coliforms, little or no nitrogen or phosphorus is removed.

### Secondary Treatment...

**Objective of Treatment:** To remove additional SS and soluble BOD. **Typical Methods of Treatment:** Activated sludge, trickling filters, rotating disks, lagoons. **Removal Efficiencies:** 80 to 90 % of suspended solids and BOD, 90 to 99 % of fecal coliforms, ~ 10 % of nitrogen and phosphorus.



### Advanced Treatment...

**Objective of Treatment:** To remove nitrogen and phosphorus and additional suspended solids and BOD and other pollutants, as necessary. Typical methods of treatment and removal efficiencies: **Phosphorus removal:** Chemical addition - 80 - 90 % P removal. **Nitrogen removal:** Ammonia stripping - ~ 90 % removal of ammonia. Nitrification - over 90 % conversion of ammonia to nitrate. activated sludge, rotating disks. Denitrification - conversion of nitrate to nitrogen gas. **BOD & SS removal:** Rapid sand filter - to ~ 5 mg / L BOD and SS. **Disinfection:** Chlorination - 99.99 + % fecal coliforms destroyed, other chemicals (O<sub>3</sub>), UV light. **Toxic chemicals:** Activated carbon - high removal rates possible.





**Water Quality Monitored at : Sina River near Laboti till naka Solapur**

Name of the program	: NWMP	Type of Sample	: Surface
Class	: N/A	Frequency	: Monthly (Trend)
Regional Office	: Pune	Regional Lab	: Pune

WQI	Quality classification	Remarks	Colour code
63-100	Good to Excellent	Non Polluted	
50-63	Medium to Good	Non Polluted	
38-50	Bad	Polluted	
38 and less	Bad to very Bad	Heavily Polluted	





## 2020 to 2023 report on water in Solapur

Months	Parameters		
	pH	Dissolved Oxygen (mg/l)	B.O.D. (mg/l)
<b>YEAR : 2020</b>			
January	8	6.1	5
February	8.5	6.1	5.0
March	7.3	5.2	11
April	8.30	6.1	13.0
May	N/A	N/A	N/A
June	7.9	5.6	4.6
July	7.7	5.4	8.5
August	7.9	5.9	3.3
September	7.8	6.1	5
October	8.2	6	6
November	8.1	5.7	6.8
December	7.9	5.6	4.6
=====			
<b>TOTAL</b>	<b>MIN MAX AVG</b>	<b>MIN MAX AVG</b>	<b>MIN MAX AVG</b>
	7.3 8.5 8.76	5.2 6.1 6.38	3.3 13.0



**YEAR : 2021**

<b>January</b>	<b>8.3</b>	<b>5.7</b>	<b>5.2</b>
<b>February</b>	<b>8.1</b>	<b>5.6</b>	<b>4.8</b>
<b>March</b>	<b>7.4</b>	<b>5</b>	<b>7.4</b>
<b>April</b>	<b>7.8</b>	<b>5.4</b>	<b>5.2</b>
<b>May</b>	<b>8.4</b>	<b>5</b>	<b>7.6</b>
<b>June</b>	<b>8.2</b>	<b>5.5</b>	<b>5.4</b>
<b>July</b>	<b>7.99</b>	<b>5.1</b>	<b>8.4</b>
<b>August</b>	<b>8.02</b>	<b>5.7</b>	<b>4.4</b>
<b>September</b>	<b>7.8</b>	<b>5.7</b>	<b>4.6</b>
<b>October</b>	<b>8.1</b>	<b>6.1</b>	<b>4.8</b>
<b>November</b>	<b>7.9</b>	<b>5.1</b>	<b>5.5</b>
<b>December</b>	<b>8</b>	<b>4.6</b>	<b>7.5</b>

**TOTAL**

<b>MIN</b>	<b>MAX</b>	<b>AVG</b>	<b>MIN</b>	<b>MAX</b>	<b>AVG</b>	<b>MIN</b>	<b>MAX</b>
7.4	8.4	8	4.6	6.1	5.38	4.4	8.4



YEAR : 2022								
January	8.2			5.2			6.5	
February	8.6			4.6			7.5	
March	8.4			5.4			3.4	
April	8.4			5.4			5.4	
May	8			4.9			6.5	
June	8.4			4.3			8.5	
July	N/A			N/A			N/A	
August	8.3			4.5			10.5	
September	7.9			5.3			7.8	
October	7.7			5.4			4.8	
November	7.9			5.5			7.1	
December	8.2			5.2			7.9	
=====								
TOTAL	MIN	MAX	AVG	MIN	MAX	AVG	MIN	MAX
	7.7	8.6	8.18	4.3	5.5	5.06	3.4	10.5





**YEAR : 2023**

<b>January</b>	<b>8.6</b>		<b>5.5</b>		<b>5.6</b>
<b>February</b>	<b>8.1</b>		<b>4.4</b>		<b>10.9</b>
<b>March</b>	<b>8.1</b>		<b>5.2</b>		<b>7.8</b>
<b>April</b>	N/A		N/A		N/A
<b>May</b>	N/A		N/A		N/A
<b>June</b>	N/A		N/A		N/A
<b>July</b>	N/A		N/A		N/A
<b>August</b>	N/A		N/A		N/A
<b>September</b>	N/A		N/A		N/A
<b>October</b>	N/A		N/A		N/A
<b>November</b>	N/A		N/A		N/A
<b>December</b>	N/A		N/A		N/A

