

CHE110 : Environmental Studies



Lecture #0

Course details

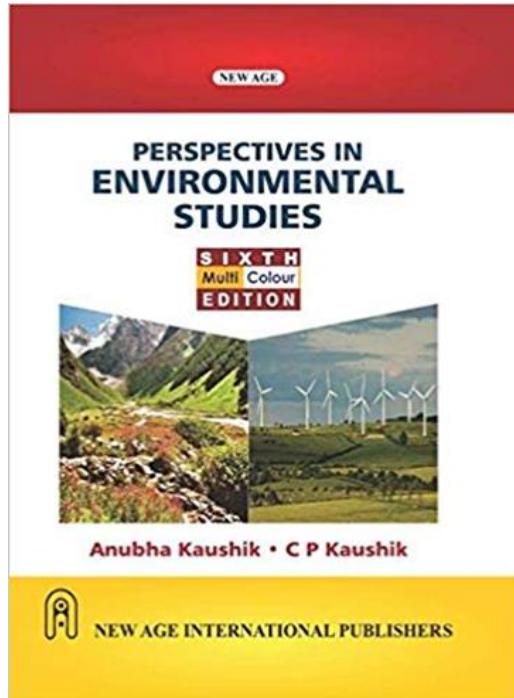
- Course Code: CHE110
- Course title: Environmental Studies
- Credit: 4



Text & Reference Books



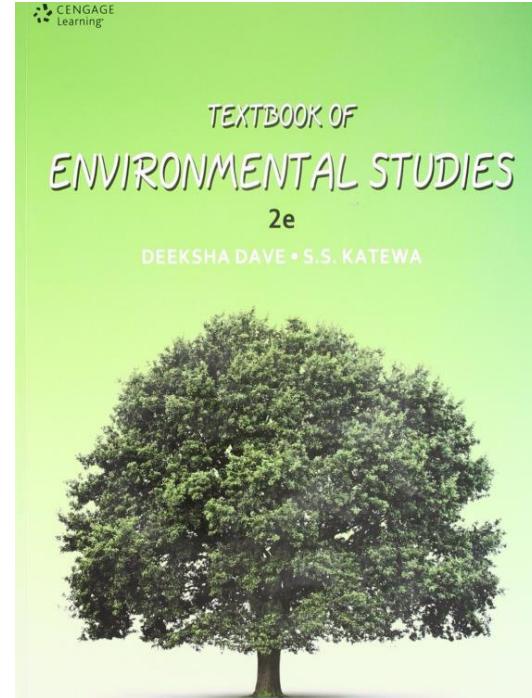
LOVELY
PROFESSIONAL
UNIVERSITY



PERSPECTIVE IN ENVIRONMENTAL STUDIES

by

ANUBHA KAUSHIK, C P KAUSHIK
NEW AGE INTERNATIONAL PUBLISHERS



TEXT BOOK OF ENVIRONMENTAL STUDIES

by

D. DAVE AND S. S. KATEWA
CENGAGE LEARNING





LOVELY
PROFESSIONAL
UNIVERSITY

Course Assessment Model

- Marks break up
- Attendance 05
- CA 30
- MTE (Viva-voce mode) 25
- ETE (On-Line mode) 40
- Total

 100



Continuous Assessment



LOVELY
PROFESSIONAL
UNIVERSITY

Academic task (Online mode only):

Allocation: By the end of 2nd Week

Submission : 10^h Week

Objective: To know about various environmental issues and their effects on various natural resources, ecosystems and bio –diversity

- Students are expected to write a report on the assigned environmental issues along with case studies, live examples, simulations, statistical data and recent news articles on the topic assigned.





Why EVS as a Course?



LOVELY
PROFESSIONAL
UNIVERSITY



Unprecedented Environmental Effects

Unprecedented Pace of Urbanization





MAJOR GLOBAL ENVIRONMENTAL PROBLEMS

From http://www.pref.kyoto.jp/intro/21cent/kankyo/contents_e/globe_prob/index.html

- Global Warming
- Ozone Layer Depletion
- Acid Rain
- Deforestation
- Loss of Biodiversity
- Water Pollution
- Desertification
- Waste disposal
- Rapid population growth
- Depletion of non-renewable energy sources
- Food and Water shortage





