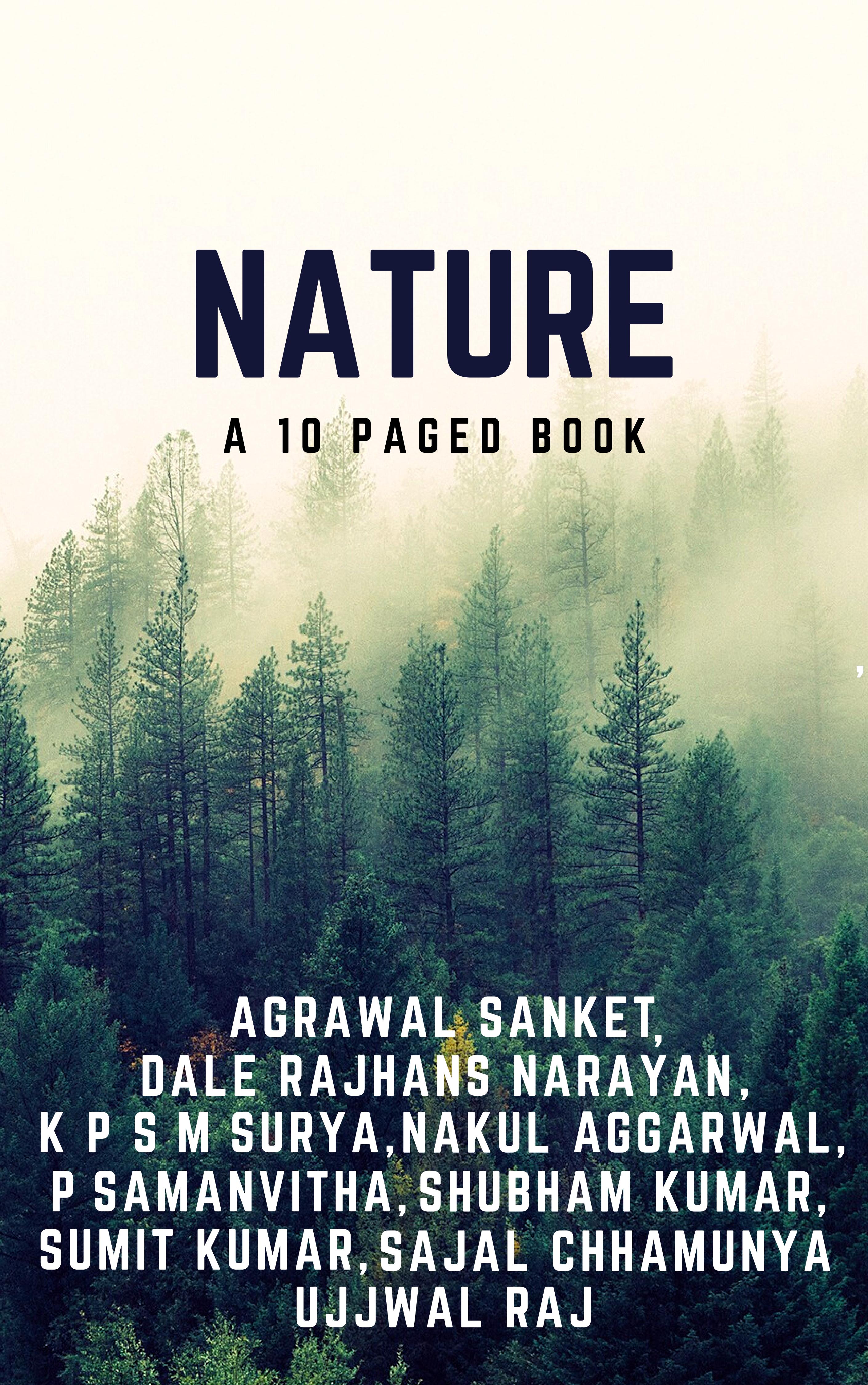


NATURE

A 10 PAGED BOOK



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Preface

This 10 paged book targets students from standard *VIII - X*, introduces the necessary concepts which are required to analyse the complex human-nature interaction. We present the balanced viewpoint from the lens of Natural scientists and Social scientists. We have selected some of the important representative topics.

Our first chapter ***Concept of The-cenes and Planetary Boundaries*** introduces the recent upcoming terms in academia like *anthropocene*, *capitalocene*, *urbanocene* which marks the changing epoch. The chapter also introduces the concept of Planetary boundaries towards the end, which marks the playing field of humanity.