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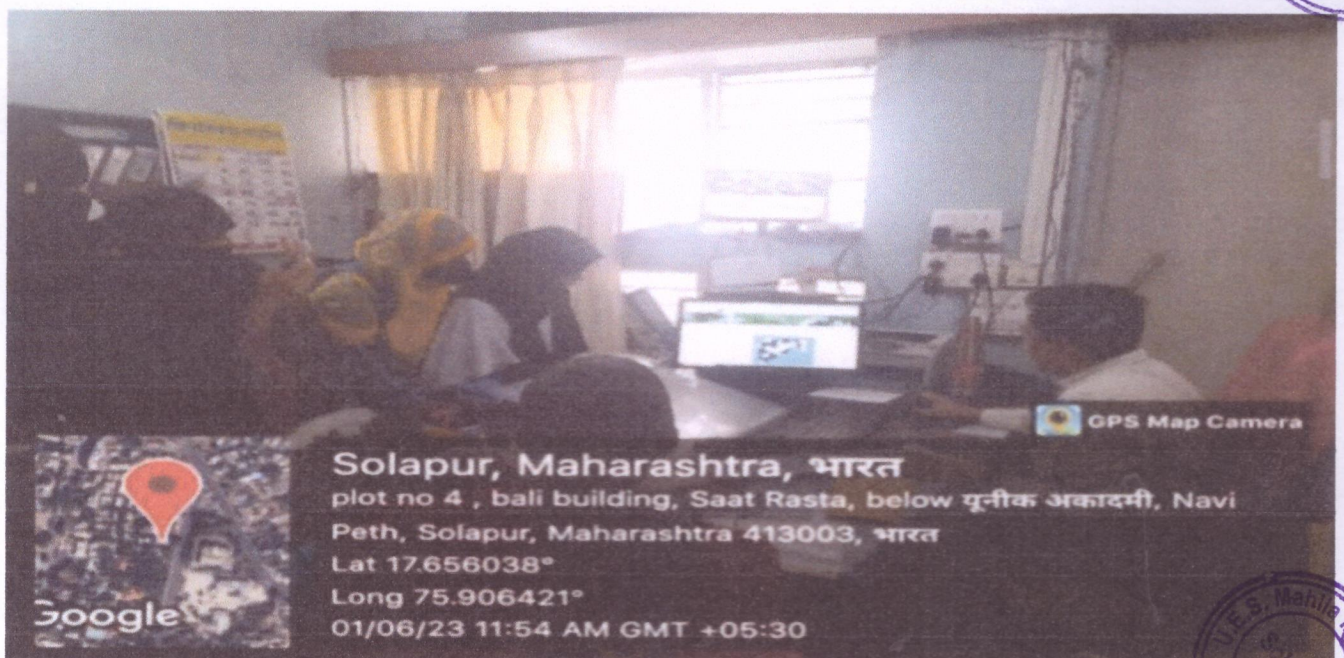
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<b>TOTAL</b>	<b>MIN</b>	<b>MAX</b>	<b>AVG</b>	<b>MIN</b>	<b>MAX</b>	<b>AVG</b>	<b>MIN</b>	<b>MAX</b>
	<b>8.1</b>	<b>8.6</b>	<b>8.27</b>	<b>4.4</b>	<b>5.5</b>	<b>5.03</b>	<b>5.6</b>	<b>10.9</b>





Student pics of visit  
Maharashtra pollution centre board  
office at sath rasta Solapur







GPS Map Camera



Solapur, Maharashtra, भारत

plot no 4 , bali building, Saat Rasta, below यूनीक अकादमी, Navi Peth, Solapur, Maharashtra 413003, भारत

Lat 17.656115°

Long 75.906423°

01/06/23 11:53 AM GMT +05:30





## DIFFERENT TYPES OF WATER POLLUTION

### 1-MICROBIOLOGICAL POLLUTION:



UNLIKELY MOST OTHERS ON THIS LIST MICROBIOLOGICAL POLLUTION IS A NATURALLY OCCURRING FROM OF WATER CONTAMINATION MICROORGANISMS SUCH AS BILHARZIA AND CHOLERA.HUMANS ARE MUST SUSCEPTIBLE TO THIS KIND OF POLLUTION IN PLACE WHERE ADEQUATE WATER TREATMENT SYSTEMS ARE NOT YET IN PLACE.





## 2-Surface water pollution



REFERRING TO ALL WATER SOURCES ABOVE GROUND, SUCH AS RIVERS, LAKES, SEAS AND OCEANS, SURFACE WATER POLLUTION CAN ACURE BOTH

NATURALLY, ACCIDENTALLY AND INTENTIONALLY. FOR EXAMPLE, MONITORING HAS AN ALL IMPORTANT ROLE IN NATURAL FLOOD MANAGEMENT WHICH CAN LEAD TO POOR NEGLIGENT INDUSTRIES EMPTYING WASTE INTO WATER BODIES ARE ALSO KEY CONTRIBUTORS.





### 3-CHEMICAL POLLUTION



THE MOST COMMON TYPE OF WATER POLLUTION CHEMICALS CAN INFILTRATE BOTH UNDERGROUND WATER SOURCES AND THOSE SITTING ON THE EARTH'S SURFACE. AS AN INTEGRAL COMPONENT OF THE AGRICULTURAL INDUSTRY. IT'S UNSURPRISING THAT MUCH OF CHEMICAL CONTAMINATION COMES FROM THE PESTICIDES OF FUNGICIDES USED IN FARMING, BUT METALS AND SOLVENTS FROM INDUSTRIAL SITES ARE ALSO LEADING CONTRIBUTORS.









## 5-NUTRIENT POLLUTION



WHILE THEY'RE VITAL FOR UNDERWATER FLORA AND FAUNA TO FLOURISH, AN EXCESS OF NUTRIENTS CAN UPSET THE DELICATE IMBALANCE OF WATER-BASED ECOSYSTEMS. FERTILISERS CONTAIN A HIGH CONCENTRATION OF NUTRIENTS WHICH, IF THEY CONTAMINATE RIVERS, LAKES AND COASTAL AREAS, CAN CAUSE ALGAL BLOOMING THAT CAN BLOCK OUT SUNLIGHT AND INHIBIT THE GROWTH OF OTHER ORGANISMS.





## 6-OXYGEN-DEPLETION



ANOTHER CONSEQUENCE OF ALGAL BLOOMS IS THEIR CONSUMPTION OF OXYGEN SUPPLIES. THIS MEANS THAT THOSE SPECIES WHICH DEPEND UPON OXYGEN TO SURVIVE ARE KILLED OFF, WHILE ANAEROBIC ONES THRIVE. SOME ANAEROBIC MICROORGANISMS ARE CAPABLE OF PRODUCING AMMONIA, SULPHIDES AND OTHER HARMFUL TOXINS, WHICH CAN MAKE THE WATER EVEN MORE DANGEROUS TO ANIMALS (AND HUMANS, TOO).





