U.E.S. Mahila Mahavidyalaya, Solapur.
2023-2024 BAII
Environmental Project List

Roll No.	Name of the students	Name Of The Project
2001	Bijapure Zeba Abdul Gaffar	Solar Energy
2002	Attar Gulfishanaz Haroon	Deforestation In India
2003	Darzi Tahura Ibrahim	Deforestation In India
2004	Shaikh Sufiya Md.Ali Imam	Deforestation In India
2005	Tadpatri Madhiha Mohammed Jameel	Deforestation In India
2006	Phulari Saba Chand	Deforestation In India
2007	Ustad Shiba Mohammed Hasan	Deforestation In India
2008	Nadaf Fiza Trannum Javed	Deforestation In India
2009	Yadgir Ashraf Jahan Abdul Wahid	Deforestation In India
2010	Shaikh Muskan Ejaz	Global Warming
2011	Qureshi Zeeshan Fatima Mohammed Irfan	Global Warming
2012	Patel Muskan Nisar	Global Warming
2013	Sayyed Saniya Zameer	Global Warming
2014	Shaikh Misba Saifan	Global Warming
2015	Shaikh Tazeen Afsar	Global Warming
2016	Nadaf Isra Zulfikar	Global Warming
2017	Bagban Sidra Gulab Sahab	Global Warming
2018	Patel Saniya Rafique	Global Warming
2019	Pathan Uzma Bakhtiyar	Plastic Pollution
2020	Khatik Saniya Nasroddin	Plastic Pollution
2021	Shaikh Sadaf Mohammed Arif	Plastic Pollution
2022	Shaikh Tahzeeb Mohammed	Plastic Pollution
2023	Kadri Rida Arif Ahmad	Plastic Pollution
2024	Kudle Sabiha Kausar Basheer	Plastic Pollution
2025	Shaikh Suhana Taqdir	Plastic Pollution
2026	Mulla Alfisha Anis	Plastic Pollution
2027	Nadaf Habibunnisa Sameer	Plastic Pollution
2028	Shaikh Anam Sarfaraz	Biodiversity
2029	Shaikh Aiman Anwar	Biodiversity
2030	Shaikh Nilofar Imtiyaz	Biodiversity
2031	Shaikh Ayman Sayyed Rasool	Biodiversity
2032	Sayyed Swaleha Mahamad Farooque	Biodiversity

2033	Sayyed Maryam Asif	Biodiversity
2034	Bagban Saniya Ayyub	Global Warming
2035	Korbu Saniya Saifan	Deforestation In India
2036	Choudhary Ziya Qamar Azeez	Biodiversity
2037	Kakhandikar Saleha Ejaz Ahmed	Biodiversity
2038	Shaikh Muskan Abdul Naim	A Project on Protection Act 1986
2039	Taranaik Saba Ayyub	Deforestation In India
2040	Mulla Saniya Abdullah	A Project on Protection Act 1986
2041	Lokapalli Arshiya Ejaz	A Project on Protection Act 1986
2042	Pasha Amina Safiullah	A Project on Protection Act 1986
2043	Ansari Tarana Khatun Naimul	A Project on Protection Act 1986
2044	Shakh Bushra Begum Mubin	A Project on Protection Act 1986
2045	Kotimbire Misbah Sameer	A Project on Protection Act 1986
2046	Shaikh Iqra Isamiyan	A Project on Protection Act 1986
2047	Inamdar Bibi Fatima Ajaz	A Project on Protection Act 1986
2048	Dhalayat Almas Tabassum Ab.Wajid	Solar Energy
2049	Bagban Afsheen Moinoddin	Biodiversity
2050	Mulla Mahek Mahiboob	A Project on Protection Act 1986
2051	Chitapure Tanzeela Iqbal Ahmad	Solar Energy
2052	Shaikh Shayeesta Bano Ilahi	Solar Energy
2053	Harkare Ayesha Abdur Rahim	Solar Energy
2054	Paradewale Saleha A.Gafur	Solar Energy
2055	Bijapure Mahek Imtiyas	Solar Energy
2056	Gunjegaon Tahrim Muhamad Gous	Solar Energy
2057	Shaikh Mahek Imtiyaj	Solar Energy
2058	Shaikh Afrin Jahangir	Solar Energy
2059	Shaikh Tasmiya Zameer	Solar Energy
2060	Bagwan Rukayya Mohammed Rafique	Global Warming
2061	Mistri Alisha Shabbir	

NAAC Co-Ordinator

Mahila Mahavidya

i/c. Principal

P.A.H SOLAPUR UNIVERSITY,

SOLAPUR

UNION EDUCATION SOCIETY MAHILA MAHAVIDYALAYA

A PROJECT REPORT ON

Submitted By

Aayesha Abrahim Harkare

Assi. Prof. F.H. PATEL

Dr. Z.A. NAYAB

Year of submission 2024-25

CERTIFICATE

Environmental Studies

P.A.H. SOLAPUR

University, Solapur

U.E.S. MAHILA

Mahavidyalaya Solapur

This is to certificate that miss

Aayesha Ab.rahim Harkare

Is bonafide student of this college studying in BA-II year has satisfactorily carried out the required field! project work entitled **"Solar Energy"** for the partial fulfillment of the requirement of BA-II Course in Environmental Studies and submitted to UES Mahila Mahavidyal ay and this field project work report represents his/her confide work report in the year 2023 to 2024.

Farzana Patel

Assi. Prof. F.H. PATEL
Examiner

Dr. F.M. Shaikh
Principal

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

Declaration of student

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

Respected Ma'am

I undersigned hereby declare that Project report entitled.

"**Solar Energy**" Prepared and submitted under the guidance of **Asst. Prof. F.H PATEL.** It's my original work. The empirical findings in this project are based on the data collected by myself while preparing this project this project. I have not copied from any project report.

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

Ayesha.
Signature of the student

Name of the student

Miss Aayesha Harkare

Place – Solapur

Date _____

INDEX

"SOLAR ENERGY"

ACKNOWLEDGEMENT

We create 'Environmental Awareness and control its pollution the subject 'Environmental studies' is made compulsory at BA-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 Thankfull to

Asst Prof. F.H PATEL

Dr. Prof F.M SHAIKH

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

STUDENTS

1) Harkare Ayesha Abdul Rahim

2) Chitapure Tanzeela Iqbal Ahmed

3) Gunjegaon Tehrim Mohammed Gous

4) Dhalayat Almas Abdul Wajeed

5) Bagwan Rukaiyya Rafique

6) Pardewale Saleha Abdul Gafoor

7) Mistari Alisha Shabbir

8) Bijapure Mahek Imtiyaz

9) Shaikh Tasmiya Zameer

10) Shaikh Mahek Imtiyaz

Introduction to Solar Energy

This chapter introduces the sun as our planet's principle and sustainable energy source, noting its main relevant characteristics, and the history as well as pros and cons of its energetic use. It gives a high-level overview of the various solar energy capture and conversion technologies discussed in the book and summarizes the economics and policy aspects.

1 What is Solar Energy?

The sun drives 99.98% of the world's energy supply,[1] including thermal, photovoltaic, photochemical, photobiological and hybrid solar, hydro, wind, wave, and biomass energy conversion. It originally grew the biomass that we now access as fossil fuels. Other sources include tidal, geothermal and nuclear.[1] The sun's energy comes from fusion reactions in its core. These reactions have been "burning" for 4.5 billion years and are expected to continue for another 6.5 billion years. The total power radiated out into space by the sun is about 3.86×10^{26} W. Since the sun is approximately 1.5×10^{11} m from the earth, and because the earth is about 6.3×10^{6} m in radius, it intercepts only 0.000000045% of this power.[2] This still amounts to a massive 1.75×10^{17} W.

Most of this radiation is in the visible and infrared part of the electromagnetic spectrum, with less than 1% emitted in the radio, UV and X-ray spectral bands.

The sun's electromagnetic radiation approximates that of a black body with a temperature around 5778 K, with its peak in the yellow range of the visible spectrum. This is sometimes "rounded up" to 6000 K for simplicity.[3]

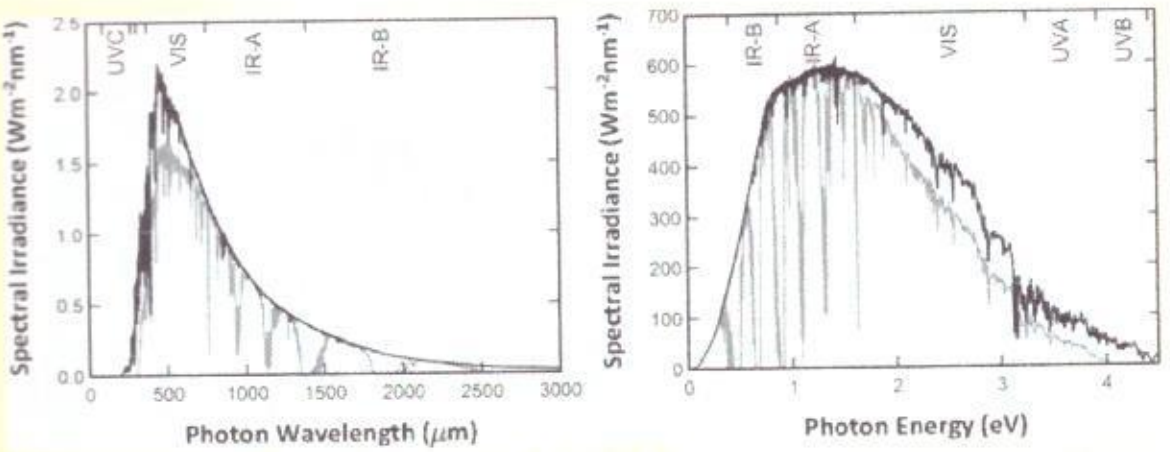


Fig. 1. The AM0 spectrum of solar radiation, as would be observed at the top of the earth's atmosphere. The spectral irradiance is shown as a function of photon wavelength (left) and photon energy (right). The spectral regions are indicated. Image credit: Prof. Pietro Altermatt.[5]

Figure 1 shows the spectrum of radiation from ultraviolet to infrared, as seen outside the earth's surface. This standard "AM0" spectrum[4] is that used to model and predict and qualify solar cells for use in space. The "AM" in the name refers to the "air mass", the thickness of terrestrial atmosphere through which the radiation has passed before it is observed, in this case zero.

The solar radiation that reaches the earth is reduced in intensity and the spectrum is changed by absorption and scattering as it passes through the atmosphere, and by reflection from the surface.[6] Scattering means that radiation reaches a receiver not only directly from the visible solar disk but also from the rest of the sky. Standard spectra and models have been derived for use in simulations and estimations.[7] For example, tables presented in ASTM Standard G173[8] are commonly used to represent terrestrial solar radiation in two forms (see Fig. 2):

1. AM1.5D: Direct Normal Incidence radiation is that received on earth directly from the solar disk, as would be received by a concentrating collector. The total integrated irradiances for the standard direct spectrum is 900.1 Wm^{-2};
2. AM1.5G: Hemispherical on 37° Tilted Surface radiation adds the direct radiation and the scattered diffuse radiation to yield the hemispherical or global radiation, impinging on a sun-facing 37°-tilted surface, useful for modeling flat plate (non-concentrating) collectors. The total integrated irradiances for the standard hemispherical tilted spectrum is 1000.4 Wm^{-2}.

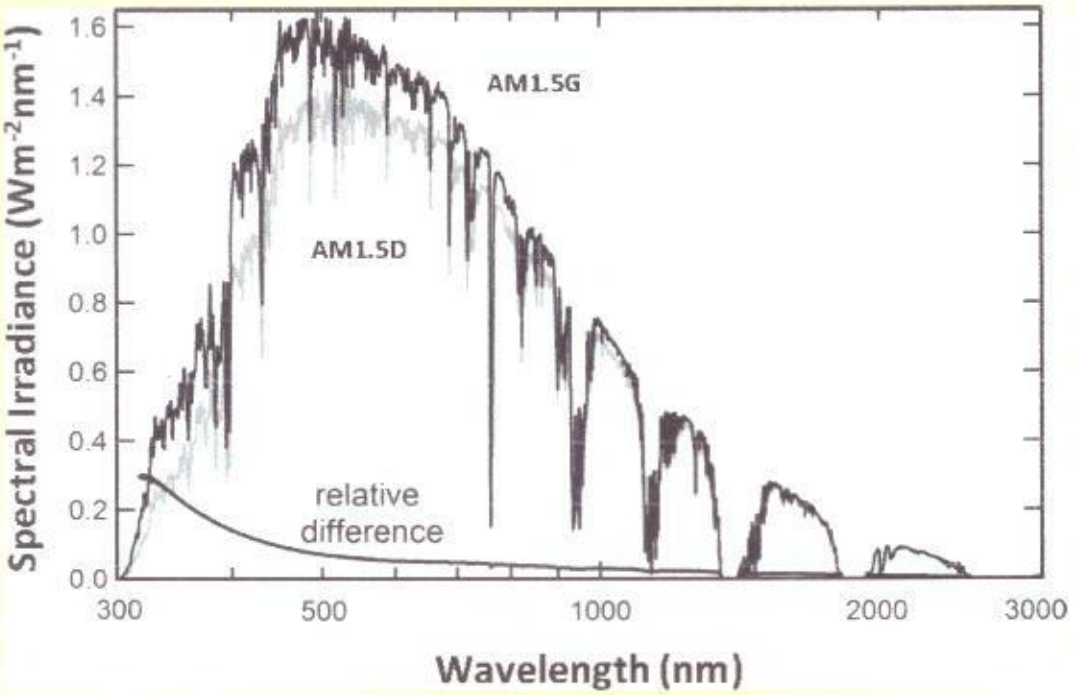


Fig. 2. AM1.5 global (AM1.5G) and direct normal (AM1.5D) standard terrestrial solar and their relative difference as a function of wavelength. Image credit: Prof. Pietro Altermatt.[11]

Note that there are many narrow and broad notches[9] in these spectra, resulting from absorption by particular atmospheric gas and vapor molecules. The atmosphere is opaque to ultraviolet radiation with wavelengths less than approximately 300 nm due to absorption by molecules such as H_2, O_2, and N_2. In the near-UV spectral range the main absorber is ozone, which also impacts on the visible range (380–780 nm), as do NO_2 and water vapor. Water vapor also introduces several broad absorption bands in the infrared range and carbon dioxide and oxygen also have an effect.[10]

The long-term average of the total solar irradiance at the average distance of the earth's orbit, one Astronomical Unit of $1.4959787066 \times 10^{11}$ m, is called the solar constant, S. Its reference value[12] is 1366.1 Wm^{-2}.

Actually, the "solar constant" is not constant but varies by ±3% due to the earth's elliptical orbit. There is an additional variation of about ±0.1% in the solar constant which is due to a variation in the total luminosity of the sun itself over the 11-year solar cycle. Researchers have tried to model this variation over the last 400 years by correlation with recorded sunspot numbers, suggesting that the sun may have varied in its power output by up to 1%.[2]

When diurnal and seasonal variations are taken into account, approximately 342 W is available for every square meter of earth's surface.[13] This equates to an annual energy input[14] of 5.46×10^{24} J. About 29% is reflected back to space by clouds, atmospheric particles or ground surfaces. About 23% of intercepted solar energy is absorbed in the atmosphere and 48% passes through to be absorbed by the surface.[15]

The geographical distribution of solar radiation reaching the earth's surface is studied and monitored extensively and satellite-derived estimates are available for the whole globe.[16] Detailed mapping resources for USA and Australia, for example, are provided by the National Renewable Energy Laboratory[17] and the Bureau of Meteorology.[18] Free online maps for the world and many of its regions are provided by SolarGIS.[19]

As might be expected, there tends to be less solar radiation towards the poles and cloudiness around the equator reduces the radiation reaching the ground there, leading to the regions of highest insolation being found in the high tropical and low temperate latitudes.

Measurements of solar radiation are made at many sites globally[20] with calibrated pyrheliometers,[21] the most sophisticated of which use shadow bands to measure separately the diffuse and direct components. Historical data and long-term averages are available through various databases, including the World Radiation Data Centre[22] and the World Radiation Monitoring Center (WRMC), which maintain the central archive of the Baseline Surface Radiation Network (BSRN).[23] The directly measured data is of limited use to engineers to design solar energy collection systems and it undergoes considerable processing to generate useful formats such as typical meteorological year (TMY) or monthly average daily global radiation on a horizontal surface.[24]

Additionally, solar radiation is estimated from satellite-based instruments.[25,26] For example, the NASA Atmospheric Science Data Center[16] provides long-term estimates of surface solar energy flux for 1° longitude by 1° latitude grid covering the entire globe. The data is readily accessible via the freely available *RETScreen* Clean Energy Management Software system.[27]

2 Advantages and Disadvantages Associated with Solar Energy Use

Solar energy has several major advantages when compared with other sources. The resource is distributed, though unequally, to every location on the globe. The resource is abundant, to the extent that many countries

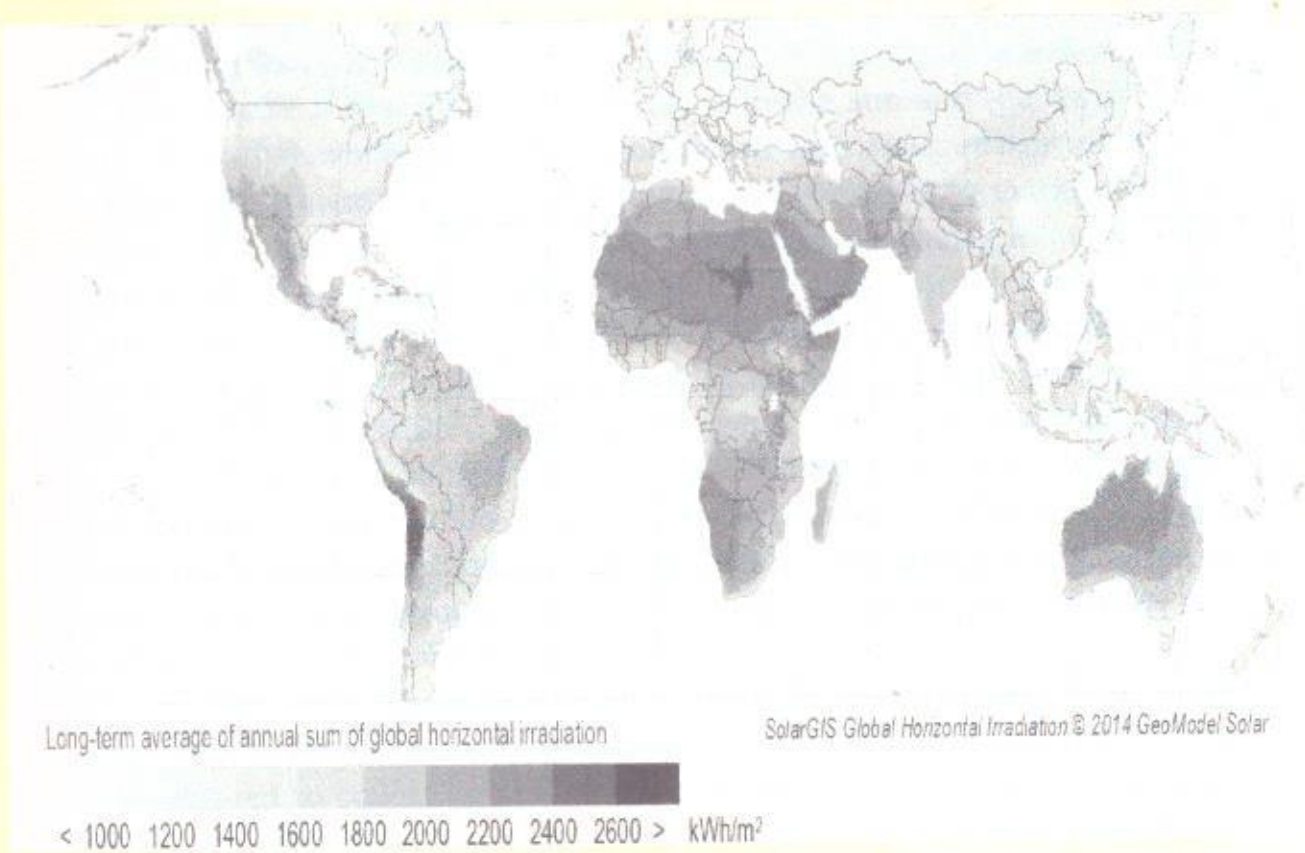


Fig. 3. Global solar radiation over the land surfaces of the world. Reprinted with permission from SolarGIS Global Horizontal Irradiation © 2014 GeoModel Solar.

have far more than they need to supply their energy needs from solar alone. It is effectively renewable on a human timescale, since the sun is expected to maintain similar production of its essential radiation at about the current rate for billions of years before eventually cooling to become a red giant.[28]

Arguably, untraded solar energy already dominates the global energy supply as it grows our forests and crops that provide basic energy services to a large fraction of the world's population, warms our passive solar buildings, evaporates seawater to produce our industrial salt supply and even dries our crops, clothes and fuels outdoors.

Collection and conversion to various useful energy forms is generally quiet and clean, with little or no local pollution from operation, including greenhouse gas pollution. Solar energy generally offers very low risk to public or operator safety and therefore, the location of solar energy plants can be flexible. Its use at large industrial scales is believed to be environmentally benign.

sponds to catching all the light leaving a unit area of the solar surface and generating its optical image on the surface of a terrestrial absorber, which would require a vast elliptical reflector with the sun and the earth at the foci. Note that while this book is concerned with solar *energy*, ultimately it is *exergy*, a measure of the useful work it is possible to extract from an energy flow, that is of greater interest.[29] Higher concentration of sunlight permits lower exergy destruction in conversion stages so it allows more efficient conversion of solar energy to useful forms such as mechanical work, electricity, chemical fuels or high-temperature process heat. Conversion of non- or low-concentrated solar radiation has less strict requirements for dynamic alignment of the collectors towards the sun, as compared with concentrating solar applications, and such types of photovoltaic or solar thermal receivers are appropriate for urban installation. Many forms of solar energy conversion are small in scale and modular, so there are low barriers to incremental introduction.

On the other hand, solar energy also has disadvantages. It is much more diffuse than, for example, fossil or nuclear fuels, so large surface areas are required to collect large quantities of energy. At any given location on earth, the intensity and spectrum of sunlight varies in both predictable and less predictable ways, introducing intermittency of supply. The tilt of the earth's axis means seasonal changes in solar radiation availability, with changes in the extent of daylight and the apparent elevation of the sun in the sky. The elevation varies the thickness of "air mass" through which the sunlight passes to reach the earth's surface, affecting its intensity and spectrum. Less predictably, clouds and atmospheric aerosols, such as dust and smoke, reduce intensity and modify the spectrum. Technical responses to intermittency[30] include using solar energy as a "fuel saver" in fossil fueled networks, hybridization of systems with multiple solar or other renewable or non-renewable sources, coupled energy storage, the topic of another volume in this series, and the proposed collection of solar energy from orbiting power stations that then transmit to earth.[31] Some forms of solar energy collection and conversion, such as biomass and the domestic solar water heater, are relatively easily coupled to storage but it can be expensive and difficult for other forms.

Another disadvantage is geographic specificity. Economic introduction of solar energy to existing energy distribution systems needs to conform to existing infrastructure that was built around competing energy sources. For example, the optimal location of large extra-urban solar power stations requires access to existing electricity grid infrastructure with capacity to accept the solar supply, collocated with available, un-conflicted and low-

Finally, there is a large array of solar energy conversion technologies, some simple and some technically complex, that, while together competing with established fossil and nuclear energy, also compete with each other. Researchers in all areas offer promise of better, cheaper technologies. Some investors are bewildered by the range choice and refrain altogether, awaiting clarity to avoid "betting on the wrong horse" and for the promised future technologies to become available. However, great attention is now being paid to this and good quality advice is available.[32,33] Some forms of solar energy conversion have traditionally been much more expensive than fossil fuel use, so long as economic externalities are excluded, but, at least for non-concentrating photovoltaics, this is now changing.[34] Funds are increasing flowing out of the incumbent technologies and into solar.[35] Large-scale adoption of solar energy will necessarily require large amounts of de-risked capital, requiring the solar energy industries to pay great attention to systems quality and performance prediction and monitoring.

3 History of Solar Energy Use

Solar energy has long supported humanity, with at least two forms, passive solar energy and biomass fuel use. Thus solar energy has been our partner throughout the progress of mankind. The growth of agriculture in the sunny "cradle of civilization" played a critical role in the development of civilization.[36] People have used the sun for drying crops, bricks, etc. since prehistoric times. The first known crop drying installation has been found in France and dates from around 8000 BC.[37] There is evidence from around the world of dryer development in many civilizations and this relatively simple solar technology continues to change lives and economies for the better, even today, in remote locations all over the planet.[38]

The US Department of Energy timeline provides a series of important historical milestones for solar energy.[39] Butti and Perlin[40] describe that history, beginning with ancient classical Greek and Roman over-consumption of biomass and including the passive solar dwelling and city design. In the case of the Roman Empire, the architect Vitruvius recommended different passive solar building designs for different latitudes, outlining principles that are still applied today. Solar access rights for buildings were included in the Justinian Code of law in the sixth century AD. Both ancient Greek and Chinese cultures developed concentrating solar reflectors to generate high temperature ignition for religious, civil and military purposes. "Burning mirrors" have since then been designed and used by many cultures

vatory or greenhouse for horticulture of plants outside their natural ranges or out of season.

The commercial availability of the Climax Solar Water Heater at the end of the 19th century in the USA initiated the mass availability of affordable solar domestic heating of water that has continued to drive the development of flat plate and evacuated tube heaters ever since. The harnessing of the sun for mechanical power began at least as early as the 1st century AD with solar water syphons built in Alexandria. The invention of the first solar steam engine has been attributed to Augustin Mouchot in France in 1866. He went on to develop solar cooking ovens and solar thermoelectric generators. The early 20th century saw an explosion of applications for solar engines for water pumping and other remote energy applications in the American west and elsewhere.[40]

Three main forms of concentrator have been developed to generate either high temperatures in solar thermal collectors or high conversion efficiencies in photovoltaic collectors: parabolic troughs that focus light onto a line, parabolic dishes that focus light onto a point and arrays of heliostats focusing onto a central receiver mounted on a tower. Concentrating solar power has been developed significantly since the oil shocks of the 1970s, principally in the US, Spain, Australia, and Israel. "Solar One", a 10 MW central-receiver demonstration project which opened in the US in 1982, was the first of several large solar concentrators constructed in the modern phase of growth to establish feasibility. It generated steam to drive a turbine for electricity generation. Solar One was expanded and upgraded to Solar Two in 1995, including molten salt thermal energy storage.

There are several good histories documenting the beginnings of photovoltaics, among them that by Crossley *et al.*[41] The French scientist Edmond Becquerel discovered the photovoltaic effect in an experimental photoelectrochemical setup in 1839.[42] At that time it was not possible to distinguish between chemical and photoelectric effects and the explanation of these experiments was originally in terms of chemistry. It was not until 1914 that Goldmann and Brodsky[43] made a photoelectric interpretation. In the 1870s, William Gryllis Adams and R.E. Day investigated *"whether it would be possible to start a current in the selenium merely by the action of light"*. The result was positive, *"clearly proving that by the action of light alone we could start and maintain an electrical current in the selenium"*. They did not, however, understand the processes at work in their devices, explaining the voltage as being due to extra light-induced crystallization in the material. Charles Fritts[44] foresaw great potential for solar power [illegible] There were at least four American manufac-

their installed new capacity exceeds that for decentralized grid connected systems. The main market for utility scale systems has shifted from Europe to Asia in recent years.

Perhaps the most significant challenge to future growth of this market segment is the growing resistance of electricity utilities and influential incumbent generators. Costs of large systems are generally lower than for small distributed systems but they also compete for a lower price product, bulk, wholesale electricity. Concentrating photovoltaics technologies have continued to struggle for a significant market share for a range of well-known reasons.[47] See Chapter 3 for an in-depth discussion of large-scale photovoltaics.

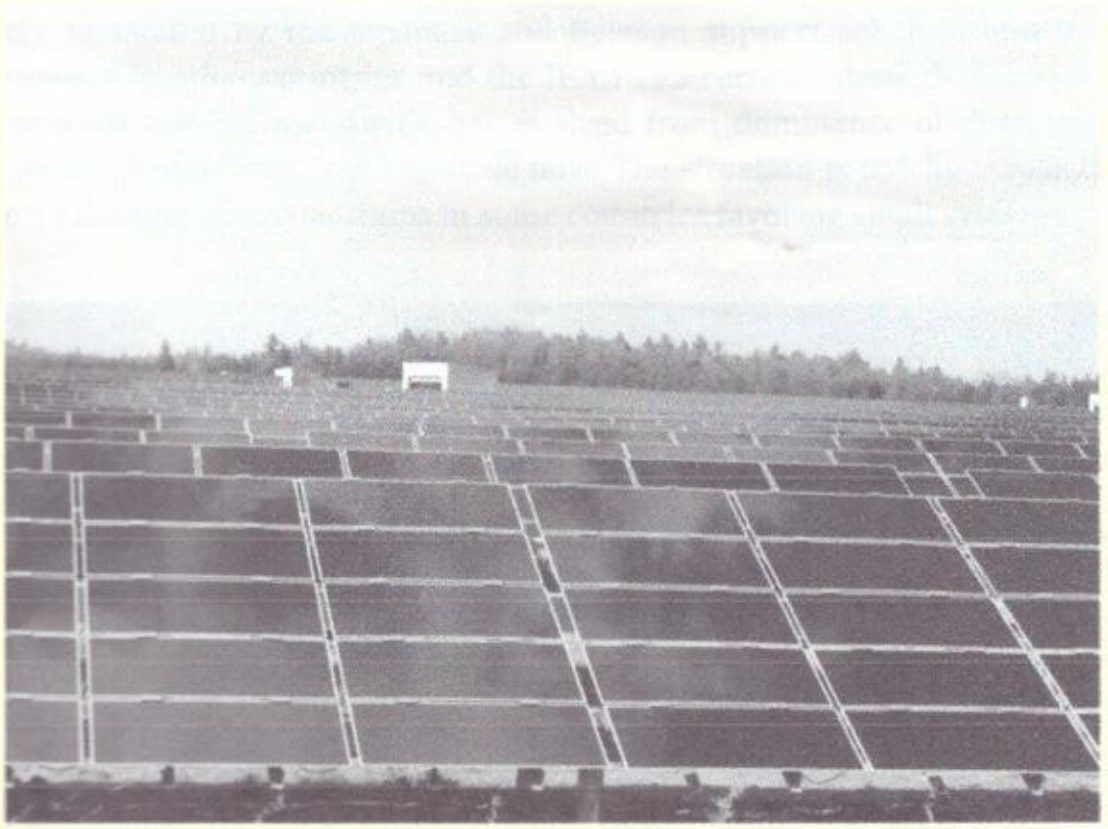


Fig. 4. Part of a 9 MW utility scale photovoltaics installation at Stone Mills, Ontario Canada.
Photo credit: R. Corkish.

4.2 *Photovoltaics for Small Scale on Homes and Commercial Buildings*

Resistance from incumbent grid managers and electricity retailers is even more evident for smaller scale distributed grid-connected systems. These systems, commonly on building roofs, can connect on the customer side of consumption meters and avoid the purchase of electricity from utilities and threaten their traditional business models (Fig. 5). Costs of these systems are generally higher than for utility scale systems due to their smaller scale but they compete at the retail price level. In many markets, such systems now need to be designed for self-consumption of their output, avoiding export to the grid, to make them economical. This is generally easier and more valuable for commercial than for domestic loads since they tend to be predominantly daytime demand. These are the types of systems that were facilitated by the Japanese and German support schemes and their followers in other countries and the IEA PVPS records show that the grid-connected market worldwide has evolved from dominance of distributed systems to roughly half utility scale now. The situation is patchy across the world though, with conditions in some countries favoring small systems.

Fig. 5. House with grid-connected photovoltaics and domestic solar water heater.

including reversibility, material discovery, stability and durability, reliability and efficiency of solar-driven reactors, and aspects associated with high-temperatures and transients. These technologies are discussed in Chapter 9.

4.6 *Solar Water Heating*

Solar water heating, both domestic and commercial/industrial, is so common and mainstream in many regions of today's world that it is sometimes overlooked as a significant renewable energy technology.[52] Like non-concentrating photovoltaics, it is a technology that is easily incorporated into urban infrastructure and displaces imported energy services. Two main collector technologies are already in mass production: flat plate and evacuated tube. In the former, the solar radiation heats a dark metal plate and heat is transferred to either a heat transfer fluid or directly to the water itself. Except for very low temperature applications such as swimming pool heating, an air gap and glazing above the plate allows higher temperatures to be generated by the greenhouse effect (visible light passes through the glazing to the plate while upwardly directed infrared radiation from the plate is blocked by the glass). Performance may be further improved by the use of spectrally "selective absorber" coatings on the plate that further limit radiative losses. Circulation of the fluid in contact with the plate can be driven by the thermosyphon effect or by a pump if the storage tank cannot be mounted directly above the collector, as it is in the example in Fig. 5.

The other main technology uses a double walled glass evacuated tube in which the gap between the walls is evacuated to block heat loss by conduction and convection.[53] A spectrally selective coating is applied to the inner wall or to a long, narrow absorber plate which allows a circulating working fluid to be heated to higher temperatures than with flat plates. Research into improved collectors includes the potential use of nanofluids, fluids with suspensions of nanoparticles, for direct absorption of sunlight by the working fluid.

A third technology in widespread use is arguably defined as a solar water heating technology. Domestic scale heat pump water heaters entered the mass market with ground mounted water storage tanks and roof-mounted and sun-exposed panels to evaporate the working refrigerant. However, customer resistance to the high installation cost, including the need for licensed refrigeration tradesmen to install and certify the necessary refrigerant pipework, led to the packaging of the evaporator panel wrapped around the tank, trading reduced performance for greater market acceptance. See Chapter 8 for further information on solar water heating.