Our second chapter ***Contemporary Urbanisation :a Boon or a Bane*** introduces us with recent trends in urbanisation. The authors have discussed both upsides and downsides of urbanisation. The scenario of contemporary urbanisation was explained with the help of the case study on Kolkata.

The third chapter ***Environmental History*** focuses upon often overlooked framework by Natural scientists. It introduces the concept of long term temporal scale on the current environmental research. Following this, our fourth chapter ***Environmental History : A look at India's environmental history*** discusses briefly, how the Indian environment and ecology changed from the ancient Indus civilisation to the current state.

Our fifth chapter ***Human-Nature Relationship and its impact on Health*** attempts to understand the complex human-nature relation. This chapter focuses in the direction of including the trans-disciplinary approaches to understand the problem at hand completely. Also it lays the foundation of the sixth chapter ***Covid-19 : A Broader perspective Lessons learnt***. In this chapter author applies a trans-disciplinary lens including both Natural Science and Social science to gather deeper insights into the ongoing pandemic. Towards the end, it highlights the key lessons we learnt from the pandemic.

Our Seventh chapter ***Global Modern Environment Problems*** focuses on the emerging global environmental problems. It discusses about different types of environmental problems and their affects on human lives.

Towards the end our book, the last(eighth) chapter ***Sustainable Development And Conclusion*** introduces the paradigm of sustainable development. It asks a pertinent question *Can you make a difference?*, and urges the reader to rethink using the trans-disciplinary approach. It concludes the book with a optimistic viewpoint and sustainable lifestyle changes.

-SURYA

Concept of The -cenes and Planetary Boundaries

Shubham Kumar

1 THE -CENES : CONCEPT

First let's understand the meaning of 2 terms, which will frequently appear in the context of our chapter.

The suffix *-cene* comes from the Greek *kainos* meaning recent. It was introduced by the nineteenth century geologist *Charles Lyell*, who distinguished between various layers of rock by determining the proportions of extinct and non-extinct fossils each contained. In *geochronology*, an *epoch* is a subdivision of the geologic timescale that is longer than an age but shorter than a period.

In our chapter we will discuss about the current epoch the *Holocene*, which started about 10,000 years ago, when the environment on the Earth remained stable, civilisations flourished and developed. Recently Natural and Social scientists both unanimously argued that we have entered into a new geological epoch, the *Anthropocene*. *Anthropocene* does not means human age, it simply means a time when geological strata are dominated by remains of *recent human origin*.

2 ARE WE REALLY IN THE ANTHROPOCENE?

Scientists argue that the Earth has entered a new epoch, the *Anthropocene*, where humans constitute the dominant driver of change to the Earth System. The relatively stable environment of the *Holocene*, the current interglacial period that began about 10,000 years ago, allowed agriculture and complex societies, including the present, to develop and flourish.

We took the variations of Earth system processes, during the Holocene, as a scientific reference point for a desireable planetary state where humans can continue flourishing.

There was no clear evidence that humans were affecting the critical Earth systems until the industrial revolution began (the advent of the Anthropocene), humans are effectively pushing the planet outside the Holocene range of variability for many key Earth System processes (*Steffen et al. 2004*). Without such pressures, the Holocene state may be maintained for thousands of years into the future.

Following evidences justifies :

- New materials, such as elemental aluminum, concrete, plastic, and carbon particles
- Altered geochemical signals in sediments and ice sheets
- Presence in sediments and ice of radionuclides released by nuclear bomb testing
- Changes in the carbon cycle based on data from ice core samples, increase in global temperature and rising sea levels
- Irreparable alterations in biodiversity

2.1 Anthropocene : Capitalocene and Urbanocene

"Anthropogenic implicates an actor that doesn't exist. There is no Anthropos, no humanity as a unified actor. So, if not anthropogenic, what? In a word: capitalogenic." : Jason Moore