## WHAT ARE THE CAUSES OF WATER POLLUTION

WATER IS UNIQUELY VULNERABLE TO POLLUTION. KNOWN AS A "UNIVERSAL SOLVENT", WATER IS ABLE TO DISSOLVE MORE SUBSTANCES THAN ANY OTHER LIQUID ON EARTH. IT'S THE REASON WE HAVE KOOL-AID AND BRILLIANT BLUE WATERFALLS. IT'S ALSO WHY WATER IS SO EASILY POLLUTED. TOXIC SUBSTANCES FROM FARMS, TOWN, AND FACTORIES READILY DISSOLVE INTO AND MIX WITH CAUSING WATER POLLUTION. HERE ARE SOME OF THE MAJOR CAUSES OF WATER POLLUTION WORLDWIDE:





## AGRICULTURE

NOT ONLY IS THE AGRICULTURE SECTOR THE BIGGEST CUSTOMER OF GLOBAL FRESHWATER RESOURCES, WITH FARMING AND LIVESTOCK PRODUCTION USING ABOUT 70% OF THE EARTH'S SURFACE WATER SUPPLIES, BUT IT'S ALSO A SERIOUS WATER POLLUTER AROUND THE WORLD AGRICULTURE IS THE LEADING CAUSE OF WATER.

## SEWAGE OF WASTEWATER:

USED WATER IS WASTE WATER. IT COMES FROM OUR SINKS, SHOWERS, AND TOILETS (THINK SEWAGE AND TOXIC SLUDGE.) THE TERMS ALSO INCLUDE STORM WATER RUNOFF WHICH OCCURS WHEN RAINFALL CARRIES ROAD SALTS, OIL, GREASE, CHEMICALS, AND DEBRIS FROM IMPERMEABLE SURFACE INTO OUR WATER WAYS.

MORE THAN 80% OF THE WORLD'S WASTE WATER FLOWS BACK INTO THE ENVIRONMENT WITHOUT BEING TREATED OR REUSED, DEVELOPED COUNTRIES, THE FIGURE TOPS AS PERCENT.





## RADIOACTIVE SUBSTANCES:-

RADIOACTIVE WASTE IS ANY POLLUTION THAT EMITS RADIATION BEYOND WHAT IS NATURALLY RELEASED BY THE ENVIRONMENT. IT'S GENERATED BY URANIUM MINING, NUCLEAR POWER PLANT, AND THE PRODUCTION AND TESTING OF MILITARY WEAPONS, AS WELL AS BY UNIVERSITIES AND HOSPITALS THAT USE RADIOACTIVE WASTE CAN PERSIST IN THE ENVIRONMENT FOR THOUSANDS OF YEARS, MAKING DISPOSAL A MAJOR CHALLENGE. CONSIDER THE DECOMMISSIONED HANFORD NUCLEAR WEAPONS PRODUCTION SITE. IN WASHINGTON, WHERE THE CLEAN UP OF 56 MILLION GALLONS OF RADIOACTIVE WASTE IS EXPECTED TO COST MORE THAN \$100 BILLION AND LAST THROUGH 2060.





## EFFECTS OF WATER POLLUTION

DETERIORATING WATER QUALITY IS DAMAGING THE ENVIRONMENT, HEALTH CONDITIONS AND THE GLOBAL ECONOMY. THE PRESIDENT OF THE WORLD BANK, DAVID MALPASS, WARNS OF THE ECONOMIC IMPACT: "DETERIORATING WATER QUALITY IS STALLING ECONOMIC GROWTH AND EXACERBATING POVERTY IN MANY COUNTRIES". THE EXPLANATION IS THAT, WHEN BIOLOGICAL OXYGEN DEMAND - THE INDICATOR THAT MEASURES THE ORGANIC POLLUTION FOUND IN WATER - EXCEEDS A CERTAIN THRESHOLD, THE GROWTH IN THE GROSS DOMESTI PRODUCT (GDP) OF THE REGIONS WITHIN THE DESTRUCTION OF BIODIVERSITY. WATER POLLUTION DEPLETES AQUATIC ECOSYSTEMS AND TRIGGERS UNBRIDLED PROLIFERATION OF PHYTOPLANKTON IN LAKES EUTROPHICATION - CONTAMINATION OF THE FOOD CHAIN. FISHING IN POLLUTED WATERS AND THE USE OF WASTE WATER FOR LIVESTOCK FARMING AND AGRICULTURE CAN INTRODUCE TOXINS INTO FOODS WHICH ARE HARMFUL TO OUR HEALTH WHEN EATEN. LACK OF POTABLE WATER. THE UN SAYS THAT BILLIONS OF PEOPLE AROUND THE WORLD HAVE NO ACCESS TO CLEAN WATER TO DRINK OR SANITATION, PARTICULARLY IN RURAL AREAS. CONTAMINATED BY EXCREMENT, EXPOSING THEM TO DISEASES SUCH AS CHOLERA, HEPATITIS A AND DYSENTERY. INFANT MORTALITY. ACCORDING TO THE UN, DIARRHOEAL DISEASES LINKED TO LACK OF HYGIENE CAUSE THE DEATH OF ABOUT 1,000 CHILDREN A DAY WORLDWIDE.





## **CONCLUSION OF WATER POLLUTION:**

ORGANIC/INORGANIC POLLUTANT AND HEAVY METALS MIX WITH WATER AND CREATE VERY SERIOUS HEALTH ISSUES. INGESTION OF WATER CONTAMINATED WITH HEAVY METALS CAN COUSE VARIOUS TYPE OF CANCER. THEREFORE, CONTAMINATED WATER CAN POSE CARCINOGENIC AS WELL AS NON- CARCINORGANIC EFFECTS.





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LINK: ENVIROTECH-ONLINE.COM/

ANALYSIS DATA OF LAKE WATER IN SOLAPUR MAHARASHTRA POLLUTION CENTER BOARD.