4.7 *Passive Heating of Buildings and Solar Architecture*

and designed-in use of solar radiation has an extremely long history. The idea had a strong resurgence of interest and application following the two oil price shocks in the 1970s and passive solar architecture was codified and specialized for climate zones to a much greater extent than had previously been done.[54] The basic principles of Glass, thermal Mass and Insulation (GMI) are simple and clear and essentially the same as in ancient times but the necessary compromises in their application to different climate regions and for seasonal and diurnal variations requires careful and subtle engineering. Passive solar building design became less popular during the 1990s with lower fossil fuel costs but the old ideas together with new developments are experiencing resurgence. Various rating schemes[55] exist around the world and there are numerous regional schemes for mandating or, at least encouraging, more efficient building design and operation. This is discussed further in Chapter 8.

4.8 *Evaporative Cooling*

Like domestic solar water heating, evaporative cooling is a solar technology that has achieved mass market acceptance and is sometimes overlooked as a contribution of solar energy to human comfort and convenience. Evaporative cooling is a ubiquitous air conditioning choice in many of the less humid climate zones of the world. It works by using solar-heated ambient warmth to extract heat from a fan-forced flow of air by the latent heat of evaporation of water. Even more simply, passive forms rely on prevailing wind to blow air across ponds. It is the technology that supports the cooling towers prevalent in commercial/industrial air conditioning and industrial cooling and in fossil fueled and nuclear generation of electricity so it may be seen that evaporative cooling makes a huge contribution to human energy services but is generally excluded from renewable energy statistics.

The state of the art of evaporative cooling is described in Chapter 8 of this volume.

4.9 *Biomass and Biofuels*

Modern application of biomass and biofuels encompasses a wide range of technologies from efficient cook stoves, mass-scale pelletization of wood and waste materials, the capture and combustion for electricity generation of methane from decaying municipal waste (landfill gas), to the highly technical production of liquid fuels from agricultural and forestry crops or wastes, organic municipal waste, and cultivated algae for the subsequent extraction of oil.

The use of liquid biomass fuels has entered the mass market in some regions of the world, most notably in Brazil with sugar-derived ethanol

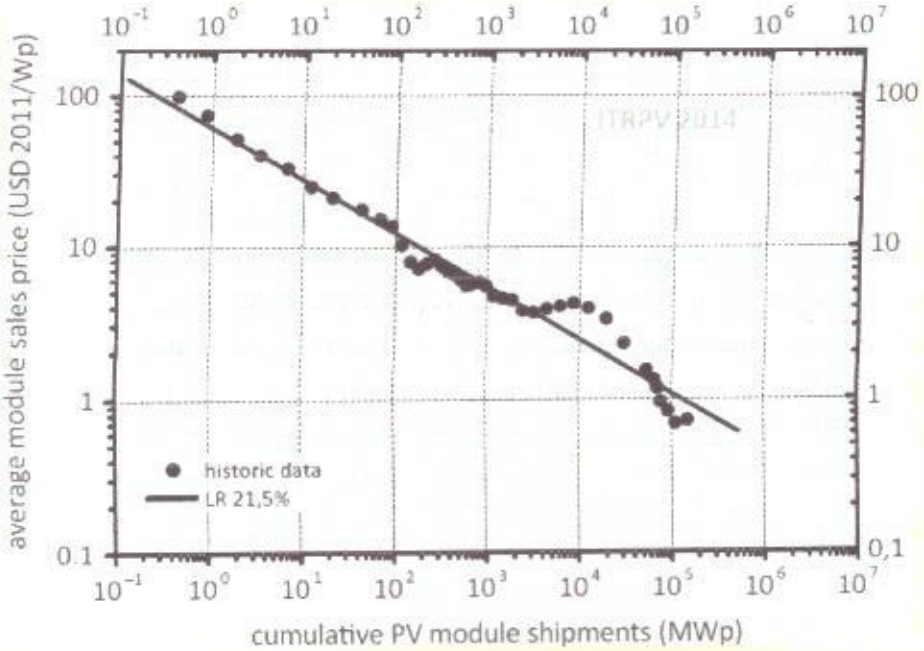


Fig. 6. Historic price reductions and the so-called "PV experience curve" for PV cells.[61]

fuelled electricity generation. For example, prices in the USA of residential and commercial PV systems fell, on average, 6–7% per annum from 1998–2013 and then rapidly, by 12–14% per year from 2012–2013. An additional 3–12% decrease is expected in 2014.[48,60] The ranges account for different market dynamics and cost structures for systems of different sizes. Much of the historical cost decrease has resulted from cost reductions in cell and module production, following a beneficial "experience curve" (Fig. 6),[61] which may flatten in the near term as the industry recovers from overcapacity resulting from the global financial crisis. However, drops in balance of system components and installation methods and soft costs[62] (including the non-hardware costs such as sales and marketing, financing, contracting, permitting, grid connection inspection, installation and O&M) are likely to allow the system price to continue falling. USA prices for installed photovoltaic systems have been reported to be more than twice the price in Germany, for instance,[60] suggesting the potential for significant reductions in the USA.

To compare the economics of different electricity generation technologies it is necessary to estimate the cost of the energy produced. Levelized cost of energy (LCOE), is defined as the long-run marginal cost of electricity generation, based on capital, fixed and variable, operations and maintenance, and fuel costs. Many studies have been carried out to compare and rank energy generation technologies, particularly in the [illegible] of electricity in various regions.[32,63,64] Many of these studies tend

solar radiation also vary with intensity of sunlight, so they vary regionally. The best regarded photovoltaics industry roadmap[61] projects a 41% decrease in LCOE between 2013 and 2024, from a base, for large systems, of 0.056 USD/kWh (sunny regions) and 0.111 USD/kWh for places with half as much solar radiation. An Australian study[64] estimated (updated estimates in 2013 for 2012) a large range of LCOE for fixed-tilt photovoltaics from about 0.16 to 0.27 USD/kWh and 0.03 to 0.13 USD/kWh under different sets of assumptions. A report from a consultancy, Lazard, estimated for the US ranges of 0.18–0.265 USD/kWh for rooftop residential installations, 0.126–0.177 USD/KWh for commercial and industrial systems and 0.072–0.086 USD/KWh for utility scale.[32]

Costs for concentrated solar thermal generated electricity are less well defined since the market is still small and many projects are "proof of concept" or experimental. This technology shares with concentrated solar photovoltaics many barriers to reaching commercial markets, clearly outlined more than a decade ago including restriction to clear-sky regions that, commonly are remote from human habitation (although the energy transmission costs are at least partly balanced by low land cost), the lack of markets for small-scale initial installations to build cash flow, inconsistent government policies, negative perceptions, competition from flat-plate photovoltaics and direct competition from fossil fuel power plants.[47] Nevertheless, estimates for LCOE from solar thermal electricity are still reasonably attractive and projected to fall. The Australian study mentioned above found that LCOE for solar thermal electricity without storage was in the range 0.21–0.35 USD/kWh and slightly higher for systems with storage in 2012 (updated in 2013)[63] and projected a very wide range on 0.05–0.26 USD/kWh in 2050. However, the same study found that coupling solar thermal to existing fossil-fueled power plants as fuel savers offers much more competitive prices.[65] Another estimate, for the US, estimated LCOE for concentrated thermal electricity with storage at 0.118–0.13 USD/kWh currently.

Low temperature water heating has contributed massively to CO_2 savings, particularly in China and Europe.[66] The economics are complex, depending on solar radiation, water usage patterns, local energy prices, government support, type of solar water heater, etc. A comprehensive study of domestic solar water heater performance in the contiguous states of the USA[67] found a wide range of break-even prices, varying by a factor of five. The large variation is mainly due to varying incentives and electricity prices. The study predicts energy savings of 1600–2600 kWh per year for typical

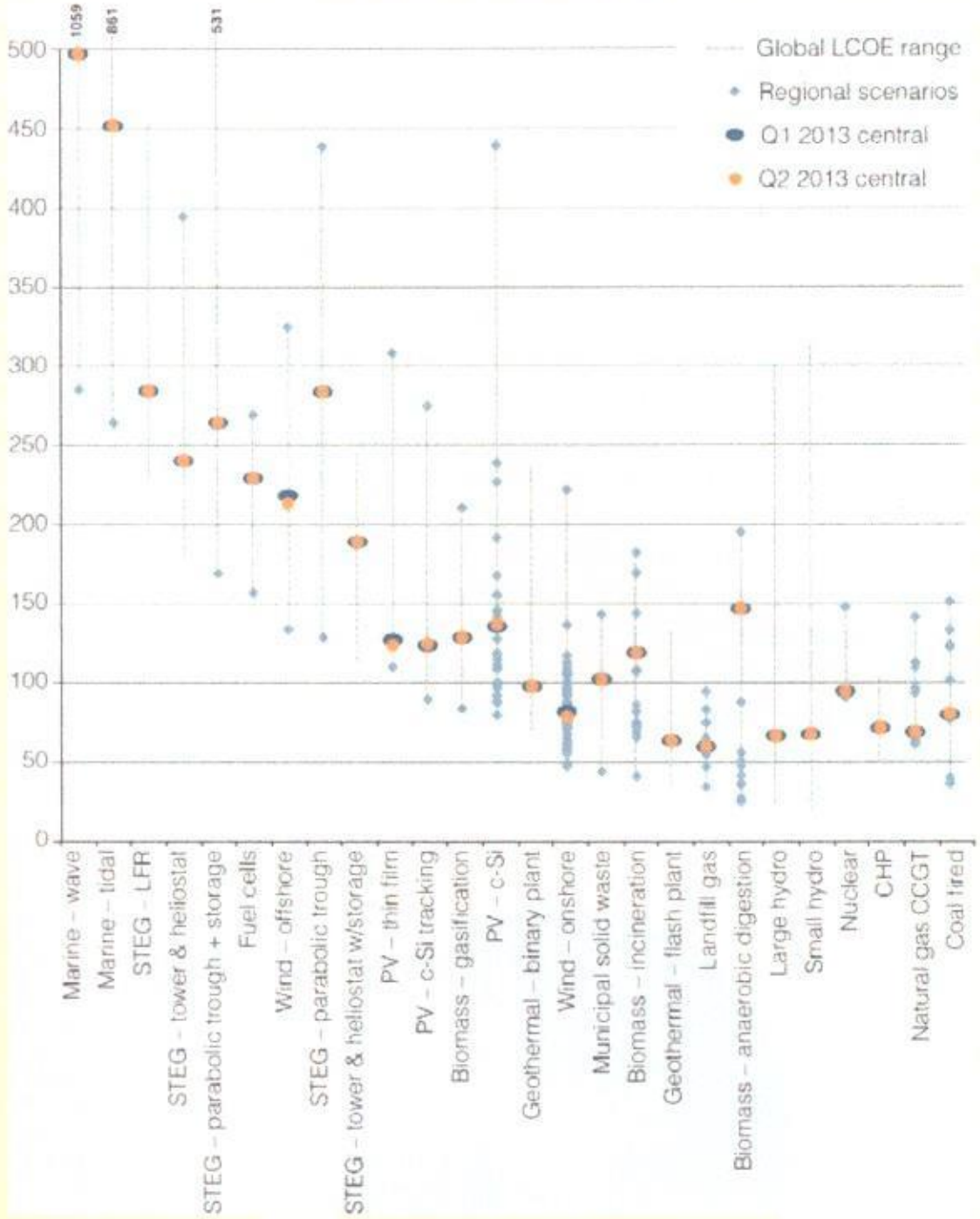


Fig. 7. Global levelized cost of energy (USD/MWh) for the second quarter of 2013 (Used by permission of the World Energy Council, London, www.worldenergy.org).

6 Social and Policy Aspects

Solar energy advancement in recent years has been underpinned by various forms of support from governments and, occasionally, utilities. The policies have tended to be both variable between countries and in a contin-

Direct capital subsidies aimed at reducing the upfront investment represented around 16% of the incentives in 2013. These subsidies are derived from taxation and may support grid or off-grid applications. They have been used, among others, in Australia, Belgium, Sweden, Japan, the USA, Italy, and China. Tax credits are a special form of direct subsidy. Tax credits have been used in Canada, the USA, Belgium (until 2010), Switzerland, France, Japan, the Netherlands, and other countries.

Renewable Portfolio Standard (RPS) and related approaches mandate a share of electricity to be produced by specific sources that utilities must use, either by producing it themselves or by buying certificates. These certificates allow renewable electricity producers to get a market-based remuneration for their output to the grid.

Sustainable building regulations are an important motivator for uptake of photovoltaics, solar thermal water heating and passive solar construction. These solar technologies may be included in a suite of options for reducing the energy footprint of a new building or could be specifically mandated for new buildings.

The declining cost of distributed generation has allowed it to compete directly with retail electricity from the grid. Several jurisdictions have permitted schemes allowing local consumption (self-consumption or net-metering) of locally produced electricity. These allow reduction of imported electricity and the related cost for the system owner, on site or even, occasionally, between distant sites. Solar generated electricity can be consumed by the PV system owner, reducing the electricity bill and any excess electricity can then be exported to the grid. This system was used, for example, in Germany until 2012. Many regions encouraged self-consumption by funding a bonus above the retail electricity price. Several methods are used to price the excess electricity sent to the grid: injected electricity is not paid; excess electricity is paid at the market price, with or without a bonus; a FiT remunerates the excess electricity at a pre-defined price, either lower or higher than the retail price of electricity; and net-metering, sometimes with either incentives or taxes. Export to the grid is expressly forbidden in some cases, with requirements for expensive equipment to block it.

Since 2012 opposition from utilities and grid operators grew against net-metering and FiT schemes. In situations where both improved energy efficiency and increased solar energy penetration have reduced demand for fossil-fueled electricity to the extent that incumbent generators fear that their assets may be stranded, all forms of support for solar energy

integration are being questioned.[71] In many cases, electricity companies have been allowed to levy fees on connection of photovoltaic systems since they need to have grid capacity available both to accept the photovoltaic generation and to provide back-up. The estimation of a fair value for such charges is highly controversial.[72] Several regulators in Europe and elsewhere are expected to introduce capacity-based tariffs rather than energy-based tariffs for grid costs. This could discourage both solar energy production and energy efficiency and delay solar energy's competitiveness in some countries. Support in many areas has recently been reduced or withdrawn altogether, sometimes even retrospectively. These regulatory changes have motivated both system designs to minimize generation at times with likely low load[73] as well as the use local battery storage.[74]

Carbon taxes, introduced in various forms in several jurisdictions, have tended to have a rather limited impact on solar energy production since these incentives have operated directly at the wholesale energy market level, where lower cost options are frequently available (see Fig. 7). While the foregoing discussion has focused on grid-connected solar electricity generation, Zhang[75] has assessed the impact of World Bank policies on the encouragement of photovoltaics uptake in developing countries since the 1990s. The World Bank contributed USD790 million over the period 1992–2009 to the promotion of small-scale solar home systems in 34 developing countries. The results have been mixed and many barriers have been identified. The study found that using output-based producer subsidies and relying on microfinance for consumers, have been effective in encouraging the uptake of solar home systems. The World Bank experience suggests that power grid development can be leapfrogged by solar home systems for households with access to good microfinance services.

The rapid fall in prices for some forms of renewable energy generation are beneficial but have raised some serious challenges for policy makers.[76] These include:

- Rapidly falling costs have made it difficult to set public sector support at optimal levels;
- Some support schemes have proven to be relatively expensive burdens for consumers and/or tax-payers;
- Unanticipated competition between distributed and incumbent generators;
- Growing levels of intermittent generation are providing technical challenges for grid operators.

The International Renewable Energy Agency has developed a set of policy directions to address these issues in different contexts.

7 Conclusions

Solar energy is on the verge of a massive boom. Together with wind energy, it directly challenges the incumbent dominant forms of traded energy, fossil and nuclear. This chapter outlines the rapidly improving economics of solar energy, particularly, flat-plate photovoltaics, in an inexorable march towards dominant market share as global concern grows about the impact of atmospheric carbon on climate change. We are already seeing the beginnings of divestment of fossil fuelled energy by influential investors, as fears grow about stranded assets. The chapter also addresses the policy environment that has encouraged the development of solar energy in recent decades. However, some of these policies are under threat as energy companies, especially in the areas of electricity transmission and distribution, realize the challenge posed by solar to their traditional business models and learn to adjust those models to include distributed generation.

This volume describes the recent advances and current status of a wide range of approaches to capturing and exploiting solar energy to serve humanity's needs. It is a timely summary of the technologies becoming mature and breaking into the current markets as well as those still in the R&D realm. In spite of many challenges ahead, solar energy is likely to dominate traded human energy soon, as it has always dominated untraded energy.

8 Bibliography

1. K. Hubbert, *Sci. Amer.* **225** (1971), p. 61.
2. J. Kennewell and A. McDonald, *The Solar Constant* (2015). Available at: http://www.ips.gov.au/Educational/2/1/12. Accessed 15 August 2015.
3. P. Altermatt, Comparison with Blackbody Radiation — Plancks Law, Altermatt Lecture: The Solar Spectrum (2012). Available at: www.pvlighthouse.com.au/resources/courses/altermatt/The%20Solar%20Spectrum/Comparison%20with%20blackbody%20radiation%20-%20Plancks%20law.aspx. Accessed 29 September 2014.
4. ASTM, 2000 ASTM Standard Extraterrestrial Spectrum Reference E-490-00, Solar Spectra: Air Mass Zero, Renewable Resource Data Center (2000). Available at: http://rredc.nrel.gov/solar/spectra/am0/. Accessed 29 September 2014.
5. P. Altermatt, The extraterrestrial (AM0) solar spectrum, Altermatt Lecture: The Solar Spectrum (2012). Available at: www.pvlighthouse.com.au/resources/courses/altermatt/The%20Solar%20Spectrum/The%20extraterrestrial%20%28AM0%29%20solar%20spectrum.aspx. Accessed 29 September 2014.

P.A.H. SOLAPUR UNIVERSITY, SOLAPUR

UNION EDUCATION SOCITY,S MAHILA MAHAVIDYALYA

A PROJECT ON
PROTECTION ACT 1986

ITTED BY

ek Maheboob Mulla

.....

the guidance

rof. F.H.PATEL

A NAYAB

Year of submission 2023-2024

DECLARATION OF STUDENT

RINCIPAL,
IAHILA MAHAVIDYALAYA,
R COLLEGE OF ARTS, SOLAPUR.

CTED MA'AM

RSIGNED HEREBY DECLARE THAT THE PROJECT REPORT ENTITLED PROTECTION ACT 1986" PREPARED AND TTED UNDER THE GUIDANCE OF **ASST PROF. F.H PATEL.** IT'S MY ORIGINAL WORK. THE EMPIRICAL FINDING IN ROJECT ARE BASED ON THE DATA COLLECTED BY MYSELF WHILE PREPARING THIS PROJECT. I HAVE COPIED ANY OTHER PROJECT REPORT .

I UNDERSTOOD THAT, ANY SUCH COPYING IS LIABLE TO BE PUNISHED IN A WAY THE UNIVERSITY RITIES MAY DEEM FIT.

TURE OF THE STUDENT M
OF THE STUDENT
Mahek Maheboob Mulla

- SOLAPUR

.....

CONTENT

DECLARATION OF THE SUPERVISOR

ndersigned supervisor for the environmental science

ct hereby declare that the project of

ek Maheboob Mulla .....of B.A 2nd Year he has carried out the
rch project entitled "PROTECTION ACT 1986" is for the partial fulfilment of
ertificate course in environmental science proposed by Solapur University ,
ur is the original work and not submitted elsewhere for the publication.

• **Asst prof. F.H.PATEL**

E- SOLAPUR

.....

P.A.H. SOLAPUR UNIVERSITY, SOLAPUR

UNION EDUCATION SOCIETY'S
MAHILA MAHAVIDYALAYA

SIDDESHWAR PETH, SOLAPUR.413001

ENVIRONMENTAL STUDIES

CERTIFICATE

Exam No -..... Date-31/03/24

This is to certify that Miss
Mahek Maheboob Mulla

Has satisfactorily carried out the required field / project work by the Solapur University, Solapur. For the BA-2ND / B.com- 2nd course in Environmental studies and this field / project work report represents his / her confide work report in the year 2023 to 2024.

F.H.PATEL
Examiner

Dr. F.M.SHAIKH
Principal

U.E.S. Mahila Mahavidyalaya

STUDENT NAME

SANIYA MULLA
BIBI FATIMA

TARANA ANSARI
ARSHIYA
LOKAPALLI

MAHEK
MULLA

AAMINA PASHA
MUSKAN SHAIKH

BUSHRA SHAIKH
MISBAH SHAIKH
IQRA SHAIKH

PROTECTION ACT 1986

INTRODUCTION

An Act to provide for the protection and improvement of environment and formatters connected therewith.

Whereas the decisions were taken at the United Nations Conference on the Human Environment held at Stockholm in June, 1972, in which India participated, to take appropriate steps for the protection and improvement of human environment.

The Environment (Protection) Act 1986 was introduced after the Bhopal gas tragedy during Rajiv Gandhi was the Prime Minister of our country.

OBJECTIVES

To protect the forests and wildlife in the country.

To improve the quality of life by protection of environment.

To co-ordinate the activities of the various regulatory agencies already in existence.

To appoint environment officers to check environmental pollution.

Establishing environmental laboratories.

lazardous substance -

It means any substance or preparation which, by eason of its chemical or physico-chemical properties or handling, is able to cause harm to human beings, other living creatures, plant, nicro-organism, property or the environment.

nvironment pollution -

It means the presence of any environmental ollutant in the environment. It includes all extraneous materials that re harmful to human being ,animals and plants life.

SOURCES AND CAUSES FOR THE POLLUTION

Combustion
Construction
Mining
Agriculture
Chemical plants
Coal-fired power plants
Oil refineries
Petrochemical plants, Nuclear waste
Large livestock farms (dairy cows, pigs, poultry, etc.)
PVC factories
Plastics factories and other heavy industry are increasingly significant in the pollution equation.

STATE BOARD

Chairman

Representative of the State Govt. *(not exceeding five)*

Representative of local bodies *(not exceeding five)*

Representative of companies or corporations owned, controlled or managed by the State Govt. *(two)*

Representative have interests of agriculture, fishery or industry or trade etc. *(not exceeding three)*

Member Secretary:

- *(Full time possessing qualifications, knowledge and experience of scientific, engineering or management aspects of pollution*

OFFICERS

- Central Government may appoint officers with such designation as it thinks fit for the purposes of this Act and may entrust to them such of the powers and functions under this Act as it may deem fit.

7. Examination of such manufacturing processes, materials and substances which are likely to cause environmental pollution.

8. Inspection of any premises, plant, equipment, machinery, manufacturing or other processes, materials or substances.

9. Establishment or recognition of environmental laboratories and institutes.

10. Collection and dissemination of information in respect of matters relating to environmental pollution.

11. Preparation of manuals or guides relating to the prevention, control and abatement of environmental pollution.

RULES TO REGULATE ENVIRONMENT POLLUTION

The Central Government may, by notification in the Official Gazette, make rules in respect of all or any of the matters referred to in section 3.

) The standards of quality of air, water or soil for various areas and purposes.

) The maximum allowable limits of concentration of various environmental pollutants (including noise) for different areas.

PREVENTION, CONTROL, AND ABATEMENT OF ENVIRONMENTAL POLLUTION

- Persons carrying on industry operation, etc., not to allow emission or discharge of environmental pollutants in excess of the standards.
- Persons handling hazardous substances to comply with procedural safeguards
- Furnishing of information to authorities and agencies in certain cases
- Powers of entry and inspection
- Power to take sample and procedure to be followed in connection therewith

ENVIRONMENTAL LABORATORIES

- Central Laboratory, Maharashtra Pollution Control Broad, CIDCO Bhawan, 5th Floor, South Wing, Belapur -C.B.D. Navi Mumbai - 400 614.
- Central Laboratory, Maharashtra Pollution Control Board, Army & Navy Building, Ground Floor, 148, M.G.Road, Fort, Mumbai - 400 023.
- Environmental Survey Laboratory, Nuclear Power Corporation, Tarapur Atomic Power Station, P.O. TAPP. District Thane - 401 504
- Environmental Survey Laboratory, Health Physics Division, Bhabha Atomic Research Centre, Trombay, Mumbai - 400 085.
- Chemical Laboratory, Indian Beauro of Mines, Ore Dressing Division, New Secretariat Building, Civil Lines, Nagpur - 440 001

PENALTY

Whoever fails to comply with or contravenes any of the provisions of this Act, or the rules made or orders or directions issued thereunder, shall, in respect of each such failure or contravention, be punishable with imprisonment for a term which may extend to five years with fine which may extend to one lakh rupees, or with both, and in case the failure or contravention continues, with additional fine which may extend to five thousand rupees for every day during which such failure or contravention continues after the conviction for the first such failure or contravention.

If the failure or contravention referred to in sub-section (1) continues beyond a period of one year after the date of conviction, the offender shall be punishable with imprisonment for a term which may extend to seven years.

Offences by Government Departments

1) Where an offence under this Act has been committed by any epartment of Government, the Head of the Department shall be emed to be guilty of the offence and shall be liable to be proceeded ainst and punished accordingly.

2) Notwithstanding anything contained in sub-section (1), where an fence under this Act has been committed by a Department of overnment and it is proved that the offence has been committed with e consent or connivance of, or is attributable to any neglect on the part any officer, other than the Head of the Department, such officer shall so be deemed to be guilty of that offence and shall be liable to be oceeded against and punished accordingly.

BIBLOGRAPHY

Ahirrao WR, Alizad SS, Dhapte CS, Environmental science, ne: Nirali prakashan, Fourth edition, Jully 2001, p217-283.

Pawar KR, A textbook of Environmental awareness, Nashik: irali prakashan, Second edition, January, 2005, p6.2-6.17.

3. http://saferenvironment.files.wordpress.com

4. //himachal.nic.in/environment/notifications/The_environment(prot ection)_act

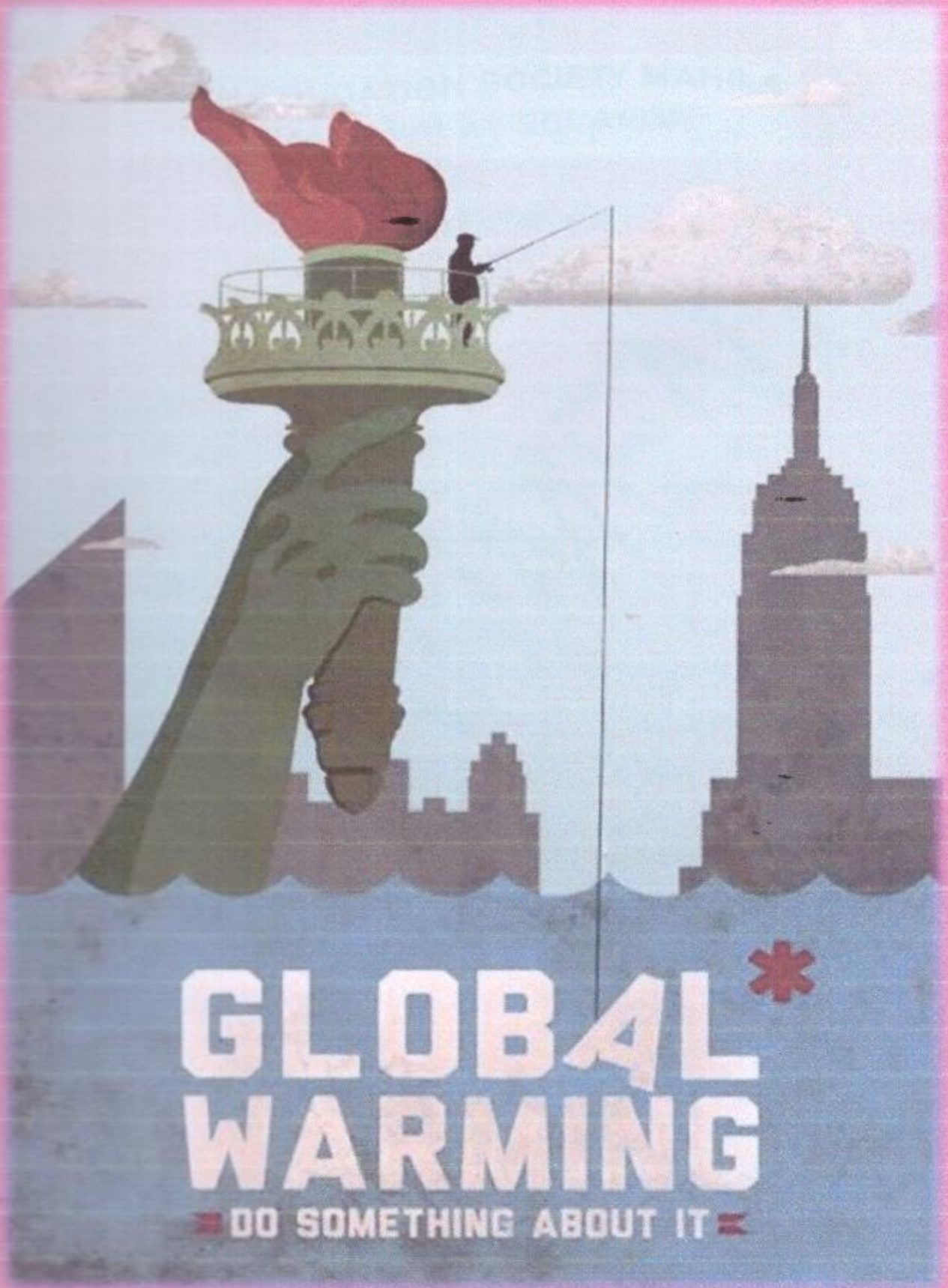
5. http://www.cpcb.nic.in

6. http://www.mpcb.mah.nic.in

Pollution Is Slow Poison,
Acts Slowly But Lethally

FOR HEALTHY ENVIRONMENT
ENVIROPOL


Thank You
think green
with ChoicePoint



BY SANIYA S. KORBU

P.A.H SOLAPUR UNIVERSITY
SOLAPUR

UNION EDUCATION SOCIETY MAHILA
MAHAVIDYALAY SOLAPUR

A PROJECT REPORT ON

GLOBLE WARMING

SUBMITTED BY

Sanjya Ayyub Bagban

Under the guidance

Asst Prof. F.H PATEL

Dr. Z.A NAYAB

Year of submission 2023-24

ENVIRNMENT

DECLARATION OF STUDENT

TO

The Principal,

U.E.S Mahila Mahavidyalaya,

Solapur.

Respected Ma'am

I undersigned hereby declare that the project report entitled "GLOBLE WARMING" prepared and submitted under the guidance of Asst Prof. F.H 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 a way the University authorities may deem fit.

Signature of the student

Name of the student

Saniya Ayyub Bagban

Place SOLAPURE

DATE----------

ENVIRNMENT

DECLARETION OF THE SUPERVISOR

the undersigned supervisor for the environmental science project hereby declare that the project of...Saniya....Ayyub....Bagban..... of B.A II Year.She has carried out the research project entitled "GLOBAL WARMING" 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.

Asst Prof. F.H. PATEL

PLACE- SOLAPUR

DATE.....

A REPORT ON

'GLOBAL WARMING'

ACKNOWLEDGEMENT

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

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

We are also Thankfull to

Asst Prof. F.H PATEL **Dr. Prof F.M SHAIKH**

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 able job for us

STUDENTS NAME

1] BAGWAN SANIYA

2] SHAIKH MUSKAN

3] PATEL MUSKAN

4] SAYYED SANIYAA

5] QURESHI ZEESHAN

6] SHAIKH TAZEEN

7] BAGWAN SIDRA

8] BAGWAN RUKAIYYA

9] SHAIKH MISBAH

UNION EDUCATION SOCIETY'S

MAHILA MAHAVIDYALYA SOLAPUR

SIDDESHWAR PETH, SOLAPUR. 413001

ENVIRONMENTAL STUDIES

CERTIFICATE

Exam No- ..... Date-.....

This is to certify that Miss.....

Has Satisfactory carried out the request 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 2023 to 2024.

ENVIRNMENT

Asst Prof. F.H.PATEL

Examiner

Dr. FM SHAIKH

Principal

I/c. Principal
U. E. S. Mahila Mahavidyala;
Solapur.

INDEX

I. Introduction

The continuous rise in temperature of the planet is really upsetting. The root cause for this is global warming. Global warming begins when sunlight reaches the Earth. The clouds, atmospheric particles, reflective ground surfaces and surface of oceans then sends back about 30 % of sunlight back into the space, whilst the remaining is absorbed by oceans, air and land. This consequently heats up the surface of the planet and atmosphere, making life feasible. As the Earth warms up, this solar energy is radiated by thermal radiation and infrared rays, propagating directly out to space thereby cooling the Earth. However, some of the outgoing radiation is re-absorbed by carbon dioxide, water vapours, ozone, methane and other gases in the atmosphere and is radiated back to the surface of Earth. These gases are commonly known as greenhouse gases due to their heat-trapping capacity. It must be noted that this re-absorption process is actually good as the Earth's average surface temperature would be very cold if there was no existence of greenhouse gases. The dilemma began when the concentration of greenhouse gases in the atmosphere was artificially increased by humankind at an alarming rate since the past two centuries. As of 2004, over 8 billion tons of carbon dioxide was pumped thermal radiation is further hindered by increased levels of greenhouse gases resulting in a phenomenon known as human enhanced global warming effect. Recent observations regarding global warming have substantiated the theory that it is indeed a human enhanced greenhouse effect that is causing the planet to heat up. The planet has experienced the largest increase in surface temperature over the last 100 years. Between 1906 and 2006, the Earth's average surface temperature augmented between 0.6 to 0.9 degrees Celsius, however out per year. Millions of pounds of methane gas are generated in landfills and agricultural decomposition of biomass and animal manure. Nitrous oxide is released into the atmosphere by various nitrogen-based fertilizers

II. Greenhouse Effect

While other planets in the solar system of the Earth are either roasting hot or bitterly cold, Earth's surface has relatively mild, steady temperatures. Earth enjoys these temperatures because of its atmosphere, which is the thin layer of gases that cover and protect the planet. However, 97 % of climate scientists and researchers agree that humans have changed the Earth's atmosphere in dramatic ways over the past two centuries, resulting in global warming. To understand global warming, it is first necessary to become familiar with the greenhouse effect. As Fig.1 depicts, the natural greenhouse effect normally traps some portion of heat in such a way that our planet is safe from reaching freezing temperatures while human enhanced greenhouse effect leads to global warming. This is due to burning of fossil fuels which increase the amount of greenhouse gases (carbon dioxide, methane and oxides of nitrogen) present in the atmosphere [2].