It is important to understand the interconnections between the

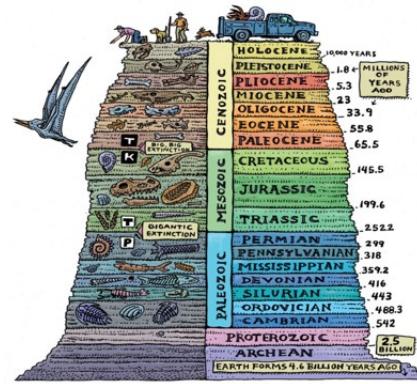


Figure 1: An illustration of geological epochs

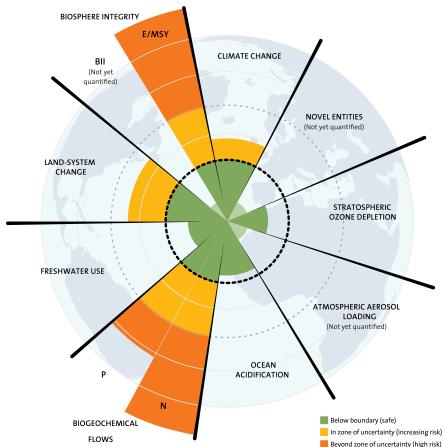
functioning of the capitalist engine and its deep-rooted impact on the critical Earth systems. *Capitalocene* tries to model the ecological change driven primarily driven by the Capitalists.

Urbanocene models the ecological change driven by the urbanization. More specifically contemporary urbanization. We have more to discuss about them in later chapters.

3 PLANETARY BOUNDARIES

Issue yet to be addressed completely : "The predominant paradigm of social and economic development remains largely oblivious to the risk of human induced environmental disasters at continental to planetary scales."

Recent research propose a new approach to global sustainability in which we define planetary boundaries(interdependent) within which we expect that humanity can operate safely. Transgressing one or more planetary boundaries may be catastrophic due to the risk of crossing thresholds that will trigger non-linear, abrupt environmental change within continental- to planetary-scale systems.



Contemporary Urbanisation: a Boon or a Bane

Sajal Chhamunya and Rajhans Dale

1 WHAT IS URBANISATION

Urbanisation is a natural phenomenon and an inevitable character of developing economies and is emerging as a major demographic occurrence in a large part of the world. Urbanisation is referred to as the population shift from rural areas to urban areas. According to Cambridge Dictionary it is defined as; *Urbanisation is the process by which more and more people leave the countryside to live in cities.* The extent of urbanisation has increased exponentially in recent times. To classify whether it is a boon or a bane, we will be going through the positives and the negatives of rapid urbanisation in recent times. Before that, let's go through the history of urbanisation and understand the current extent of it.

2 CHANGES IN THE EXTENT OF URBANISATION

The first and most significant difference between historical urbanisation and contemporary urbanisation is the sheer change in the population's total increase. The world population had crossed 1 billion at the start of the 1800s and has increased more than seven folds to 7.8 billion in 2020. The growth in the number of cities with a population of more than a million has also been exponential. The rapidity with which the urban population is growing and land cover is being converted to urban areas has been very high. At the start of the 1800s, there was only one city with more than a million residents, namely Beijing (China). This number changed to 16 by the onset of the 1900s and grew to 378 by the 2000s. In 2020, this number crossed 500. Not only that, there has been the induction of megacities, which are cities with a population of more than 10 million. There are reportedly 31 megacities as of 2020, with Tokyo being the most populous, with more than 38 million residents. The change in the rate of migration was a substantial contributing factor in this growth. High rates of migration are mainly because urban centres provide higher employment opportunities and wages than rural centres. Other than this, better education opportunities, better health care, improved access to social services and opportunities for social and cultural activities are some more reasons for this increase in migration.

Another noticeable change between historical urbanisation and now is that historically, urban settlements developed near fertile agricultural lands and water bodies. New urban settlements are now even in the far corners of Earth and have been transformed out of every type of ecosystem, even as extreme as a desert. Dubai is a great example.

Now let's compare the positives and the negatives of this rapid growth in the extent of Urbanisation and analyse what all changes have been there alongside urbanisation.

3 POSITIVES OF URBANISATION

Firstly, urbanisation has been accompanied by increased efficiency. It may seem ironical because of the enormous energy consumption and high pollution levels of an urban centre, but cities are usually