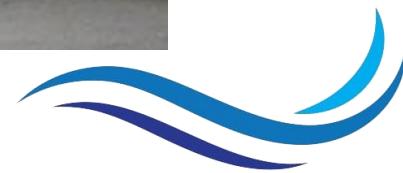
LOVELY
PROFESSIONAL
UNIVERSITY







LOVELY
PROFESSIONAL
UNIVERSITY





LOVELY
PROFESSIONAL
UNIVERSITY





LOVELY
PROFESSIONAL
UNIVERSITY

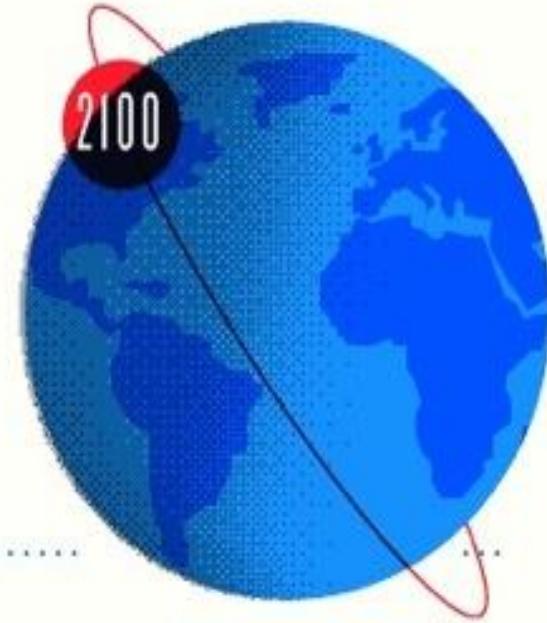
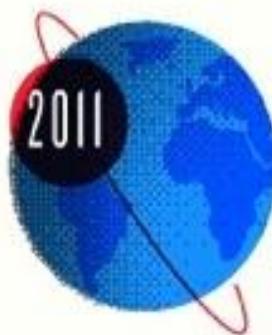




LOVELY
PROFESSIONAL
UNIVERSITY

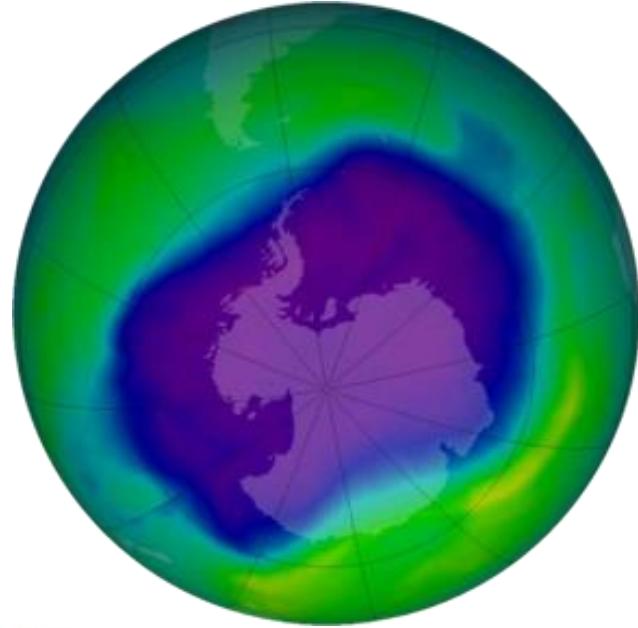
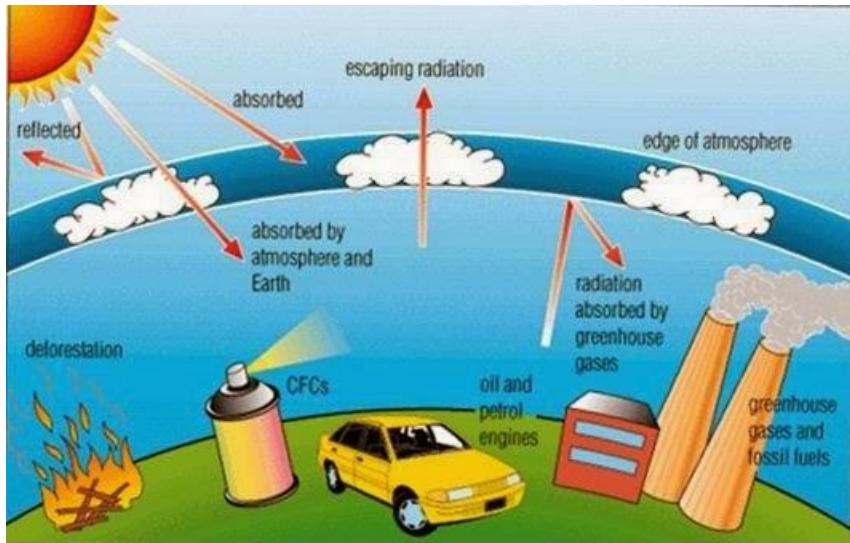
To feed everyone, the world will need to produce 70% more food by 2050

a 100% more food by 2100, when the world population is expected to hit 10 billion.





LOVELY
PROFESSIONAL
UNIVERSITY





Course details



LOVELY
PROFESSIONAL
UNIVERSITY

Course Outcomes: Through this course students should be able to:

- observe the current environmental issues and associated problems.
- illustrate the basic knowledge of environment and its various components.
- devise new approaches to reduce various types of environmental pollution.
- identify the environment policies and practices.





LOVELY
PROFESSIONAL
UNIVERSITY

Syllabus at a Glance

After Mid Term

Human Communities and the Environment

To get inspired by historical movements to protect the environment and to realize our duties towards nature

Environmental Policies & Practices

To understand how far the damages have been done and ways to undo them

Environmental Pollution

To identify the harmful substances around us and knowing how to deal with them



Before Mid Term

Introduction and natural resources

To recognize the nature as the provider

Ecosystems

To realize the integrity of the nature and to feel connected to the environment

Biodiversity and conservation

To appreciate the variation in living beings and learning to protect it





Detailed Syllabus



LOVELY
PROFESSIONAL
UNIVERSITY

Unit – 1 (Introduction and natural resources)

- Multidisciplinary nature of environmental studies
- Scope and importance: Concept of sustainability and sustainable development.
- Land resources: Land degradation, soil erosion and desertification.
- Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations.
- Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water.
- Energy resources: Renewable and nonrenewable energy sources, use of alternate energy sources, growing energy needs, case studies.