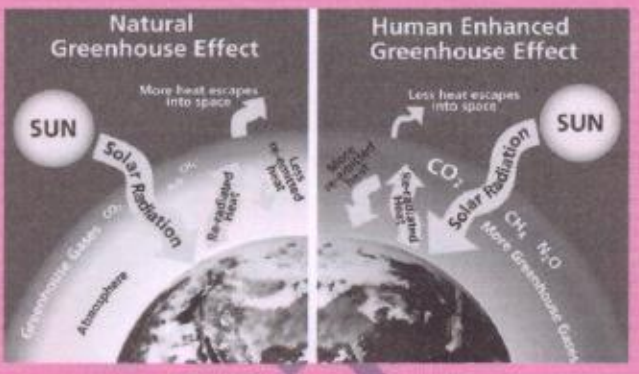


Fig.1 Types of greenhouse effects [2]

The trade of incoming and outgoing radiation that heats up the Earth is often referred to as the greenhouse effect because a greenhouse works in a similar way (Fig.2). Incoming ultraviolet radiation easily passes through the glass walls of a greenhouse and is absorbed by the plants and hard surfaces inside. Weaker infrared radiation, however, has difficulty passing through the glass walls and is trapped inside, therefore, warming the greenhouse. This effect lets tropical plants prosper inside a greenhouse, even during a cold season [2].

Fig. 2 Plants embodied in a greenhouse [3]

A similar phenomenon takes place in a car which is parked outside on a cold sunny day. Incoming solar radiation warms the interior of the car but outgoing thermal radiation is trapped inside the closed windows of the cars. This entrapment basically warms up the car. This trapping occurs in such a way that the hot air does not rise and does not lose energy though convention [2]. This phenomenon is depicted in Fig. 3.

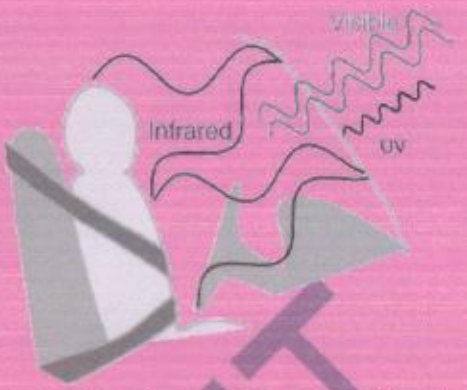


Fig. 3 Greenhouse effect example [4]

In the words of Michael Daley, an Associate Professor of Environmental Science at Lasell College: "Gas molecules that absorb thermal infrared radiation, and are in significant enough quantity, can force the climate system. These types of gas molecules are called greenhouse gases". Carbon dioxide and other greenhouse gases act like a mantle, absorbing infrared radiation and preventing it from escaping into the outer space. The net effect is the regular heating of the Earth's atmosphere and surface.

The greenhouse effect, combined with increasing levels of greenhouse gases and the resulting global warming, is expected to have philosophical implications. If global warming continues

unrestrained and nothing effective is done to limit this evil, it will cause significant climate change, a rise in sea levels, extreme weather events and other ruthless natural, environmental and social impacts [2].

ENVIRNMENT

III. Greenhouse Gases: A Hazard

foremost in the list is carbon dioxide. Excessive burning of fossil fuels like coal and oil is the major factor for producing this gas. Moreover, deforestation i.e. removal of trees for acquiring lands also causes large amount of carbon dioxide in the atmosphere. Cement manufacture also contributes carbon dioxide to atmosphere when calcium carbonate is heated generating lime and carbon dioxide. The second culprit gas is methane, commonly known as natural gas. It is produced as a result of agricultural activities such as livestock digestion, paddy rice farming and use of manure. Methane is also produced due to improper management of waste. Nitrous oxides are generated mainly by fertilizers. Moreover, fluorinated gases such as chlorofluorocarbons (CFCs) are chiefly a result of various industrial processes and refrigeration [5], [6]. Fig.4 shows pictorially the distribution of greenhouse gases.

These gases are playing their negative part in increasing the havoc of global warming. They are continuously causing an increase in the earth's temperature.

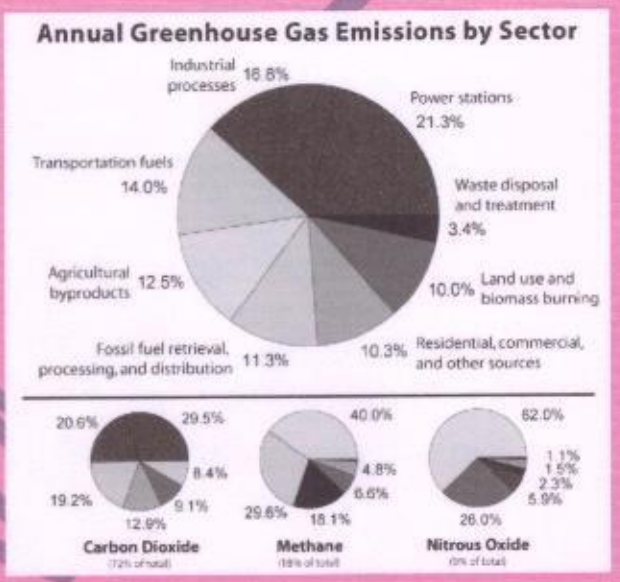


Fig.4 Distribution of greenhouse gases [7]

of agriculture. Biomass burning generates a mixture of organic droplets and soot particles. Many industrial processes produce a wide diversity of aerosols depending on what is being burned or generated in the manufacturing process. Moreover, exhaust emissions from various sorts of transport produce a rich mixture of pollutants that are either aerosols from the outset or are transformed by chemical reactions in the atmosphere to form aerosols [8].

V. Global Warming: The Effects

Predicting the consequences of global warming is one of the most difficult tasks faced by the climate researchers. This is due to the fact that natural processes that cause rain, snowfall, hailstorms, rise in sea levels is reliant on many diverse factors. Moreover, it is very hard to predict the size of emissions of greenhouse gases in the future years as this is determined majorly through technological advancements and political decisions. Global warming produces many negative effects some of which are described here. Firstly, extra water vapour which is present in the atmosphere falls again as rain which leads to floods in various regions of the world. When the weather turns warmer, evaporation process from both land and sea rises. This leads to drought in the regions where increased evaporation process is not compensated by increased precipitation. In some areas of the world, this will result in crop failure and famine particularly in areas where the temperatures are already high. The extra water vapour content in the atmosphere will fall again as extra rain hence causing flood. Towns and villages which are dependent on the melting water from snowy mountains may suffer drought and scarcity of water supply. It is because the glaciers all over the world are shrinking at a very rapid rate and melting of ice appears to be faster than previously projected. According to Intergovernmental Panel on Climate Change (IPCC), about one-sixth of the total population of the world lives in the regions which shall be affected by a decrease in melting water. The warmer climate will likely cause more heat waves, more violent rainfall and also amplification in the severity of hailstorms and thunderstorms. Rising of sea levels is the most deadly affect of global warming, the rise in temperature is causing the ice and glaciers to melt rapidly. This will lead to rise of water levels in oceans, rivers and lakes that can pilot devastation in the form of floods [6].

As evident from Fig. 5, temperature anomalies are

assessed. The bars are colour-coded to show level of impact/concern for each factor as a function of temperature increase [9]

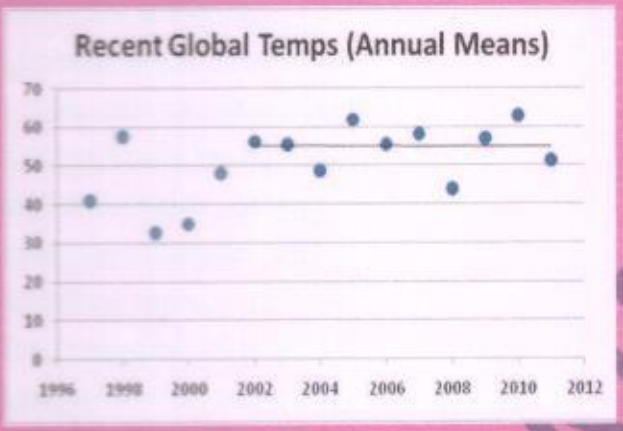


Fig. 7 Recent global mean temperatures according to NASA [10]

VI. Effects on Living Beings

Global warming can severely affect the health of living beings. Excess heat can cause stress which may lead to blood pressure and heart diseases. Crop failures and famines, which are a direct consequence of heating up of earth, can cause a decline in human body resistance to viruses and infections. Global warming may also transfer various diseases to other regions as people will shift from regions of higher temperatures to regions of comparatively lower temperatures. Warmer oceans and other surface waters may lead to severe cholera outbreaks and harmful infections in some types of sea food [11].

Moreover, it is an established fact that warmer temperatures lead to dehydration which is a major cause of kidney stones. A medical team from

The Children's Hospital of Philadelphia examined the health proceedings of more than 60,000 Americans alongside weather records. They discovered that individuals were most likely to be hospitalized with kidney stones three days after a temperature rise. Since 1994, kidney stone incidence has risen from about one in 20 people to one in 11. This trend is likely to increase as the globe gets hotter. According to Luis Ostrosky, M.D. of the Division of Infectious Diseases at The University of Texas Health Science Centre at Houston Medical School and medical director for epidemiology at Memorial Hermann-Texas Medical Centre: "One infection that is definitely making a weird pattern is valley fever". In his words, "This is a fungal infection we used to see only in California, Arizona, New Mexico and a little in Texas, but last year we found it for the first time in Washington State."This potentially deadly condition caused apprehension in California when the number of cases increased drastically during 2010 and 2011. Valley fever infections have been on the rise, probably because of warming climates and drought causing dust storms. Dry soil and wind can carry spores that spread the virus. Hotter and drier climates are projected to increase the amount of dusting carrying this disease. Researchers have already

noticed a rise in mosquito-borne disease like dengue fever and malaria due to warmer and longer summers. Perhaps the most prominent mosquito-borne disease, West Nile Virus, has already experienced a sharp increase in annual cases. According to the U.S. Centres for Disease Control and Prevention, the summer of 2012 was the nastiest West Nile season on record,. The likely reason was that summer's scorching heat and drought. Lyme disease is another dangerous disease which is transmitted mainly through bites from certain tick species [12].

Fig. 8 describes in the form of a block diagram that how alterations in global climate can affect human health. The bitterest fact is that it can cause various diseases and deprive human beings of the food.

Fig.8 Potential impacts of global climate change on human health [13]

Global warming is also affecting animals. They need to move to cooler places in order to survive. This process has been observed in various places, for instance, in the Alps, in mountainous Queensland in Australia, and in the misty forests of Costa Rica. Fish in the North Sea have been reported to move northwards too .The impacts on species are becoming noteworthy to such an extent that their movements can be used as a sign of a warming world. They are the silent witnesses of the swift changes being inflicted on the Earth. Scientists and researchers predict that global warming is gradually damaging the ecosystems of various species and is playing a very unconstructive role in making them extinct. For instance Asia's only ape – the orangutan – is in bottomless trouble. Its last remaining strongholds in the rainforests of Indonesia are being endangered by a range of pressures, including climate change, putting the animal at the menace of extinction within a few decades. With global warming continually increasing the duration and

frequency of droughts, bushfires are occurring more often in these heavily logged forests, further fragmenting the orang-utan's living domain. Similarly, in Africa, elephants face a series of threats including shrinking living space, which brings them more regularly into divergence with people. With this reduced living space, elephants will be unable to escape any changes to their natural habitat caused by global warming, including more common and longer dry periods, placing further pressure on their survival [14].

VII. Alternative Energy Sources

The hazards caused by global warming are tremendous.

Excessive use of fossil fuels such as coal, natural gas and oil play a part in it too. The usage of fossil fuels should be discontinued immediately. The most significant solution to put an end to this disaster is the use of alternative energy sources. They include wind, solar, bio mass, geothermal and hydro. The most noteworthy point in using these sources is their clean nature. They do not produce any sort of pollution or toxic gases that can lead to global warming. They are environmentally friendly and pose no threat to ecological balance. However, their high installation and setup costs may drive energy companies away from them at first but in the long run they are surely beneficial for everyone. Most importantly, fossil fuels will deplete one day and sooner or later, we have to turn to renewable energy sources for energy production. Thus, the eventual solution to end global warming is to use alternative energy sources. Fig. 9 depicts in a pictorial way that earth can be saved from the hazards of global warming if we utilise renewable energy sources.

Fig. 9 Save earth from global warming by using renewable energy sources [15]

To counteract the medical hazards of global warming, it is essential to turn to renewable energy sources. Public, in general, should be responsible about their decisions on energy conservation methods. This will ensure a healthy atmosphere and stable climate for our future generations. Governments should devise and pass policies which encourage the energy companies and people, in general, to use renewable energy instead of conventional energy, Nongovernmental organisations (NGOs) should distribute pamphlets to people motivating them to use alternative sources of

VIII. Other Solutions

As elaborated earlier, toxic emissions are a major cause of global warming, A likely solution to reduce harmful emissions is to cut the usage of vehicles which produce them. This has not been met with much success as many people refuse to cut down their practice of using cars. No doubt, some people have started to use bicycles and public transport, whereas some other prefer to walk but these numbers are relatively small. It should be noted that fuel economy and emission rates are chief factors to consider regarding the car choice. Hybrid cars have higher efficiency and lower emission rates. Keeping the tires inflated will help improve mileage and air filters should be frequently replaced to cut down harmful emissions. People should share the ride with friends or co-workers to reduce the total number of vehicles on the road. Print and social media can play an effective role in curbing the problem. It should use the philosophy of automobile advertisements to encourage drivers to conserve energy and reduce pollution. Awareness campaigns can be started using placards, posters and logos similar to shown in Figures 12-14. They are a very useful way to demonstrate that global warming is not good for the planet. Recycling is also a good way to reduce global warming. People should use rechargeable batteries instead of disposable ones. Quality products should be bought that have a long life. Shopping should be done from local markets which reduce transportation. Even small individual efforts like lowering the thermostats in winter and using compact fluorescent lamps instead of incandescent lamps can aid to address the issue of global warming. Reforestation schemes must be started to grow a large number of trees. Forest degradation and deforestation must be discouraged at government level. Nuclear power is also a possible solution as this power results in fewer emissions but this method should be used with care as it can lead to severe accidents therefore, the

energy and discourage them from using fossil fuels. They should also explain to them the hazards which the usage of fossil fuels will cause. Many developed countries are already generating huge amounts of power using renewables. These countries should extend their helping hand to developing countries to combat the evil of global warming collectively. Using renewable energy is the most effective way to curtain the emission of gases which play a major role in global warming.

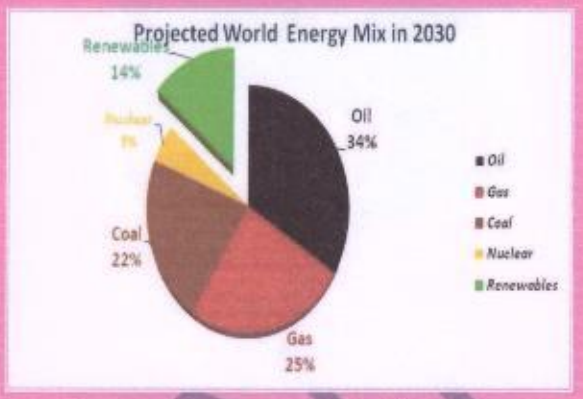


Fig .11 Projected world energy mix in 2030 [17]

Fig. 10 and Fig. 11 show that the use of renewables is gradually increasing. The figure should be much more than present so that we can tackle the problem of global warming timely and effectively.

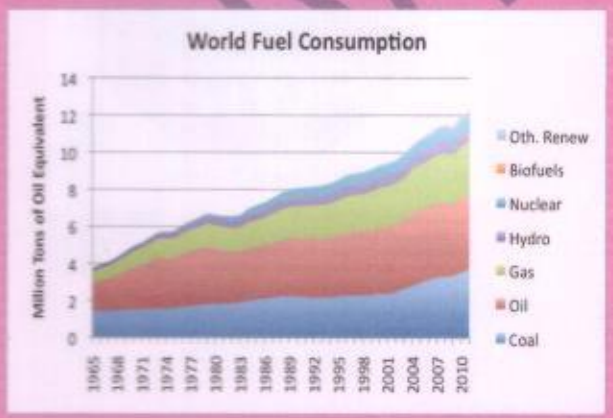


Fig. 10 World fuel consumption in recent years [16]

major hurdle is to overcome the security, propagation, waste disposal and high costs of nuclear power if this method has to be made practical [1].

Fig. 12 shows symbolically how global warming is causing the earth to melt [18]

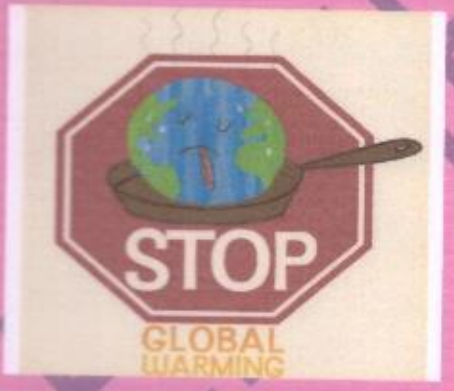


Fig. 13 showing a symbolic representation to stop global warming [19]

Fig. 14 depicting that how human beings are destroying the earth for their own benefits [20]

IX. Conclusion

The scientific and environmental community is on the same page regarding the bitter reality of global warming and the involvement of human factor in it. The paper discussed here has only dented the surface of what is a very intricate line of scientific and engineering exploration. Global warming is a big hazard and appropriate measures must be taken to tackle this serious problem. This problem is not only causing trouble to the human beings but also to animals and plants. Melting of polar ice caps will lead to floods which can cause mayhem everywhere. Rise of sea levels will devastate agricultural and fishing activities. To embark upon these problems, some remedial steps must be timely taken which include but are not limited to the use of renewable sources of energy and stopping deforestation. Innovative solutions must be brought forward to end this hazard once and forever.

BIBLIOGRAPHY

[1] "The big melt-global warming", http://www.bigmelt.com/introduction-to-globalwarming/,

[2] "The big melt-global warming", http://www.bigmelt.com/introduction-to-globalwarming/,

Marc L, "What is the greenhouse effect", http://www.livescience.com/37743greenhouse-effect.html,

[3] "Hall universal wide greenhouse", http://www.hallsgreenhouses.co.uk/halls_universal_12ftx8ft_wide_greenhouse.htm,

[4]

[5] "Greenhouse effect", http://hyperphysics.phy-astr.gsu.edu/hbase/thermo/grnhse.html,

[6] "Greenhouse gas emissions", http://www.epa.gov/climatechange/ghgemissions/.

[7] "Consequences of greenhouse effect temperature rises", http://www.bgs.ac.uk/discoveringGeology/climateChange/CCS/consequencesOfTemperatureincreas e.html.

[8] Marc L, "Greenhouse gas emissions: causes and sources", http://www.livescience.com/37821-greenhousegases.html, Accessed 23 May 2015.

[9] "Causes of Global Warming". http://www.wmo.int/pages/themes/climate/causes_of_global_warming.php.

[10] "Global Temperatures", http://ete.cet.edu/gcc/?/globaltemp_teacherpage/,

[11] Hoven R, "Global warming melts away", http://www.americanthinker.com/articles/2012/05/global_warming_melts_away.html,

[15] "Impacts of Global Warming", http://www.climatehotmap.org/global-warmingeffects/health.html, "Diseases spreading due to climate change", http://www.weather.com/health/news/diseasesspreading-due-climate-change-20140714#/1"Climate change and food safety", https://epianalysis.wordpress.com/2011/12/01/climateandfood/, "Species threatened by climate change", http://wwf.panda.org/about_our_earth/aboutcc/problems/impacts/species/, "Renewable energy resources",

https://www.pinterest.com/pin/569494315354256 .

[16] "Our finite world", http://ourfiniteworld.com/2013/03/20/renewablesgood-for-some-things-not-so-good-for-others/,

[17] "Green energy industry", http://jatrogreentech.com/overview-2/,

[18] "Global warming is so uncool", http://kristian.biornard.com/work/print/globalwarming-so-uncool.html,

[19] "25 superb Posters on Global Warming", http://www.webgranth.com/25-superb-posters-onglobal-warming-a-sensitive-issue

[20] "Global warming awareness posters", http://digitalmeso.com/36-global-warming-awareness-posters-pics/,.

P.A.H. SOLAPUR UNIVERSITY, SOLAPUR

UNION EDUCATION SOCIETY MAHILA MAHAVIDYALAYA

SIDDESHWER PETH, SOLAPUR, 413001

A PROJECT ON

PLASTIC POLLUTION

SUBMITTED BY: Shaikh Sadaf Md. Arif.

UNDER THE GUIDENCE:

ASS. PROF. F.H. PATEL

YEAR OF SUBMISSION

2023-2024

DECLARATION OF STUDENT

TO,

The principal,

UES Mahila Mahavidyalaya,

Senior Arts College of Solapur

Respected Ma'am

I Undersigned here by declare that the project report entitled "DEFORESTETION IN INDIA" prepared & submitted under the guidance of Ass Prof. F.H. PATEL. it's my original work. The empirical finding in this project are based on the date collected by myself while preparing this project. I have not copied from any other project report.

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

Sadaf

Signature of the student:

Name of the student:

Miss Shaikh Sadaf Md. Arif

Place-SOLAPUR

DATE: _____

UNION EDUCATION SOCIETY'S

MAHILA MAHAVIDYALAYA

SIDDESHWER PETH, SOLAPUR 413001

ENVIRONMENTAL STUDIES

CERTIFICATE

EXAM NO: _____ DATE: 31/03/24

THIS IS TO CERTIFY THAT MISS

_____

HAS SATISFACTORIALY CARRIED OUT THE REQYUIRED FIELD /PROJECT WORK BY THE SOLAPUR UNIVERSITY, SOLAPUR - FOR THE BA-II/B.COM-II COURSE IN ENVIRONMENT STUDIES & THIS FIELD /PROJECT WORK REPORT REPRESNTATION HIS/HER CONFIDE WORK REPORT REPORT IN THE YEAR

2023-2024.

Asst prof. Farzana Patel.
~~ASS PRO~~.F.H. PATEL

EXAMINER

DR.F.M. SHAIKH

PRINCIPAL

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

INDEX

DECLARATION OF THE SUPERVISOR

The undersigned supervisor for the environmental science project here by declare that the project of ..... of B.A II Year he has carried out the research project entitled "PLASTIC POLLUTION" is for the partial fulfillment of the certificate course in environmental science proposed by Solapur University, Solapur is the original work & not submitted elsewhere for the publication.

Ass Prof. F.H. PATEL

PLACE -SOLAPUR

DATE..31/03/24.....

A REFORT ON

"PLASTIC POLLUTION"

ACKNOWLEDGEMENT

We create 'Environment Awareness & control its pollution the subject 'Environment Studies' is made compulsory at BA-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 & making it compulsory & Solapur university, Solapur.

We are also Thankful to

Ass Prof. F.H. PATEL Dr. Prof F.M SHAIKH

For extending their Co-operation & support in Making this task easy.

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

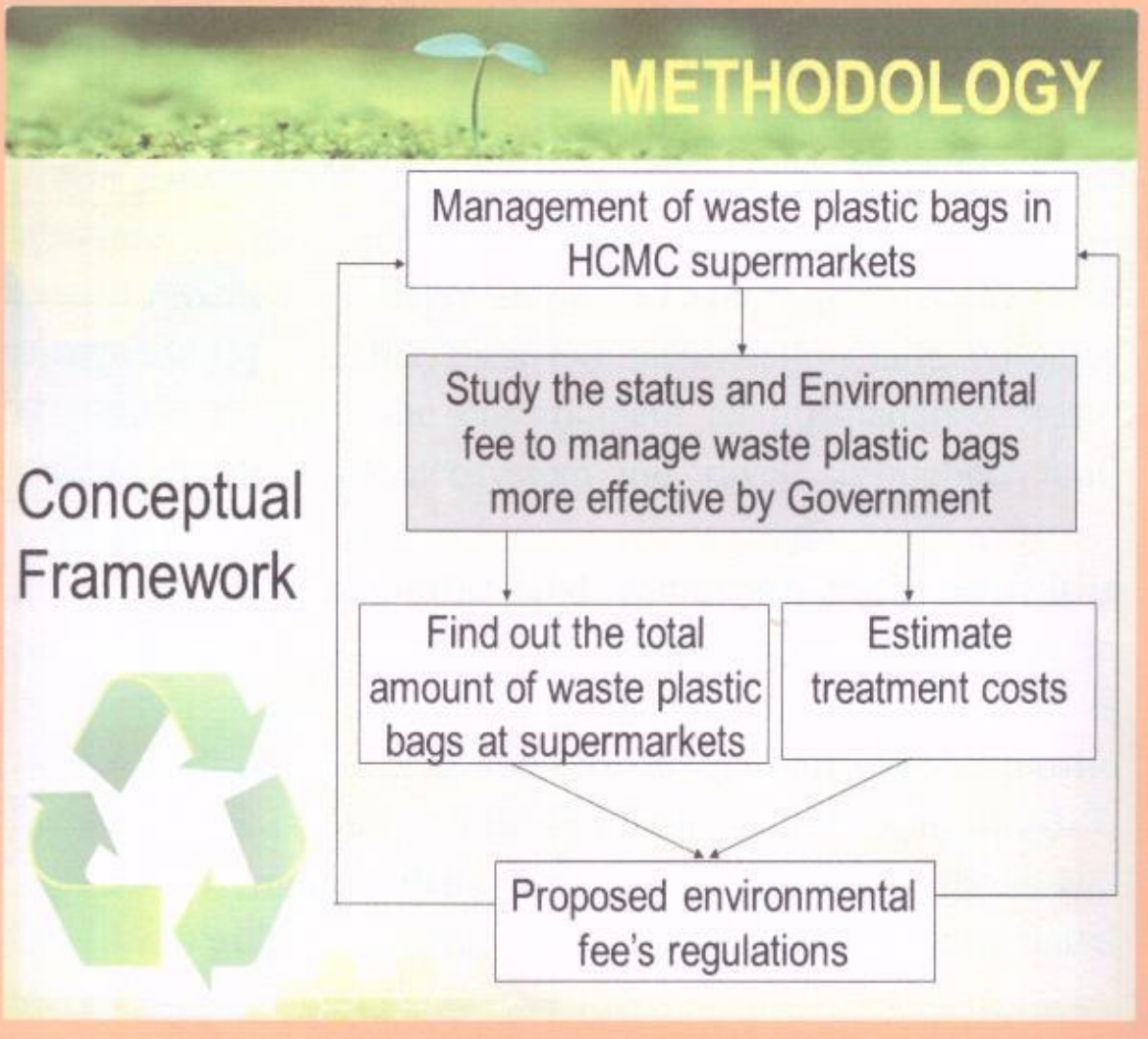
SR.NO	STUDENT NAME
1	SHAIKH SADAF
2	KUDLE SABIHA
3	KADARI RIDA
4	MULLA ALFISHA
5	SHAIKH SUHANA
6	PATHAN UZMA
7	KHATIK SANIYA
8	PATEL SANIYA
9	NADAF HABIBUNNISA

IMAGE OF PLASTIC POLLUTION

OBJECTIVE:

- TO emphasize the reduced use of plastic & the beneficial management of plastic waste.
- Efficient transformation of plastic into energy & fuel.
- Making our environment an eco-friendly zone.
- Modify the design of recycling machines.
- Install the recycling until at TNAU.
- Compare the envi. Factors of Coimbatore with other cities.
- Making our Eco fest ……plastic free & Models.

METHODOLOGY :



Plastic pollution is the accumulation of plastic objects and particles (e.g. plastic bottles, bags and microbeads) in the Earth's environment that adversely affects humans, wildlife and their habitat.[1][2] Plastics that act as pollutants are categorized by size into micro-, meso-, or macro debris.[3] Plastics are inexpensive and durable, making them very adaptable for different uses; as a result, manufacturers choose to use plastic over other materials.[4] However, the chemical structure of most plastics renders them resistant to many natural processes of degradation and as a result they are slow to degrade.[5] Together, these two factors allow large volumes of plastic to enter the environment as mismanaged waste which persists in the ecosystem and travels throughout food webs.[6][7]

Plastic pollution can afflict land, waterways and oceans. It is estimated that 1.1 to 8.8 million tonnes of plastic waste enters the ocean from coastal communities each year.[8] It is estimated that there is a stock of 86 million tons of plastic marine debris in the worldwide ocean as of the end of 2013, with an assumption that 1.4% of global plastics produced from 1950 to 2013 has entered the ocean and has accumulated there.

[9] Global plastic production has surged from 1.5 million tons in the 1950s to 335 million tons in 2016, resulting in environmental concerns. A significant issue arises from the inefficient treatment of 79% of plastic products, leading to their release into landfills or natural environments. [10]

As of 2020, the global mass of produced plastic exceeds the biomass of all land and marine animals combined.[19] A May 2019 amendment to the Basel Convention regulates the exportation/importation of plastic waste, largely intended to prevent the shipping of plastic waste from developed countries to developing countries. Nearly all countries have joined this agreement.[20][21][22][23] On 2 March 2022 in Nairobi, 175 countries pledged to create a legally binding agreement by the end of the year 2024 with a goal to end plastic pollution.[24]

The amount of plastic waste produced increased during the COVID-19 pandemic due to increased demand for protective equipment and packaging materials.[25] Higher amounts of plastic ended up in the ocean, especially plastic from medical waste and masks.[26][27] Several news reports point to a plastic industry trying to take advantage of the health concerns and desire for disposable masks and packaging to increase production of single use plastic.[28][29][30][31]

Definition of Plastic Pollution

Plastics are polluting our planet and choking our ocean, harming human health, and damaging ecosystems vital to our livelihoods. The UN Environment Programme is raising the alarm on the severity of the global plastics crisis and highlighting the networks of everyday people, coastal workers, and communities who are spearheading solutions to beat plastic pollution.

CAUSE OF PLASTIC POLLUTION

In nature, there is no waste that does not decompose. Humans, however, have invented plastic which will always be 'unnatural' in the environment because of its properties. Making plastic is inexpensive and the applications of the material are endless. Because plastic is so widely used, it almost always ends up in the environment, causing more plastic pollution. And not just because someone leaves a piece of plastic on the street instead of putting it in a waste bin.

SINGLE-USE PLASTIC

Of all the plastic we use, 40% is used just once. Every year we use several billion items such as bags, bottles, trays, and food packaging. Supermarkets are full of it. Some people are careless with packaging and leave it behind as litter. But there are also places where people can't do otherwise because there is no waste collection system. It is without a doubt that even if most people do their best, much of that single-use plastic enters the environment, being one of the biggest cause of plastic pollution.

systems. Rubbish finds its way into rivers and other waterways, sometimes through storm drains and sewage outfalls, and these take it all the way to the sea. It's estimated that 94% of the plastic pollution that enters the Mediterranean comes in the form of macroplastics, but microplastic pollution is significant too. Land-based sources of microplastics include agricultural polyethylene sheets that fragment from weathering, biosolids and sewage sludge from wastewater treatment plants, and grey water from washing clothes made with synthetic fibres. 4 Sewage entering municipal treatment systems is high in microfibres from textiles, microplastics from personal care products, and degraded consumer products.

Between 80 and 90 percent of microplastics entering treatment systems remain in residual sewage sludge. This sludge is often used as fertilizer in agriculture, resulting in plastic being deposited on agricultural fields where it can remain for long periods of time – or be washed into the rivers and out to sea. Based on a recent study, microplastics can persist in soils for more than 100 years, due to low light and oxygen conditions5.

Effects of Plastic on Pollution:

Plastic pollution on land poses a threat to the plants and animals – including humans who are based on the land.[86] Estimates of the amount of plastic concentration on land are between four and twenty three times that of the ocean. The amount of plastic poised on the land is greater and more concentrated than that in the water.[87] Mismanaged plastic waste ranges from 60 percent in East Asia and Pacific to one percent in North America. The percentage of mismanaged plastic waste reaching the ocean annually and thus becoming plastic marine debris is between one third and one half the total mismanaged waste for that year.[88][89]

In 2021 a report conducted by the Food and Agriculture Organization stated that plastic is often used in agriculture. There is more plastic in the soil than in the oceans. The presence of plastic in the environment hurt ecosystems and human health and pose a threat to food safety.[90] Chlorinated plastic can release harmful chemicals into the surrounding soil, which can then seep into groundwater or other surrounding water sources and also the ecosystem of the world.[91] This can cause serious harm to the species that drink the water.

biodiversity and plant health. Microplastics in the soil alter a plant's growth. It decreases seedling germination, affects the number of leaves, stem diameter and chlorophyll content in these plants.[101]

Microplastics in the soil are a risk not only to soil biodiversity but also food safety and human health. Soil biodiversity is important for plant growth in agricultural industries. Agricultural activities such as plastic mulching and application of municipal wastes contribute to the microplastic pollution in the soil. Human-modified soils are commonly used to improve crop productivity but the effects are more damaging than helpful.[101]

Plastics also release toxic chemicals into the environment and cause physical, chemical harm and biological damage to organisms. Ingestion of plastic does not only lead to death in animals through intestinal blockage but it can also travel up the food chain which affects humans.

Sustainability – whether in the use of raw materials, or in the areas of food and agriculture, climate and water – is central to a number of research projects conducted at the WTI. Sustainability in law is a particular focus. An interview with Judith Wehrli, who is researching the legal framework relating to marine plastic pollution. Her doctoral work highlights the social, ecological and economic effects from a sustainability

Importance of Plastic on Pollution: -

The Importance of Plastics

Let's not forget in the sea of anti-plastic campaigning, that plastic has its merits and plastic has become important in our lives.

The key thing that we need to bear in mind, when having such a backlash on plastics, is that they are actually pretty cool. They solve a lot of problems, they make our lives easier, and (in the main) they can be reused or recycled. And herein lies the huge issue with global plastic pollution – we need to re-use and recycle plastics. Those plastics that cannot be re-used or recycled should (very simply) not be used.