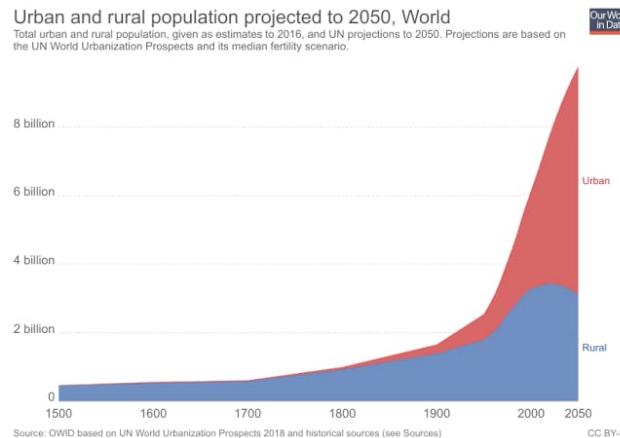


Figure 1: Ratio of Urban vs Rural population

more efficient than rural areas. Modern technology provides for better city infrastructure. With modernisation, cities can adapt to cultural needs and provide support systems for future development. Additionally, modernisation can make for a more sustainable city layout with better housing/businesses, market centres, and public transit systems. In cities, apartments are prevalent, and people are content with a smaller living area. Education, health, cultural activities, social services, and other services are readily available in cities and urban areas. In cities, communication and transportation networks are significantly developed. In short, urbanisation means that people's lives are more manageable, and their quality of life is better as compared to someone from a rural centre. Combining climate change responses -through mitigation and adaptation measures with urban development strategies- can help us transition to sustainability, requiring multi-dimensional and multi-scale approaches to study and manage urban areas.

4 NEGATIVES OF URBANISATION

The worst negatives of urbanisation are the Slums. These are areas where large populations of impoverished people live in sub-standard conditions. Several problems accompany slums, such as:

- Poor and unhygienic living conditions give rise to the spread of various diseases.
- Land insecurity as the government often owns the land; there is a constant danger that it may be sold out from under the occupant.
- Unemployment due to the large population and thus high crime rates are usually found in slums.

There is also a possibility of an urban centre, becoming an urban sprawl. Urban sprawl is the unrestricted growth in many urban areas of housing, commercial development, and roads over large land expanses, with little concern for urban planning. Urban sprawls also cause a number of problems such as higher water and air pollution,



Figure 2: A typical slum

increased traffic fatalities and jams, loss of agricultural capacity, increased car dependency, higher taxes, increased runoff into rivers and lakes, harmful effects on human health, including higher rates of obesity, high blood pressure, hypertension and chronic diseases, increased flooding, decrease in social capital and loss of natural habitats, wildlife and open spaces.

Aside from this, as expanding cities are paving over formerly vegetated land and there is a high concentration of heat sources, Cities tend to be warmer than the surrounding countryside. This temperature difference can be as high as 10° Celsius. Large cities become ‘regional heat islands’, which can alter local weather patterns.

5 URBANISATION IN INDIA

India has been predominantly rural in character throughout the ages, though a few urban centres have flourished from time to time. It was only in the late nineteenth and the early twentieth centuries that industrial cities grew in India. India’s urban population has increased from 25.8 million in 1901 to 62.4 million in 1951 to 285.4 million in 2001 and to 455.1 million in 2017, thereby showing a nearly 20 fold increase in the total urban population. The total urban population of India, according to Census 2001, is more than 10 percent of the total urban population of the world. Most of the urban growth has been caused by accretion to the existing towns, particularly the already large cities, while the pace of growth of new cities has been slow. However, compared to other developing countries, India’s urban spread is not that skewed and unbalanced, nor it is characterised by any single city dominating the scene. Wide regional variation in urbanisation is no less critical of a feature. Let’s explore about one such major city in detail.

5.1 Kolkata: City of Joy

Kolkata is a megacity with a population of more than 14 million. It is located in the eastern part of India, capital city of West Bengal and is the 14th largest city in the world. Urbanisation in Kolkata dates back to the colonial times, founded in 1690, it was established as a trading centre under East India Company and served as their

regime’s capital till 1911.

The city is considered the most popular livelihood destination for thousands of migrant labourers from the neighbouring states of Uttar Pradesh, Bihar and Odisha and from the hinterland of West Bengal. Haphazard, unplanned and colossal urban growth have caused strain on Kolkata’s urban structure and socioeconomic resources. There was a major influx of migrants in Kolkata central city in the beginnings of the 20th century, with the peak being in the 1930s which saw a population increase of 69%. Gradually, people started flooding the suburbs and by the early 2000s the central city population growth fell to 7% but the suburbs had a 110% growth adding more than a million people. This unplanned peripheral growth has exerted a huge strain on the existing land, economy and basic infrastructure of the city. Consequently, the rise in urban spatial poverty has become more evident in terms of the quality of housing stock available, water, sanitation, and sewerage.

Recently there have been various urban development and welfare policies under the aegis of both national and state governments and other development agencies. Despite that, Kolkata is yet to become a sustainable and inclusive city. While some sectors—e.g. real estate, IT, tourism, and physical infrastructure—have progressed significantly since the economic liberalisation, at the micro-level, spatial inequalities persist in terms of adequate housing, access to essential amenities and civic services, and financial well-being of residents. Moreover, issues continue to pose challenges to making Kolkata a sustainable and inclusive city: unregulated built-up growth, planning violations, mismanagement of municipal waste, environmental degradation, traffic congestion and restricted spatial mobility, unsafe public spaces, exclusionary social practices, and unaffordable technology-driven infrastructure.