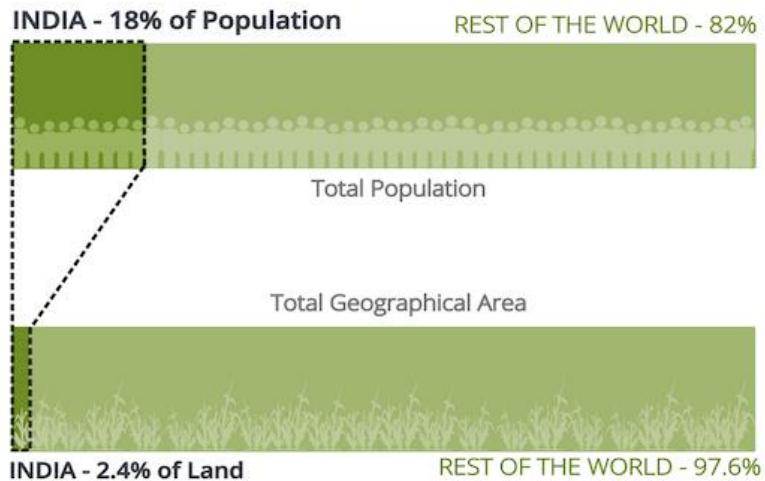




Ground reality of natural resources

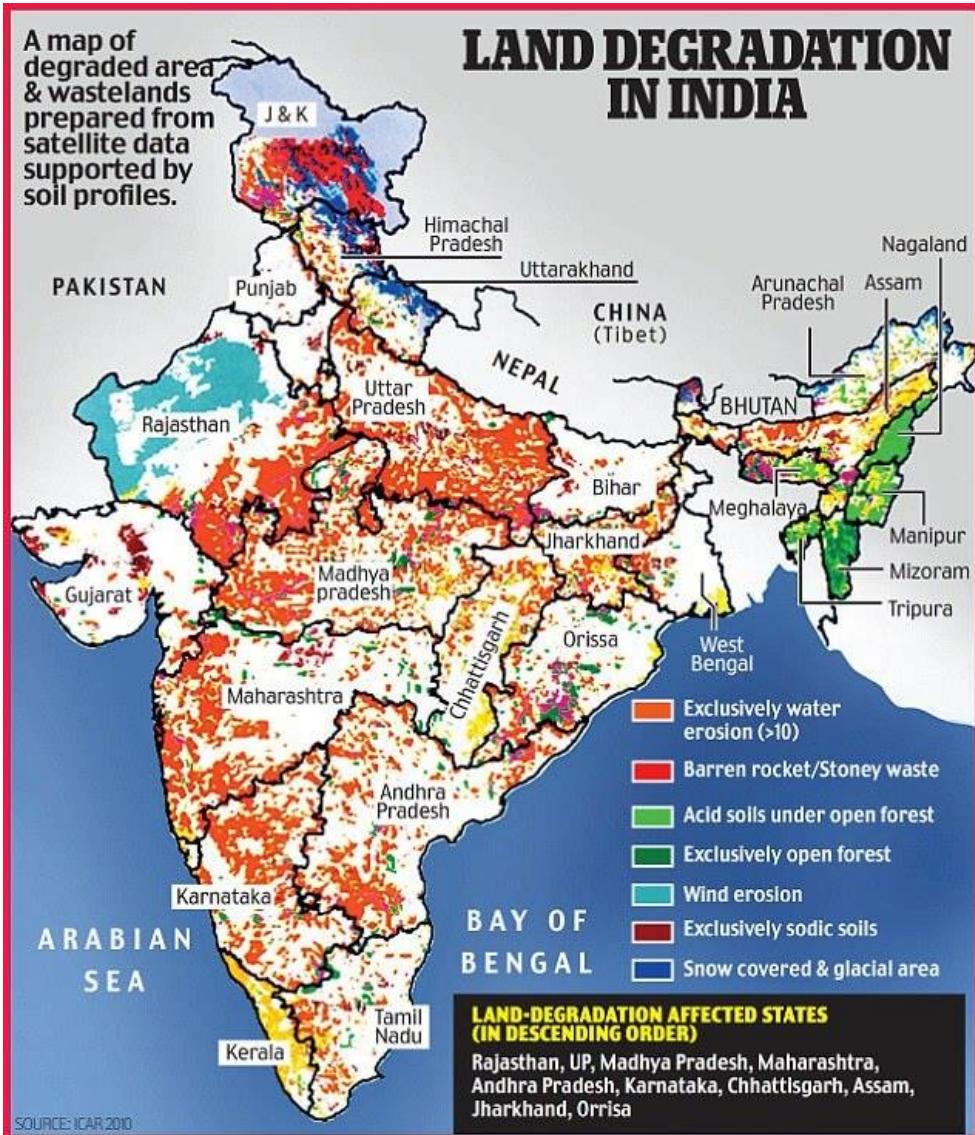


India supports 18% of the world's population with only 2.4% of the world's land area