The importance of plastics in reducing food waste

After my last blog one of my friends asked a question which I, myself, had asked just recently. Why, on earth do they wrap a cucumber in plastic? Well, the answer is that the life of the cucumber is extended by up to 2 weeks! There are many other examples of plastics extending the life of products, including fruit, vegetables, meat and fish, breaded goods, salads, food on-the-go and diary. Without these products being stored in plastic before, and indeed after, purchase their shelf life would be considerably reduced and food wastage, which already sits at around 18% of all household waste in the UK, would increase yet further.

On the flip side, however – by pre-packaging fruit and vegetables in bags and punnets the supermarkets are telling us how many of each item we will purchase, and that is not necessarily the number we would buy, were they lose, and can, actually therefore add to the food waste figures.

Again, many of the plastics used in vehicles can be recycled, and indeed may already come from recycled plastics. For example many cars use carpets made from recycled PET drink bottles.

The importance of plastics in healthcare

Plastics are used in a wide array of instances in healthcare situations. In the ward they are easily cleanable and can help to improve hygiene and reduce the transmission of disease. In the field plastics can be used once and disposed of (this is a bug bear of mine, because I do not know whether any of this is recycled or whether perfectly good plastics are incinerated. I've tried to get "in" but failed). Inside our bodies we now have the opportunity to have plastic heart valves, plastic knee joints and plastic hip joints. Plastic prosthetics help amputee patients regain mobility and quality of life.

The importance of plastics in our every day lives

So we wake up – our alarm clock probably has a plastic housing, we brush our teeth with a plastic toothbrush, we wash our face with products in plastic packaging, we make our breakfast smoothie with a machine made of plastic in a beaker made of plastic, we sit on our plastic toilet seat, we put on our clothes many of which will have man-made (plastic) fibres in them, we pick up our phone which has a plastic casing and plastic components, we shut our windows and front door as we head for work … guess what … made of plastic.

We have become so very reliant on plastic in almost everything we do that it would be hard to imagine a life without plastic. We live in a very consumer-driven society, and with that come the demands for more and more plastics.

Just look around you now – the probability is that you are surrounded by plastic. We have built a society in which it has become impossible to live a life without plastic. So plastic is here to stay – it has genuine benefits to us as humans and to our planet. It also makes our lives more convenient and enjoyable. Plastic has a place. We just need to be sure that we use it to the best of its life and ability and that when we have finished with it that we do our absolute utmost to try to ensure that it goes to the right place so that it can be properly recycled (or incinerated) and not sent to landfill.

Types of Plastic Debris

Microplastics, and mega- and macro-plastics, are the three main types of plastic that lead to plastic pollution. The Northern Hemisphere has the highest concentrations of mega- and microplastics, which are concentrated across urban centres and waterfronts. Due to various currents carrying waste, plastic could be detected off the coasts of certain islands.

Footwear, packaging, and other household items detected washed ashore or dumped in landfills contain both mega- and macro-plastics. Remote islands are much more probable to have aspects relating to fishing. Micro-, meso-, and macro debris are terms used to describe these types of debris.

Micro Debris

Plastic fragments ranging in size from 2 to 5 mm are known as micro debris. Plastic debris that begins as meso- or macro debris can degrade and collide, breaking its food into smaller parts, resulting in micro debris. Nurdles are a term used to describe micro debris.

Nurdles are recycled and processed to produce new plastic objects, but due to their small size, they are freely discharged

and resins possess different properties for contaminant absorption and adsorption based on its chemical composition.

Persistent Organic Pollutants:

The global production of plastics is predicted to be around 250 mt/yr. Their abundance has been discovered to transfer POPs, or persistent organic pollutants. The expanded spread of algae related with red tides has been linked to such pollutants.

Commercial Pollutants:

Break Free From Plastic, a non-profit organisation, mobilised over 70,000 volunteers in 51 countries to acquire and recognize plastic waste in 2019. According to The Guardian, such volunteers gathered over "59,000 plastic bags, 53,000 sachets, and 29,000 plastic bottles." Consumer products could be found on roughly half of the objects. Coca-Cola, Nestlé, and Pepsico were the most popular brands.

Causes of Plastic Pollution

Below given are the causes of plastic pollution:

The world's population is growing, and people are becoming increasingly reliant on plastic.

•The grocery industry, which uses plastic to package anything.

•Bottles, straws, stirrers, straws and container caps made of plastic.

Effect On the Environment: -

Impact on the environment

The major impact of plastic bags on the environment is that it takes many years to for them to decompose. In addition, toxic substances are released into the soil when plastic bags perish under sunlight and, if plastic bags are burned, they release a toxic substance into the air causing ambient air pollution. Simons (2005) suggests that, owing to the unregulated accumulation of carcinogenic compounds, the use of plastic bags may allow inroads into cancerous diseases. Plastic bags are dumped indiscriminately into landfills worldwide that occupy tons of hectares of land and emit dangerous methane and carbon dioxide gases as well as highly toxic leachates from these landfills during their decomposition stage.

Waste from plastic bags poses serious environmental danger to human and animal health. If plastic bags are not properly disposed of, they can impact the environment by causing littering and stormwater drain blockages.

Animals may also get tangled and drown in plastic bags. Animals often confuse the bags for food and consume them, therefore blocking their digestive processes. Animals becoming entanglement in marine debris, including plastic bags, may cause starvation, choking, laceration, infection, reduced reproductive success, and mortality (Katsanevakis, 2008). There were instances where large endangered tortoises were found to

4.Did you know that some teabags contain plastic? Look out for compostable varieties, or switch to loose-leaf tea to avoid this.Despite our best efforts to reduce plastic consumption, it's difficult to avoid plastic altogether. By thinking carefully about how you reuse your plastic products you can get the most out of each item and avoid adding to the pollution problem.1.Keep old water and juice bottles and use them to water your plants.

2.Save plastic jars and pots and use them to store small household items.

3.Use old salad dressing containers to mix and store your own homemade condiments.

4.Cut off the bottom of large plastic bottles and use them as small planters or seed pots.

Recycling plastic conserves natural resources and protects ecosystems, with less plastic ending up in rivers and oceans. It produces lower carbon emissions because less energy is used sourcing and processing new raw materials. It also keeps potentially methane-releasing waste out of landfill sites – a vital step in tackling climate change.

In some parts of the world, plastic recycling opens up opportunities for entrepreneurs like Rajon (pictured) to earn a living as a vital link in the recycling chain. We're working with informal waste workers in Faridpur, Bangladesh so they can lead the way transforming how different types of waste are managed in the city.

microplastics in the ocean peaked in 1991, and oscillated up and down with a consistent decrease starting in density in 2016. It could be possible that plastic production increased during the 1990s, which led to more plastic being used and more plastic waste. A historical context that could explain this spike in the 90s are fashion trends and the increase in use of plastic for clothes, backpacks, and tupperware (Walter et al, 2022). The increase in the use of plastic has led to an increase in the amount of plastic in the ocean, but the data set reveals trends that show certain regions having a higher concentration of plastic waste.

It also appears that most microplastics sampled in the data set belong to the medium density class, which may also indicate that a certain type of plastic is being used more than others. The Pacific Ocean does not have as many microplastics overall, but it does have the most microplastics with the highest density. This may indicate that different types of plastics are polluting this ocean than the plastics that are polluting the Atlantic Ocean. With this in mind, it may also be the reason why the Atlantic Ocean has so many microplastics with lower density because the plastics that are in the Atlantic Ocean are different and possibly break down easier. This appears to be a geopolitical issue as different types of plastics may be used more in certain countries and less than in others.

For the most part, the analysis in our project consists of comparing the geographic locations of microplastics and the densities of the microplastics sampled in the data sets between

Bibliography

Plastics i.e. polymers are long chains or networks of monomer molecules which can be fabricated in desired shape, colour and specifications. The multi-functionality of this macromolecule has made it an integral part of society. Due to being given immense importance in various industrial sectors, like information technology, electrical, as well as electronics industries, intelligent, smart and advanced packaging systems, agriculture, automobiles, biomedical applications, etc., they are quite indispensable for the modern generation. The huge demand and high frequency usage have alarmed a number of countries littered with plastic wastes which need to be attended immediately. The effects of plastic solid waste on environmental living and non-living components are noticeable in the ever-increasing level of plastic pollution both on land and in the oceans globally. This paper compiles the various aspects and prospects of disposal methods like landfilling, recycling, progress in recovery and management of plastic waste (i.e. primary, secondary, tertiary and quaternary) in order to minimize its huge volumes. The depolymerisation process is the key technology behind its success which provides a high yield of product and a minimal amount of waste. Few innovative methods other than recycling published by different researchers are also discussed in this paper.Plastic wastes has become a global problem, and Thailand produces about two million tonnes of plastic waste per year, around 12% of total waste. The

PLASTIC POLLUTION

80% of plastic is now in landfill or the natural environment

Some plastic takes upwards of **450 years** to degrade

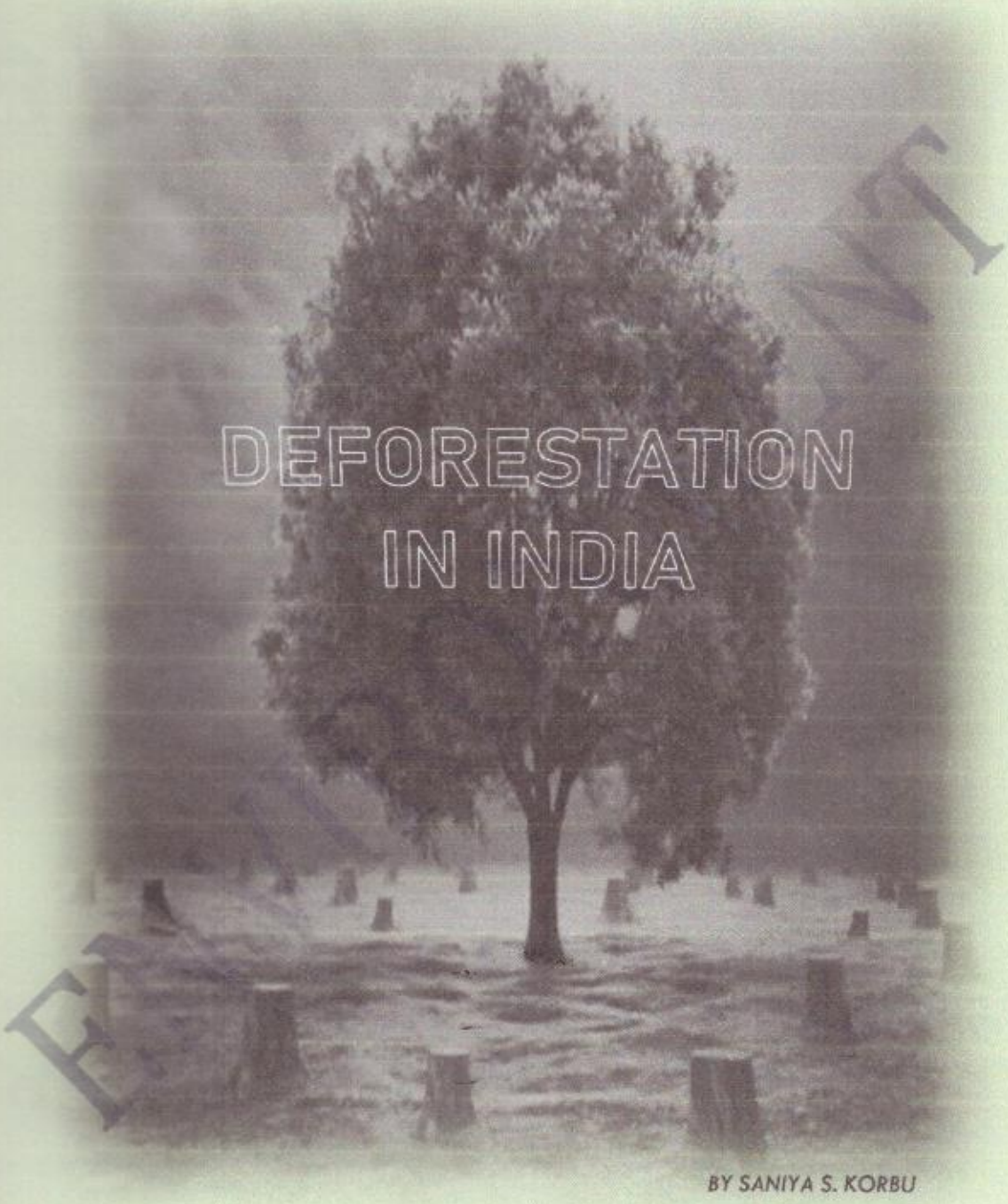
Prior to the microbead ban, up to **100,000** plastic particles were put into the ocean per shower

27 cotton bud sticks and **27** wet wipes per 100m on UK beaches

8 million tonnes of plastic enter our oceans every year

700 Species of marine animals currently affected by plastic

By 2050 almost **every species** of seabird will be ingesting plastic



DEFORESTATION IN INDIA

BY SANIYA S. KORBU

P.A.H SOLAPUR UNIVERSITY, SOLAPUR

UNION EDUCATION SOCIETY MAHILA MAHAVIDEYALAYA

A PROJECT REPORT ON

SUBMITTED BY

Saniya Saifan Korbu

Under the guidance

Asst Prof. F.H. PATEL

Dr. Z.A NAYAB

Year of submission 2023-2024

DECLARATION OF STUDENT

TO,

The Principal,

U.E.S Mahila Mahavidyalaya,

Solapur.

Respected Ma'am

I undersigned hereby declare that the project report entitled "DEFORESTETION IN INDIA" prepared and submitted under the guidance of **Asst Prof. F.H 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 ....Saniya....S....Korbu....

Place – SOLAPURE

DATE 29/02/2024.....

INDEX

UNION EDUCATION SOCIETY'S

MAHILA MAHAVIDYALYA SOLAPUR

SIDDESHWAR PETH, SOLAPUR. 413001

ENVIRONMENTAL STUDIES

CERTIFICATE

Exam No- _____

Date - 29/02/

This is to certify that Miss

Sanija Saifan Korbu

Has Satisfactory carried out the request 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 2023 to 2024.

Asst Prof. F.H.PATEL

Examiner

Dr. F.M. SHAIKH

Principal

U.E.S. Mahila Mahavidyalaya, Solapur.

DECLARETION OF THE SUPERVISOR

the undersigned supervisor for the environmental science project hereby declare that the project of .....Saniya.....Saiyan.....Kadu..... of B.A II Year she has carried out the research project entitled "DEFORESTETION IN INDIA" 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.

Asst Prof. F.H. PATEL

PLACE- SOLAPUR

DATE.29/02/2024.....

A REPORT ON

"DEFORESTETION IN INDIA"

ACKNOWLEDGEMENT

We create 'Environmental Awareness and control its pollution the subject 'Environmental studies' is made compulsory at BA-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 Thankfull to

Asst Prof. F.H PATEL **Dr. Prof F.M SHAIKH**

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

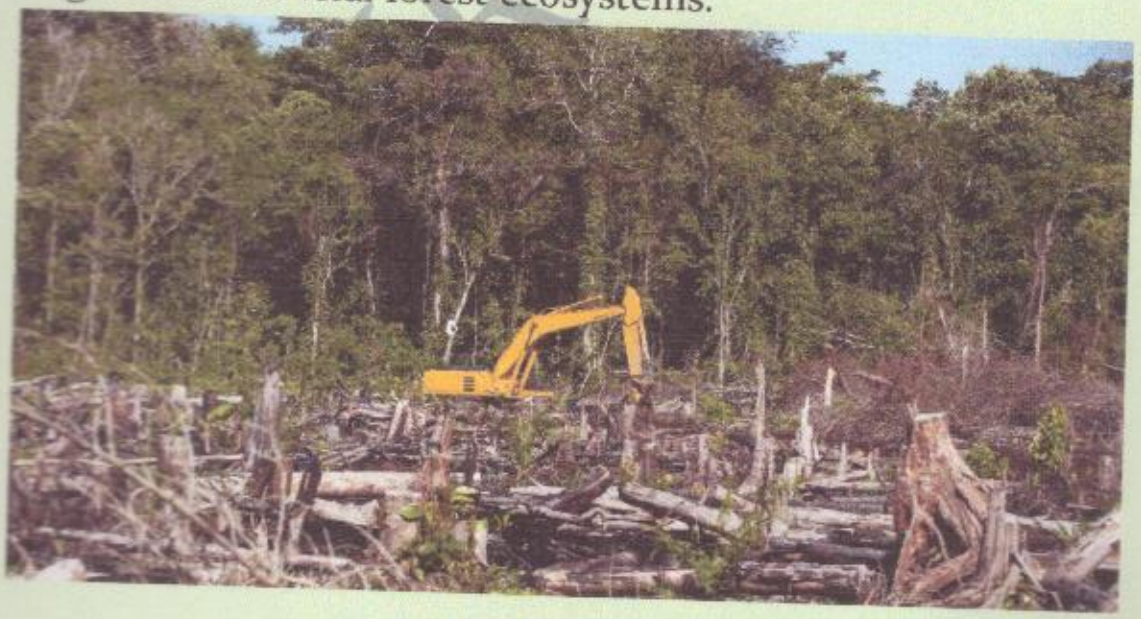
STUDENTS

1. KORBU SANIYA – {Producer}
2. SABA TARANAIK
3. ATTAR GULFISHA
4. DARZI TAHURA
5. SHAIKH SUFIYA
6. TADPATRI MADIHA
7. PHULARI SABA
8. USTAD SHIBA
9. NADAF FIZA
10. YADGIR ASHRAF JAHA

INTRODCTION

One of the primary drivers of deforestation in India is the relentless expansion of agriculture. As the population continues to grow, the demand for agricultural land intensifies, leading to the clearing of vast stretches of forests. Traditional farming practices often involve slash-and-burn methods, exacerbating the problem by causing rapid and extensive forest loss.

Urbanization is another significant contributor to deforestation. The rapid growth of cities and towns necessitates the conversion of forested areas into infrastructure and residential spaces. This process often occurs without proper planning or consideration for the ecological consequences, resulting in the fragmentation and degradation of vital forest ecosystems.



METHODOLOGY

- **Clear-Cutting:** Widespread removal of entire forest areas for agriculture, logging, or other purposes, causing significant ecosystem disruption.
- **Illegal Logging:** Unregulated and often unsustainable removal of trees for profit, leading to loss of biodiversity and ecosystem imbalance.
- **Infrastructure Development:** Clearing land for roads, dams, and urban expansion, accelerating deforestation and fragmenting habitats.
- **Mining:** Extraction of minerals requiring the clearance of extensive forested areas, resulting in habitat loss and soil degradation.
- **Forest Fires:** Uncontrolled fires, whether accidental or intentional, causing rapid and extensive destruction of forested regions, affecting biodiversity and ecosystem health.

DEFINITION

Deforestation has profound environmental consequences. It leads to the loss of biodiversity as numerous plant and animal species depend on forests for their habitats. The removal trees also disrupts crucial ecosystems, affecting the balance of local and global climates Trees play a pivotal role in mitigating climate change by absorbing carbon dioxide during photosynthesis. With fewer trees, there is increased concentration of greenhouse gases in the atmosphere, contributing to global warming.Moreover, deforestation adversely impacts human communities, particularly those relying on forests for their livelihoods. efforts to address this environmental challenge involve conservation measures, sustainable land use practices, and reforestation initiatives to restore and protect valuable ecological functions provided byforest

INTRODUCTION OF INDIA FOR DEFORESTATION

India's forests encompass a variety of ecosystems, including tropical rainforests, deciduous woodlands, and coniferous forests. These diverse landscapes contribute significantly to the country's biodiversity, supporting numerous plant and animal species. Forests also play a vital role in regulating climate by sequestering carbon dioxide However, India faces challenges such as deforestation, driven by factors like agricultural expansion, logging, and urbanization. This poses threats to the delicate ecological balance and biodiversity. Conservation efforts and afforestation programs aim to address these issues, emphasizing sustainable practices to ensure the long-term health and resilience of India's forests.

CAUSES OF DEFORESTETION

Deforestation in India is primarily driven by a complex interplay of socio-economic and environmental factors. Agricultural expansion stands as a major cause, with a growing population necessitating increased land for cultivation. Traditional farming practices, including slash-and-burn agriculture, further intensify forest loss. Urbanization plays a pivotal role, as the demand for infrastructure and housing leads to the conversion of forested areas into developed landscapes.

Industrial activities, such as logging and mining, contribute significantly to deforestation. The extraction of timber and minerals requires vast expanses of land, impacting diverse ecosystems. Additionally, the construction of roads, dams, and other infrastructure projects accelerates forest clearance.

Government policies, while aiming for economic development, sometimes inadvertently contribute to deforestation. Policy decisions regarding land use and resource allocation can influence the fate of forested areas. Encouragingly, conservation initiatives, afforestation programs, and sustainable forest management

REASONS OF DEFORESTATION

Deforestation occurs due to a variety of interconnected reasons, including:

1. **Agricultural Expansion:** Growing demand for food prompts the clearing of forests for cultivation, often through methods like slash-and-burn agriculture.

2. **Logging: Extraction** of timber for construction, paper, and other wood products contributes to deforestation when done unsustainably

3. **Urbanization:** Expanding cities and infrastructure development lead to the conversion of forested areas into urban spaces and industrial zones.

4. **Infrastructure Projects:** Construction of roads, dams, and other projects requires clearing significant land, contributing to deforestation.

5. **Mining:** Extraction of minerals necessitates the removal of extensive forested regions, impacting ecosystems.

6. **Climate Change:** Changing climate conditions, including increased temperatures and altered precipitation patterns, can affect forest health and contribute to deforestation.

7. **Fire:** Uncontrolled fires, whether natural or human-induced, can rapidly clear large forested areas.

8. **Population Pressure:** Rapid population growth puts pressure on land resources, leading to increased deforestation to meet various needs.

9. **Livelihoods:** Local communities may resort to clearing forests for livelihoods, particularly in areas with limited economic alternatives.

Addressing deforestation requires a multifaceted approach that considers sustainable land use, conservation practices, and community engagement.

altered hydrological cycles. This, in turn, affects agricultural productivity and can contribute to the escalation of natural disasters like floods and landslides.

Addressing the effects of deforestation requires concerted efforts in conservation, sustainable land management, and afforestation. By implementing responsible forestry practices, promoting conservation initiatives, and adopting sustainable development strategies, it is possible to mitigate the adverse effects of deforestation and work towards a more balanced and resilient environment.

IMPORTANCE OF FORESTS

Forests are of paramount importance to the well-being of the planet, providing a myriad of ecological, social, and economic benefits. One of the critical roles of forests is their contribution to biodiversity. These diverse ecosystems house an incredible array of plant and animal species, many of which are unique and play crucial roles in maintaining ecological balance. The preservation of biodiversity is essential for the resilience of ecosystems and the overall health of the planet.

Forests also serve as carbon sinks, playing a pivotal role in mitigating climate change. Through the process of photosynthesis, trees absorb carbon dioxide and release oxygen, helping regulate the Earth's atmospheric composition. This function is instrumental in reducing greenhouse gas levels and combating global warming. Protecting and restoring forests are integral components of broader climate change mitigation strategies.

Moreover, forests provide invaluable ecosystem services. They play a crucial role in regulating water cycles, influencing precipitation patterns, and maintaining water quality. Forests act as natural filters, purifying water and

preventing soil erosion. Their preservation is vital for ensuring a sustainable and reliable supply of freshwater for both ecosystems and human communities.

Socially, forests are integral to the livelihoods of millions of people worldwide, particularly indigenous communities. Forests provide resources such as timber, non-timber forest products, and medicinal plants, supporting local economies and traditional practices. Additionally, forests offer recreational and cultural value, acting as sanctuaries for spiritual practices and biodiversity appreciation.

Economically, forests contribute significantly to various industries, including timber, paper, and pharmaceuticals. Sustainable forestry practices ensure that these economic benefits are harnessed without compromising the long-term health of the ecosystems.

In conclusion, the importance of forests extends beyond their aesthetic appeal. They are fundamental to the survival of diverse life forms, the stability of the global climate, and the sustenance of human societies. Recognizing and prioritizing the conservation and sustainable management of forests is crucial for fostering a harmonious and resilient

relationship between humanity and the natural world.

replanting trees in areas that have been previously cut (reforestation) to restore and increase forest cover.

4. **Community Engagement:** Involving local communities in decision-making processes and ensuring that their needs and knowledge are considered. This can foster sustainable practices, support local livelihoods, and reduce the pressure on forests.

5. **Fire Management**: Implementing strategies to prevent and control forest fires, which can be detrimental to ecosystems and biodiversity. This may involve controlled burns and early detection measures.

6. **Wildlife Management:** Monitoring and managing wildlife populations to prevent overgrazing, protect sensitive species, and maintain a balanced ecosystem.

7. **Water Resource Protection:** Ensuring the sustainable management of water resources within and around forests, as forests play a crucial role in regulating water cycles and maintaining water quality.

LOSS OF FORREST

1. **Global Climate Impact:** Forests play a crucial role in regulating the Earth's climate by absorbing and storing carbon dioxide. If all forests were lost, it would significantly accelerate climate change, leading to more extreme weather patterns, rising temperatures, and other adverse effects.

2. **Biodiversity Collapse:** Forests are home to an immense diversity of plant and animal species. Their loss would result in mass extinctions and the collapse of ecosystems, disrupting the balance of life on Earth.

3. **Disruption of Water Cycles:** Forests influence local and global water cycles. Without them, there would be disruptions in precipitation patterns, potentially leading to widespread water scarcity and altered weather conditions.

4. **Loss of Ecosystem Services:** Forests provide essential ecosystem services, including soil fertility, water purification, and pollination. The complete loss of forests would mean the loss of these services, affecting agriculture, water quality, and overall environmental health.

5. **Humanitarian Crises:** The loss of forests would impact communities that depend on them for resources and livelihoods, leading to displacement, food shortages, and increased vulnerability to natural disasters.

It's important to note that the complete loss of all forests is an extreme scenario that is unlikely and would have devastating consequences for the planet's health and the well-being of all living organisms. Efforts to conserve and sustainably manage forests are crucial for maintaining a healthy and balanced global environment.

THE CHIPKO MOVEMENT

The Chipko Movement, also known as the Chipko Andolan, was a forest conservation movement that originated in India in the 1970s. The term "Chipko" means "to hug" or "to cling" in Hindi, which symbolizes the act of embracing trees to protect them from being felled. Key points about the Chipko Movement include:

1. **Origins:** The movement emerged in the state of Uttarakhand (formerly part of the state of Uttar Pradesh) in the Himalayan region.

2. **Environmental Activism:** The Chipko Movement was a response to deforestation and the over-exploitation of forests by commercial logging operations. Villagers, predominantly women, engaged in non-violent protests by hugging trees to prevent them from being cut down.

3. **Key Figures:** Sundarlal Bahuguna, a prominent environmentalist, played a crucial role in the Chipko Movement. His efforts and those of other activists helped raise awareness about the importance of forest conservation.

TREE TRANSPLANTATION

Tree transplantation is a horticultural practice that involves moving a mature tree from one location to another. This process is undertaken for various reasons, such as urban development, infrastructure projects, or environmental conservation. Here are some key aspects of tree transplantation:

1. **Process:** The tree transplantation process typically involves careful planning, excavation of the tree with its root ball intact, and transportation to the new planting site. Specialized equipment and expertise are often required to ensure the tree's survival.

2. **Reasons for Transplanting:** Trees may be transplanted to preserve mature specimens during construction projects, to relocate them for landscaping purposes, or to protect them from potential threats such as disease or environmental changes.

3. **Benefits:** Transplanting mature trees offers several advantages, including the preservation of established root systems, immediate visual impact in new locations, and the continuation of ecological benefits provided by mature trees.

4. **Challenges:** Successful tree transplantation requires consideration of factors such as the tree's species, size, health, and the timing of the transplant. Adequate post-transplant care, including watering and

soil management, is crucial for the tree's adaptation and survival in its new environment.

5. **Environmental Conservation:** Tree transplantation aligns with efforts to conserve existing green spaces and mitigate the impact of deforestation. It allows for the relocation of valuable trees rather than their removal, supporting biodiversity and maintaining ecosystem services.

6. **Urban Planning:** Incorporating tree transplantation into urban planning promotes sustainable development by preserving mature trees within growing cities. This helps balance human needs with environmental conservation, creating healthier and more livable urban environments.

Tree transplantation is a specialized practice that requires expertise and careful consideration of various factors. When done successfully, it can contribute to the preservation of valuable trees, the enhancement of urban green spaces, and the overall well-being of both the environment and communities.


DAEWOO

RESULTS

Conserving trees, or afforestation, offers a range of positive impacts on the environment and society. Here are some key points:

1. **Biodiversity Conservation:** Trees provide habitats for numerous plant and animal species, contributing to biodiversity. Conserving trees helps protect diverse ecosystems and supports various life forms.

2. **Climate Regulation:** Trees absorb carbon dioxide during photosynthesis, helping mitigate climate change by reducing the concentration of greenhouse gases in the atmosphere. They also release oxygen, vital for human and animal life.

3. **Water Management:** Trees play a crucial role in regulating water cycles. Their roots help prevent soil erosion, and forests act as natural filters, enhancing water quality. This is vital for maintaining clean water sources.

4. **Support for Local Communities:** Forests often provide resources such as timber, fruits, nuts, and medicinal plants that support the livelihoods of local communities. Sustainable forest management ensures these resources are available for future generations.

5. **Aesthetic and Recreational Value:** Trees enhance the beauty of landscapes and contribute to the overall aesthetic quality of the environment. Forests offer recreational opportunities, promoting mental and physical well-being.

6. **Air Quality Improvement:** Trees act as natural air purifiers by filtering pollutants and particulate matter from the air. Preserving trees helps maintain healthier air quality in urban and rural areas.

7. **Climate Resilience:** Forests contribute to climate resilience by providing buffers against extreme weather events such as floods and storms. They stabilize soil, reducing the risk of landslides and other natural disasters.

8. **Educational and Research Opportunities:** Forests serve as living laboratories for research and education, offering insights into ecosystems, biodiversity, and environmental processes.

9. **Economic Benefits:** Sustainable forestry practices can provide a long-term source of income through activities like eco-tourism, non-timber forest products, and carbon trading initiatives.

Conserving trees is essential for maintaining a balanced and healthy environment, and the benefits extend beyond ecological considerations to encompass social, economic, and cultural aspects of society.

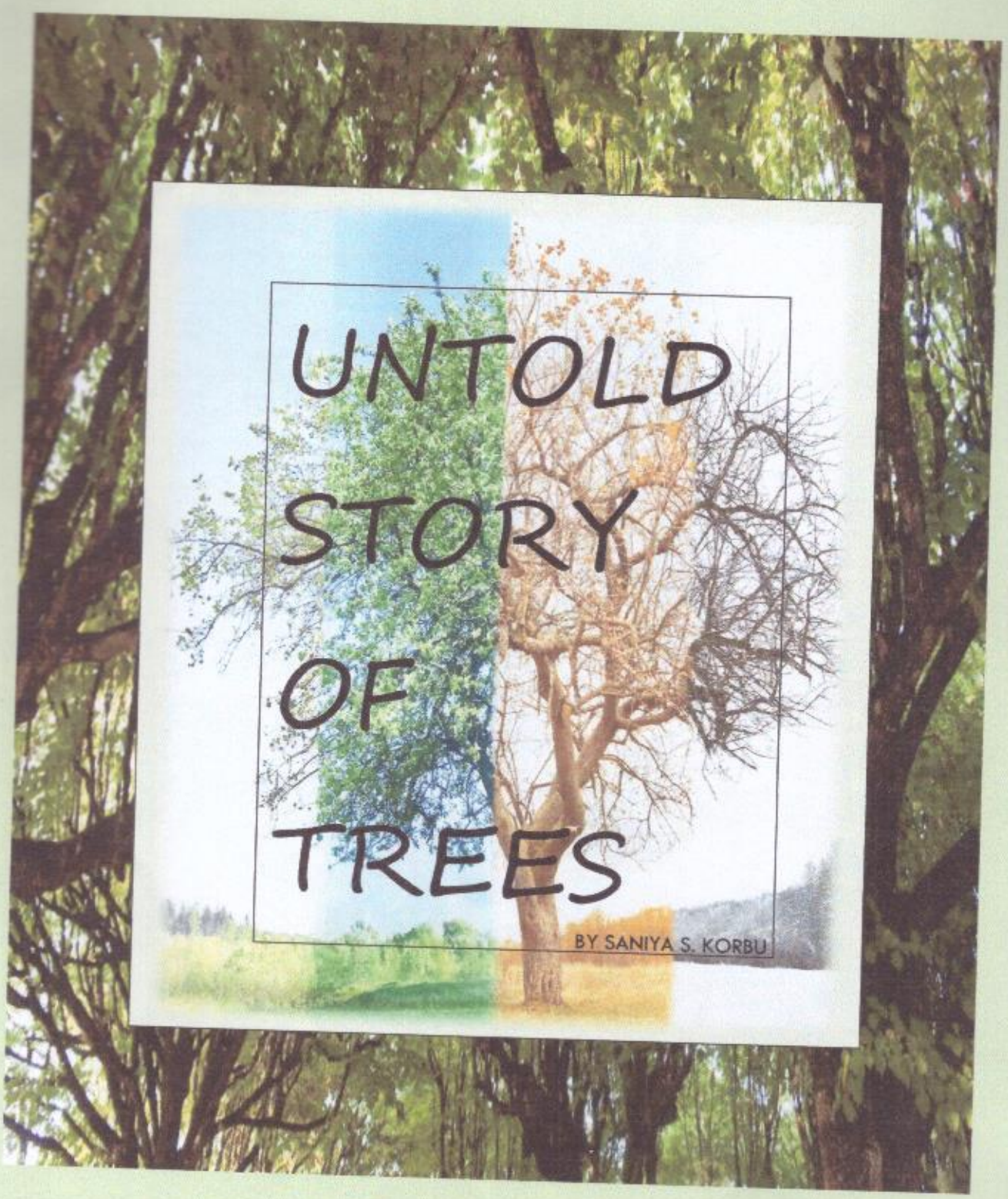
CONCLUSION

In conclusion, deforestation is a complex and multifaceted issue with far-reaching consequences. While it may offer short-term economic gains through activities like agriculture and logging, the long-term impacts are predominantly negative. Deforestation contributes significantly to biodiversity loss, climate change, disruption of ecosystems, and poses threats to the livelihoods of local communities. Striking a balance between human needs and environmental preservation is crucial. Implementing sustainable forestry practices, promoting afforestation, and raising awareness about the importance of conserving forests are essential steps to mitigate the adverse effects of deforestation and ensure a more sustainable and harmonious coexistence between humanity and the environment.