6 CONCLUSION

The increase in the rate of urbanisation in any nation brings in new opportunities and challenges with regard to business, society, and the economy as a whole. In the Indian context, urbanisation is regarded as a positive factor in economic development as the urban sector contributes about 62 percent of the GDP. Urbanisation involves major changes in the use of natural resources and conversion from traditional to modern resource utilization.

The positives of Urbanisation can outweigh the negatives if sustainable practices are followed alongside urbanisation, like building renewable energy/ clean energy sources as the primary energy sources and development of systems to encourage less per capita consumption. Urban sprawls’ possibilities need to be reduced with intelligent planning during the development of new urban centres and the improvement or enhancement of existing centres. These systems are currently left unchecked, as seen in the case of Kolkata.

Environmental History

Sumit Kumar | Ujjwal Raj

1 INTRODUCTION

Environmental History refers to the history of human impacts on nature and the interactions between humans and nature. It asks how nature influences humans, how humans intervene in nature and how nature and humans interact. To be able to understand these processes, it also investigates changes in nature not caused by human action. The terms nature and environment are largely seen as being synonymous. In traditional, pre-industrial societies generally they describe the natural environment, comprising elements such as the landscape, rivers, climate and weather, animals, plants, etc. These natural factors are also of importance for industrial societies. At the same time, their environments are shaped more and more by human action citing, for example, the environment of modern towns, in which today more than half of the world's population lives. In addition, nature itself increasingly is shaped by human action. In Europe, there are hardly any and world-wide relatively few regions where humans did not interfere, so that in today's world we can speak of a man-made or even an artificial nature.

2 HUMAN AND NATURE INTERACTIONS

To understand such diverse developments the term environment as well as environmental history has to be defined very broadly. In practice, however, mostly it signifies the natural environment, being aware that in modern societies a pristine nature hardly exists any more. But this terminological ambiguity is acceptable since environmental history above all is interested in the interactions between humans and nature and the transitions between these two. In doing this kind of research, the contribution of other disciplines such as geography, geology, biology, and many others is important, and it is sometimes argued that environmental history as a matter of principle should be an interdisciplinary approach. In practice, however, interdisciplinary approaches have proved to be demanding so that most of the contributions to environmental history still come within from a single discipline, not just from historians, but also from geographers, biologists, social scientists, and others.

3 DEVELOPMENT OF THE FIELD

Environmental history seemingly burst into view in the scholarly world in the 1970s. Intellectual and political trends, such as the controversy over *Rachel Carson's Silent Spring* (1962) and the first Earth Day (1970), motivated many historians to explore historical aspects of environmental problems. Samuel P. Hays's *Conservation and the Gospel of Efficiency* (1959) was a landmark work on environmental politics. Influential work by *Marc Bloch*, *Fernand Braudel*, and other French historians inspired others to look anew at agricultural landscapes and the broader role of geography in human affairs. By the mid-1970s, with the founding of the American Society for Environmental History and its journal, *Environmental Review* (now *Environmental History*), a distinct field of inquiry had emerged, making it almost impossible to discuss the environment without referring often to the substantial contributions of



Figure 1: An illustration of the current scenario

history. The internationalisation and institutional recognition of environmental history continues, although it is becoming increasingly part of the emerging environmental humanities. This is also visible at the attendance of the World Congress of Environmental History, which is held every five years.

4 PRESENT AND FUTURE PROSPECTS

An accurate conclusion requires a dose of realism. In spite of its numerous contributions and the respect accorded to individual practitioners, environmental history has not taken over the historical profession. Some other historians continue to view it as marginal, even trendy, though an endeavor that flourishes for decades surely constitutes more than a "trend". The finite influence of intellectuals in public discourse, notably in the West, amplifies this marginalization, as does any public perception that environmental regulation entails job losses or lower standards of living. Unlike disciplines such as economics or public health, history is more suited to reflection, not solving practical problems, so the present quest for utility or "relevance" remains a lesser priority. Despite these caveats, environmental history helps to educate an informed citizenry. Contemporary environmental challenges are not going away, and will likely worsen in the twenty-first century.