iS. IndiaSpend

Source: Food And Agriculture Organization

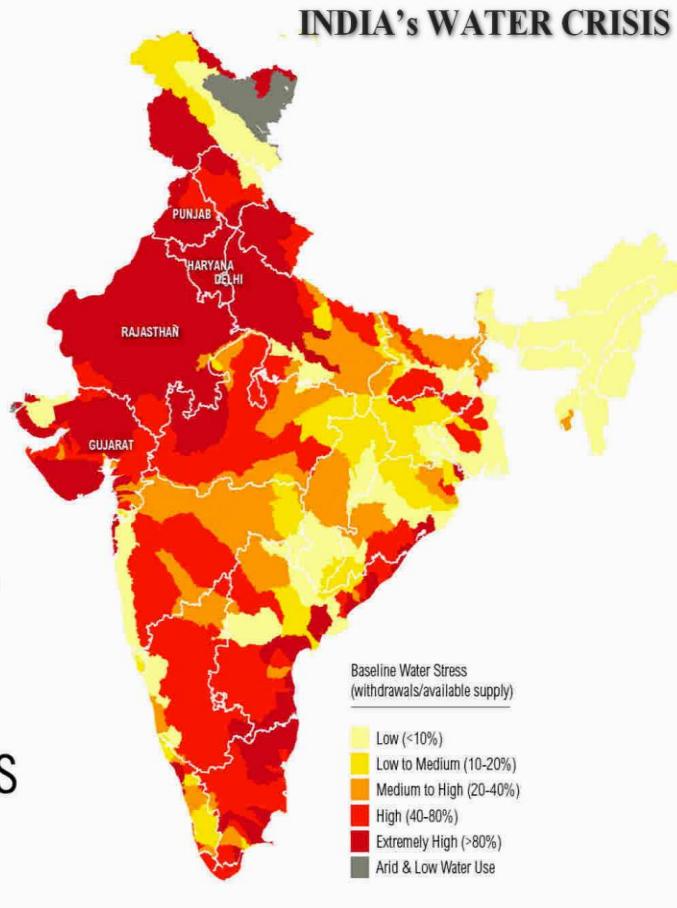




Ground reality of natural resources



54%
of India
Faces
High to
Extremely
High
Water Stress





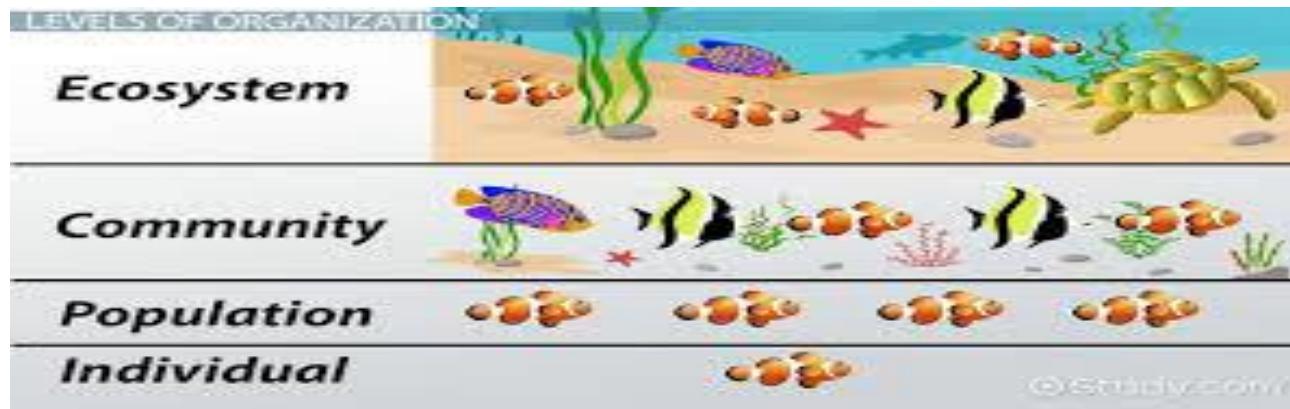
Detailed Syllabus



LOVELY
PROFESSIONAL
UNIVERSITY
PUNJAB (INDIA)

Unit – 2 (Ecosystems)

- What is an ecosystem? structure and function of ecosystem, Energy flow in an ecosystem: food chains, food webs and ecological succession, ecological pyramids,
- Case studies of the following ecosystems :
 - a) forest ecosystem b) grassland ecosystem
 - c) desert ecosystem d) aquatic ecosystem





Ecosystems in India



LOVELY
PROFESSIONAL
UNIVERSITY



Forest: Gir



Desert: Thar



Grassland: Serengeti



Aquatic: Chilika

... and countless more.





Detailed Syllabus



LOVELY
PROFESSIONAL
UNIVERSITY

Unit III-Biodiversity and conservation :