BIBLIOGRAPHY

For successfully completing my project file. I have taken help from the Chat GPT and BRAINLY apk.

FAO. (2004). FAO Global forest resources assessment update 2005 Terms and definitions (Final version). Food and Agriculture Organization of the United Nations, Rome. Available at http://www.fao.org/docrep/007/ae156e/AE 156E00.htm#TopOfPage


UNTOLD
STORY
OF
TREES
BY SANIYA S. KORBU

P.A.H SOLAPUR UNIVERSITY, SOLAPUR

UNION EDUCATION SOCIETY MAHILA MAHAVIDYALAYA

A PROJECT REPORT ON

Submitted By

Afsheen Mainoddin Bagwan

Assi. Prof. F.H. PATEL

Dr. Z.A. NAYAB

Year of submission 2023-24

CERTIFICATE

Environmental Studies

P.A.H. SOLAPUR

University, Solapur

U.E.S. MAHILA

Mahavidyalaya Solapur

This is to certificate that miss Afsheen Mainoddin Bagwan

Is bonafide student of this college studying in BA-II year has satisfactorily carried out the required field! project work entitled **" Biodiversity"** for the partial fulfillment of the requirement of BA-II Course in Environmental Studies and submitted to UES Mahila Mahavidyal ay and this field project work report represents his/her confide work report in the year **2023 to 2024.**

Assi. Prof. F.H. PATEL
Examiner

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

Siddheshwar Peth 111, Solapur-413001

Declaration of student

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

Respected Ma'am

I undersigned hereby deelare that Project report entitled. "**Biodiversity**" Prepared and submitted under the guidance of **Asst. Prof. F.H PATEL.** It's my original work. The empirical findings in this project are based on the data collected by myself while preparing this project this project. I have not copied from any project report.

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

Afsheen

Signature of the student

Name of the student

Miss Afsheen Baguwan

Place – Solapur

Date _____

INDEX

DECLARETION OF THE SUPERVISOR

The undersigned supervisor for the environmental science project hereby declare that the project of _____ of B.A II Year he has carried out the research project entitled "**BIODIVERSITY**" 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.

Asst Prof. F.H. PATEL

Place – Solapur

Date _____

"BIODIVERSITY"

ACKNOWLEDGEMENT

We create 'Environmental Awareness and control its pollution the subject 'Environmental studies' is made compulsory at BA-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 Thankfull to

Asst Prof. F.H PATEL **Dr. Prof F.M SHAIKH**

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

STUDENTS

1) Bagwan Afsheen Mainoddin

2) Shaikh Anam Sarfaraz

3) Shaikh Nilofar Imtiyaz

4) Shaikh Aiman Rasul

5) Sayyed Mariyam Asif

6) Chaudhary Ziya Aziz

7) Kakhandekar Soleha Ejaz

8) Sayyed Saleha Farooque

9) Shaikh Aiman Anwar

CONTENT

Biodiversity Conservation

INTRODUCTION

For much of the time man lived in a hunter-gather society and thus depended entirely on biodiversity for sustenance. But, with the increased dependence on agriculture and industrialization, the emphasis on biodiversity has decreased. Indeed, the biodiversity, in wild and domesticated forms, is the source for most of humanity, food, medicine, clothing and housing, much of the cultural diversity and most of the intellectual and spiritual inspiration. It is, without doubt, the very basis of life. Further that, a quarter of the earth's total biological diversity amounting to 1.7 million species, which might be useful to mankind in one way or other, would be in serious risk of existence over the next 2-3 decades. On realization that the erosion of biodiversity may threaten the very existence of life has awakened man to take steps to conserve it. In this paper, the overview of biodiversity status of India, its importance, threats to it and various approaches for biodiversity conservation, action plan and current status have been discussed.

1. WHAT IS BIODIVERSITY?

The concept of biodiversity (synonyms with biological diversity) has been known to man ever since he began to minutely observe the living being around him. The term biological diversity was used by Robert E. Jenkins and Thomas Lovejoy in 1980. The word biodiversity itself may have been coined by W. G. Rosen in 1985. The term biodiversity was used as the title for a symposium organized by national Research council in Washington in 1986. At about that time, as people became more aware of the extinction crisis, biodiversity emerged as a significant issue. It was given concrete expression in the World Resources Institute (WRI), World Bank (WB), International Union of Nature and Natural Resources (IUCN) and World Wide Fund for Nature (WWF) publications concerned with conservation of world's biological diversity. However, biodiversity did not became a familiar term to general public until the United Nations Conference on the Environmental and Development (UNCED) held at Rio de Janerio (Brazil) in 1992. The Conference laid immense stress on the biological diversity of our earth planet and the need to preserve it for posterity. It defined the biodiversity: '***Biodiversity means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.***' This is the single legally accepted definition of biodiversity adopted by the UN convention on Biological Diversity.

The most straight forward definition of biodiversity is the variation of life at all levels of biological organization. It includes diversity of forms right from the molecular unit to the individual organism, and then on to the population, community, ecosystem, landscape and biosphere levels. *In the simplest sense, **biodiversity may be defined as the sum total of species richness, i.e. the number of species of plants, animals and microorganisms occurring in a given region, country, continent of the entire globe.*** Broadly speaking, the term biodiversity includes genetic diversity, species diversity, ecosystem diversity and habit diversity.

Genetic diversity (Diversity of genes within a species). Genetic diversity refers to the variation of genes among the population and the individuals of the same species. There are about 1.7 million known species

2. BIODIVERSITY AT GLOBAL AND COUNTRY LEVEL

It is estimated that there exists 5-50 million species of living forms on the earth. However, only 1.7 million have been identified so far. These include 4,27,205 species of green plants, fungi, bacteria and viruses; 61,917 species of vertebrates and protochordata; and12,32,490 species of invertebrates including protista. Comparative accounts of recorded plant and animal species in India and the world are given in Table 1 and 2.

Table 1- Comparative account of recorded number of plant species in India and the world.

Texa	Species		Percentage of India to the world
	India	World	
Bacteria	850	8,050	10.56
Viruses	Unknown	4,000	-
Algae	6,500	40,000	16-25
Fungi	14,500	72,000	20.14
Lichens	2,021	35,000	14.97
Bryophyta	2,825	17,000	16.62
Pteridophyta	1,200	13,025*	9.21
Gymnosperms	48	980*	4.90
Angiosperms	18,000+	2,58,650*	6.96
Total	**45,944**	**4,27,205**	**10.75**

Source: ENVIS, BSI, 2006; IUCN Red List 2007*.

Table 2- Comparative account of recorded number of animal species in India and the world.

Texa	Species		Percentage of India to the world
	India	World	
Protista	2,577	31,290	8.24
Mollusca	5,070	81,000*	6.26
Arthropoda	68,389	9,90,000*	6.91
Other invertebrates	8,329	1,30,200*	6.40
Protochordata	119	2,106	5.65
Pisces	2,546	30,000*	8.49
Amphibia	209	6,199*	3.37
Reptilia	456	8,240*	5.53
Aves	1,232	9,956*	12.37
Mammalia	390	5,416*	7.20
Total	**89,317**	**12,94,407**	**6.90**

Source: MoEF 1999; IUCN Red List 2007*.

India with 2.45% of the world's area, has 8.10% of the world's total biodiversity with a species count of over 1,35,261. Some salient features of India's biodiversity are as follows:

- India has two major realms called Palearctic and the Indo-Malayan, and three biomes namely the tropical humid forests, the tropical dry/deciduous forests and the warm desert/semi deserts.
- India has 10 biogeographical regions including (i) the Trans-Himalayan, (ii) Himalayan, (iii) Desert, (iv) Semi-Arid, (v) Western Ghats, (vi) Deccan Peninsula, (vii) Gangetic plain, (viii) Coasts, (ix) Northeast, and (x) Islands (Rodgers and Panwar, 1988). Among these biogeographic

zones, Deccan Peninsula has the most extensive coverage of the Indian landmass (42%). The most biodiversity-rich zones, Western Ghats and Northeast, account only for 4 and 5.2 per cent of the geographical area. These zones have habitats, biotic communities and ecosystems.

- India has 15 Biosphere Reserves, 44 tiger Reserves, 102 national Parks, and 512 Wildlife Sanctuaries. The total protected area is about 0.20 million km^2 (about 4.9 % of the geographical area). Also, it has 5 world heritage sites and 25 Ramsar wetlands.

In addition, the country is one of the very important Vavilovian Centers of biodiversity and origin of over 167 species of crops, 320 species of wild crop relatives, and several species of domesticated animals. In flora, the country can boast of 45,944 species, which accounts for 10.75% of the known world plants. Of the 18,000 species of flowering plants (angiosperms) 36% are endemic and located in 26 endemic centers. Our country is very rich in faunal wealth too. The country has nearly 89,317 animal species, about 75 percent of which are insects, 4,952 vertebrates including protochordata and about 84,365 are invertebrates, including protista. In animals, the rate of endemism in reptiles is 33%, in amphibians 41%, in mammals 9%, and birds 4%.

3. IMPORTANCE OF BIODIVERSITY

The Benefits of Biodiversity to mankind are:

3.1 Ecological role of biodiversity

All species provide some kind of function to an ecosystem. They can capture and store energy, produce organic material, decompose organic material, help to recycle water and nutrients throughout the ecosystem, control erosion or pests, fix atmospheric gases, and help regulate climate. These physiologically processes are important for ecosystem function and human survival.

Diverse is the ecosystem better able to withstand environmental stress and consequently is more productive. The loss of a species is thus likely to decrease the ability of the system to maintain itself or to recover from damage or disturbance. Just like a species with high genetic diversity, an ecosystem with high biodiversity may have a greater chance of adapting to environmental change. In other words, the more species comprising an ecosystem, the more stable the ecosystem is likely to be.

3.2 Economic role of biodiversity

For all humans, biodiversity is first a resource for daily life. One important part of biodiversity is crop diversity, which is also called agrobiodiversity.

Most people see biodiversity as a reservoir of resources to be drawn upon for the manufacture of food, pharmaceutical, and cosmetic products.

Some of the important economic commodities that biodiversity supplies to humankind are:

- Modern agriculture: Biodiversoty is used as a source of material for breeding improved varieties, and as biopesticides, biofertilizers etc.
- Food: Crops, livestock, forestry and fish. Mangroves and coral reefs in coastal zone support fisheries.

4.1 Listing of threatened biodiversity

To highlight the legal status of rare species for the purpose of conservation, the International Union for Conservation of Nature and Natural Resources (IUCN) has established the following five main conservation categories:

- **Extinct** species that are no longer known to exist in the wild. Searches of localities where they were once found and of other possible sites have failed to detect the species.
- **Endangered** species that have a high likelihood of going extinct in the near future.
- **Vulnerable** species that may become endangered in the near future because populations of the species are decreasing in size throughout its range.
- **Rare** species that have small total numbers of individuals often due to limited geographical ranges or low population densities.
- **Insufficiently known** species that probably belong to one of the conservation categories but are not sufficiently well known to be assigned to a specific category.

These categories were named as **Red list categories**. The IUCN Red List is the catalogue of texa that are facing the risk of extinction. This list aims to impart information about the urgency and scale of conservation problems to the public, environmentalists and policy makers. On the global level, the IUCN published **Red Data Book,** name given to the book dealing with threatened pants and animals of any region.

The IUCN, now known as World Conservation Union (WCU), in 2001 recognized nine Red List Categories as Extinct (Ex), Extinct in wild (EW), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD) and Not Evaluated (NE). The main purpose of the IUCN RED List is to catalogue and highlight those texa that are facing a higher risk of global extinction (i.e. those listed Critically Endangered, Endangered and Vulnerable.

4.2 Reasons for extinction of Biodiversity

1. **Destruction of habitat:** The natural habitat may be destroyed by man for his settlement, grazing grounds, agriculture, mining, industries, highway construction, drainage, dam building, etc. as a consequence of this, the species must adapt to the changes, move elsewhere or may succumb to predation, starvation or disease and eventually die. This is the most pervasive threat to birds, mammals and plants affecting 89% of all threatened birds, 83% of the threatened animals assessed. In our country, several rare butterfly species are facing extinction with the uncannily swift habitat destruction of the Western Ghats. Of the 370 butterfly species available in the Ghats, up to 70 are at the brink of extinction.
2. **Hunting:** From time immemorial, man has hunted for food. Commercially, wild animals are hunted for their products such as hide and skin, tusk, antlers, fur meat, pharmaceuticals, perfumes, cosmetics and decoration purposes. For example, in India, rhino is hunted for its horns, tigers for bones and skin, musk deer for musk (have medicinal value), elephant for ivory, gharial and crocodile for their skin, and jackal for thriving fur trade in Kashmir. One of the most publicized commercial hunts in that of whale. The whalebone or 'baleen' is used to make combs and other products.

Poaching of the Indian tiger has been risen because of the increasing demand from pharmaceutical industries, which consume the bones of 100 tigers per year. Such huge demand has been mat by poachers from India. Even the Project tiger Programme failed to check poaching and resultantly the tigers have been almost disappeared from Ranthambore and Keoladeo national parks. Smuggling of tiger bones and skins is a lucrative business. Hunting for sport is also a factor for loss of wild animals.

3. **Over exploitation:** This is one of the main cause of the loss of not only economic species but also biological ciriosities like the insectivorous and primitive species and other taxa needed for teaching or laboratory (like *Nepenthes, Gnetum, Psilotum,* etc.). commercial exploitation of wild plants has invariably causes their overuse and eventual destruction. This has been true in case of Indian wild mango trees, which were turned into plywood as of the whales that were hunted for tallow. Plants of medicinal value like *Podophyllum hexandrum, Coptis teeta, Aconitum, Disocorea deltoidea, Rauwolfia serpentine, Paphiopedilum druryi,* etc., and horticultural plants like orchids and rhododendrons come under the over-exploited category. Faunal losses have been mainly because of over-exploitation. For instance, excessive harvesting of marine organisms such as fish, mollusks, sea cows and sea turtles has resulted in extinction of these animals.
4. **Collection for zoo and research:** Animals and plants are collected throughout the world for zoo and biological laboratories for study and research in science and medicine. For example, primates such as monkey and chimpanzees are sacrificed for research as they have anatomical, genetic and physiological similarities to human being.
5. **Introduction of exotic species:** Native species are subjected to competition for food and space due to competition for food and space due to introduction of exotic species. For example, introduction of goats and rabbits in the Pacific and Indian regions has resulted in destruction of habitats of several plants, birds and reptiles.
6. **Control of pest and predators:** predator and pest control measures, generally kill predators that are a component of balanced ecosystem and may also indiscriminately poison non-target species.
7. **Pollution:** Pollution alters the natural habitat. Water pollution especially injurious to the biotic components of estuary and coastal ecosystem. Toxic wastes entering the water bodies disturb the food chaion, and so to the aquatic ecosystems. Insecticides, pesticides, sulphur dioxide, nitrogen oxides, acid rain, ozone depletion and global warming too, affect adversely the plant and animal species.

   The impact of coastal pollution is also very important, it is seen that coral reefs are being threatened by pollution from industrialization along the coast, oil transport and offshore mining. Noise pollution is also the cause of wildlife extinction. According to a study Arctic whales are seen on the verge of extinction as a result of increasing noise of ships, particularly ice breakers and tankers.
8. **Deforestation:** One of the main causes for the loss of wildlife is population explosion and the resultant deforestation. Deforestation mainly results from population settlement, shifting cultivation, development projects, demand for fuel wood, demand of wood as a raw material for many industries such as paper and pulp, match, veneer and plywood, furniture etc.

   In the Country, the current rate of deforestation is 13,000 sq. km annually. If this rate of deforestation continues, one can imagine the ultimate fate of our forest and biological richness. It is presumed that in coming years, the global loss of biodiversity from deforestation alone would be 100 species every day.

9. **Other factors:** Other ecological factors that may also contribute to the extinction of wildlife are as follows:
   i. Distribution range – The smaller the range of distribution, the greater the threat of extinction.
   ii. Degree of specialization – The more specialized an organism is, the more vulnerable it is to extinction.
   iii. Position of the organism in the food chain – The higher the position of the organism is in food chain, the more susceptibility it becomes.
   iv. Reproductive rate – Large organisms tend to produce fewer offspring at widely spaced intervals.
   v. Outbreaks of diseases – it is also one of the major causes for the decline in wildlife species.
   vi. Loss of gene flow – The individuals of plant and animal life may decline to the significant levels as a result of loss of gene flow.
   vii. Substitution – During the process of evolution an existing species may be replaced by ecologically another one.

In developing counties like India, the development policies and projects have rarely been sensitive to the need for biodiversity conservation, and that of the local communities. The government's failure to remove poverty and curb middle-class consumerism has led conditions in which sensible natural resources management assumes low priority.

5. BIODIVERSITY CONSERVATION METHODS

We must make every effort to preserve, conserve and manage biodiversity. Protected areas, from large wilderness reserves to small sites for particular species and reserves for controlled uses, will all be part of this process. Protected areas are legally established sites managed for conservation of biodiversity. Worldwide about 8,163 protected areas cover over 750 million hectares of marine and terrestrial ecosystems, amounting to 1.5 percent of Earth's surface.

India is the second most populous country, and therefore any plan attempting at conservation must consider socio-economic development as the mounting human pressure threatens the biotic resources of the country. Furthermore, ours is predominantly an agriculture country, and hence, policy makers should realize that conservation and sustainable utilization of biodiversity is the key to all developmental planning projects.

5.1 ACTION PLAN

To conserve the biodiversity, the immediate task will be to devise and enforce time bound programme for saving plant and animal species as well as habitats of biological resources. Action plan for conservation, therefore, must be directed to:

- Inventorization of biological resources in different parts of the country including the island ecosystem;

5.2 *In situ* Conservation

In situ conservation means the conservation of ecosystem and natural habitat and maintenance and recovery of viable population of species in the natural surrounding where they have developed their distinctive characteristics.

In situ conservation methods pertain to conserving animals and plants in their natural habitats. It emphasizes the preservation and protection of total ecosystems at their original or natural environment. Human societies have always taken interest in preserving wildlife areas. The main objective is to recognize a particular biodiversity rich area and to preserve it so that the biodiversity can continue to flourish and evolve. This involves establishment of protected areas, national parks, sanctuaries, biosphere reserves, reserve forests etc. over past few decades there has been an increase in the number of such areas. Protection of the ecosystem by simply eliminating factors detrimental to the existence of species concerned has given good results in conservation of constituent species, known or unknown.

In situ conservation of biodiversity is advantageous in that it is a cheap and convenient method that requires people's our supportive role. It maintains all organisms at different trophic levels from producers to top consumers such as carnivores. In natural environment, organisms not only live and multiply but also evolve and continue to maintain their ability to resist various environmental tresses such as drought storm, snow, temperature fluctuations, excessive rains, flood, fires, pathogens etc. *In situ* conservation requires only elimination of factors detrimental to the existence of the species and allows the larger number of species to grow simultaneously and flourish in their natural environment in which they were growing since a long time. The only disadvantage of *in situ* conservation is that it requires larger areas and minimizes the space for inhibiting human population which is increasing tremendously. The following areas may be set aside for *in situ* conservation:

5.2.1 National Parks and Wildlife Sanctuaries

These are legally constituted protected areas for conserving both flora and fauna of a region. In India, the Wildlife Protection act of 1972 empowers the State Governments to declare an area as a Sanctuary or National Park. This is done for protecting, propagating and developing wildlife and its environment. Section 18 to 34 and 38 of the Act, deal with the declaration of sanctuaries, Section 35 and 38 with National Parks and Section 37 with closed areas. There are 102 national parks and 512 wildlife Sanctuaries, 47 Conservation Reserves and 4 Community Reserves in the country, covering an area of 1,61,221.57 km^2 (4.90% of total geographic area).

National parks (NP): A National Park is an area of land set aside to conserve the scenery (or environment) and natural objects and the wildlife therein. Under sec. 35 of the wildlife Protection Act (1972), whenever it appears to the State Government that an area, whether within a sanctuary or not, is by reason of its ecological, faunal, floral, geomorphological or zoological importance, needed to be constituted as a National park for the purpose of propagating or developing wildlife therein or its environment, it may, by notification, declare its intention to constitute such as a National Park.

All kinds of destruction, exploitation and removal of wildlife and damage to the habitat of any animal are strictly prohibited inside a National park. Grazing of domestic animals is also prohibited. However, the

15	Maharashtra	6	35	1	0
16	Manipur	1	1	0	0
17	Meghalaya	2	3	0	0
18	Mizoram	2	8	0	0
19	Nagaland	1	3	0	0
20	Orissa	2	18	0	0
21	Punjab	0	12	1	2
22	Rajasthan	5	25	3	0
23	Sikkim	1	7	0	0
24	Tamil Nadu	5	21	1	0
25	Tripura	2	4	0	0
26	Uttar Pradesh	1	23	0	0
27	Uttaranchal	6	6	2	0
28	West Bengal	5	15	0	0
29	Andaman & Nicobar	9	96	0	0
30	Chandigarh	0	2	0	0
31	Dadar & Nagar Haweli	0	1	0	0
32	Lakshadweep	0	1	0	0
33	Daman & Diu	0	1	0	0
34	Delhi	0	1	0	0
35	Pondicherry	0	1	0	0
	TOTAL	**102**	**515**	**47**	**4**

Source: MoEF report of protected area network, 2009.

5.2.2 Biosphere reserve

Biosphere reserves have been described as undisturbed natural areas for scientific study as well as areas in which conditions of disturbance are under control. They have been set aside for ecological research and habitat preservation. Biosphere Reserves are areas of terrestrial and coastal ecosystems which are internationally recognized within the framework of UNESCO's Man and Biosphere (MAB) Programme launched in 1971. These reserves are required to meet a minimal set of criteria and adhere to a minimal set of conditions before being admitted to the World Network of Biosphere Reserves designated by UNESCO for inclusion in the World Network of Biosphere Reserves. The world's major ecosystem types and landscapes are represented in this Network, which is devoted to conserving biological diversity, promoting research and monitoring as well as seeking to provide models of sustainable development in the service of mankind. The objectives of the programme are:

- Conserve biotic diversity for ecological evidence.
- Safeguard genetic diversity for the process of evolution to act upon.
- Provide natural areas for basic and applied research in ecology and environmental biology.
- Provide opportunity for environmental education and training.
- Promote international co-operation.
- Promote appropriate sustainable management of the available biotic resources.
- Disseminate the experience so as to promote sustainable development elsewhere.

These reserves are rich in biological and cultural diversity and encompass unique features of exceptionally pristine nature. The goal is to facilitate conservation of representative landscapes and their immense biological diversity and cultural heritage, foster economic and human development which is culturally and ecologically sustainable and to provide support for research, monitoring, education and information exchange. The Scheme is a pioneering effort at pursuing the increasingly difficult yet urgent

task of conserving ecological diversity under mounting pressures. The main features of biosphere reserve are:

- They are representative areas of specific terrestrial and coastal environment of country, continent or the entire earth planet that must be conserved for posterity;
- They are representative example of the natural or minimally disturbed ecosystem;
- The extent and size of such areas is large enough to function as a unit of conservation; and
- Biosphere Reserves remain and function as an open system; changes in land use are not usually allowed.

As of May 2008, under UNESCO-MAB Programme, 531biosphere reserves have been established in 105 countries. This list includes four biosphere reserves from India, namely Sunderbans (West Bengal), Gulf of Mannar (Tamil Nadu), Nilgiri (Tamil Nadu, Kerala and Karnataka) and Nanda Devi (Uttaranchal) biosphere reserves in its Network of Biosphere reserves. Efforts are on for getting remaining Biosphere Reserves included in the World Network of Biosphere Reserve.

The country's first biosphere reserve came into being on 1st August 1986 in Nilgiri, covering 5520 km^2 in Tamil Nadu, Kerala and Karnataka. Including this one, in all 15 Biosphere Reserves covering an area of 74,275.60 km^2 (Table- 4), have been set up in the country till January 29, 2008 (MoEF Annual Report, 2007-08). In addition, a number of potential sites are under consideration to be designed as biosphere reserves. Out of them Runn of Kachchh in Gujarat and Cold desert Biosphere Reserve in Jammu & Kashmir and Himanchal Pradesh are at an advanced stage.

Table 4 - Biosphere Reserves of India

S. No.	Name of Biosphere Reserve	State	Biogeographic zone	Date of notification	Area (in km^2)
1.	*Nilgiri	Tamil Nadu, Kerala and Karnataka	Western Ghats	01.08.1986	5,520.00
2.	*Nanda Devi	Uttaranchal	West Himalayas	18.01.1988	6,497.03
3.	Nokrek	Meghalaya	East Himalayas	01.09.1988	820.00
4.	Manas	Assam	East Himalayas	14.03.1989	2,837.00
5.	*Sunderbans	West Bengal	Gangetic Delta	29.03.1989	9,630.00
6.	*Gulf of Mannar	Tamil Nadu	Coasts	18.02.1989	10,500.00
7.	Great Nicobar	Andaman & Nicobar Islands	Islands	06.01.1989	885.00
8.	Similipal	Orissa	Deccan Peninsula	21.06.1994	4,374.00
9.	Dibru-Saikhowa	Assam	East Himalayas	28.07.1997	765.00
10.	DehangDebang	Arunachal Pradesh	East Himalayas	02.09.1998	5,111.50
11.	Kanchanjungha	Sikkim	East Himalayas	07.02.2000	2,619.92
12.	Pachmarhi	Madhya Pradesh	Semi-arid	13.03.1999	4,926.28
13.	Agasthyamalai	Kerala	Western Ghats	12.11.2001#	3,500.36
14.	Achanakamar-Amarkantak	Madhya Pradesh and Chhattishgarh		30.03.2005	3,835.51
15.	Kachchh	Gujarat	Arid	29.01.2008	12,454.00
					74,275.60

Note: *Sites which have been recognized by UNESCO on World Network of Biosphere Reserves.
#Area expended on 30.03.2005
Source: MoEF Annual Report 2007-08.

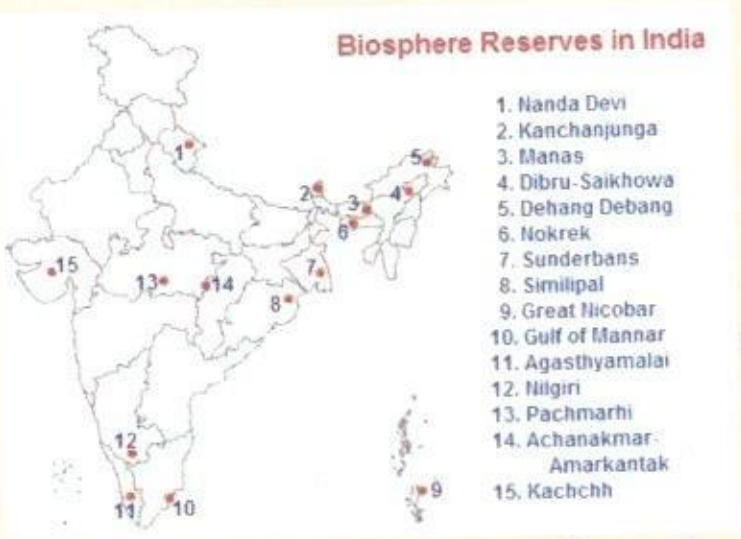


Fig. 2 Map showing the sites of 15 Biosphere Reserves setup in India

The fifteen Biosphere Reserves set up in the country so far not only aim to protect representative ecosystems, but also serve as laboratories for evolving alternative models of development. The Ministry of Environment and Forestry (MoEF) provided financial assistance to the respective State Governments for conservation and management of these Biosphere Reserves. Research and development projects were also supported. Biosphere Reserves of the country qualify the essential criteria i.e. they:

- represent an ecological protectorate,
- occur in a definite biogeographic region,
- contains abundant genetic diversity (India harbor nearly 49,219 plant and 81, 251 animal species),
- have complete structure and size sufficient to ensure efficient conservation,
- have ample opportunities for research in ecology/environment, population, genetics, evolutionary biology, plant-animal interaction, eco-de3velopment, etc., and
- receive adequate long-term legal protection.

Basically the Biosphere Reserve is consisting of two zones (Fig. 3):

(i) **Core zone** forming the *sanctum sanctorum*, and
(ii) **Buffer zone** that concentrically surrounds the core zone.

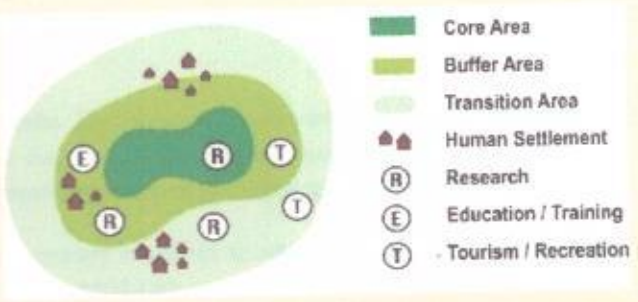


Fig. 3 Structure of a model biosphere reserve

1987. It has so far identified 38 mangrove areas for intensive conservation and management. West Bengal has maximum of mangrove cover in the country followed by Gujarat and Andman & Nicobar Island. MoEF has established a National Mangrove Genetic Resources Centre in Orissa.

The Indian coral reef area is estimated to be 2,375 km^2. India has four coral reef areas in the Gulf of Mannar, Gulf of Kutchh, Lakshadeep Island and Andaman & Nicobar Island. Their conservation and management is being implemented since 1987. There is a National Coral Reef Research Centre at Port Blair.

Table 5 - The list of Ramsar Sites in India (as of September 24, 2012)

Name	State	Date of Notification	Area (km^2)
Ashtamudi Wetland	Kerala	19/08/02	614
Bhitarkanika Mangroves	Orissa	19/08/02	650
Bhoj Wetland	Madhya Pradesh	19/08/02	32
Chandra Taal	Himachal Pradesh	08/11/05	.49
Chilika Lake	Orissa	01/10/81	1165
Deepor Beel	Assam	19/08/02	40
East Calcutta Wetlands	West Bengal	19/08/02	125
Harike Wetland	Punjab	23/03/90	41
Hokersar Wetland	Jammu and Kashmir	08/11/05	13.75
Kanjli Wetland	Punjab	22/01/02	1.83
Keoladeo National Park	Rajasthan	01/10/81	28.73
Kolleru Lake	Andhra Pradesh	19/08/02	901
Loktak Lake	Manipur	23/03/90	266
Nalsarovar Bird Sanctuary	Gujarat	24/09/12	123
Point Calimere Wildlife and Bird Sanctuary	Tamil Nadu	19/08/02	385
Pong Dam Lake	Himachal Pradesh	19/08/02	156.62
Renuka Wetland	Himachal Pradesh	08/11/05	.2
Ropar	Punjab	22/01/02	13.65
Rudrasagar Lake	Tripura	08/11/05	2.4
Sambhar Lake	Rajasthan	23/03/90	240
Sasthamkotta Lake	Kerala	19/08/02	3.73
Surinsar-Mansar Lakes	Jammu and Kashmir	08/11/05	3.5
Thrissur Kole Wetlands	Kerala	08/11/05	546.25
Tsomoriri	Jammu and Kashmir	19/08/02	120
Upper Ganga River (Brijghat to Narora Stretch)	Uttar Pradesh	08/11/05	265.9
Vembanad-Kol Wetland	Kerala	19/08/02	1512.5
Wular Lake	Jammu and Kashmir	23/03/90	189

Source: http://en.wikipedia.org/wiki/List_of_Ramsar_Sites_in_India

Table 6 – Mangrove areas in India

	West Coast	
1	Gulf of Khambat	Gujarat
2	Gulf of Kutchh	Gujarat
3	Malvan	Maharashtra
4	Vasasi-Manori	Maharashtra
5	Vaitarna	Maharashtra
6	Shrivardhan	Maharashtra
7	Vikroli	Maharashtra
8	Mumbra-Diva	Maharashtra
9	Kundalika-Ravdana	Maharashtra
10	Veldur	Maharashtra
11	Devgarh-Vijay Dur	Maharashtra
12	Achra-Ratnagiri	Maharashtra
13	Karwar	Karnataka
14	Dakshin Kannada /Honnavar	Karnataka
15	Coondapur	Karnataka
16	Vembanad	Kerala

	East Coast	
17	Sunderbans	West Bengal
18	Bhitarkanika	Orissa
19	Mahanadi	Orissa
20	Subernarekha	Orissa
21	Devi	Orissa
22	Dhamra	Orissa
23	Bhitarkanika	Orissa
24	Chilka	Orissa
25	Coringa	Andhra Pradesh
26	East Godavari	Andhra Pradesh
27	Krishna	Andhra Pradesh
28	Pichavaram	Tamil Nadu
29	Muthupet	Tamil Nadu
30	Ramnad	Tamil Nadu
31	Pulicat	Tamil Nadu
32	Kazhuveli	Tamil Nadu
33	North Andamans	Andaman & Nicobar Islands
34	Nicobar	Andaman & Nicobar Islands

Source: http://en.wikipedia.org/wiki/Mangroves_in_India

5.2.4 Endangered Wildlife Special Projects

These special projects have been designated for species specific management of endangered species and their habitats.

Project Tiger: In India Project Tiger was launched in 1973 with an objective "to ensure maintenance of a viable population of tigers in India for scientific, economic, aesthetic, cultural and ecological values and to preserve for all times areas of biological importance as a national heritage for benefit and enjoyment of the people". The Project has been successfully implemented and under this project, 44 Tiger Reserves have been set up in the country till June 2011, covering an area of over 52,653 km^2 of tiger habitat distributed in 21 states and few more have been proposed..