LINK: HTTPS://MPCB.GOV.IN/





U. E. S. Mahila Mahavidyalaya, Solapur.

Project on

T. S. Eliot's The Function Of Criticism

Year : 2022-2023


Guided By : Shaikh. N. P

Participants:

Sr. No	Roll no	Name of the Students
1.	3014	Sayyed Alfiya Imtiyaz
2.	3018	Mujawar Asifa Allauddin
3.	3006	Sayyed Uzma Tarique Ahmad
4.	3004	Shaikh Zakiya Abdul Rasheed
5.	3007	Pathan Saniya Sikandar
6.	3008	Shaikh Bibi Ayman Abdul Razzaque
7.	3015	Pathan Umera Md. Yusuf
8.	3022	Shaikh Minaz Irshad

  
NAAC Co-Ordinator  
U.E.S. Mahila Mahavidyalaya  
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I/c. Principal  
U. E. S. Mahila Mahavidyalaya,  
Solapur.



## T. S. Eliot :-

Thomas Stearns Eliot OM (26 September 1888 4 January 1965) was a poet, essayist, publisher, playwright, literary critic and editor.[2] Considered one of the 20<sup>th</sup> century's major poets, he is a central figure in English-language Modernist poetry.

T. S. Eliot

OM



-: Eliot in 1934 by Lady Ottoline Morrell :-

- ❖ **Born** Thomas Stearns Eliot 26 September 1888 St. Louis, Missouri, US
- ❖ **Died** 4 January 1965 (aged 76) London, England
- ❖ **Occupation** Poet essayist playwright publisher critic



❖ <b>Citizenship</b>	American (1888-1927) British (1927-1965)
❖ <b>Education</b>	Harvard University (AB, AM, PhD candidate) Merton College, Oxford[1]
❖ <b>Period</b>	1905-1965
❖ <b>Literary movement</b>	Modernism
❖ <b>Noteble work's</b>	"The Love Song of J. Alfred Prufrock" (1915) The Waste Land (1922) Four Quartets (1943) Murder in the Cathedral (1935)
❖ <b>Notable awards</b>	Nobel Prize in Literature (1948) Order of Merit (1948)
❖ <b>Spouse</b>	Vivienne Haigh-Wood (m. 1915; sep. 1932) Esmé Valerie Fletcher (m. 1957)
❖ <b>Parents</b>	Henry Ware Eliot Charlotte Champe Stearns
❖ <b>Relatives</b>	Eliot family

Born in St. Louis, Missouri, to a prominent Boston Brahmin family, he moved to England in 1914 at the age of 25 and went on to settle, work, and marry there. [3] He became a British citizen in 1927 at the age of 39 and renounced his American citizenship.

Eliot first attracted widespread attention for his poem "The Love Song of J. Alfred Prufrock" in 1915, which, at the time of its publication, was considered outlandish.[5] It was followed by The Waste Land (1922), "The Hollow Men" (1925), "Ash Wednesday" (1930), and Four Quartets (1943).[6] He was also known for seven plays, particularly Murder in the Cathedral (1935) and The Cocktail Party (1949). He was awarded the 1948 Nobel Prize in Literature, "for his outstanding, pioneer contribution to present-day poetry" [7][8]

The Function of Criticism-Critical Synopsis Definition of Criticism-Ends of Criticism

#### ❖ **The Origin of the Essay: Its Four Parts**

The essay Function of Criticism, 1923, arose out of a controversy. Eliot's essay Tradition and Individual Talent was published a few years earlier in 1919. Middleton Murry challenged the opinions of Eliot in his essay Romanticism and the Tradition. The present essay is Eliot's reply to Murry. The first part gives in brief the opinions expressed by Eliot in the essay Tradition and Individual Talent, in the second part, he gives a resume of the views of Middleton Murry, in the



third part, these views of Murry are briefly dismissed, and in the concluding fourth part the poet examines the different aspects of the nature and function of criticism.

Eliot begins the essay by referring to certain views he had expressed in his earlier essay. Tradition and Individual Talent, because they are relevant to the present essay. In the earlier essay he had pointed out that there is an intimate relation between the present and the past in the world of literature. The entire literature of Europe, from Homer down to the present day, forms a single literary tradition, and it is in relation to this tradition that individual writers and individual works of art have their significance. This literary tradition is the outside authority to which an artist in the present must owe allegiance. He must constantly surrender and sacrifice himself in order to have meaning and significance. The true artists of any time form an ideal community, and an artist in the present must achieve a sense of this community. He must realise that artists of all times are united together by a common cause and a common inheritance. While a second rate artist asserts this individuality because his distinction lies in the difference and not in similarity with others, the true artist tries to conform. He alone can, "afford to collaborate, to exchange, to contribute."

#### ❖ Definition of Criticism: Its Ends

Eliot's views on criticism derive from his views on art and tradition as given above. He defines criticism as, "the commentation and exposition of works of art by means of written words" Criticism can never be an autoletic activity, because criticism is always about something. Art, as critics like Matthew Arnold point out, may have some other ends, e.g., moral, religious, cultural, but art need not be aware of these ends, rather it performs its function better by being indifferent to such ends. But criticism always has one and only one definite end, and that end is, "elucidation of works of art and the correction of taste". In his essay. The Frontiers of Criticism, he further explains the aim of criticism as, "the promotion of understanding and enjoyment of literature".

Since the end of criticism is clear and well-defined it should be easy to determine whether a critic has performed his function well or not. However, this is not such an easy task. The difficulty arises from the fact that critics, instead of trying to discipline their personal prejudices and whims and 20TH CENTURY  
CRITICISM: T.S. ELIOT



composing their differences with as many of their fellow-critics as possible and cooperating in the common pursuit of true judgment, express extreme views and vehemently assert their individuality, ie, the ways in which they differ from others. This is so because they owe their livelihood to such differences and oddities. The result is criticism has become like a Sunday Park full of orators competing with each other to attract as large an audience as possible. Such critics are a worthless lot of no value and significance. However, there are certain other critics who are useful, and it is on the basis of their works that Eliot establishes the aims and methods of criticism which should be followed by all.