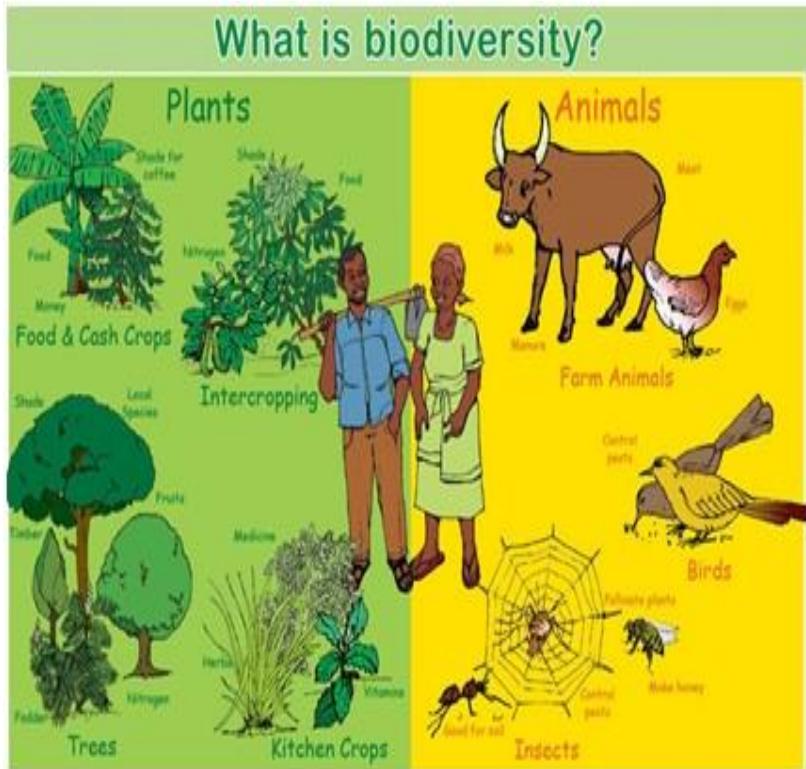
- Levels of biological diversity : genetic, species and ecosystem diversity, Biogeographic zones of India, Biodiversity patterns and global biodiversity hot spots, India as a mega diversity nation, Endangered and endemic species in India,
- Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions, Conservation of biodiversity: In situ and ex-situ conservation of biodiversity, Ecosystem and biodiversity services: ecological, economic, social, ethical, aesthetic and Informational value





LOVELY
PROFESSIONAL
UNIVERSITY
PUNJAB (INDIA)

Biodiversity at a glance





Some Endangered animals in India



Red Panda



Royal Bengal Tiger



Lion-tailed macaque



Tahr





LOVELY
PROFESSIONAL
UNIVERSITY

Detailed Syllabus

Unit – 4 (Environmental pollution)

Environmental pollution: types, causes, effects and controls; Air, ill effects of Fireworks, water, soil and noise pollution, Nuclear hazards and human health risks, Pollution case studies, ill-effects of Fireworks





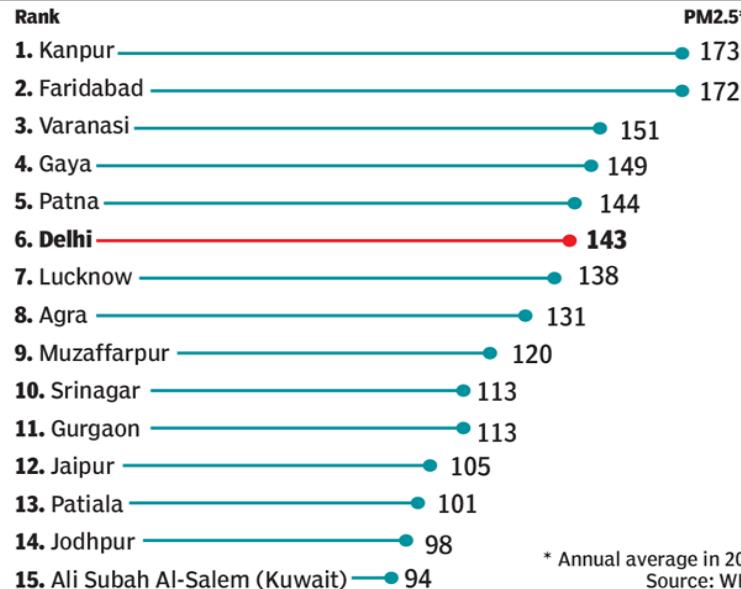
Air Quality Statistics



LOVELY
PROFESSIONAL
UNIVERSITY

WORLD'S MOST POLLUTED CITIES ARE IN INDIA

TOI



PM2.5*

* Annual average in 2016
Source: WHO

Number of Indian cities among 15 most polluted



COVID-19 Improves Air Quality in Just Three Months

Weekly average concentration of NO₂ in the air in selected cities (Feb-Apr 2020)*



Central locations

* 95 percent of NO₂ in the air is caused by fossil fuel combustion
Source: World Air Quality Index (WAQI)