However, due to intense poaching, there is decline in tiger reserves as well as in wild. For strengthening tiger conservation measures and ensuring anti-poaching activities, National Tiger Conservation Authority and Crime Control Bureau were constituted w.e.f. 04.09.2006 and 06.06.2007, respectively. According to an estimate the number of tigers which was about 4026 in 1989 went down to about 1233 in 2000. Surprisingly no tiger in Sariska is seen since 2004. A survey of numbers of tigers in 2011 revealed that there are about 1706 tigers in India.

The Project Tiger is undisputedly the custodian of major gene pool of the country and a repository of some of the most valuable ecosystems and habitats for wildlife.

Project Elephant: This was launched in 1992 with the aim at ensuring long term survival of identified viable populations of elephant population. There have been drawn lines to restore the lost and degraded habitats of elephant including creation of corridors for their migration, mitigation of man-elephant conflict and establishment of data base on the migration and population dynamics of elephants. It also aims at improving quality of life of people living around elephant habitats through sustainable development. The project is being implemented in 13 states and 30 Elephant reserves have been established.

Gir Lion Project: The Gir forest in Saurashtra peninsula of Gujarat is unique as the only surviving habitat of the Asian lion *Panthera leon persica*. At present in whole of the Asia, this lion is found only in Gir forest of Gujarat. Clearing of forest for agriculture, excessive cattle grazing and other factors led to decline in the lion population.

A five year plan scheme was thus prepared in 1972 by the Govt. of Gujarat for this project. The total area of Gir sanctuary is now 1412,12 km^2. The central core of about 140.40 km^2 was constituted as a National

Park in 1975. In 1978 an additional area of 118.13 km^2 was declared as National Park increasing the area to 258.71 km^2. Ultimately the entire sanctuary was declared as National Park. As a result of this there has been increase in the lion population. In 1968, there were 177 lions in the Gir. This number increases to 180 in 1974.

Crocodile Breeding Project: The project arose from proposal for development of a crocodile farming industry in India and was initiated on 1.4.1974. there are three species of crocodiles in India (i) saltwater or estuarine crocodile (*Crocodylus prosus*) (ii) freshwater, swamp crocodile ir mugger (*C. palustris*), and (iii) gharial (*Gavialis gangeticus*).

Crocodile population decline worldwide in poster period. Crocodile hunting is legally banned in India. Work on project was begun on 1.4.1975 in Orissa. Gharial eggs were hatched for the first time in captivity anywhere in the world at Tikerpada, Distt. Dhenkanal, Orissa in June 1975. A small batch was also hatched at Kurkrail, near Lucknow same year. Crocodile husbandry work was undertaken with a view to sanctuary development. A total of 16 crocodile rearing centers have been developed in the country in eight states (1975-78). Eleven sanctuaries have been declared under the project, two of which among the largest

Gharial rehabilitation began in 1977 with the release of 26 animals in Mahanadi River, Orissa. By 1980, 107 animals had been released in the river where wild population had declined to five.

Rhinos Conservation: The centrally sponsored scheme "Conservation of Rhinos in Assam" was introduced in 1987 and is continued for effective and intensive management of rhino habitats.

Snow-Leopard Project: This is being taken to create 12 snow-leopard reserves throughout the Himalayas.

5.2.5 Preservation plots

Preservation plots are also important for conservation of biological diversity. Preservation plots are areas where chief types of forests are identified for preservation and conservation of biological diversity contained in them. This process was started in India in 1905. At present there are over 309 preservation plots all over the country, 287 in natural forest and 22 in plantation forest.

5.2.6 World Heritage Sites

India ratified the World Heritage Convention in 1977, and since then five natural sites have been taken over as areas of outstanding universal value. These sites are listed in Table below:

Table 7 – World Heritage sites in India

S. No.	Heritage sites	State
1.	Kaziranga national Park	Assam
2.	Keoladeo National Park	Rajasthan
3.	Manas National Park	Assam
4.	Nanda Devi National Park	Uttaranchal
5.	Sunderbans National park	West Bengal

5.2.7 Sacred Forest and Sacred Lakes

There has been a tradition strategy for the preservation of biodiversity in the form of sacred forest in India and many other Asian countries. Sacred forests are the forest in India and many other Asian countries. Sacred forests are the forest patches of varying dimensions protected by the tribal communities on account of their religious sanctity accorded to them. These represent islands of pristine forest i.e. most undisturbed forests with no human impact, and have been free from all disturbances despite they are frequently surrounded by highly degraded lands. Many states in our country, such as Maharashtra, Karnataka, Meghalaya and Kerala, have sacred forests which are serving as a refugia for many endemic, rare and endangered texa. Similarly, some fresh water lakes are also serving the purpose of protection of aquatic flora water lakes are also serving the purpose of protection of aquatic flora and fauna. For example Khecheopalri lake in Sikkim has been declared sacred by the people to save aquatic life from being degraded.

5.3 *Ex situ* Conservation

Ex situ conservation means the conservation of biological diversity components outside their natural habitat. It involves cultivation of rare plants/rearing of threatened animals outside of their natural habitats and also holding of plants and animal species in botanical and zoological gardens, and in arboretums or store them in the form of seeds in seed bank (gene banks) or some other suitable forms by means of tissue cultures techniques. There are a number of tissue cultures techniques. There are a number of plant and animal species, which have become more or less extinct in the wild, but they are being conserved in gardens or zoos, e.g. cheetah (*Acinonyx jubatus).*

Reintroduction of an animal or plant in the habitat from where it has become extinct is another form if ex situ conservation. The great Indian rhinoceros (*Rhinoceros unicornis*) has been reintroduced in the Dudhwa National Park, in an area where it has became extinct. The Gangetic gharial (*Gavialis gangeticus*) is being reintroduced in the rivers of Madhya Pradesh, Uttar Pradesh, and Rajasthan where it has became extinct.

However, because of the prohibitive cost captive breeding should only be restored to when populations are in imminent danger of extinction in the wild. Therefore, priorities in selecting species for captive breeding efforts in zoos need to be carefully established. Some of the steps involved in *ex situ* conservation of animals species include:

- establishing minimum target population goals to provide for maintenance of captive genetic diversity at least for the next 100 years,
- compiling animal husbandry programmes for circulation to all breeding facilities, and
- implement an overall plan that contributes to the objectives of maintaining viable captive populations across the globe.

Reintroduction of the threatened plant species is done in the same way, in the areas from where they have become extinct: rare, endangered and even plants, which are extinct in their natural habitats are cultivated in gardens.

Apart from zoological gardens and captive breeding programmes, the new scientific advances in the case of genetic mapping and manipulation, artificial insemination, embryo transfer, cloning and germplasm

preservation and gene bank can contribute to survival of the rare animals. Some of these *ex situ* conservation methods are as follow:

5.3.1 Zoological Parks

There are roughly 5,00,000 mammals, birds, reptiles and amphibians in captivity in zoos throughout the world. Zoos contribute in many ways to the conservation of biodiversity:

- They propagate and reintroduce endangered species;
- They serve as centers for research to improve management of captive and wild populations; and
- They raise public awareness for biotic improvement.
- They enlighten the public that animals are equally important and are essential for the life support system.

The contributions that zoos have already made to the conservation of biodiversity are dramatic. Zoo populations are now the only representatives of several species including the California conder (*Gymnogypus californianus*) and possibly the Black-footed ferret (*Mustela nigripes*) and at least 18 species have been reintroduced into the wild after captive propagation.

In India first Zoo was set up in Madras in the year 1855, which was soon followed by Trivendrum (1857), Bombay (1863), Calcutta (1875), Jaipur (1876), and Udaipur (1878). After independence a number of zoos were set up. The important ones are Municipal Hill Garden Zoo (Ahmedabad) Delhi Zoologocal Park (Delhi), Himalayan Zoological Park (Darjeeling), Nehru Zoological Park (Hyderabad), Assam State Zoo (Guwahati), Van Vihar (Bhopal), Nandankanan (Bhubneswar), Sakkarbang zoo (Junagarh).

Table 8 – Important Zoos in India

Name	Location
Assam State Zoo-cum-Botanical Garden	Guwahati, Assam
Allen Forest Zoo	Kanpur, Uttar Pradesh
Alipore Zoological Gardens	Kolkata, West Bengal
Nandankanan Zoo	Bhubaneswar, Orissa
Arignar Anna Zoological Park (Vandalur Zoo)	Chennai, Tamil Nadu
Birsa Deer Park (Kalamati Birsa Mrig Vihar)	Ranchi
ChattBir Zoo	Zirakpur, Punjab
Chennai Snake Park Trust	Chennai, Tamil Nadu
Indira Gandhi Zoological Park	Visakhapatnam, Andhra Pradesh
Jawaharlal Nehru Biological Park	Bokaro Steel City
Jaipur Zoo	Jaipur, Rajasthan
Gulab Bagh and Zoo	Udaipur, Rajasthan
Jijamata Udyaan	Mumbai, Maharashtra
Kankaria Zoo,	Ahmedabad, Gujarat
Lucknow Zoo,	Lucknow, Uttar Pradesh
Madras Crocodile Bank Trust	Chennai, Tamil Nadu
Marble Palace zoo	Kolkata, West Bengal
Kanpur Zoo,	Kanpur, Uttar Pradesh
Mysore Zoo,	Mysore, Karnataka
National Zoological Park	Delhi
Nehru Zoological Park	Hyderabad, Andhra Pradesh
Padmaja Naidu Himalayan Zoological Park	Darjeeling, West Bengal
Parassinikkadavu Snake Park	
Ranchi Zoo (Bhagwan Birsa Munda Biological Park), (est. 1987)	Ranchi, Jharkhand
Sakkarbaug Zoological Garden	Junagadh, Gujarat
Sayaji Baug Zoo	Vadodara, Gujarat
Sarthana Zoo	Surat, Gujarat
Sanjay Gandhi Jaivik Udyan	Patna, Bihar
Sipahijola Wildlife Sanctuary	Tripura
Sri Venkateswara Zoological Park	Tirupati, Andhra Pradesh
Rajiv Gandhi Zoological Park	Pune, Maharashtra
Thiruvananthapuram Zoo	Trivandrum, Kerala
Thrissur Zoo	Thrissur, Kerala
Tilyar Zoo	Rohtak
Pt. G.B. Pant High Altitude Zoo	Nainital, Uttarakhand

Source: Central Zoo Authority (CZA). www.*cza.nic.in*. . Retrieved 3 July 2011

In the country, central Zoo authority (CZA) has been created through an amendment of the Wildlife (Protection) Act in 1979. Main functions of the CZA are:

- Specify minimum standards for housing, upkeeping and care of the animals in the zoos,
- Recognition of zoos on the basis of evaluation of their functioning,
- Identify endangered species of wild animals for the purpose of captive breeding and assigning responsibilities in this regards to zoos,
- Co-ordinate the acquisition, exchange and loading of animals for breeding, and
- Provide technical and other assistance to zoos for management and development on scientific lines.

Rescue Centres

Ministry of Environment and Forests has assigned the responsibility to Central Zoo Authority for creation of rescue centres, for rehabilitation of circus animals, consequent upon ban on performance of wild animals in Circuses. Five rescue centers were identified for creation at Chennai, Visakhapatnam, Tirupati, Bannerghatta (Bangalore) and Nahargarh (Jaipur). All the five rescue centers have already been established and are functional. A total of 179 lions, 33 tigers, 18 bears, 8 panthers, and 11 monkeys have been rescued from circuses and are now being housed in these centres. The Central Zoo Authority has released Rs. 186.10 lakhs towards establishment of rescue centres and feeding and health care for these animals.

5.3.2 Aquaria

The role of aquaria in the captive propagation of threatened freshwater species is significant. Accordingly, the captive Breeding Specialist Group of the World Conservation Union (IUCN) is mounting a major effort to develop captive breeding programmes for endangered fish species, starting from the lake Victoria, the desert fishes of North America, and Appalachian stream fishes. The programme shall also include the restoration of natural habitats, provides protection against loss of wild restoration of natural habitats, provides protection against loss of wild species and help educate the public on threats to fishes.

Table 9 - Important aquaria in India

Name	Location
Star aquarium	Karunagappally Kollam Kerala
Kollam Aquarium	Kollam Kerala
Travancore Royal Aquarium	Shangumukham Beach Trivandrum Kerala
Bangalore Aquarium	Bangalore
Calcutta Aquarium	Calcutta
Kankaria Aquarium	Ahmedabad
Lal Bagh aquarium	Bangalore
Marine Life Aquarium	Chennai
Marine Biological Research Station	Ratnagiri
Matsyadarsini Aquarium	Visakhapatnam
Sanjay Gandhi jaivik udhan	Patna
Taraporewala Aquarium	Mumbai
CIFA Aquarium	Bhubaneswar, Orissa
Nandankanan Zoo Aquarium	Bhubaneswar, Orissa

Source: http://en.wikipedia.org/wiki/List_of_aquaria_in_India

and vegetative plant parts. The seeds of many species can be stored in dry, low temperature, vacuum containers. Storage at extremely low temperature, below -196 °C may extend the life of some of these species to more than a centaury (cryopreservation). The stored germplasm not only safeguards the species threatened but I also utilized actively by the plant scientists and breeders to develop novel verities as desired. The technique is efficient, reproducible, and feasible for short, medium and long-term storage.

In a generalized way - a gene bank is temperature-controlled storage unit – essentially a giant ice box – which is meant to preserve biodiversity in the form of seeds, sperms, ovule, tissue culture, pollen and even DNA. The important repositories in India are:

Table 11 – Indian Repositories

SL. NO.	NAME OF THE INSTITUTIONS	CATEGORY OF BIOLOGICAL RESOURCES	Web Link
1.	Botanical Survey of India, Kolkata	Flora (Angiosperms, Gymnosperms, Pteridophytes, Bryophytes, Lichens, Macrofungi, Macroalgae)	http://164.100.52.111/
2.	National Bureau of Plant Genetic Resources, New Delhi	Plant Genetic Resource	http://www.nbpgr.ernet.in/
3.	National Botanical Research Institute, Lucknow	Flora (Angiosperms, Gymnosperms, Pteridophytes, Bryophytes, Lichens, Macrofungi, Macroalgae)	http://www.nbri.res.in/#
4.	Indian Council of forestry Research and Education, Deharadun (Forest Research Institute, Dehradun; Institute of Forest Genetics and Tree Breeding, Coimbatore; and Tropical Forest Research Institute, Jabalpur)	Flora (Angiosperms, Gymnosperms, Pteridophytes, Bryophytes, Lichens, Macrofungi, Macroalgae) For TFRI only – Fauna (termites, butterflies, moths)	http://www.icfre.org/ http://ifgtb.icfre.gov.in/ http://tfri.icfre.gov.in/
5.	Zoological Survey of India, Kolkata	Fauna	http://zsi.gov.in/
6.	National Bureau of Animal Genetic Resources, Karnal, Haryana	Genetic resources of domestic animals	http://www.nbagr.res.in/
7.	National Bureau of Fish Genetic Resources, Lucknow	Fish genetic resources	http://www.nbfgr.res.in/
8.	National Institute of Oceanography, Goa	Marine flora and fauna	http://www.nio.org/
9.	Wildlife Institute of India, Dehradun	Faunal resources in protected Areas	www.wii.gov.in
10.	National Bureau of Agriculturally Important Micro-organisms, Mau Nathan Bhanjan, UP	Agriculturally important micro-organisms	http://www.nbaim.org.in/
11.	Institute of Microbial Technology, Chandigarh	Microorganisms	http://www.imtech.res.in/
12.	National Institute of virology, Pune	Viruses	http://www.niv.co.in/
13.	Indian Agricultural Research Institute, New Delhi	Microbes/Fungi	http://www.iari.res.in/
14.	National Bureau of Agriculturally important insects , Bangalore	Insects	http://www.nbaii.res.in/

5.3.5 Pollen/Semen Conservation

Preservation of pollen and spores is of significant value for conservation of biodiversity of important flowering and spore bearing plants. The procedure for institution of pollen and spore banks is almost similar to that of gene banks. Cryogenic technique is useful in preserving pollen from flowering or cone bearing plants, and spores from non-flowering plants, such as ferns and mosses. Pollens preservation is thus advantageous over seeds preservation, as it gives opportunity to preserve the full range of variation within the population in a very simple manner

Pollen grains can be stored under appropriate condition allowing subsequent use for crossing with living plants materials. Stored semen can also used for artificial insemination in animals. A pollen bank can be an extremely powerful tool in plant breeding since it frees breeders from the tyranny of time. Also, it is useful in selfsterilised plant species.

5.3.6 Tissue Culture Technique

Tissue culture technique becomes necessary under the following conditions:

- If a specific genetic type (clone) is to be conserved and maintained;
- If the seeds progeny are highly variable;
- If plants have recalcitrant seeds; or
- If the seeds are altogether lacking, such as those of sugarcane, banana, arvi etc.

Shoot tips are preferred materials for conservation as they are more stable, easier to regenerate into whole plants, and produce virus free clonal plants. Shoot tips are also convenient materials for international exchange of germplasm.

Tissue culture technique for preserving germplasm has another advantage in that a large number of genotypes can be stored in a relatively small area in culture vessels and generally at a fraction of cost of growing and maintaining large living collections in the field. More importantly, tissue culture provides a means of multiplying "endangered species" with possibility of reintroducing them into their original habitats where they are becoming rare.

Through tissue culture technique it is now also possible to preserve animal cells, spermatozoa, ovarian and embryonic tissues as well as whole animals embryos under extremely low temperature in liquid nitrogen at -196 °C (cryopreservation). These cultures can be used for livestock breeding programmes.

5.3.7 Recombinant DNA Technology

The recombinant DNA technology allows us to clone any DNA in *Escherichia coli*, and soon it will hopefully be possible to extend such cloning to yeast and other organisms. Cloned DNA, therefore, appears to be an attractive candidate for genetic conservation. In addition to cloned genes, the entire genomic DNA of plant population can be preserved. Recombinant DNA technology has still another novel advantage in that it can make use of genes of plant material that has lost viability. From DNA libraries of such material, a relevant gene or gene combination can be retrieved and put to use.

6. Efforts of an Individual to Conserve Snakes and Crocodiles

With the ban on snakeskin`s trade, Irulas, expert snake catchers in Tamil Nadu, lost their livelihood. At that time Romulus Whitaker, entered their lives and helped them to set up Irula Cooperative Society for extracting snake venom and selling it to the institutes and organizations that make lifesaving anti-venom, a win-win formula stopping killing of the snakes and deriving profit. Romulus Whitaker came to India at the age of & bestowed with hi natural affinity for snakes and infect for all wildlife. During his school days at Kodaikanal he used to wander Palani Hills to pick up kill to deal with wildlife. Later he learnt snake catching from Irulas and crocodile catching from Papua New Guinea. In 1972, he along with hi friends set up Madras Snake Park which is today on the must see lit of tourist to Chennai. Park has 31 species if Indian snakes, all three species of Indian crocodiles, four species of exotic crocodiles, three species of Indian turtles and five species of lizards. Many species of reptiles, including endangered species of Indian python is subjected to captive breeding. He has also established a Crocodile bank – the gene bank for crocodile. Snake park is of great educational, scientific and conservation value. Whitaker's life and work throws light on that a single individual can make a significant contribution to the conservation of biodiversity through passion and dedication.

CONCLUSIONS

It is imperative that the phenomenon of biodiversity is very vast, complex and interdependent and there is no single over-arching effect of diversity on either productivity or stability. The realized effects will depend heavily on environmental context and the time scale over which the effects are studied. However, it has become obvious that biodiversity is indeed important for both managed and natural ecosystems, though the relative contributions of diversity and composition remain unclear. It is therefore necessary for legislators to understand the basic science in order to maintain diversity at its current levels. If current human growth and resource management patterns do not change, it is likely that we will lose many important species, and the ecosystems of the world may never recover. In present paper the various conservation strategies by government, voluntary organizations, public participation as well as the individual efforts have been discussed, that how they commutatively plays a major role for the conservation of the biodiversity.

Human is only one more of natural creatures and should not be alien to the other life-forms. We have no moral right to destroy nature and other beings that dwell on earth. We should treat all animals and plants with compassion. Every individual can make a small and yet significant effort in the race to save our planet and conserve biodiversity.

BIBLIOGRAPHY

For successfully completing my project file. I have taken help from the Chat GPT and BRAINLY apk.

Union Education Society's
Mahila Mahavidyalaya, Solapur
Programmes of Department Of English
2023-2024

Sr.No	Names of the Programmes	Date
01)	Inauguration of English Literary Association and One Day Workshop on ***"Careers in Linguistics"***.	15/09/2023
02)	One Day State Level Seminar on " ***Moral and Ethical Values For National Integration and Personality Development"***	06/10/2023
03	The Guest Lecture on ***"Information On Paramedical Courses"***	11/10/2023
04	One Day Workshop on ***"Laws Related To Women"***	23/10/2023
05	One Day Workshop on ***"Soft Skills For Personality Development"***	26/10/2023
06	***New Voters Registration Camp organised***	08/11/2023
07	***Good Hand Writing Competition and Essay Writing Competition arranged***	30/12/2023
08	The Guest Lecture on ***" Time Management For Preparation of Examination"***	01/01/2024
09	***Felicitation Ceremony of Miss Alfiya Imtiyaz Sayyed***	29/02/2024
10	***World Women's Day*** Celebration on **09th March**	09/03/2024
11	State Level Seminar on ***"IPR Laws in India"***	13/03/2024
12	A Webinar on ***"Language and Communication Skills"***	14/03/2024

U.E.S. Mahila Mahavidyalaya Solapur.

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

Union Education Society's
Mahila Mahavidyalaya, Solapur..
English Department
Project : 2023-24

Sr.No	Class	Name of the Students	Project List
01	B.A.III	Siddiqua Jamkhandi Tangsal Mahewish Amreen Saba Lalkot Tangsal Misbah Shaikh Shireen	Phrases and Clauses storeys and Analysis Sentence
02	B.A.III	Shaikh Mohammadi Md. Arif Bagwan Iramnaz Md. Afzal Shaikh Zahira Md. Salim Chitaprue Adeeba Mohammed Husain Jamadar Saniya Riyaz Ahmed	Discourse analysis of Muniba Mazari's speech and Moulana Abdul Kalam Azad's speech
03	B.A.III	Madki Alisha Mohammed Ayyub Patel Taskin Khalid Jahagirdar Swaleha Murtuz Pasha Shaikh Maher Afroz Ziyauddin Darzi Saleha Qaseem	Grammatical Mistakes English Language
04	B.A.III	Shaikh Mohammadi Md. Arif Bagwan Iramnaz Md. Afzal Shaikh Zahira Md. Salim Chitaprue Adeeba Mohammed Husain Jamadar Saniya Riyaz Ahmed	Critical Analysis of William Shakespeare's Play
05	B.A.III	Karajgi Shafiya Anjum Abdul Qadar Pathan Afifa Bakhtiyar Shaikh Fayeka Moula Jakler Alsafa Javed Kalyani Sanobar Ashfaque	A.K. Ramanujan Biography
06	B.A.III	Jahagirdar Sakina Bashid Nadaf Uzma Mushtak Shaikh Alfiya Mushtaque Peerzade Misbah Iqbal Khan Abida Md.Fouzdar	Critical Analysis of Girish Karnad plays
07	B.A.III	Shaikh Fayeka Moula Pathan Afifa Bakhtiyar Karajgi Shafiya Anjum Abdul Qadar Jakler Alsafa Javed Kalyani Sanobar Ashfaque	A Project Report on Parts of Speech
08	B.A.III	Jahagirdar Sakina Bashid Nadaf Uzma Mushtak Shaikh Alfiya Mushtaque Peerzade Misbah Iqbal Khan Abida Md.Fouzdar	Comic Strips that Showcase Scenarios by using Phrases and Clauses
09	B.A.III	Jahagirdar Sakina Bashid Nadaf Uzma Mushtak Shaikh Alfiya Mushtaque Peerzade Misbah Iqbal Khan Abida Md.Fouzdar	Critical Analysis of Weathering Heights

10	B.A.III	Shaikh Mohammadi Md. Arif Bagwan Iramnaz Md. Afzal Shaikh Zahira Md. Salim Chitaprue Adeeba ,Mohammed Husain Jamadar Saniya Riyaz Ahmed	A Project Report on work on Jumpha Lahiri
11	B.A.III	Siddiqua Jamkhandi Tangsal Mahewish Amreen Saba Lalkot Tangsal Misbah Shaikh Shireen	A Project Report on William Wordsworth Biography
12	B.A.III	Siddiqua Jamkhandi Tangsal Mahewish Amreen Saba Lalkot Tangsal Misbah Shaikh Shireen	A Project Report on William Wordsworth Poems : Nature Describe
13	B.A.III	Shaikh Fayeka Moula Pathan Afifa Bakhtiyar Karajgi Shafiya Anjum Abdul Qadar Jakler Alsafa Javed Kalyani Sanobar Ashfaque	Romantic Poets and their Poem
14	B.A.III	Madki Alisha Mohammed Ayyub Patel Taskin Khalid Jahagirdar Swaleha Murtuz Pasha Shaikh Maher Afroz Ziyauddin Darzi Saleha Qaseem Peerzade Rafiya Ejaj	A Project Report on T.S. Eliot
15	B.A.III	Madki Alisha Mohammed Ayyub Patel Taskin Khalid Jahagirdar Swaleha Murtuz Pasha Shaikh Maher Afroz Ziyauddin Darzi Saleha Qaseem Peerzade Rafiya Ejaj	A Project Report on Kitchen Sink Dramas
16	B.A.III	Jahagirdar Sakina Bashid Nadaf Uzma Mushtak Shaikh Alfiya Mushtaque Peerzade Misbah Iqbal Khan Abida Md.Fouzdar	Different themes of the Dramas 'Raisin in the Sun'

Date : Page : 1

Topic :

U.E.S Mahila Mahavidhyaly
Solapur.

Name :- Lalkot BiBi Ayesha Shabbir

Roll No :- 3060

Class :- B.A III year

Sem :- VI

Subject :- Urdu paper XVI Project

Date : Page : 2

Topic :

فہرست

Date :

Page : ③

Topic : عصمت چغتائی کی سوانح حیات

★ پیدائش ★

عصمت چغتائی کی پیدائش اتر پردیش کے بدایوں شہر میں ہوئی عصمت ~~بڑی~~ چغتائی کے ننھیال میں سبھی لوگ پڑھے لکھے تھے اس لئے عصمت کو بچپن سے ہی ادبی ماحول ملا تھا۔ بچپن سے ہی عصمت بڑی ہوشیار اور چالاک تھی اور بچپن سے ہی میں رہ بچپنی لیتی تھی۔

★ آبا و اجداد ★

عصمت چغتائی کے آبا و اجداد بدایوں کے رہنے والے تھے۔ امجد چنگیز کے دو بیٹے تھے۔ ہلاکو خان اور چغتائی خان۔ ہلاکو خان بڑا جگ جو تھا لیکن چغتائی خان قلم و ادب سے تھا اور علم و فضل و اشاعت کا تھا ان سب کا تعلق چغتائی خاندان سے تھا عصمت کے والد کا نام مرزا مقیم بیگ تھا اور والدہ کا نام نفرت خانم تھا۔ ان کا اہل خاندان مغربی تہذیب سے تھا۔ ان کا خاندان کے لوگ متوسط گھرانے سے تعلق رکھتے تھے لیکن مغربی تہذیب کی پیروی کرتے تھے۔

Date : Page : (4)

Topic :

(3)

* تعلیم *

عصمت چغتائی کی ابتدائی تعلیم
شہر بدایوں میں ہوئی اور اعلیٰ تعلیم بھی بدایوں
کے کالج میں ہوئی بی۔ ایڈ بھی اسی کالج میں کیا
پھر اعلیٰ تعلیم کے لئے علی گڑھ چلی گئی جہاں سے وہ نے
نے ایم۔ اے۔ بی ڈگری حاصل کی۔ عصمت چغتائی
چودہ پندرہ سال کی عمر سے ہی افسانے لکھنا
شروع کیا تھا پچھ ایسی کہانیاں بھی تھیں جن کا
موضوع رومینٹکس تھا۔ عشق و محبت کے سوا کچھ
نہیں تھا۔ یہی سب تھا کہ عصمت نے عشق و
محبت کی ہر ایک موضوع پر گفتگو کرتی تھی اس
میں والدین کی قسم کی داخل اندازی نہیں
تھیں۔ ان کا زیادہ تر وقت اپنے بھائیوں میں
گزرتا تھا گزرتا تھا عصمت کو بہت آزادانہ
ماحول سوچنے کا موقع ملا۔

Date : Page : 5

Topic :

* شادی *

مرزا مقیم بیگ نے جب عصمت کی شادی کے سلسلے میں سوچنا شروع کیا اور شادی کا مسئلہ عصمت چغتائی کے سامنے رکھا تو وہ شادی سے انکار کر دی اور کہنے لگی کہ پہلے تعلیم حاصل کرنا ہے ان کے والد نے یہ بات سن کر ان کے والد نے انھیں پچھ ہزار روپیے دیے۔ عصمت نے اپنے تعلیم کا سلسلہ جاری رکھا اور لکھنؤ میں بی۔ اے کیا پھر اعلیٰ گریڈ میں ۱۹۳۵ء میں ایم۔ اے۔ کی ڈگری حاصل کی آخر میں عصمت چغتائی نے اردو کے مشہور و معروف افسانہ نگار شاہد لطیف سے شادی کر لی اور ان کی ہم سفر بن گئی۔ پھر وہ بمبئی میں ہیڈ ماسٹر بس کے عہدے پر فائز ہوئی لیکن جلد ہی اس نوکری کو استعفا دے دیا۔ فلم انڈسٹری کے قیام کے دوران عصمت کو مطالعہ کرنے کا موقع ملا انہوں نے نفسیات و جنسیات کے موضوع پر ناول و افسانے لکھنا شروع کیا۔

Date : Page : 6

Topic :

(5) * ادبی زندگی کا آغاز *

عصمت چغتائی کے ادبی زندگی کا آغاز علی گڑھ کے قیام کے دوران سے شروع ہوتا ہے۔ ان کا مطالعہ کرنے کا ذوق و شوق یہیں پروان چڑھا گیا۔ ابتدائی میں روسی ناولوں اور افسانوں کا مطالعہ کرتی تھیں۔ وہ ادب میں زیادہ روسی ناولوں کا مطالعہ کرتے رہیں۔

عصمت چغتائی نے ڈرامہ نگاری بھی کی ہے۔ ان کا پہلا ڈرامہ فسادی جو ۱۹۳۸ء میں رسالے میں شائع ہوا تھا۔ ان کا دوسرا ڈرامہ سانپ جو ۱۹۴۲ء میں شائع ہوا تھا اور ان کا تیسرا ڈرامہ خوابہ محنوا ہے۔ اس کے علاوہ لحاف پر دھن کیسی ہے۔ چوتھی بانکیں۔ عصمت چغتائی جارج برنارڈ شاہ کے ڈراموں سے بہت متاثر تھی یہ دیکھ کر کلاس کی لڑکیوں انھیں برنارڈ شاہ کہہ کر چڑھاتی تھیں۔ عصمت چغتائی نے فلموں کے لئے بھی ناول لکھے ہیں۔ ضدی، سونے کی چڑیا۔ بزدل وغیرہ کے ذریعے عوام تک اپنے خیالات اور تصورات کو پہنچانے کی کوشش کی ہے بعد میں وہ فلمی دنیا سے ہٹ کر افسانے لکھنا شروع کرتی ہیں۔ عصمت پر مغربی تہذیب کی چھاپ تھی۔ نوجوانوں کی اصلاح کرنا ناممکن تھا۔

Date : Page : 8

Topic :

(7)

* عصمت چغتائی کے افسانوں کا مجموعہ *

عصمت کی پہلی فلم 'چھیڑ چھاڑ' تھی جس کے ہیرو ڈیوس کے ۲ صف تھے۔ عصمت نے فلم 'جنون' میں ایک خاص رول ادا کیا تھا۔ جنون کی کہانی 1857 کے عوامی انقلاب سے تعلق رکھتی تھیں۔ عصمت کو فلم گرم ہوا کی کہانی لکھنے پر بہترین کہانی کا ایوارڈ ملا تھا عصمت چغتائی کا پہلا مضمون 'بچپن' ہے عصمت ایک افسانہ نگار کے بے مثال ہونے کا الزام 1942 میں لگایا گیا تھا اور مقدمہ چلا تھا عصمت نے جنسی امور سے ہٹ کر واقعات کو پیش کیا ہے ایک ناول 'ایک قطرہ خون' لکھا تھا عصمت نے وصیت کی تھی کہ انتقال کے بعد ان کو دفن کرنے کے بجائے نذر آتش کر دیا جائے عصمت کے فکشن کا موضوع متوسط مسلمان گھرانوں کے لڑکوں اور لڑکیوں کی زندگی ہے۔ عصمت نے مجاز، منٹو، بیدی، خواجہ احمد عباس اور جاں نثار اختر پر خاکے لکھے ہیں۔

افسانوی مجموعے:

وکیاں 1941: تیرہ افسانے چار ڈرامے (وکیاں پہلا افسانوی مجموعہ ہے)۔

* چوٹیں 1942 * ایک بات 1946: تیرہ افسانے

چھوئی موئی 1952: نو افسانے * دو ہاتھ 1955: ۲۱ افسانے

* شیطان * بدن کی خوشبو * کہانی پانچ کہیں

* امر بیل * تھوڑی سی چاندنی * ایک عورت ایک خواب

⟨8⟩ * عصمت چغتائی کے قول *

میں نے زندگی میں جو کچھ بھی ہوتے دیکھا ہے، ان ہی
بیتی ہوئی باتوں پر لکھتی ہوں، ان کو من و عن اس
بناوٹ کر کے لکھا ہے۔ محبت کا جنس سے بڑا تعلق
ہے۔ وہ فطری ہے۔ وہ زمانہ گیا جب پاک محبت
تھا، اب تو محبت کا پاک ہونا بھی زیادہ
خوبصورت مانا جاتا ہے۔ سیکس اور اس کی
گھٹن بھی اتنا اہم موضوع نہیں ہے۔ جتنے
اور موضوع ہیں۔ پھر بھی میں نے ان موضوعات
کو چھونے کی کوشش کی۔ وہ عورتیں جو روٹی
کپڑے کے لیے اپنے شوہر کی حرام کاریاں اور
ذلتیں برداشت کرتی ہیں۔ بیسواؤں جیسی
ہوتی ہیں کہ وہ پیٹ کی خاطر سودا کرتی ہیں
اگر جسم پر کوڑھ ہو تو اس کی نمائش میں
کوئی حرج نہیں۔ لکھنے کے لیے میں نے دنیا کی عظیم
ترین کتاب یعنی زندگی کو پڑھا ہے اور اسے بے
انتہا دلچسپ و موثر پایا ہے۔ جب زخم میں مواد بھر
جائے تو اس پر پٹیاں باندھنے سے بہتر ہے کہ نشتر
لو اور جراحی شروع کر دو میرے خیال میں وہ جو
سڑی بسی ہستی سندرتا اور ہار سنگھار کرتی ہیں اپنے
عیبوں کو چھپاتی ہیں۔

Date : Page : (۱۵)

Topic :

(۹)

* وفات *

اردو کی مشہور افسانہ نگار، ناول نگار اور ایک بائی فنکارہ کی حیثیت سے اردو دنیا میں اپنا ایک اعلیٰ مقام بنانے والی فنکارہ ۲ اتوار ۲۴ اکتوبر ۱۹۹۱ء کو ۱۱ بجے دن کو اپنے حقیقی مالک سے جا ملی۔

Page No. Date :

U.E.S Mahila Mahavidhyaly
Solapur.