### ❖ Criticism of Murry's Views

In the second part of the essay, Eliot digresses into a consideration of Middleton Murry's views on classicism and romanticism. While there are critics who hold that the classicism and romanticism are the same thing. Murry takes a definite position, and makes a clear distinction between the two, and says that one cannot be a classic and a romantic at one and the same time. In this respect Eliot praises Murry, but he does not agree with him when he makes the issue a national and racial issue, and says that the genius of the French is classic and that of the English is romantic. Murry further relates Catholicism in religion with classicism literature, for both believe in tradition, in discipline, in obedience to an objective authority outside the individual. On the contrary, romanticism and Protestantism, and social liberalism are related, for they have full faith in the 'inner voice' in the individual, and obey no outside authority. They care for no rules and traditions.

Eliot does not agree with these views. In his opinion, the difference between classicism and romanticism is, "the difference between the complete and the fragmentary, the adult and the immature, the orderly and the chaotic." To him the concept of the 'inner voice' sounds remarkably like doing. "What one likes". It is a sign of indiscipline leading to vanity, fear, and lust. Neither does he agree with the view that the English as a nation are romantics and so 'humorous' and 'non-conformists', while the French are 'naturally' classical.

In the third part of the essay, Eliot summarily dismisses the views of Murry. The tone is one of light ridicule! *He contemptuously* calls the inner voice whiggery. For those who believe in the 'inner voice', criticism is of no value at all, because the function of criticism is to discover some common principles for achieving perfection in art. Those who believe in the 'inner voice' do not want any principles. In other words, they do not care for perfection in art, which can



result only through obedience to the laws of art, and to tradition which represents the accumulated wisdom and experience of ages.

### ❖ Criticism and Creation

In the fourth part, Eliot deals with the problem of criticism in all its manifold aspects. In the very beginning, he comments upon the terms 'critical' and 'creative'. He ridicules Matthew Arnold for having distinguished rather bluntly between the 'critical' and the 'creative' activity. He does not realise that criticism is of capital importance in the work of creation. As a matter of fact, "the larger part of the labour of an author in composing his work is critical labour, the labour of shifting, combining, constructing, expunging, correcting, testing." Eliot further expresses the view that the criticism employed by a writer on his own work is the most vital and highest kind of criticism. Elsewhere, Eliot calls such criticism, 'workshop criticism'. Its high worth and value cannot be denied, for a poet who knows from personal experience the mysteries of the creative process is in a better position to write about it than those who have no such knowledge. Eliot goes to the extent of saying that some creative writers are superior to others only because their critical faculty is superior. He ridicules those who decry the critical toil of the artist, and hold the view that the greatest artist is an unconscious artist. He calls such concepts 'whiggery' and pours his ridicule on such people. He commends those who instead of relying on the 'Inner voice', or 'inspiration', conform to tradition and in this way try to make their works as free from defects as possible.

It is a mistake to separate critical and creative activities. A large part of creation is in reality criticism. But critical writing cannot be creative. There can be no creative criticism. Creative criticism is neither criticism nor creation. This is so because there is a fundamental difference between creation and criticism. Creation, a work of art, is autoletic. It has no conscious aims and objectives. Criticism, on the other hand, is always about something, other than itself. In other words, it is not an autoletic activity, its aim being the commentation and evaluation of works of art. Hence it is that we cannot fuse creation with criticism as we can fuse criticism with creation. The critical activity finds its highest fulfilment when it is fused with creation, with the labour of the artist.



### ❖ **The Critic: His Qualifications**

Eliot next proceeds to consider the qualifications of a critic. The foremost quality which an ideal critic must have is a highly developed sense of fact. The sense of fact is a rare gift. It is not frequently met with, and it is very slow to develop. The value of a practitioner's criticism, say that of a poet in his own art workshop criticism' as Eliot elsewhere calls it lies in the act that he is dealing with facts which he understands, and so can also help us to understand them. Eliot's own criticism is such 'workshop criticism', and Eliot is all praises for such critics and their criticism. There is a large part of criticism which seeks to 'interpret an author and his work. But most of such interpretation is not an interpretation at all. It is mere fiction; the critic gives his view, his impressions of the work, and so is false and misleading. Eliot has no use for such impressionistic' criticism; it gives us no insight into the work under study.

True interpretation is no interpretation at all; it is merely putting the reader in possession of the facts which he might have missed otherwise. The True critic himself knows the facts about a work of art its conditions, its setting, its genesis- and puts them before his readers in a simple and essay manner. Thus it is clear that by 'fact' Eliot means the various technical aspects of a work of art.

### ❖ **Tools of a Critic**

Comparison and analysis are the chief tools of a critic. These are the tools of the critic, and he must use them with care and intelligence. Comparison and analysis can be possible only when the critic knows the fact about the works which are to be compared and analysed. He must know the facts about the works of art technical elements like its structure, content, and theme and not waste his time in such irrelevant fact-hunting as the inquiry into the number of times giraffes are mentioned in the English novel. However, the method of comparison and analysis, even when used unjudiciously, is preferable to 'interpretation' in the conventional sense.

### ❖ **Warning Against Fact-hunting**

Facts, even facts of the lowest order cannot corrupt taste, while impressionistic criticism, like that of Coleridge and Goethe is always misleading. The function of criticism is to educate taste or, as Eliot puts it elsewhere, to promote enjoyment and understanding of literature. Now facts however trivial can never corrupt taste; they can only gratify taste. Critics like Goethe or Coleridge who supply opinion or fancy are the real corruptors. In the end, Eliot



cautions us not to become slaves to facts and bother about such trivialities as the laundry bills of Shakespeare. Such fact-hunting is not criticism. Similarly, he warns us against the vicious taste for reading about works of art instead of regarding the works themselves.