statista



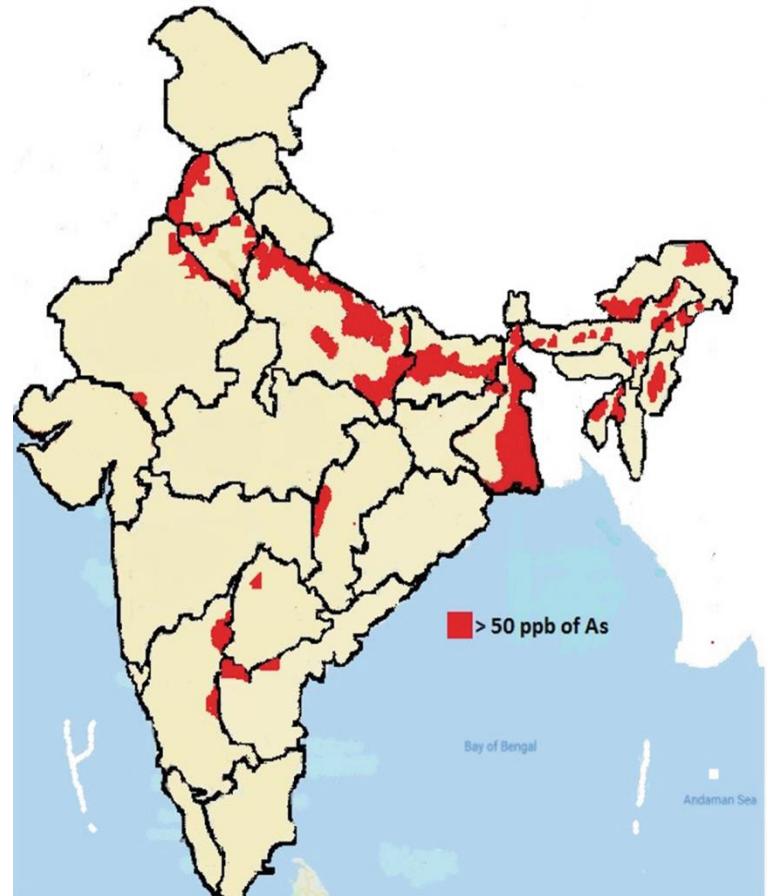
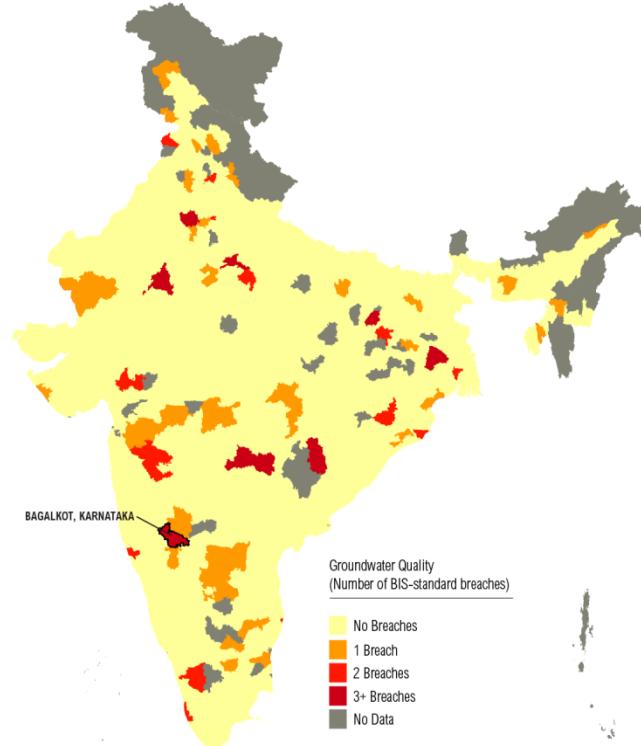


Water Quality Statistics



LOVELY
PROFESSIONAL
UNIVERSITY

More than
100
MILLION
People Live
in Areas of
Poor Water
Quality



www.indiawatertool.in

 WORLD RESOURCES INSTITUTE





Pesticide usage statistics

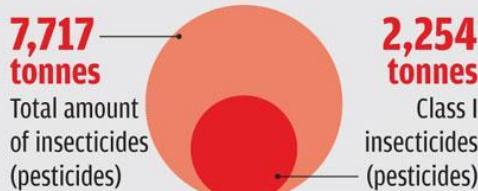


LOVELY
PROFESSIONAL
UNIVERSITY

Grave danger

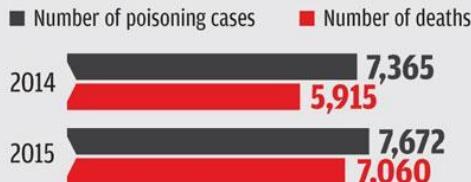
Farmers are in peril due to lack of regulation of hazardous pesticides

Consumption of Class I pesticides in India (2015-16)



Source: Directorate of Plant Protection, Quarantine & Storage. Calculations have been done based on pesticides produced domestically and imported

Cases of accidental intake of pesticides and deaths (other than suicides)



Source: Accidental Deaths & Suicides in India by the National Crime Records Bureau (2015)

Examples of Class I pesticides used extensively in India but banned in other countries

- Banned in countries, including EU*
- Consumption during 2015-16# (tonnes)

Monocrotophos

60 ■ 371

Triazophos

40 ■ 315

Phosphamidon

49 ■ 90

Carbofuran

49 ■ 337

Methyl Parathion

59 ■ 674

Phorate

37 ■ 455

Source: *Consolidated list of banned pesticides by Pesticide Action Network (May 2017); # Directorate of Plant Protection, Quarantine & Storage

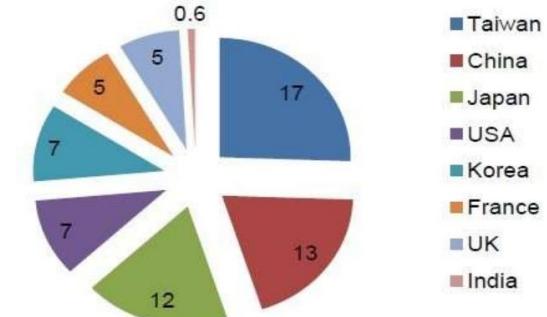


Fig. 2 Per capita usages of pesticide by country (Kg/Ha)