Name :- Nadaf Saeeda Mahiboob

Subject :- Urdu paper XVI Project
(Novel Ka Aagaz o Irteqa)

Class :- B.A III year

Sem :- VI Roll NO :- 3062

Page No. Date :

فہرست :-

1. مولوی عبدالحلیم شرر
2. مرزا ہادی رسوا
3. منشی پریم چند
4. کرشن چندر
5. عصمت چغتائی
6. قرۃ العین حیدر کی ناول

ناول نگاری کا آغاز و ارتقاء

اردو کے جدید نثری اصناف میں ناول ایک ترقی یافتہ صنف ہے۔ 1857ء کے بعد اردو نثری ادب میں ناول نگاری کے فن کا آغاز ہوا۔ اردو میں سب سے پہلے ڈپٹی نذیر احمد نے ناول کی تخلیف کئے ہیں اس لئے انہیں اردو کا پہلا ناول نگار تسلیم کیا ہے۔ اور ان کا تحریر کردہ ناول مراۃ العروس کو اردو کا پہلا ناول ہونے کا شرف حاصل ہے۔ ڈپٹی نذیر احمد نے اصلاحی و اخلاقی ناول لکھے ہیں جن کے نام ذیل میں درج ہیں۔

مراۃ العروس ② بنات النعش
ابن الوقت ③ توبت النصوح
فسانہ مبتلا ⑥ ایامیٰ

ان تمام ناولوں کے ذریعے ڈپٹی نذیر احمد نے سماج کی اصلاح کرنے کی کوشش کی ہے۔ فاضل کرانھوں نے تعلیم نسواں پر توجہ دی ہے یہی ان کا ایک عظیم مقصد تھا۔ ڈپٹی نذیر احمد کے بعد اردو ناول نگاری میں پنڈت رتن ناتھ

سرشار کا نام بھی قابل ذکر ہے۔ ان کی تحریر کردہ شاہکار ناول فسانہ آزاد ہے بیرکھیار جام سرشار، گامنی وغیرہ پنڈت سرشار نے فسانہ آزاد لکھ کر شہرت و مقبولیت حاصل کی ہے۔ ان کی تمام تخلیقات میں لکھنؤ کی معاشرت، زندگی وغیرہ کو ہزاروں صفحات میں پیش کیا ہے۔

مولوی عبدالحلیم شرر۔

اردو ناول کے ارتقائی سفر میں مورا۔ نا عبدالحلیم شرر کا نام ناقابل فراموش ہے عبدالحلیم شرر نے تاریخی ناول لکھنا اپنا مقام بنایا ہے انہوں نے تاریخ اسلام کے حقیقی واقعات کو لے کر ناول نگاری کی ہے۔ اس لئے انہیں اردو تاریخی ناول کے اولین ناول نگار کہا جاتا ہے مولوی عبدالحلیم شرر نے دو رسالے جاری کئے تھے۔ ان کے نام ① مشہر ② دلگداز۔ اس کے علاوہ تاریخی ناول تحریر کئے ہیں جن کے نام ذیل ہیں۔

① ملک العزیز ورجینا	② شوقین ملکہ
③ حسن انجلینا	④ ملور صوفیا
⑤ فردوس بریں	⑥ فلورا فلورنڈا

منشی پریم چند:-

بیسوی صدی کے آغاز نے اردو ناول کے ارتقاء میں نئے نئے فن کار عطا کیے ان میں منشی پریم چند کا نام قابل ذکر ہے اردو ناول کی دنیا میں منشی پریم چند ایک عہد کی حیثیت رکھتے ہیں۔ انھوں نے اردو ادب کی خدمات میں پینتیس سال تک گراں قدر خدمات انجام دیں ہے۔ پریم چند کے تخلیق کردہ ناولوں کی فہرست ذیل میں درج ہیں۔

اسرار معابد
جلوہ ایثار
گوشۂ عافیت
پردہ مجاز
میدان عمل
② بیم خرما و بیم ثواب
④ بازار حسن
⑥ چوگان ہستی
⑧ گئودان
⑩ غبن
⑪ منگل سوتر۔

منشی پریم چند کے اہم ناول نگاروں میں عظیم بیگ چغتائی، قاضی عبد الغفار، مجنوں گورکھپوری وغیرہ قابل ذکر ہیں۔

اردو ناول کی ارتقاء میں ترقی پسند تحریک کا اہم رول رہا ہے۔ اس تحریک سے وابستہ ناول میں قاضی عبدالغفار کے ناولوں کے نام اس طرح ہیں۔

لیلیٰ کے خطوط ② مجنوں کی ڈائری

کرشن چندر ~

اردو میں ناول نگاری کی روایتوں کو فروغ دینے اور اردو ناول کے قارئین کے حلقے کو وسیع تر کرنے کے سلسلے میں کرشن چندر کا نام سب سے نمایاں ہے جن کی ناول نگاری کا آغاز "شکست" سے ہوا۔ اس ناول کے علاوہ اب تک ان کے تیس سے زیادہ ناول چھپ کر منظر عام پر آچکے ہیں جن میں "ایک وائلن سمندر کے کنارے" "ایک عورت ہزار دیوانے" وغیرہ کافی مقبول ہوئے ان کی تحریر کردہ ناولوں کی فہرست ذیل ہے۔

شکست ② جب کھیت جاگے
دل کی وادیاں ⑭ طوفان کی کلیاں
باون پتے ⑯ پانچ لوفر
ایک گدھے کی سرگزشت

Page No. 18 Date :

ناول

عصمت چغتائی

اردو ادب میں عصمت چغتائی ایک ایسی مشہور ناول نگار ہیں جنہوں نے ترقی پسند تحریک کے دور میں ناول کے فن میں نمایاں مقام حاصل کیا۔ عصمت ایک ترقی پسند فکشن نگار کی حیثیت رکھتی ہیں۔ اور ناولوں کے علاوہ ان کے افسانے بھی کافی اہمیت کے حامل ہیں۔ ان کا حاصل میلان تحریر نیز اور خاص محور پر متوسط مسلمان گھرانوں کی خواتین کی زندگی یا زمینداری گھرانوں کی بگڑی ہوئی عورتیں ہوا کرتی ہیں۔ انکی جنسیات سے متعلق کہانیاں دلچسپی ہے۔ فرائڈ کے فلسفے میں بڑا پورا یقین رکھتی ہیں کہ انسان شخصیت پر سب سے زیادہ اثر ڈالنے والا پہلو اس کا جنسی پہلو ہے۔ عصمت کے بیانیہ روایت سے بغاوت اور انحراف ہے۔ انکے ناول حقیقت نگاری سے کام لیتے ہوتے ہیں۔ انہوں نے نازک معاملات کو ناولوں میں قلمبند کیا ہے۔

Page No. 37 Date :

قرۃ العین حیدر :-

جدید اردو ناول کے بنیاد گزاروں میں ایک اہم نام قرۃ العین حیدر کا بھی ہے انہوں نے اردو ناول کو ایک نئی سمت عطا کی اسے پڑھنے سے زیادہ محسوس کرنے کی چیز بنا دیا۔ ان کے ناولوں میں یہ بتایا گیا ہے کہ زندگی ٹھہرتی نہیں اور یہ کہ وقت کے بہاؤ کے ساتھ سب کچھ بدلتا ہے اور وقت ایک ایسی طاقت ہے جس کے آگے انسان بالکل بے بس ہے۔

شعور کی رو سے ناول میں بہت کام لیا گیا اور اس ضمن میں قرۃ العین حیدر کا کارنامہ ناقابل فراموش ہے۔ وہ سیمی کینوس حیدر کا اردو کے باقی تمام فنکاروں سے ممتاز کرتا ہے۔ بلکہ اس محفل میں وہ جیمس جوائس اور ورجینا وولف کو بھی بہت پیچھے چھوڑ جاتی ہیں۔ ان کے مشہور ناولوں کے نام اس طرح ہیں۔

میرے بھی صنم خانے ② سفینہ غم دل
چائے کے باغ ④ آخری شب کے ہم سفر
آگ کا دریا ⑤ چاندنی بیگم
کار جہاں دراز ہے ⑦ گردش رنگ چمن

عزیز احمد نے ناول نگاری کو فروغ دینے میں نمایاں خدمات انجام دی ہیں۔ انھوں نے جنسی حقائق کے بیان میں بے باکی سے کام لیا ہے۔ ذیل میں ان کے تخلیق کردہ ناولوں کے نام درج ہیں۔

ایسی بلندی ایسی پستی ② تبصرہ
③ گریز ④ آگ ⑤ ہوس

اردو ناول کو فروغ دینے میں منشی سجاد حسین کا نام بھی اہمیت کا حامل ہے انہوں نے رودھ پلنے رسالے کے ذریعے کامیاب ناول تخلیق کیے ہیں۔ ذیل میں ان کے ناولوں کے نام درج ہیں۔

① حاجی بغلول ② احمق الدین ③ کایا پلٹ
④ ہمقی حجری

عبدالحلیم شرر کے ناول کے نام ذیل میں

① انگریزی ناولوں کا ترجمہ ② سرتوشت ③ شباب کرد ④ سوداگر
⑤ سجاد نجیب کا تاریخی ناول
⑥ ان کی ایک شام وغیرہ

اس کے 2 صاحبزادے ابرحسین نے دو
ناول لکھے ہیں ① غزالہ ② آتش
خاموش وغیرہ

قاضی عبدالستار نے رومانی تاریخی
اور ادبی کئی ناول لکھے ہیں۔ ان ناولوں
میں سرمایہ داروں پر تنقید اور
سیاسی ہی ان کی مظلومی و غروی کی
طرف اشارہ کیا گیا ہے۔ ان کے تحریر
کردہ ناولوں کے نام ذیل میں
درج ہیں۔

① شب گزیدہ ② پیلا اور آتش
دار الشکوہ ③ غالب
④ صلاح الدین ایوبی

دور حاضر میں اردو ناول نگاری
کی دنیا میں بہت سے نئے ناول
نگار اپنے سرسامنے آتے ہیں ان میں
جمیلہ ہاشمی، عبداللہ حسین، انتظار
حسین، ممتاز مفتی، قدیجہ مسعود،
بانو قدسیہ، عبداللہ حسین اور ساجدہ
زیدی وغیرہ قابل ذکر ہیں۔
ان سے لوگ اردو ناول نگاری میں ہیں۔

TOPIC

Date: / /

Page No.:

College Name:- U.E.S. Mahila Maha Vidyalaya Solapur

Name:- Pathan Muskan Ishrat

Subject:- Urdu Paper XVI

Semester:- VI

Roll No:- 3058

Project Name:- Novel Ziddi ka Khususi Mutalea

TOPIC

Date: / /

Page No.:

SR.NO	TOPIC	PageNO	Sign
1)	Ismat Chughtai ka Mukhtasar Taruf	1 to 2	
2)	Novel Ziddi Ka Khususi Mutalea	3 to 5	
3)	Novel Ziddi Ka Tangeedi Jaeza	6 to 9	
4)	Novel Ziddi Ka plot	10	
5)	Novel Ziddi ki Kirdar Nigari	11	
6)	Novel Ziddi ki Maksadiat Nigari		

TOPIC

Date: / /
Page No.: 1

* عصمت چغتائی کا مختصر تعارف :-

عصمت چغتائی کی ابتدائی زندگی کا آغاز ترقی پسند تحریک کے عروج کے زمانے میں ہوا۔ عصمت چغتائی بدایوں میں 21 اگست 1915ء میں پیدا ہوئیں۔ عصمت کے والد کا نام مرزا قسیم بیگ تھا۔ اور والدہ کا نام نفرت خانم تھا۔ عصمت کے والدین کی بارہ اولاد ہوئی تھیں۔ جن میں دو کا انتقال بچپن ہی میں ہوگیا تھا۔ عصمت دسویں اولاد تھیں عصمت کی شادی 2 مئی 1942 کو شاہد لطیف سے ہوئی تھی۔ جن سے دو بیٹیاں سیما اور منی پیدا ہوئی تھیں۔

عصمت چغتائی کو روسی ناول اور افسانے سے گہری دل چسپی رہی ہے۔ عصمت چغتائی کا محبوب افسانہ نگار چیخوف تھا۔ عصمت چغتائی ہندوستانی ادیبوں میں پریم چند، رشید جہاں اقبال اور ٹیگور سے بے حد متاثر تھیں۔ عصمت چغتائی نے اپنی ادبی زندگی کا آغاز ڈراما نگاری سے کیا۔ ان کی پہلی تحریر ان کا پہلا ڈراما فسادی ہے۔ جو 1938 میں "ساقی" میں شائع ہوا تھا۔ عصمت چغتائی نے فلموں کی کہانیاں بھی تحریر کی ہے۔ انھیں "گرم ہوا" کی کہانی لکھنے پر بہترین کہانی کا

TOPIC

Date: / /

Page No.: 3

* ناول ضدی کا خصوصی مطالعہ:-

عصمت نے ناول نگاری کا آغاز 'ضدی' 1941 سے کیا۔ یہ ایک فلمی انداز کی رومانی کہانی ہے۔ کہانی کے ہیرو پورن کا تعلق امیر طبقے سے ہے۔ جب کہ ہیروئن آشا ایک غریب لڑکی ہے۔ دونوں کی عشقیہ داستان موت کے المیہ پر ختم ہوتی ہے۔ جس کی تفصیل اس طرح ہے:

"پورن راجہ صاحب کا چھوٹا بیٹا ہے۔ آشا راجا صاحب کی نوکرانی کی اکلوتی نواسی ہے۔ نوکرانی مرتے وقت آشا کو دوسرے راجہ صاحب کی سرپرستی میں دے دیتی ہے۔ وہ خاندان کے دوسرے افراد کے ساتھ راجہ صاحب کے گھر میں پروان چڑھتی ہے۔ پورن شروع سے ہی آشا میں دلچسپی لیتا ہے۔ اور ایک دن کہتا ہے۔ کہ پورن آشا کے ساتھ شادی کرنے کا ارادہ کرتا ہے۔ آشا کے خاندان کو مدنظر رکھتے ہوئے یہ ممکن نہیں کہ پورن کے گھر والے اس کو مسرت کے ساتھ سنیں۔ اور قبول کریں۔ پہلے تو اس خبر کو سنجیدگی سے نہیں لیا جاتا۔ لیکن جب گھر والوں کو یہ اندازہ ہو جاتا ہے۔ کہ معاملہ سنگین ہے تو یہ لوگ آشا کو پورن کی

کی بڑی بہن کے سسرال میں بھیج دیتے ہیں۔ لیکن پورن سے یہ بات راز رکھی جاتی ہے۔ کچھ دنوں کے بعد اشا کے گاؤں میں طاعون کی وباء پھیلتی ہے۔ جس میں بہت سارے لوگ مرتے ہیں۔ وبا کا بہانہ بنا کر پورن کے گھر والے یہ مشہور کر دیتے ہیں کہ اشا طاعون میں مر گئی۔ تاکہ پورن کے دل سے اشا کی محبت اور اس کی یاد رفتہ رفتہ ختم ہو جائے۔ ایک عرصہ گزرنے کے بعد پورن کی شادی اس کی بہن کی نند شانتا سے طے کر دی جاتی ہے۔ شادی کے دن جب پھیرے کی رسم ادا ہو جاتی ہے۔ تو عین اسی منڈپ میں بجلی کے ذریعے آگ لگ جاتی ہے۔ پورن اپنی بیوی کو بچانے کی کوشش میں اسے لے کر بھاگتا ہے۔ کہ اچانک اس کی نظر اشا پر پڑتی ہے۔ پہلے تو اسے یقین ہی نہیں آتا کہ یہ اشا ہے یا اس کی روح۔ اس لیے کہ اشا تو پورن کے لیے عرصہ پہلے مر چکی تھی۔ پورن اپنی بیوی کو چھوڑ کر اشا کے ساتھ بھاگ نکلنے کی کوشش کرتا ہے۔ کہ اس کے گھر والے اشا کو دوبارہ وہاں سے غائب کر دیتے ہیں۔ ناچار پورن اپنی نئی دلہن کے ساتھ اپنے گھر آتا ہے۔ لیکن وہ

TOPIC

Date: / /

Page No.: 6

نگاری زوروں پر تھی۔ واقعات کے تانے بانے خواہ رومانی کیوں نہ ہوں۔ لیکن پیش کش میں اس بات کا خیال رکھا جاتا تھا۔ کہ ادب میں دو طبقوں کی کش مکش کو پیش کیا جائے۔ ناول پڑھتے ہوئے شروع میں بظاہر ایسا محسوس ہوتا ہے۔ کہ عصمت بھی اس طبقاتی کش مکش کو پیش کرنے والی ہیں۔ لیکن چند صفحات کے بعد ہی یہ اندازہ ہوتا ہے۔ کہ یہ ایک ہلکا پھلکا رومانی ناول ہے۔

ناول فسادی کا تنقیدی جائزہ

عصمت چغتائی نے سماج کی بے جا رسومات پر اپنی ناول "فسادی" لکھی ہے۔ اس ناول میں انھوں نے چند کرداروں کے ذریعے سماج کی عکاسی کی ہے۔ فسادی ناول میں لچھمن اور اشا کی رسم و رواجی محبت کو دیکھایا گیا ہے۔ اور کس طرح سے اعلیٰ طبقہ کے لوگ ادنیٰ طبقہ کے لوگوں کو اپنے سے الگ اور نیچا سمجھتے ہے۔ اس بات پر روشنی ڈالی ہے۔ اس ناول سے عصمت چغتائی کا مقصد ہے۔ کہ جس طرح دو طبقوں کے

کے بیچ جو مسئلہ درپیش ہوتا ہے۔ اس کو اُجاگر کیا ہے۔

ناول پڑھتے ہوئے شروع میں ایسا ظاہر ایسا محسوس ہوتا ہے۔ کہ عصمت بھی اس طبقاتی کش مکش کو پیش کرنے والی ہیں۔ لیکن چند صفحات کے بعد ہی یہ اندازہ ہوتا ہے کہ یہ ایک ہلکا پھلکا ناول ہے۔ جس میں دو طبقے کی محبت کو دُنیا میں یکجا کرنے کی کوشش کی گئی ہے۔ جب یہ دونوں خاندانی روایت کے سبب یکجا نہیں ہو پاتے تو بالآخر محبت پر قربان ہو جاتے ہیں۔ محبت کا یہ افلاطونی تصور ہے۔ جسے عصمت نے اس ناول کا موضوع بنایا ہے۔ یہ اور بات ہے کہ اس موضوع کو پیش کرتے ہوئے جا بجا معاشرے اور خاندان کی فرسودہ روایات پر طنز اور طبقاتی تقسیم کی موجودگی کا احساس ملتا ہے۔ کہ محبت کی ناکامی کے اسباب دراصل یہی عناصر ہیں۔

عصمت چغتائی کی تصانیف کے موضوع اس قدر انوکھے ہے۔ کہ ہر کوئی ان کی طرح نہیں سوچ سکتا ہے۔ وہ کہتی ہیں کہ جب میرا لکھنا غلط ہے۔ تو پھر یہ برائی سماج میں بھی تو پھیلی ہوئی ہے۔ اس لیے وہ اپنی تصانیف سے سماجی

مسئلوں کو پیش کرتی ہے۔ یہ بات سچ ہے کہ ان کی تصانیف پر عریانی فحاشی کا الزام لگایا گیا ہے۔ مگر عصمت پھر بھی پوری بے باکی سے لکھتی رہی۔

عصمت چغتائی کے متعلق مجنوں گورکھپوری کہتے ہیں۔ "ایسی بے تکان زبان مشکل ہی سے کسی کو نصیب ہوسکتی ہے۔ وہ الفاظ اور فقروں کو طرارے بھرتی ہیں۔

عصمت کے متعلق پطرس بخاری کا کہنا ہے کہ "وہ ٹھیٹ اُردو کے ایسے الفاظ کام میں لاتی ہیں۔ جو ۲۰ ج تک پردے سے باہر نہ نکلے تھے۔ اور جن کو اب انھوں نے نئے مطالب کے اظہار کے قابل بنا دیا ہے۔

عصمت سے متعلق سعادت حسن منٹو کا خیال ہے کہ "عصمت پرلے درجے کی ہٹ دھرم ہے۔ طبیعت میں ضد ہے۔ بالکل بچوں کی سی زندگی کہ کسی نظریے کو فطرت کے کسی قانون کو پہلے ہی سابقہ میں کبھی قبول نہیں کرے گی۔

عصمت انشاپرداز نہیں لیکن صاحب طرز ہیں۔ ان کا ناول اور افسانہ کے یہ موضوعوں ترین طرز ہے۔ اور اس میں ایسی دلکشی اور کشش ہے جس کا مقابلہ کوئی اور افسانہ نگار نہیں کر سکتا اس طرح عصمت کے متعلق خلیل الرحمٰن اعظمی کا خیال ہیں۔

TOPIC

Date: / /
Page No.: 10

ناول ندی کا پلاٹ

اس ناول کا پلاٹ بہت سیدھا سادہ اور منظم ہے۔ اس ناول کا پلاٹ حرکت والا ہے۔ اور اس میں کہیں الجھاؤ نہیں۔ عصمت چغتائی نے پلاٹ کی تنظیم میں یوں تو کوئی خاص اہتمام نہیں کیا وہ اپنے تجربات اور مشاہدات کو روانی کے ساتھ بیان کرتی چلی جاتی ہیں۔ ان کا طبقاتی مطالعہ بڑا گہرا ہیں۔ اس ناول میں انھوں نے سماج کی اونچ نیچ کے فرق کو واضح کرنے کی کوشش کی ہے۔ اور اس کو مٹانے کی کوشش کی ہے۔ سماج میں امیر و غریب کی کشمکش ابتدا سے ہیں۔ اس موضوع پر بے شمار کہانیاں لکھی جا چکی ہے۔ اس لیے ناول ندی کی کہانی میں کوئی نیا پن نہیں۔ لیکن عصمت چغتائی نے اپنے منفرد انداز بیان سے اس کو دلچسپ بنا دیا ہے۔ اس ناول میں وہی کشمکش ملتی ہے۔ بلکہ اونچے طبقے کا نوجوان ایک غریب لڑکی سے محبت کر بیٹھتا ہے۔ اور اسے پانے کی راہیں تلاش کرتا ہے۔ لیکن ناکام ہوتا ہے۔ اس کی محبت کا انجام بڑا دردناک ہوتا ہے۔ ایک سجیلا نوجوان محبت کی بھٹی میں تڑپ کر راکھ کا ڈھانچا بن جاتا ہے۔ یہ ناول موضوع کے اعتبار سے کمزور ہے۔ لیکن فن کے اعتبار سے بہترین کامیاب ناول ہے

TOPIC

Date: / /
Page No.: 11

ناول فندی کی کردار نگاری

ناول فندی میں جو کردار ہے۔ اُسے سماج میں موجود حقیقی کرداروں جیسے ہوبہو بیان کرتی ہے۔ ناول کے اجزائے ترکیبی میں کردار نگاری کی بڑی اہمیت ہوتی ہے۔ ناول میں کردار جتنے مضبوط ہوگئے کہانی اُتنی ہی اُبھر کر سامنے آئے گی۔ اگر کہانی کمزور ہو تو جاندار کردار اس میں دلچسپی پیدا کر دیتے ہیں۔ ناول میں ہر کردار کا بڑی اہمیت ہوتی ہے۔ کرداروں کا زندہ اور متحرک ہونا بہت ضروری ہوتا ہے۔ ناول فندی ایک طنزیہ ناول ہے۔ اس کے کردار بڑے جاندار ہیں۔ عصمت چغتائی نے اس ناول میں بڑی کامیاب کردار نگاری کی ہے۔ اس کے سب کردار جاندار ہے۔ خاص کر مرکزی کردار پورن اور بشا کے کردار انہوں نے بڑی فنکاری کے ساتھ پیش کئے ہیں۔ پورن کا کردار ایک ایسے باغی نوجوان کا کردار ہیں جو کھل کر بغاوت نہیں کرتا۔ بشا کا کردار ایک ڈری ہوئی سہمی سہمی سی غریب لڑکی کا کردار ہے۔ وہ پورن کو دل و جان سے چاہتی ہے۔ لیکن اپنی حیثیت بھی اچھی طرح جانتی ہے۔ اس لیے اظہار محبت نہیں کرتی۔ اس ناول کے تمام کردار عام ہوتے ہوئے بھی اپنی اپنی طرح کی بھرپور ترجمانی کرتے ہیں۔

Topic .....

Date .....

U.E.S. Mahila Mahavidyalya
Solapur.

Name :=> Kosgi Bushra Abdul Qadar

Subject :=> Urdu paper XVI Project

Class :=> B.A. III year

Semester :=> VI

Roll No :=> 3059

GPM

Topic .....

Date .....

INDEX

GPM

Topic

Date

صحافت کی تعریف :-

صحافت عربی زبان کے لفظ "صحف" سے ماخوذ ہے۔ جسے لغوی معنی کتاب، رسالہ یا صفحے کے ہیں، انگریزی زبان میں اس کا متبادل لفظ جرنلزم ہے جو کہ جرنل سے ماخوذ ہے جس کے لغوی معنی روز کے حساب کا بہی کھاتا یا روزنامچہ کے ہیں۔ اگر زمانہ قدیم میں دیکھا جائے تو صحیف یعنی صحیفہ مقدس مختلف پیغامات کے مجموعوں کی جامیں تھی ان مقدس کتاب یا آسمانی صحیفے کے قلمی نسخے تیار کرنے والے صحافی کہلاتے تھے، زبان و مکان کی تبدیلی کے ساتھ ساتھ ان میں تبدیلیاں واقع ہوتیں گئیں اور علمی، ادبی اور فلسفانہ مختلف میں بھی صحافت کے زمرے میں آنے لگیں۔

پریس کی ایجاد کے بعد جرنلزم نے خوب فروغ پایا۔ جبکہ اگر ہم چند صدی پیچھے جائیں تو تب بھی پتا چلتا ہے کہ بادشاہ وقت اپنے پیغامات لوگوں تک پہنچانے کے لئے ڈھول بجا کر منادی کرا تے تھے تاکہ عوام کا جم غفیر جمع ہو کر بادشاہ وقت کی جانب سے جاری کردہ نیا فرمان سنا سکیں وغیرہ۔

Topic .....

Date .....

2

صحافت کی تاریخ

ہندوستان میں صحافت کا باقاعدہ آغاز 29 جنوری 1780 کو کلکتہ سے جیمس آگسٹس ہکی James Augustas hoke. سے انگریزی زبان کے ہفت روزہ گزٹ یا کلکتہ جنرل ایڈورٹائزر Advertiزر سے ہوا، اردو صحافت کے ابتدائی زمانہ میں اخبار روزنامہ نہیں ہوتے تھے بلکہ ہفت روزہ یا پندرہ روزہ تھے۔ ان اخبارات میں جو چیزیں شائع ہوتی تھیں۔ وہ انگریزی اخبار سے لی جاتی تھیں۔ اس کے علاوہ دیسی ریاستوں سے قلمی اخباروں سے بھی انھیں حالات اور واقعات مل جاتے تھے دو تین سطروں کا اضافہ ہوتا تھا۔ خبروں کو علیحدہ کرکے اداریہ یا اداراتی نوٹ لکھنے کا رواج نہ تھا۔ اردو صحافت کا آغاز 1822 میں کلکتہ سے ہوا۔ صحافت کو تین ادوار میں منقسم کیا جاتا ہے۔

پہلا دور :- 1822 سے 1857

دوسرا دور :- 1857 سے 1947

تیسرا دور :- 1947 سے تاحال

پہلا دور :-

جام جہاں نما اردو کا پہلا ہفت روزہ اخبار تھا۔ جو ایسٹ انڈیا کمپنی سے ایک لفظی معاملتوں کے تحت نکلتا تھا۔ یہ اخبار کبھی اردو میں نکلتا تھا۔ کبھی فارسی اور کبھی اردو فارسی دونوں ایڈیشن میں نکلتا تھا۔ ابتدا میں اردو اخباروں کی اشاعت بہت ہی کم تھی۔ لیکن اس کے باوجود تنظیم اسے نکالتے رہے۔

اسی دور کے اخباروں کی خصوصیت یہ بھی کہ زیادہ تر

Topic .....

Date .....

4

دوپہر کا سورج ہو کر نکلی۔

دوسرا دور :- 1947ء سے 1857ء

غدر کے طوفان کے بعد بہت سے اردو اخبار بند ہو گئے جو بچے ان میں سلسلہ ذکر کو دو نور ہے اس اخبار سے پہلے ایڈیٹر ملسی لہرسکول لال تھے۔ جنھوں نے کوہ نور سے الگ ہو کر ایک اور آزاد پیپر اخبار نکالا تھا۔ اور انگریزوں کی مخالفت کی وجہ سے پکڑ لیے بھی گئے تھے۔ اس اخبار کے دیگر ایڈیٹروں میں اہم ایڈیٹر منشی نول کشور تھے جنہوں نے لیتھو مشین تو لکھنؤ سے اودھ اخبار جاری کیا تھا۔

"کوہ نور" کی سب اہم خصوصیت یہ ہے کہ اس نے غدر کے زمانے میں انگریزوں کی حمایت تو کی مگر اس کے ذریعہ انگریزوں اور ہندوستانیوں میں ہونے والے مشرقی مغربی آزادی کی سیلز دھلز، املاک کی ضبطی مقدمات و عبرتی کی خبریں بڑے تفصیل سے شائع ہوتی ہوئی۔ جو غدر کے بعد کی تاریخ کا ایک بڑا سرچشمہ ہے۔

خان بہادر کید الدین نے اردو کا پہلا روزنامہ "اردو گائیڈ" کے نام سے نکالا یہ اخبار بھی انگریزوں کا خوش آمدی تھا۔ صحافت کے رموز و نکات سیکھنے واقف ہونے کے لیے سید نے کاسنز کیا۔ اور ایک مکمل اخبار "پیسہ" کے نام سے نکالا ہندوستانیوں کی اصلاح اپنے سر لیا۔ بھی تہذیب الاخلاق جاری کیا۔

20 ویں صدی میں ہندوستان میں زبردست انقلاب رونما ہوا۔ ان دنوں اردو اخباروں کی اشاعت کافی بڑھ گئی تھی۔ یہ اردو صحافت کا سنہری دور ہے۔ 1903ء میں مولانا حسرت موہانی نے علی گڑھ سے اردو معلی جاری کیا۔ ان سے متعلق یہ کہا جاتا

GPM

Topic .....

Date .....

5

کے لیے آزادی کی جاوجہد میں انقلاب زندہ باد کا نعرہ حسرت کی زندہ جاوید یادگار ہے۔

کوہ نور اور اردو گائیڈ انگریزوں کے حمایتی اخبار سن کوہ نور اخبار کی خصوصیت ہے کہ اس نے غدر کے زمانے کے واقعات کا کوئی بدلا نقطہ پیش کیا ہے۔

مولانا ابوالکلام آزاد کے اخبار الہلال اور البلاغ اردو صحافت میں ایک منفرد مقام رکھتے تھے۔ مولانا ظفر علی کا اخبار زمیندار (لاہور) اور مولانا محمد علی جوہر کا اخبار ہمدرد آزادی کی تحریک کے زبردست حمایتی تھے۔ مولانا شوکت علی نے عنی نیلے "خلافت" خبار کیا جو بعد میں مسلم لیگ کا حامی بن گیا۔

حرفہ پرستی کا نگری سے ہمدردی کرنے والے اخباروں میں جیہ جو فوجی تھے۔ ان کا اخبار سیاست اور عبدالرزاق کا "روزانہ" شہرت رکھتے تھے۔ آزادی کی حمایت میں نکلنے والے دیگر اخباروں میں آدی کا قومی آواز ہے دوسری جنگ عظیم کے دوران دہلی سے جنگ اور انجام اور لاہور سے امنات جیسے اخبار جاری ہوئے جن میں دہلی کے اخبار تقسیم کے بعد پاکستان منتقل ہوئے۔

تیسرا دور :- 1947 سے تا حال

تقسیم کا اردو صحافت پر بہت گہرا اثر ہوا ہے۔ تقسیم کے بعد ملاپ اور پرتاپ دہلی سے شائع ہوئے پوسیس اسکیشن کے بعد حیدرآباد سے منصف اور سیاست اسٹاد شائع ہوئے۔ اور امروز کنیا نے دکن میں منتقل ہوا۔ ممبئی سے انقلاب کے ساتھ ساتھ ہفتہ روزہ بلٹز بھی سلسلہ نکلتا ہے۔ کلویال پٹنہ سری نگر و غیرہ ہر جگہ سے آج بھی اردو اخبار نکلتے ہیں۔ کلکتہ سے آزاد ہند بنگلور سے ہفت روزہ نشیمن نکلتا ہے۔ لیکن چونکہ اردو تمام صوبوں میں سرکاری

GPM

Topic .....