Environmental History : A look at India's environmental history

Sumit Kumar | Ujjwal Raj

5 INDIAN ENVIRONMENTAL HISTORY

In the absence of any written record it is believed that in the beginning of their existence the ancient inhabitants of India were hunters and food gatherers for their livelihood. But with the passage of time, *they settled down near the rivers and became food producers*, agriculturists and consequently traders. It does not, however, mean that all were migrated or confined to river basins only; many of them with original primitive nature and habits lived in the natural surroundings i.e. in the forests and mountains where water facilities were available. Here mountains and forests supplied them food for their survival which led to the development of a very pious and intimate relationship between nature and men out of which both benefited. The relation between nature and human beings of the primitive period are depicted at various places on rocks in the form of 'rock arts' and pictographs. Gradually men became civilized and interact at every point of living with natural environment. We can positively say that the relation between men and environment were interdependent, i.e. the human beings were happier and healthier where the condition of environment was much better. *Harappan Culture* or the *Indus Valley Civilization* (c. 3rd millennium BCE), originated in the north-western part of the Indian sub-continent which is considered the first civilization of India. The people of the Indus valley civilization had given emphasis on sanitation and environment. The house construction materials, properly planned houses, fortified citadels and public buildings, covered drainage system, wide streets, great granaries, public bath and most sophisticated urban water supply are some of the unique features of the Harappan culture which clearly suggest that the Harappans were not only well acquainted with hygiene and sanitation but also gave emphasis for its maintenance and management. They had world's first tidal dockyard at *Lothal* in Gujarat. The Indus valley civilization flourished because of a conducive environment, the river Indus and the alluvial fertile soil brought up by the waters of Indus became the principal driving force for the development of this civilization. The Indus valley people also worshipped trees like pipal and different animals like humped bull, elephants etc.

The climate of a country affects its productivity and thereby indirectly influenced the character Environment. Traditional Scientific Research of its inhabitants. India, predominantly being an agricultural country, since very early times depends greatly on seasonal rains. Good monsoon had always helped the production of sufficient food for the people while failures of monsoon had led to famine and death by starvation. The seasonal winds or monsoons, in fact, have distinguished India from other countries. They have created those hydrographical conditions which have made India pre-eminently the land of agriculture and one of the best-watered regions of the world

STATE OF INDIA'S HEALTH

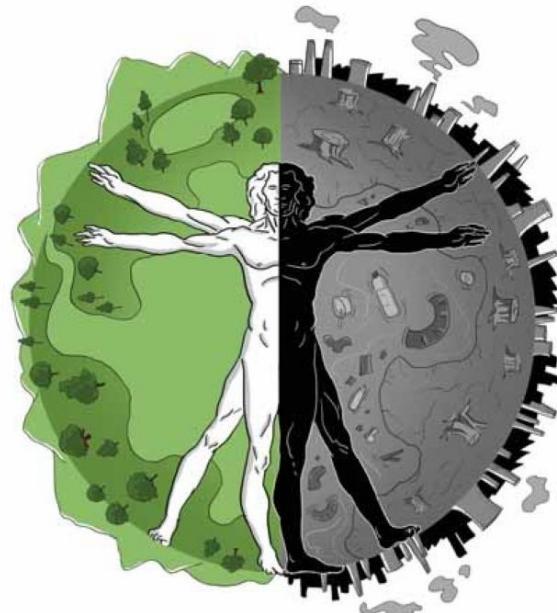


Figure 2: An illustration of the environmental health of India

6 CURRENT SCENARIO OF ENVIRONMENT OF INDIA

Environment now is facing a number of crises. All the natural resources available on the Earth have their limits, over exploitation of which leads to environmental crisis in some form or other. Environment, in fact, is at a very dangerous stage and polluted owing to different causes mainly of man-made. The most pertinent need of the hour is its protection, conservation and proper use otherwise the living world will be endangered into inevitable dangers. Man has to adopt the nature, not vice versa. In the words of M.K.Gandhi, "*the earth provides enough to satisfy everyone's need; but not for anyone's greed*". The U.N Conference of Human Environment in Stockholm was held in 1972 in order to draw attention of the world to the imminent global catastrophe due to pollution of environment and depletion of natural resources. Stockholm declaration, in fact was a major step taken by the world powers towards the preservation, protection and improvement of environment. The Indian Government through constitution and by the implications of law, passing a number of Acts tried to protect the environment. To conclude, we can say that "*We are the generation with the awareness of a great danger. We are the ones with the responsibility and the ability to take steps of concrete action, before it is too late*".

HUMAN-NATURE RELATIONSHIP AND ITS IMPACT ON HEALTH

Pamu Samanvitha

1 INTRODUCTION

The understanding of human-nature relationship and its impact on people's health requires research of its breadth and underlying mechanisms from an interdisciplinary approach includes *evolutionary biology, social economics, evolutionary psychology, and environmentalism*.