Source : <http://news.eia.doe.gov/>
Userfile/C/0110/2015-05-11-5400-365.jpg





Detailed Syllabus



LOVELY
PROFESSIONAL
UNIVERSITY

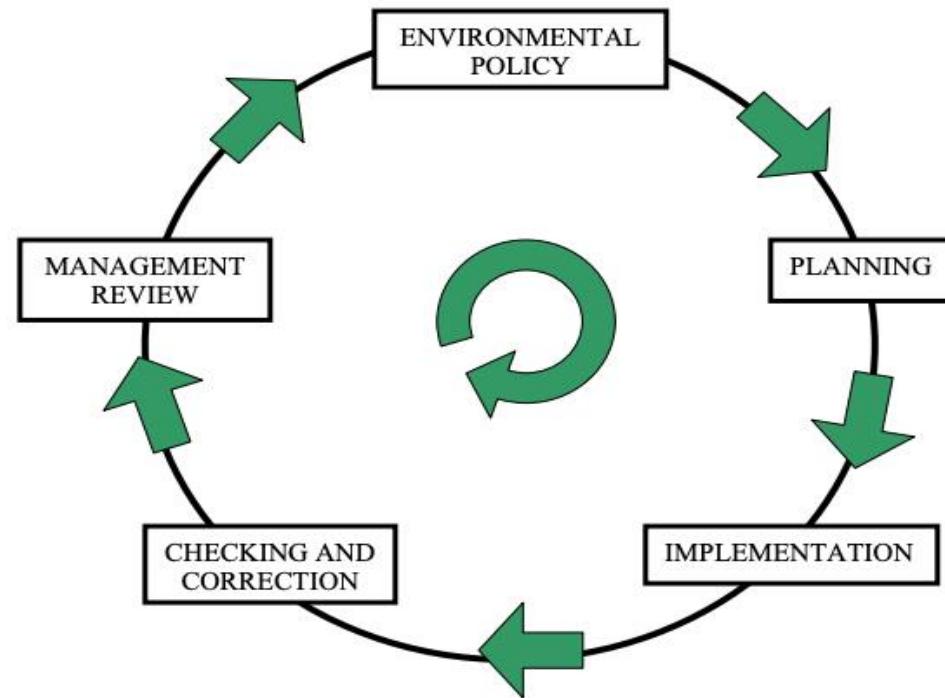
Unit – 5 (Environmental Policies & Practices):

- Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture,
- Environment Laws: Environment Protection Act, Air (Prevention & Control of Pollution) Act, Water (Prevention and control of Pollution) Act, Wildlife Protection Act, Forest Conservation Act, International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD), Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context, Solid waste management: Control measures of urban and industrial waste





Environmental Policies & Practices





Some International Environmental Agencies



LOVELY
PROFESSIONAL
UNIVERSITY



GREENPEACE





Some Indian Environmental Agencies



LOVELY
PROFESSIONAL
UNIVERSITY



**Centre for Science
and Environment**



The Energy and Resources Institute



**Ministry of Environment,
Forest and Climate Change**
Government of India





LOVELY
PROFESSIONAL
UNIVERSITY

Detailed Syllabus

Unit – 6 : Human Communities and the Environment)

- Human population growth: Impacts on environment, human health and welfare, Disaster management : floods, earthquake, cyclones and landslides
- Environmental movements : Chipko, Silent valley, Bishnois of Rajasthan, Environmental ethics: Role of Indian and other religions and cultures in environmental conservation, Environmental communication and public awareness, case studies

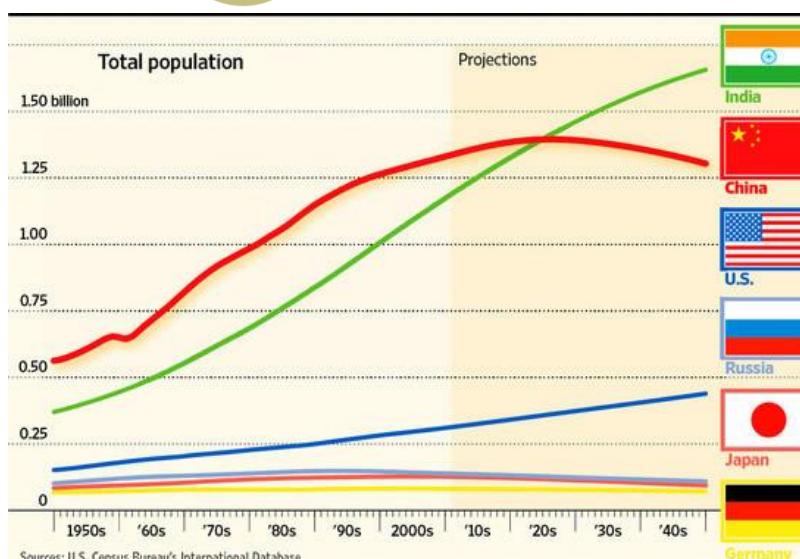
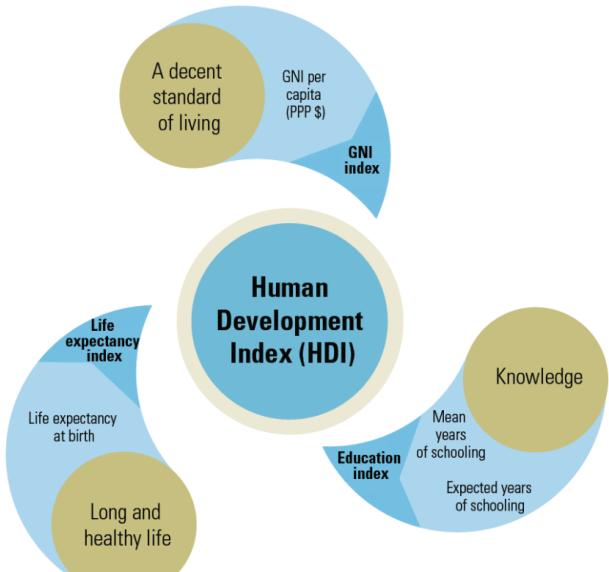