Date .....

زبانیں ہے۔ اسلیے تقسیم کے بعد اردو صحافت سی مشکلات و مسائل سے دوچار ہے۔ اور ۲ فیصدی سے اردو اخباروں کی کوئی خانہ ۵ جماعت بھی ہیں۔ جو ان مسائل کو حل کر سکے۔

Topic .....

Date .....

8

• ذاتی تعلق :-

ایک اوسط قاری ایک باپ ہے ایک کسان ہے۔ ایک زمیندار ہے یا ایک تاجر ہے وہ کوئی مکان یا زمین خریدنا یا کرایہ پر لینا چاہتا ہے وہ کسی اچھے سیاحی مقام کا ہے جہاں وہ اپنی آئندہ تعطیل زیادہ راحت یا فرصت سے گزار سکے لہذا اگر کسی بھی شادی یا بچوں کی تقریب کی تفصیل ہے تو قاری دلچسپی ہوگی۔ وہ زمینات یا دیگر جائداد کے اترتے یا چڑھتے ہوئے داموں سے دلچسپی رکھتا ہے۔ وہ نئے ملازمت کے بارے میں واقفیت کا خواہاں ہے۔ وہ ازالہ دیشاء یا بہترین اشیاء کی تلاش میں ہے۔ بہر حال وہ ایسی نئی باتوں کی کا جنی چاہتا ہے۔ جس سے اس کا ذاتی تعلق ہے۔ ظاہر ہے کہ ہر شخص ایسی ہی تفصیلات کا طالب ہے۔ جس میں اس کی ذاتی دلچسپی لگی بندھی ہو ایسی خبروں پر زیادہ توجہ دیتا ہے جس سے اس کی ایسی معلومات میں اضافہ ہو رہا ہے جس سے اس کی روزمرہ زندگی کا قریبی اور ضروری تعلق ہے۔

• مقامی خبر :-

ہر انسان اپنے قریب ترین ماحول سے زیادہ وابستگی رکھتا ہے۔ اس کی اپنی گلی میں کسی کی موت کی خبر اسے دور دراز مقامات میں یکلخت پانچ آدمیوں کے ہلاک ہونے کی خبر سے زیادہ اہم اور دلچسپ محسوس ہوگی۔ اخبار کا قاری نزدیکی کے حالات اور واقعات سے زیادہ باخبر رہنا پسند کرتا ہے اس لیے ہر چھوٹے بڑے اخبار میں مقامی خبروں کو زیادہ تر جگہ دی جاتی ہے۔ مقامی قانون ساز اداروں، میونسپلٹیوں اور تازہ حلقہ بندی کی بھی اخبار بین کی دلچسپی کا باعث رکھتا ہے اخبار کو پیش کرنا فرض ہے۔

• روپیہ پیسہ :-

دولت یا زر یا روپیہ پیسے کی اہمیت سے ہر کوئی بخوبی واقف ہے۔ شاید ہی عصری دنیا کا کوئی انسان ایسا ہو جسے

- **جنس :-**

جنس یعنی سیکس SEX انسانی اور حیوانی زندگی کی سب سے بڑی محرک قوت ہے۔ یہ ایک جسمانی ہی نہیں بلکہ ذہنی مشغولیت بھی ہے بیشتر انسان جنسی خیالات میں محو رہتے ہیں۔ اعلیٰ سوسائٹی میں جنسی معاملات پر آزادانہ خیال بھی معیوب نہیں سمجھا جاتا ہے۔ آج کل تعلیمی اداروں میں طلبہ اور طالبات کو باضابطہ جنسی تعلیم دینے کی ضرورت اور اہمیت پر زور دیا جا رہا ہے۔ ہیجان انگیزی کے لیے عامیانہ اخبارات اور رسائل نیم عریاں تصاویر کو ترجیح دیتے ہیں۔ محبت اور رومان بھرے افسانوں کو مسلسل جگہ دی جاتی ہے۔ شادی اور طلاق کی خبروں میں بھی جنسی تفصیلات میں یکساں دلچسپی رکھتے ہیں۔ جہاں جنس کا تذکرہ ہو وہ خبر کامیاب ہونا اور غالب سمجھی جاتی ہے۔

- **مقابلہ :-**

لڑائی جھگڑے جنگ و جدال، تصادم ٹکراؤ و مقابلہ کثیر خبری توانائی کے حامل ہیں۔ پلو معرکہ و افراد مساوات کی سیاسی تحقیق / منقلا سلیٹ بغاوت، انتخابات سیاسی کشمکش، کرکٹ جیسے کھیلوں میں رسہ کشی یا مقابلہ آرائی بے شمار ہے۔ وہاں کے حالات میں عسکری شدت ہوا کرتی ہے۔ یہ بالکل صحیح ہے کہ جنگ کے زمانے میں اخبارات کی اشاعت اور عام اخبار بینی بہت زیادہ بڑھ جاتی ہے۔ یہ انسانی خاصہ ہے کہ وہ مقابلہ، طاقت آزمائی اور ہر قسم کے مقابلوں میں ہمیشہ دلچسپی لیتا رہا ہے۔

- **مذہب :-**

جہاں احساسات، خوف اور ضمیر ملوث ہوں خبر زوردار ہو جاتی ہے۔ انسان اگرچہ ہزار سیکولر مگر مذہب کے نام پر برہم ہو جاتا ہے۔ ایسے میں اگر سر پے کفن باندھنے پر آمادہ ہو جاتا ہے۔ مذہب کے نام پر جھگڑے بھی بڑی آسانی سے کھڑے کیے جا سکتے ہیں یہ ایک نازک مسئلہ ہے مگر

Topic

Date

اخبار والوں کو مذہبی امور کی جانب تھوڑی بہت توجہ ضرور دینی ہوتی ہے۔ بلکہ یہ کہنا بھی ٹھیک ہے کہ ایک عالم بھی مذہبی خبروں سے کبھی نہ کبھی دلچسپی ضرور لے گا۔ مذاہب سے متعلق ہر قدیم اور یہ تقریباً میں خبری پہلو غالباً رہتا ہے۔

- **آفات اور سانحات:-**

جب کسی اور پر نئی مصیبت ٹوٹتی ہے تو ہر انسان اپنے آپ سے یہ سوال کر لیتا ہے کہ اگر ایسی مصیبت مجھ پر آن پڑی تو کیا چاہئے تو نہیں کہ انھیں مصائب کا سامنا ہو۔ ہر اس دنیا میں طرح طرح کی مصیبتیں رونما ہوتی رہتی ہیں۔ بس، ریلوے اور ہوائی جہاز کے حادثات ہوتے رہتے ہیں۔ قارئین کبھی بھی افسوس ناک واقعہ کی جملہ تفصیلات جاننے کی خواہش رکھتے ہیں۔

- **مزاح:-**

طنز کی لطیف چٹکیاں اور مزاح کی گدگدیاں خبر کو رنگ اور شگفتگی بخشتی ہیں۔ خبروں کے ذریعے مزاح، ادب اور زندگی کے مختلف متوازن گوشوں کی نقاب کشائی ممکن ہے جس سے بھی حاصل ہوتی ہیں۔ جن میں سنسنی اور ڈرامہ کا حسین امتزاج ہے۔ ظرافت میں بھی مقدمہ بن کا ایک عمدہ پہلو ہوا کرتا ہے جو ایک ہی سی خبروں سے بور ہیت محسوس کرتے ہیں۔ ایسی سنجیدہ خبروں سے مزور لطف اندوز ہوں گے جس میں خوشی فہمی کی گنجائش ہو۔ تفریح آمیز یا فہمہ انگیز تفصیلات سے خبر کو جلا بخشی جا سکتی ہے۔ ہلکی پھلکی خبروں کو اکثر چوکھٹوں یعنی باکس میں شائع کیا جاتا ہے۔ قارئین کی تفریح طبع کے لیے اخبارات تصویروں، چٹکلوں، مکالمہ کالموں، گفتگوؤں، دلچسپ اقتباسات اور کارٹونوں سے بھی کام لیتے ہیں۔ سنجیدہ اخبارات بھی معیاری طنز و مزاح اور بذلہ سنج مواد کو ترجیح دیتے ہیں۔

Page No. Date :

U.E.S. Mahila Mahavidhyaly
Solapur.

Name :- Shaikh Tanzila Salim.

Roll No :- 3061

Class :- B.A IIIrd year Sem :- VI

Subject :- Urdu XIII Project

(Zarae Iblag)

Date / /20

Page:

Index (فہرست)

Sign:

اداریہ

★ اداریہ کی اہمیت و اقسام

Q اداریہ نویسی یا اداریہ نگاری کی تعریف اور اہمیت بیان کرتے ہوئے اداریہ کے مختلف اقسام پر روشنی ڈالیئے۔

اداریہ وہ مضمون ہے۔ جس میں کسی بھی اخبار یا رسالہ کے مدیر کی کسی اہم معاملے پر رسالے شائع ہوتی ہے۔ یہ رائے مدیر کے علاوہ اخبار کے ناشران اور مالکان کی بھی ہو سکتی ہے اداریہ کسی اہم وقعے کی تشریح اور تقسیم کا نام ہے۔ جس صفحے پر اداریہ شائع ہوتا ہے۔ اسے اداریتی صفحہ کہا جاتا ہے۔ اداریہ کسی بھی اخبار کا ضمیر کہلاتا ہے۔ اداریہ میں اہم خبروں کا تجزیہ ہوتا ہے۔ اور کئی معاملات توضیح ہوتی ہے۔ کئی مسائل پر روشنی ڈالی جاتی ہے۔ اداریہ حالات و واقعات کا آئینہ ہوتا ہے۔ قاری کے لئے ضروری نہیں ہے۔ کہ وہ مدیر کی رائے سے متفق ہو جائے لیکن عام طور پر ہر قاری یہ سمجھتا ہے۔ کہ اخبار کا مدیر دانش ور ہوتا ہے۔ عالی دنیا کا اور اگر وہ کسی مسئلے پر براجمان و مشورہ دے رہا ہے۔ تو وہ کسی بناء پر دے رہا ہے۔

اور اسے اپنی ذمہ داری کا پورا پورا احساس ہے۔

اداریہ میں وہی بات کہی جاتی ہے جو عام لوگ کہتے ہیں۔ مگر وہی بات اداریہ میں اچھوتے انداز میں بہتر الفاظ، ادبی ہنر اور اختصار کے ساتھ بیان کی جاتی ہے۔

اداریہ غور و فکر کے بعد پوری ذمہ داری اور احساس کے ساتھ قلم بند کیا جاتا ہے۔ اداریہ میں عدی حالات کے رخ کو موڑنے کی مخفی اور بے پناہ قوت موجود ہوتی ہے۔ کہ اخبارات کے اداریوں کی وجہ سے کئی سلطنتیں تہہ و بالا ہوئی ہیں۔ کئی وزارتوں کو مستعفی ہونا پڑا ہے۔ اداریہ نگاری نے کئی مشاہیر کی قسمیں بنائی ہیں۔ اور بگاڑی بھی ہے۔ اداریہ سے تقدیریں بنتی اور اداریہ ایک معلوماتی حقائق پر مبنی رہنمائی خطبہ ہوتا ہے جو بخاطبانہ طور پر ہزاروں سامعین کو بنایا جاتا ہے۔

اداریہ کئی سوالات کا جواب ہوتا ہے۔ جستجو کرنے والی عوام کے لیے ایک [illegible] ہے۔ اداریہ پڑھ کر ذہن

پر چھائے ہوئے جانے جاتے
ہیں۔ یہ کم علم کو علم بخشتا ہے۔
تاریکی میں ٹھوکر والے کو فوری
روشنی عطا کرتا ہے۔ کبھی اس بات
پر عمل ہوتا ہے اور کبھی کسی اقدام کو
خراج تحسین پیش کیا جاتا ہے اگر
کوئی مضر بہ ملک و ملت کے لئے خطرناک نظر آئے تو اس کی بھرپور مزمت
ہو سکتی ہے۔ اداریہ میں کسی بھی بات
کا مطالعہ کیا جا سکتا ہے۔ کئی اقدام پر اہم
سوالات کی بوچھار ہو سکتی ہے۔ کسی
خاص عملی رویہ کی شنوائی کی جا
سکتی ہے۔ اور تمام جائزہ مطالبات کئے
جا سکتے ہیں۔ اداریہ کسی بھی تازہ
سرکاری اور نیم سرکاری فیصلہ ملک
کی سیاسی و سماجی زندگی پر اثر انداز
ہونے والے پہلوؤں کو اجاگر کر سکتا
ہے۔ اسی لئے تعلیم سے تاریخ دانشکدہ
کی نوعیت زیادہ محنت اور گہرائی
سے سیاق جان سکتے ہیں۔ حالات
حاضرہ کا گہرا مشاہدہ کرتے ہوئے
اور تاریخی پس منظر کی مدد لیتے
ہوئے حال کے تجزیے کی روشنی
میں وہ مستقبل کے فوائد یا نقصانات
کا بھی حساب کر سکتا ہے۔ لیکن یہ

کہ معاملہ کہاں تک پہنچا ہے۔
اداریہ اگر رگ اور فنی جانکارانہ ہوتا تو قاری کی نظر میں اخبار کی وقعت (اہمیت) گھٹ جائے گی۔ اخباراتی ادارے میں عموماً کوائے شامل کی نہیں جاتی ہے۔ یہ اداریہ سم و بیش ایک خبر ہی کی طرح ہوتے ہے مگر عام خبر میں اتنے نکات نہیں مل پاتے جتنے ایک اداریہ میں دیے جا سکتے ہیں۔

② متاثر کن اداریہ :-

وہ اداریہ خود قارئین پر اپنا اثر و رسوخ خانہ چاہتا ہے۔ اسے متاثر کن اداریے کہتے ہیں۔ جمہوری ممالک میں ہر شہری نہ صرف اپنی رائے رکھ سکتا ہے۔ بلکہ اسے اپنی رائے محاسن (احسن خوبیاں) دوسروں پر ظاہر کرنے کی اجازت بھی ہے۔
اداریہ اپنے دلائل کے ذریعے قاری کی رائے کو متاثر کرنے کی کوشش کر سکتا ہے۔ عام طور پر وہ اداریے زیادہ پسندیدہ نظر سے دیکھے جا سکتے ہیں۔ جن میں کسی تخلیقی ترکیب کو

تعریفی اداریے اور توصیفی اداریوں کی قدر کی جاتی ہے۔ اور استقامی جذبات کی تبلیغ کرنے والے اداریے بھی اچھی نظروں سے دیکھنے چاہیے۔

مستلفی (Logic) اداریہ میں یہ مطالعہ کیا جاتا ہے۔ کہ کسی اہم مسئلہ کو حل کرنے کے لیے کونسی تدبیریں اختیار کی جائیں۔ اس اداریے میں وہی لہجہ استعمال کیا جاتا ہے۔ جو عموماً بحث ومباحثوں میں اپنایا جاتا ہے۔ موثر ناطق استعمال کرکے بات منوانے کی کوشش کی جاتی ہے۔ مسئلہ کے تمام پہلوؤں کو نمایاں کرکے مطالعہ اور حل مسائل کی نشاندہی کی جاتی ہے۔ اس کے لیے اداریہ میں غیرہ ضروری ثبوت دینے ضرورت نہیں۔ مختار کن اداریہ لکھتے وقت اداریہ نگار کو چاہیے۔ کہ ایہام سے بچے اور مقدومہ باتوں سے اغتراز کریں خود بینی اور طفلی / تعلی سے ممکن حد تک پرہیز کرے۔

* پُر لطف اداریہ :-

جو اداریہ قارئین کو مخلوظ (خوش
کرے) کرتا ہے۔ اسے پُر لطف اداریہ
کہتے ہیں۔ ماہرین اپنے اخبارات
انسانی دلچسپی کی خبروں سے لطف
بناتے ہیں۔ کبھی کبھی انسانی دلچسپی
کے فیچر کے ذریعے اخبار کے صفحات
سجاتے ہیں۔ اور کبھی کبھی وہ اداریہ
میں بھی دل بہلانے کا استعمال کرتے
ہیں۔ معاشرے میں جب کوئی ایسا
واقعہ پیش آتا ہے۔ جس میں
انسانی دلچسپی کا عنصر غالب ہوتا
ہے۔ تو مدیر بھی ہلکے پھلکے انداز میں
اداریہ لکھتے ہیں۔ جس سے قارئین
کی تفریح ہو جائے ایسے اداریہ
میں طنز و مزاح چاشنی اور شبنم
ریزہ یا قہقہہ انگیز باتیں درج
کی جاتی ہے۔ پُر لطف اداریہ میں
انسانی روایت یا احساسات پر
ہلکی پھلکی بھی کی جاتی ہیں۔ اور کبھی
کبھی مزاق میں پتے کی باتیں
بھی کہہ دی جاتی ہیں۔ مثلاً کسی
چیز یا گھر میں آگ لگ، سانپ
نے حملہ کر کے کتال کر دی تھی تو ایک

TOPIC

Date: / /

Page No.:

U.E.S Mahila Mahavidhyaly, Solapur.

Name :- Shahbhai Nikbat Usman
Shahbhai Muskan Usman

Roll NO :- 3055 / 3054

Class :- B.A III year Sem :- VI

Subject : Urdu XIII Project
(Zorae Iblag)

U.E.S. Mahila Mahavidyalaya Solapur.

Vayu Diamond

TOPIC

Date: / /

Page No.: 1

{ Index }

SR.No	Topic	Page.No	Sign.
i)	Novel ki tarif	2-3	
ii)	Novel ke ajzea tarkibi.	4-10	
iii)	Novel ki mukhtalif aqsam.	10-16	

TOPIC

Date: / /

Page No.: 2

* اردو ناول کی تعریف، ناول کے اجزاے ترکیبی اور اقسام ہے۔

• ناول کی تعریف:-

ناول وہ نثری قصہ ہے جس میں ہماری زندگی کی جیتی جاگتی ہو بہو پیش کی جاتی ہے۔ ولادت سے موت تک انسان کے ساتھ جو معاملات پیش آتے ہیں۔ اسے ناول میں بیان کیا جاتا ہے روزمرہ زندگی کی حقیقت بیان کی جاتی ہے۔ مختصر یہ کہ ناول زندگی کی حقیقی تصویر پیش کرتا ہے۔ ناول ایک نثری قصہ ہے۔ جو کہ ایک پوری زندگی پر لکھا جاتا ہے۔ جس میں مختلف کردار ہوتے ہیں۔ اس کے عناصر ترکیبی میں ایک اچھی کہانی، پلاٹ، کردار، مکالمے، اسلوب اور موضوع وغیرہ وغیرہ شامل ہوتے ہیں۔

ادبی اصطلاح میں انسانی زندگی کے حالات و واقعات اور معاملات کا انتہائی گہرے اور مکمل مشاہدے کے بعد ایک خاص انداز میں ترتیب کے ساتھ کہانی کی شکل میں پیش کرنے کا نام ناول کی تعریف بنیادی زندگی کے حقائق بیان کرنا ہے۔ ناول ایک نثری قصے کا قصہ ہوتا ہے جس میں زندگی اور جزئیات، معاشرتی اور تمدنی

TOPIC

Date: / /

Page No.: 3

سرد و گرم کی ہوا نہیں سنائی دیتی ہیں۔ ناول زندگی کی مکمل تصویر ہے جس میں زندگی کے مختلف کرداروں کی مدد لی جاتی ہے۔ مختصر یہ کہ ناول ایک طویل نثری قصہ ہے۔ جس میں زندگی کی مکمل تصویر ہے۔ جس میں زندگی کے مختلف کرداروں کی مدد لی جاتی ہے۔ مختصر یہ کہ ناول ایک طویل نثری قصہ ہے۔ جس میں زندگی کے مختلف رنگ مربوط انداز میں پیش کئے جاتے ہیں۔ جس میں ہماری زندگی کا عکس نظر آتا ہے۔

ناول ایک جدید نثری صنف ادب ہے۔ داستان کا رواج ختم ہونے کے بعد ناول کو فروغ حاصل ہونے لگا۔ ناول میں حقیقی زندگی کی عکاسی کی جاتی ہے۔ جیتی جاگتی تصویر پیش کی جاتی ہے۔ مختصر یہ کہ ناول حقیقی دنیا سے متعارف کراتا ہے۔ ناول وہ نثری قصہ ہے جس میں ہماری زندگی کی تصویر ہو بہو پیش کی گئی ہو۔ پیدائش سے وفات تک انسان کے ساتھ جو معاملات پیش آتے ہیں۔ وہ سب ناول کا موضوع بنتے ہیں۔ ناول ایک ایسا آئینہ خانہ ہے۔ جس میں زندگی کے سارے روپ دیکھے جا سکتے ہیں۔ ایسی نثر کو ناول کہتے ہیں۔

TOPIC

Date: / /

Page No.: 5

11 قصہ (کہانی):-

ناول کا سب سے اہم جزو یا عنصر قصہ یا کہانی ہے۔ ناول کی بنیاد کسی نہ کسی قصے پر ہوتی ہے۔ جدید دور میں قصے سے بغاوت کی گئی اور کہا گیا کہ ناول کے لیے قصے کا ہونا ضروری نہیں۔ یہ خیال درست نہیں۔ ناول میں قصہ بلکہ قصہ پن نہ ہو تو اس میں دلچسپی بھی نہ رہے۔ ناول وجود میں بھی اس طرح آتا ہے کہ کوئی قصہ، کوئی واقعہ وجود میں آیا اور اسے لکھ دیا گیا۔ جو ناول پڑھتا ہے۔ اس کی ساری توجہ اسی پر لگی رہتی ہے کہ کیا ہوا اور آگے کو کیا ہونے والا ہے۔ ناول میں کہانی کو اساس اہمیت حاصل ہے۔ جسے فورسٹر نے ریڑھ کی ہڈی سے تعبیر کیا ہے۔ ایون ہیڈسن بھی یہی کہتا ہے کہ ناول چاہے۔ کچھ ہونا ہو لیکن کہانی ضرور ہو۔

12 پلاٹ:-

ناول میں ایک واقعات پیش آتے رہتے ہیں۔ جنھیں ناول نگار سلیقے کے ساتھ ایک لڑی میں پرو دیتا ہے۔ واقعات کی اسی لڑی کا نام پلاٹ ہے۔ واقعات کی ترتیب ایسی بے عیب ہونی چاہیے

TOPIC

Date: / /

Page No.: 7

کیونکہ اصل زندگی کے مختلف پہلو پیش کرتے ہیں۔ وہ پیچیدہ کہلاتے ہیں۔ جو زندگی کا صرف ایک رخ پیش کرتے ہیں۔ مثلاً اچھے ہیں تو اچھے اور برے ہیں تو سپاٹ کہلاتے ہیں۔ کیونکہ اصل زندگی میں انسان کے حالات کے مطابق تبدیل ہوتا رہتا ہے۔ مولوی نذیر احمد کے کردار مبتلا اور کلیم مرزا ہادی رسوا کے کردار امراؤ جان ادا اور گوہر مرزا پریم چند کے امر کانت اور بھولی وغیرہ جیتے جاگتے کردار ہیں۔

14 مکالمہ نگاری:-

مکالمہ بھی ناول کا اہم جزو ہے جو اسے ڈرامے سے ورثہ میں ملا ہے۔ اس کے ذریعے کردار کی خصوصیات نہایت دلچسپ طریقے سے ظاہر کی جا سکتی ہیں۔ اچھے مکالمہ لکھنا بھی ایک فن ہے۔ اچھا مکالمہ قصہ کو ایک روشنی بخشتا ہے۔ اور ڈرامائی قوت کو ظاہر کرتا ہے۔ ادبی ناول کا چوتھا اہم جزو ہے۔ جس کردار کو جس موقعہ پر جو بات کہنی چاہیے فن کار کے لئے ضروری ہے کہ اس کے منہ سے وہی بات ادا کرے۔ مطلب یہ کہ مکالمے ناول کے فنی حسن کو برباد کر دیتے ہیں۔ نذیر احمد، سرشار، رسوا اور پریم چند مکالمہ نگاری میں مہارت رکھتے ہیں۔

TOPIC

Date: / /

Page No.: 8

15 منظر نگاری :-

منظر نگاری ناول کو دلکش اور پرتا
ثیر بنا دیتی ہے۔ مطلب یہ کہ کسی مقام کا ذکر کیا
جا رہا ہے۔ یا کوئی واقعہ بیان کیا جا رہا ہے تو فن
کار اس کی تصویر کھینچ دے اور پڑھنے والے کو معلوم
ہو کہ خود جائے واردات پر موجود ہے اور سب کچھ
اپنی ہی آنکھوں سے دیکھ رہا ہے۔ گویا منظر نگاری بھی
منظر کا ہی ایک حصہ ہے۔ ناول نگار اپنے ماحول کو دو
طرح سامنے لاتا ہے۔ ایک یہ کہ وہ سماج کے نقشے یا مرد عورت
گلیوں، سڑکوں وغیرہ کی حالت پیش کرتا ہے۔ دوسرے
یہ کہ وہ مناظر قدرت کو پیش کرتا ہے۔ جن میں اور
جنگلوں، پہاڑوں، دریاؤں وغیرہ کی تصویریں ہمارے
سامنے لائی جاتی ہیں۔ منظر کشی کے نقطہ نظر سے امراؤ
جان ادا ایک کامیاب ناول ہے۔

16 زمان و مکان :-

ناول میں زمان و مکان کو تصویر
واقعات، وحادثات اور کرداروں میں حقیقت
کے رنگ گہرا کرتا ہے۔ کیونکہ ہر علاقے کی
کچھ نہ کچھ خاصیت ہوتی ہے۔ اس طرح
ہر زمانے میں بھی کچھ مخصوص خصوصیات

TOPIC

Date: / /

Page No.: 9

15 منظر نگاری :-

وصفات، بین الاقوامی ہوتی ہے۔ لیکن یہ تمام خصوصیات، زمان و مکان کی تبدیلی کے ساتھ انسانی جذبات، احساسات، خیالات، ترجمانات میں تبدیلیاں ہے۔ چنانچہ زمان و مکان کی یہی خصوصیات کسی واقعہ اور کردار کو پرکھنے کی ہوتی ہے۔ تاریخی ناول میں زمان کی اہمیت زیادہ ہے۔ کیونکہ تمام واقعات و کردار کی بنیاد ماضی پر ہوتی ہے۔ اس لئے تاریخی ناولوں میں زمان و مکان کا خاص خیال رکھا جاتا ہے۔

17 اسلوب بیان :-

ناول کی کامیابی کا راز اسی پر ہوتا ہے۔ حقیقت یہ ہے۔ کہ ناول میں سلیقے سے اسلوب بیان پیش کرنا چاہیے اسلوب بیان پیش کرنے کی صلاحیت۔ کچھ لوگوں میں ہوتی ہے۔ خیالات، کا انحصار مواد، قوت، مشاہدہ، وسعت، مطالعہ اور مہارت فن پر مبنی ہے کسی فنکار کا مشاہدہ جس قدر زیادہ گہرا ہوتا ہے۔ وہ زبان اور بیان پر قدرت رکھتا ہے۔ ناول میں عام طور پر سادہ، سلیس، اور دلنشین انداز بیان کو پسند کیا جاتا

- **ناول کے مختلف اقسام:-**

زندگی مختلف رنگوں سے عبارت ہے۔ اس طرح اس کا مطالعہ کرنے اور اس کو پیش کرنے کے انداز بھی مختلف ہیں۔ ناول بھی زندگی کی ایک تصویر ہے۔ اس میں زندگی کے واقعات و حالات کو مختلف انداز میں پیش کیا جاتا ہے۔ ناول کے مختلف اقسام کا جائزہ ذیل میں درج ہے۔

i. واقعاتی ناول
ii. کردار پر ناول
iii. ڈرامائی ناول
iv. عصری ناول
v. تاریخی ناول
vi. رومانی ناول
vii. جاسوسی ناول
viii. نفسیاتی ناول
ix. اصلاحی و مقصدی ناول
x. سماجی ناول۔ مذکورہ بالا نکات کا مختصر جائزہ ذیل میں درج ہے۔ ملاحظہ ہوں۔

TOPIC

Date: / /

Page No.: 12

۱۲ واقعاتی ناول:-

ناول کی پہلی قسم ناول کہلاتی ہے۔ ناول کی ایک سیدھی سادھی قسم ہے۔ اس میں محض واقعات کی ایک نر بجیر ملتی ہے۔ اور ناول نگار صرف اس اصول کا پابند معلومات ہوتا ہے۔ کہ واقعات کس طرح ایک دوسرے سے ملا کر بیان کئے جائیں کہ قصے کی دلچسپی میں اضافہ ہو۔ ناول نگار اور قاری کی توجہ کا مرکز صرف واقعات ہوتے ہیں۔ کردار کی حیثیت ضمنی و ثانوی ہوتی ہے۔ یہ کردار قصے کو آگے بڑھانے کا کام کرتے ہیں۔ اس طرح کے ناول کا انجام عام طور پر طربیہ ہوتا ہے۔ واقعاتی ناولوں میں ناول نگار ایک خاص ادبی سلیقہ کے ماتحت قصہ کی کڑیاں جوڑتا رہتا ہے مختصر یہ کہ واقعاتی ناول میں ہماری توجہ زیادہ تر قصہ ہی کی طرف رہتی ہے۔ اور اس میں ہماری دلچسپی محض تجسس کی خاص طرح ہوا کرتی ہے۔ اس میں واقعات بذات خود دلچسپ ہوتے ہیں۔ اور ایک دوسرے سے اس طرح جڑا ہوا ہوتا ہے کہ ہر وقت ہم کو یہی جاننے کی فکر ہوتی ہے کہ پھر کیا ہوا۔

TOPIC

Date: / /
Page No.: 13

12 کردار ی ناول:-

ناول کے اقسام میں سب سے زیادہ اہمیت اس قسم کے ناولوں کی دی جاتی ہے جنھیں کردار کے ناول کہتے ہیں۔ اس قسم کے ناول میں قصہ کی کوئی زیادہ اہمیت نہیں ہوتی اور واقعات محض کردار کی خصوصیات کا انکشاف کرتے ہیں۔ کسی خاص نقطہ کی طرح جاتے ہوئے نہیں معلوم ہوتے اگر کوئی ہلکی سی لہر قصے کی ہوئی بھی تو تمام کردار وں کو اس سے کوئی خاص تعلق نہیں ہوتا۔ کردار قصے کی جکڑ بندی سے بالکل آزاد ہوتے ہیں۔ بر خلاف اس کے واقعاتی ناول میں واقعات سے اہم نتائج نکلتے ہیں۔ کردار ی ناول میں واقعات محض کردار کی خصوصیات کا انکشاف کرتے ہیں۔

13 ڈرامائی ناول:-

ڈرامائی ناولوں میں کردار کی خصوصیات واقعات کا سبب ہوتی ہیں۔ اور واقعات قصہ کردار کی خصوصیات میں تبدیلیاں پیدا کرتے رہتے ہیں۔ اور اس طرح ناول کے ختم تک واقعات و کردار ہمدوش چلتے دکھائی دیتے ہیں۔ ڈرامائی

گیا ہے۔ عصری ناول ایسی چیزوں کا بیان کرتا ہے۔ جو غیر ملکوں کے لئے عجوبہ ضرور ہیں مگر جن کی اہمیت کبھی نہیں اس طرح انکے اپنے ملک والوں کے لئے بھی یہ ناول محض تاریخ ہو کر رہ جائیں گے۔ عصری ناولوں میں سوسائٹی کردار کو ڈھائی نظر آتی ہے۔

25 تاریخی ناول:-

تاریخی ناول لکھنے کے لئے ناول نگار کو ناول تو تاریخ کا بہت سے ہی گہرا علم ہونا ضروری ہے۔ دوسرے تاریخی زمانہ کو پھر سے زندہ کرنے کے لئے اس میں ایک خاص قسم کی قوت تخیل بھی ہونا چاہیے۔ تیسرے ناول نگار کا اپنے تاریخی ماحول سے کسی نہ کسی طرح کا ذاتی تعلق ہونا ضروری ہے۔ تاریخی ناولوں کے لئے ضروری نہیں ہے۔ کہ اس میں ہر بات تاریخی ناولوں کے لئے ضروری نہیں ہے کہ حیثیت سے صحیح ہو۔ ناول نگار ایسے واقعات کو بھی شامل کر سکتا ہے۔ جو مستند نہ ہوں اور ان واقعات کو خاص اہمیت بھی دے سکتا ہے۔ مگر اس کو ایک چیز کا خیال رکھنا ضروری ہے۔ وہ یہ کہ غیر مستند واقعہ ایک حد تک قرین قیاس ضرور ہو۔ تاریخی ناولوں میں متعدد کردار فرضی ہو سکتے ہیں۔ تاریخی ناولوں

TOPIC

Date: / /
Page No.: 16

میں متعدد کردار فرضی ہو سکتے ہیں۔ تاریخی ناولوں میں ایک آدھ تاریخی واقعات یا ایک آدھ تاریخی ہستی ضرور ہوتی ہے۔ اردو میں مولانا عبدالحلیم شرر نے تاریخ اسلام کو زندہ کرنے کے لیے ناول لکھے۔ ان کے بیانات کامیاب ہیں مگر ان کے کردار کی فطرتیں بالکل بناوٹی معلوم ہوتی ہیں۔ تاریخی ناولوں کا شمار اکثر رومانی داستانوں میں کیا جاتا ہے۔

6/ رومانی ناول :-

رومانی ناولوں میں اکثر اس قسم کے ناولوں کا شمار ہوتا ہے۔ جن میں دور دراز ممالک کی سیر یا وہاں کے حالات وغیرہ کا ذکر ہوتا ہے۔ ایسے ناولوں میں سمندری سفر زیادہ اہمیت رکھتے ہیں۔ اس لئے ان سمندری ناول بھی کہا جاتا ہے۔ ان ناولوں میں دلچسپی ہم کو اسی وجہ سے ہوتی ہے کہ ہمارے سامنے کچھ عجیب کردار اور عجیب مناظر آتے ہیں۔ مگر ان میں ہر چیز حقیقی اور حد سے زیادہ حقیقت پر مبنی ہوتی ہے۔