Using an interdisciplinary perspective can facilitate a deeper understanding of the complexities involved for attaining optimal health at the human–environmental interface. This chapter gives broader perspective of the human-nature relation and human health.

2 INTERDISCIPLINARY PERSPECTIVE OF THE HUMAN-NATURE RELATIONSHIP

There is a connection between *social economics, evolutionary psychology and biology in areas of health, lifestyle and biophilic nature* as well as between *social economics and environment* in regards to *balancing relationships of power*.

The human-nature relationship can be understood through the *Bio-philia* concept of humanity's affiliation with nature. Humanity and nature have been subjected to changes which are not solely due to the evolutionary mechanisms but also due to the power shift between the humans and nature as stated by *Joachim Radkau*, in his book *Nature and power*, which is still evolving and also keeps on evolving.

Humans have affinity towards the technology and urban environments which are different from the natural world. The human-nature relationship can be understood as an inclusive of our adaptive synergy with nature and our experiences that connect us to the nature.

3 ECOSYSTEM AND HUMAN-HEALTH

3.1 What is an ecosystem?

The term *ecosystem* refers to the combined physical and biological components of an environment. These organisms form complex sets of relationships and function as a unit as they interact with their physical environment.

3.2 Why ecosystems matter for human-health?

Ecosystem services are indispensable to the wellbeing of all people, everywhere in the world. They include provisioning, regulating, and cultural services that directly affect people, and supporting services needed to maintain the other services. From the availability of adequate food and water, to disease regulation of vectors, pests, and pathogens, human health and well-being depends on these services and conditions from the natural environment.



Figure 1: Complex eco-system and human interaction

The relationship between environmental changes and human-health is quite complex because they are indirect, displaced in space and time and dependent on a number of modifying forces. Human health depends on ecosystems which is needed for a productive livelihood.

Ecosystem disruption can impact on health in a variety of ways and through complex pathways. The types of health effects experienced are determined by the degree to which local population depend on ecosystem services, and factors such as poverty which affect vulnerability to changes in elements like access to food and water.

4 IMPACTS OF THE HUMAN-NATURE RELATIONSHIP ON HEALTH

Under this, we look into these areas: happiness and nature connectedness, health implications of present-day people's life choices, urbanization and chronic diseases. These days' health not only implies physical but also mental, social and emotional well-being. People nowadays suffer a lot from psychiatric disorders. Reasons for this are unhealthy diets, urbanization, indoor lifestyles, consumerism and anthropogenic polluting activities. Population growth in urbanized areas increasing the loss of natural spaces and it will be more in the future. This not only affects human's health but also non-humans and also the functioning and integrity of the ecosystem that sustain our economic productivity. Therefore, it has a direct impact on our economic growth and associated pathways connecting to health.

Covid-19 : A Broader perspective & Lessons learnt

Shubham Kumar

1 INTRODUCTION

Covid-19 a zoonotic disease, which originated from Wuhan, China, spread globally affecting all continents(except Antarctica). The pandemic exposes, as well as verifies, the *complex entanglement* between human and non-human world, highlighting the *dysfunctional relationship* and *metabolic irreparable rift* between human and nature.

The Natural science framework perceives the pandemic as a fight between virus and vaccine, overlooking root causes of the pandemic. To get a broader perspective we need to incorporate an interdisciplinary viewpoint including *both Environmental Social sciences and Natural sciences*.

This chapter attempts to provides a broader perspective and towards the end highlights the lessons learnt from the pandemic.

2 SEARCH FOR THE ROOT CAUSE

Zoonotic Disease is an infectious disease that is transmitted between species from animals to humans (or from humans to animals). Corona Virus is known(arguably) to have been afflicted upon humans through bats(or pangolins). From the Natural Science perspective our search ends here.

"*Anthropogenic implicates an actor that doesn't exist. There is no Anthropos, no humanity as a unified actor. So, if not anthropogenic, what? In a word: capitalogenic.*" : Jason Moore

Capitalocene signifies capitalism as a way of organizing nature—as a multispecies, situated, capitalist world-ecology. Environmental Social scientists points Capitalocene as the root cause. In *Bird Flu: A Virus of Our Own Hatching*, Michael Greger (2006) exposed the links between capitalist live farming practices and virus ecology in the following lines, "If you actually want to create global pandemics, then build factory farms"