Population Growth and its Effects

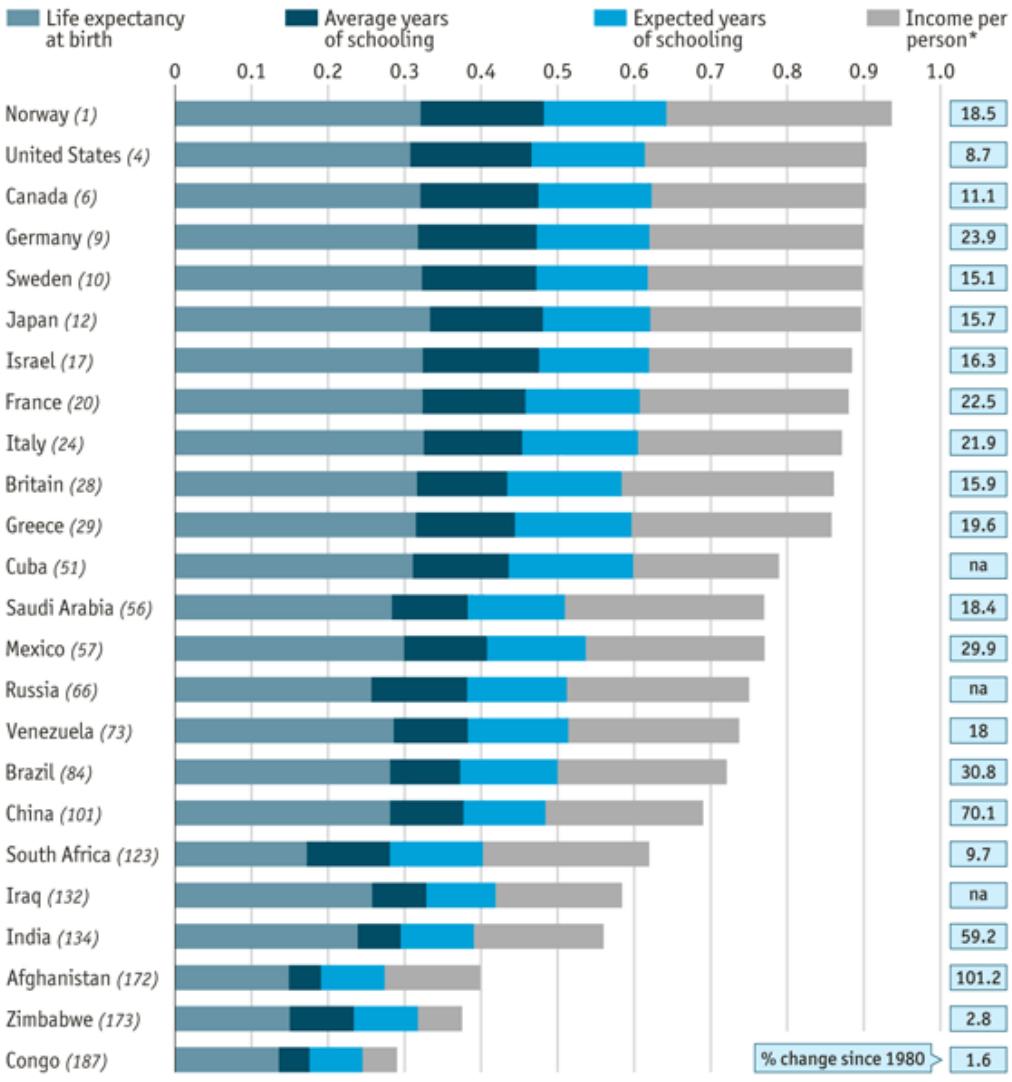


LOVELY
PROFESSIONAL
UNIVERSITY



Human Development Index

1=best (rank out of 187)



*Gross national income



Environmental Awareness



LOVELY
PROFESSIONAL
UNIVERSITY



- **Knowledge can help**
 - With proper knowledge and wisdom we can make the world a better place.





Environmental Activism



LOVELY
PROFESSIONAL
UNIVERSITY





Environmental Activism



LOVELY
PROFESSIONAL
UNIVERSITY





Environmental Activism



LOVELY
PROFESSIONAL
UNIVERSITY





Environmental Activism



LOVELY
PROFESSIONAL
UNIVERSITY





Environmental Activism



LOVELY
PROFESSIONAL
UNIVERSITY

- Many more-----





LOVELY
PROFESSIONAL
UNIVERSITY



Thank You