Eliot's emphasis on facts makes it clear that his critical stand is with such New critics as F.R. Leavis and I.A. Richards. He commends textual criticism, but he is against the 'lemon-squeezer', school of critics who try to squeeze every drop of meaning out of words. A critic should concentrate on the text, "compare and analyse, but he should never stoop to trivialities or empty hair-splitting. A good critic is objective, his judgment is based on facts, he is guided by tradition, the accumulated wisdom of ages and not by his "inner voice". He does not indulge in mere expression of opinion or fancy. Eliot is against impressionistic criticisms but he does not expound any theories or lay down any rules and principles. Impressionistic criticism is erratic, while adherence to rigid theories hampers the critic and curtails his freedom.

#### ❖ **Conclusion: Eliot's Objective Attitude**

The critic should be guided by facts and facts alone. He should approach the work of art with a free mind, unprejudiced by any theories or pre-conceived notions. Only then can he be completely objective and impersonal. It is in this way that criticism approximates to the position of science. It is only in this way that criticism becomes a co-operative activity, the critic of one age co-operates with critics of the previous ages in the common pursuit of truth. Such truths are provisional, for 'truths' of one age are likely to be modified and corrected by truths discovered by future ages. In this objective-scientific attitude Eliot is different from all other previous English critics. He hides his individuality and originality. He is like a scientist working with an open mind and co-operating with others for the realisation of truth, which he knows can only be tentative.

#### ❖ **The Critic-His Qualification-His tentative**

In a number of critical essays like '*The Perfect Critic*', '*The Imperfect Critic*', '*The Function of Criticism*', '*The Frontiers of Criticism*', Eliot has dealt with the qualifications and functions of a critic. His views in this respect may be summed up as follows:



### ❖ Qualifications of an Ideal Critic

1. A good critic must be entirely impersonal and objective. He must not be guided by 'the inner voice', but by some authority outside himself. Eliot instances two types of imperfect critics, represented by Arthur Symons and Arnold. Symons is too subjective and impressionistic while Arnold is too dry, intellectual and abstract. Eliot regards Aristotle as a instance of a perfect critic for he avoids both these defects. In his hands, criticism approaches the condition of science.
2. A good critic must not be emotional. He must be entirely objective. He must try to discipline his personal prejudices and whims. He must have a highly trained sensibility, and a sense of structural principle, and must not be satisfied with vague, emotional impressions. Critics who supply only vague, emotional impressions, "opinions or fancy", as he puts it, are great corruptors of taste.
3. An ideal critic must have a highly developed sense of fact. By "a sense of fact", Eliot does not mean biographical or sociological knowledge, but a knowledge of technical details of a poem, its, genesis, setting, etc. It is a knowledge of such facts alone which can make criticism concrete as well as objective. It is these facts which a critic must use to bring about an appreciation of a work of art. However, he is against the 'lemon squeezer', school of critics who try to squeeze every drop of meaning out of words and lines
4. A critic must also have highly developed sense of tradition. He must be learned not only in the literature of his own country, but in the literature of Europe down from Homer to his own day.
5. Practitioners of poetry make the best critic. "The critic and the creative artist should frequently be the same person." Such poet-critics have a thorough knowledge and understanding of the process of poetic creation and so they are in the best position to communicate their own understanding to their readers.
6. An ideal critic must have a thorough understanding of the language and structure of a poem. He must also have an idea of the music of poetry, for a poet communicates as much through the meaning of words as through their sound.
7. "Comparison and analysis are the chief tools of a critic" and so a perfect critic must be an expert in the use of these tools. His use of these tools must be subtle and skilful. He must know what and how to compare, and how to analyse. He must compare the writers of the present with those of the past not to pass



judgment or determine good or bad, but to elucidate the qualities of the work under criticism. In other words, he must be a man of erudition, for only they can use his tools effectively.

8. He must not try to judge the present by the standards of the past. The requirements of each age are different, and so the canons of art must change from age to age. He must be liberal in his outlook, and must be prepared to correct and revise his views, from time to time, in the light of new facts.

#### ❖ His Functions

1. The function of a critic is to elucidate works of art. This function he performs through the use of the tools of 'comparison and analysis'. His function is not to interpret, for interpretation is something subjective and impressionistic. Critics like Coleridge or Goethe, who try to interpret works of art, are great corruptors of the public taste. They supply merely opinion of fancy which is often misleading. The critic should merely place the facts before the readers, and thus helps them to interpret, for themselves. His function is analytical and elucidatory, and not interpretative. "Analysis and comparison, catholicity with sensitiveness, intelligence, curiosity, intensity of passion, and infinite knowledge, all these are necessary to the great critic."
2. The critic must also correct taste. He must educate the taste of the people. In other words, he must enable them positively to judge what to read most profitably, and negatively what to avoid as worthless and of no significance. He must develop the insight and discrimination of his readers.
3. A critic must promote the enjoyment and understanding of works of art. He must develop both the aesthetic and the intellectual sensibilities of his readers.
4. It is the function of a critic to turn the attention from the poet to his poetry. The emotion of art is impersonal, distinct from the emotion of the poet. The poem is a thing in itself, and it must be judged objectively without any biographical, sociological or historical considerations. By placing before the readers the relevant facts about the poem, the critic emphasises its impersonal nature, and thus promotes correct understanding.
5. Criticism must serve as a handmaid to creation. Criticism is of great importance in the work of creation itself. The poet creates, but the critic in him shifts; combines, corrects and expunges, and thus imparts perfection and finish to what has been created. No great work of art is possible without critical labour.



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'Project on


A Raisin In The Sun By Lorraine Hansberry

Year : 2022-2023


Guided By : Imam Shaikh

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*A Raisin in the Sun*

By

*Lorraine Hansberry*

❖ **Abstract :** In this Project we are going to summarize Lorraine Hansberry's play 'A Raisin In The Sun '.

❖ **Keywords :** Play , Characters, Summary, Themes.

❖ **About the Dramatist :**

Lorraine Vivian Hansberry (May 19, 1930-January 12, 1965) was a playwright and writer." She was the first African-American female author to have a play performed on Broadway. Her best known work, the play *A Raisin in the Sun*, highlights the lives of Black Americans living under racial segregation in Chicago. The title of the play was taken from the poem "Harlem" by Langston Hughes: "What happens to a dream deferred? Does it dry up like a raisin in the sun?" At the age of 29, she won the New York Drama Critics' Circle Award making her the first African-American dramatist, the fifth woman, and the youngest playwright to do so. Hansberry's family had struggled against segregation, After she moved to New York City. Hansberry worked at the Pan- Africanist newspaper *Freedom*, where she worked with other intellectuals such as Paul Robeson and W. E. B. Du Bois. Much of her work during this time concerned the African struggles for liberation and their impact on the world. Hansberry's writings also discussed her lesbianism and the oppression of homosexuality. She died of pancreatic cancer at the age of 34. Hansberry inspired the Nina Simone song. "To Be Young. Gifted and Black", whose title-line came from Hansberry's



autobiographical play. Hansberry died of pancreatic cancer on January 12, 1965, aged 34.

### ❖ *About the Play*

A Raisin in the Sun is a play by Lorraine Hansberry that debuted on Broadway in 1959. The title comes from the poem "Harlem" (also known as "A Dream Deferred") by Langston Hughes. The story tells of a Black family's experiences in south Chicago, as they attempt to improve their financial circumstances with an insurance payout following the death of the father, and deals with matters of housing discrimination, racism.

### ❖ *Characters :*

**1. Walter Lee Younger :** Walter Lee Younger A 35-year-old chauffeur who has a young son, Travis, with his wife, Ruth. The family lives in small apartment with Walter's mother and sister in the South Side of Chicago. Hansberry describes Walter as a lean, intense man with nervous movements and erratic speaking patterns. Played by Sidney Poitier in the original Broadway production.

**2. Lena Younger (Mama) :** The 60-something matriarch of the family. She has recently lost her husband Walter Sr., and will be the recipient of a \$10,000 life insurance check. Played by Claudia McNeil in the original Broadway production.



**3. Beneatha Younger :** Walter's 20-year-old sister, a college student who invades the Younger household with her modern ideas and philosophies on race, class, and religion. She is a handsome intellectual who has worked hard to refine her speech. Played by Diana Sands in the original Broadway production.

**4. Ruth Younger :** Walter's wife and Travis' mother. In her early thirties, Ruth is exceptionally pretty, but is aging before her time because of her impoverished surroundings. During her 11 years of marriage, she often bore the responsibility of household running, in addition to working as a domestic servar Ruby Dee in the original Broadway production.

**5. Travis Younger :** Walter and Ruth's 10-year-old son.

**6. Joseph Asagai :** A Nigerian college student pursuing Beneatha.

**7. George Murchison :** Beneatha's boyfriend and fellow classmate, who hails from a wealthy black family.

**8. Mrs. Johnson :** The Youngers' nosy neighbor, who points out the dangers of moving into Clybourne Park.

**9. Karl Lindner :** A white, middle-aged representative from the Clybourne Park Improvement Society.



**10. Bobo:** A fellow investor in the liquor business, along with Willy and Walter.

**11. Willy :** A partner in the liquor business scheme who eventually runs off with Walter and Bob's investment money.

❖ **Plot Summary :**

Walter and Ruth Younger, their son Travis, along with Walter's mother Lena (Mama) and Walter's younger sister Beneatha, live in poverty in a run-down two-bedroom apartment on Chicago's South Side. Walter is barely making a living as a limousine driver. Though Ruth is content with their lot. Walter is not, and desperately wishes to become wealthy. His plan is to invest in a liquor store in partnership with Willy and Bobo, his *street*-smart acquaintances.

At the beginning of the play, Walter Lee and Beneatha's father has recently died, and Mama (Lena) is waiting for a life insurance check for \$10,000. Walter has a sense of entitlement to the money, but Mama has religious objections to alcohol, and Beneatha has to remind him it is Mama's call how to spend it. Eventually, Mama puts some of the money down on a new house, choosing an all-white neighborhood over a Black one for the practical reason that it is much cheaper. Later she relents and gives the remaining \$6,500 to Walter to invest, with the provision that he reserve \$3,000 for Beneatha's education. Walter gives all of the money to Willy, who takes it and flees. Depriving Walter and Beneatha of their dreams, though not the Youngers of their new home.



Bobo reports the bad news about the money. Meanwhile, Karl Lindner, a white representative of the neighborhood they plan to move to. Makes a generous offer to buy them out. He wishes to avoid neighborhood tensions over an interracial population, which to the three women's horror Walter bitterly prepares to accept as a solution to their financial setback. Lena says that while money was something they try to work for, they should never take it if it was a person's way of telling them they were not fit to walk the same earth as them.

Meanwhile, Beneatha's character and direction in life are influenced by Two different men who are potentially love interests: her wealthy and educated Boyfriend George Murchison, and Joseph Asagai. Neither man is actively involved in the Youngers' financial ups and downs. George represents the "fully assimilated Black man" who denies his African heritage with a "smarter than thou" attitude, which Beneatha finds disgusting, while dismissively mocking Walter's situation. Joseph, a Yoruba student from Nigeria, patiently teaches Beneatha about her African heritage: he gives her thoughtfully useful gifts from Africa while pointing out she is unwittingly assimilating herself into white ways. She straightens her hair, for example, which he characterizes as "mutilation".

When Beneatha becomes distraught at the loss of the money, she is scolded by Joseph for her materialism. She eventually accepts his point of view that things will get better with effort, along with agreeing to consider his proposal of marriage and invitation to move with him to Nigeria to practice medicine.

Walter is oblivious to the stark contrast between George and Joseph: his pursuit of wealth can be attained only by liberating himself from Joseph's culture, to which he attributes his poverty, and by rising to George's level, wherein he sees his salvation. Walter redeems himself



and Black pride at the end by changing his mind and not accepting the buyout offer, stating that the family is proud of who they are and will try to be good neighbors. The play closes with the family leaving for their new home but uncertain future.

❖ **Themes :**

**1. The American Dream :** The long-standing appeal of *A Raisin in the Sun* lies in the fact that the family's dreams and aspirations for a better life are not confined to their race, but can be identified with by people of all backgrounds. Even though what that "better life" may look like is different for each character, the underlying motivation is universal. The central conflict of the play lies in Walter's notion of this American dream. Walter buys into the middle-class ideology of materialism. The notion of the self-made man who starts with nothing and achieves great wealth through hard work seems innocuous enough, but the idea can become pernicious if it evolves into an idolization of wealth and power. In the beginning, Hansberry shows how Walter envies Charlie Atkins' dry-cleaning business because it grosses \$100,000 a year. He ignores Ruth's objection to his Potential business partner's questionable character and dismisses his mother's moral objection to achieving his goals by running a liquor store. The liquor store is a means to an end, and Walter is desperate for his dreams to come to fruition. That same Machiavellian ethic is demonstrated when Walter plans to accept Mr. Lindner's offer. Walter is not concerned with the degrading implications of the business deal. It is simply a way to recover some of the lost money. However, Hansberry challenges Walter's crude interpretation of the American dream by forcing him to actually carry out the transaction in front of his son. Walter's inability to deal with



Mr. Lindner marks a significant revision of his interpretation of the American dream, a dream that inherently prioritizes justice and equality over money.

**2. Female Gender Identity :** Three generations of women are represented in *A Raisin in the Sun*. Lena, who is in her early thirties, becomes the default head of the household upon the passing of her husband, Walter Sr. Raised in the South during an era where blacks' very lives were in danger because of the prevalence of lynching, Lena moved to the North with the hopes of leading a better life. The move up North was significant in that she had hopes of a better life for herself. Although Lena is ahead of her times in some respects, her dreams and aspirations are largely linked to her family's well-being, rather than to her own. Scholar Claudia Tate attributes Lena's low expectations for her individual self to gender conditioning – a term used to describe the expectation that a woman's goals and dreams be linked to her family alone. Lena tolerates her husband's womanizing and remains loyal to him even though they suffer under the same impoverished conditions throughout their marriage.

Walter's wife, Ruth, is in her early thirties. She is different from Lena in that she vocalizes her frustrations with her spouse, Walter. Ultimately, however, she seeks to please him, talking positively about the business to Lena on his behalf, encouraging Beneatha not to antagonize her brother so much, and being willing to work several jobs so that the family can afford to move into the new house.

Beneatha, a young feminist college student, is the least tolerant of society's unequal treatment and expectations of women. Beneatha constantly challenges Walter's chauvinism, and has no time for shallow men like George Murchison, who do not respect her ideas. Through



these three women, Hansberry skillfully illustrates how women's ideas about their identity have changed over time.

**3. Masculinity :** "What defines a man?" is a critical question that Hansberry struggles with throughout the entire play. In many ways, the most debilitating affronts Walter Faces are those which relate to his identity as a man, whether it be in his role as father, husband, or son. Being a father to Travis appears to be the role that Walter values the most. He sincerely wants to be perceived as honorable in his son's eyes. Knowing the family has little money to spare, Walter gives Travis a dollar when he asks for fifty cents. Walter chooses the liquor store investment not just to make more money for himself, but also to be better able to provide for his wife and family. He wants to be able to give Ruth pearls and a Cadillac convertible; he wants to be able to send his son to the college of his choice. As a son, he wants to walk in his father's footsteps and provide for his mother in her old age. Walter is framed by the examples of his father and son. At first, Walter is willing to degrade himself in order to obtain these goals, but he faces a critical turning point when he reconsiders Mr. Lindner's offer. Ultimately, he chooses the honorable path so that he can stand before his son Travis with pride.

**4. Afrocentrism :** There is a strong motif of afrocentrism throughout the play. Unlike many of her black contemporaries, Lorraine Hansberry grew up in a family that was well aware of its African heritage, and embraced its roots. Lorraine's uncle, Leo Hansberry, was a professor of African history at Howard University, a well-known, historically black college in Washington, D.C. Hansberry's uncle actually taught Kwame Nkrumah, a revolutionary who fought for the independence of the Gold



Coast from British rule. Hansberry's afrocentrism is expressed mainly through Beneatha's love for Asagai. Asagai, a Nigerian native, is who Beneatha seeks out during her search for her own identity. She is eager to learn about African culture, language, music, and dress. The playwright is well ahead of her times in her creation of these characters. Hansberry is able to dispel many of the myths about Africa, and concretely depict the parallel struggles both Africans and African-Americans must face.

***5. Class Tensions Within the Black Community*** : A Raisin in the Sun is not just about race; class tensions are a prominent issue throughout the play. George Murchison is Beneatha's well-to-do boyfriend. Although he is educated and wealthy. Beneatha is still trying to sort out her feelings about him. Her sister-in-law, Ruth, does not understand Beneatha's ambivalence: he is good-looking, and able to provide well for Beneatha. However, Beneatha is planning to be a doctor, and is not dependent on "marrying well" for her financial security. Hansberry also hints that marriage into the Murchison family is not very probable. Beneatha says. "Oh, Mama- The Murchisons are honest-to-God-real-live-rich colored people, and the only people in the world who are more snobbish than rich white people are rich colored people. I thought everybody knew that I've met Mrs. Murchison. She's a Scene!" Beneatha is sensitive to the reality that even though the two families are black, they are deeply divided. Beneatha suggests that class distinctions are more pronounced amongst African-Americans than between African-Americans and whites. Despite their degree of wealth or education, blacks in America were discriminated against. Wealthy African-Americans had limitations on schools, housing, and occupations just like their poor counterparts. Mrs. Murchison's 'snobbishness' is



emblematic of a desperate yet futile attempt to be seen as different from poor blacks and thus gain acceptance by whites. However, radical legislative and social change proves to be the only substantive solution to America's problem.

❖ **Ending :** A Raisin in the Sun ends with the Younger family leaving their longtime apartment in Chicago's South Side neighborhood in order to move into a house they've purchased in the otherwise all-white neighborhood of Clybourne Park.

❖ **Conclusion:** An overall message of A Raisin in the Sun is that while people may have to defer or put off realizing their dreams to a later time, they can still make their dreams a reality. Despite oppression and lack of money, if a family is united, the members can achieve their dreams.

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