2.1 Is Covid a Capitalocene crisis or a straight-forward Zoonotic Disease ?

Environmental social scientists argue that "*The "Capitalocene" framework is significant in terms of exposing Covid-19 as a "neo-liberal disease" deeply embedded in the material and cultural fabric of our times*". Historical perspective enlightens us more about it. Communicable diseases existed during the hunting-gathering days, but the shift to agrarian life 10,000 years ago created communities that made epidemics more possible(as history of epidemics indicates). More specifically regarding the Covid-19 pandemic, capitalist's driven live farming practices are manifold, zoonotic viruses thereby breaching the already thin interface of human animal world. Driven by capitalism, the rapid contemporary urbanisation is sprawling into forests, wetlands. As a result, forest disease dynamics, the pathogens' primeval sources, are no longer constrained to the hinterlands alone.

"*Hubei Province, north of Guangdong, where the city of Wuhan is situated, has become a major manufacturing center in the past decades. As Wuhan grew, it sprawled into the surrounding countryside and forests; people were pushed off their small farms and moved into the*

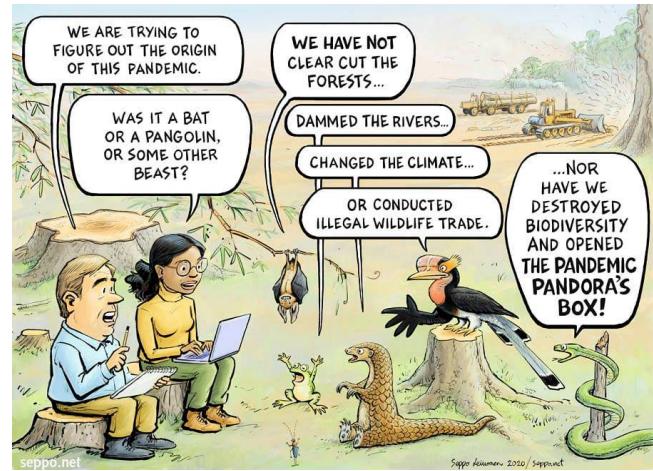


Figure 1: An illustration of the search for the root cause

city's vast slums. The slums served as a bridge between wild and urban spaces. To get by, residents ventured into the neighboring forests; they hunted and raised wild game, trapping, caging, and breeding pangolins, alligators, bats, civets, and other roaming animals on a scale that blurred the line between domestic and industrial animal husbandry. By harvesting animals from the forests, they flushed out pathogens, drawing them into a thriving city that was just a flight away from Singapore or Sydney."

Another social science perspective which is validated by natural science is our evolved cultural habit aligned on the lines of *neoliberal* lifestyle, where meat consumption is hedonistic gain. Pangolins are trafficked ,for irrational beliefs, for their meat(delicacy). Shark fins are considered delicacy. Don't these brings us closer to another zoonotic pandemic? Are not these driven by greed of capitalism?

3 LESSONS LEARNT

When different Sectors and Stakeholders works towards a united goal everything is possible. But the very existence of united goal is on the stake of human existence!!

In 2020, Earth Overshoot Day fell on 22 August. The ongoing COVID-19 pandemic has caused humanity's ecological footprint to contract. Can we not achieve it without Covid?

The frequent occurrence of pandemics has emphasized the fact that unregulated exploitation of natural resources coupled with unsustainable food habits and consumption patterns lead to the destruction of the system that supports human life.

The COVID-19 pandemic clearly has shown that the current public policy and health care systems are inadequate to deal with the challenges. The pandemic does not have any nationality or specific political boundaries.

Moreover we should today focus on the *global modern environmental concern*.(which is our next topic)

Global Modern Environment Problems

Sanket Agrawal

1 INTRODUCTION

Environmental problems are defined as problems with the planet's systems (air, water, soil, etc.) that have developed as a result of human interference or mistreatment of the planet. Our planet is poised on the brink of a severe environmental crisis. Current environmental problems make us vulnerable to disasters and tragedies, now and in the future. Our environment is constantly changing there is no denying that fact. However, as our environment changes, so does the need to become increasingly aware of the problems that surround it. With a massive influx of natural disasters, warming and cooling periods, different types of weather patterns and much more, we need to be aware of what types of environmental problems our planet is facing. We are in a state of planetary emergency, with environmental problems piling up high around us. Unless we address the various issues prudently and seriously, we are surely doomed for disaster.

2 TYPES OF ENVIRONMENTAL PROBLEMS

There are 7 key types of pollution – air, water, soil, noise, radioactive, light and thermal and these are primary causes that affect our environment in many ways. All these types of pollution are interlinked and influence each other. Therefore we need to tackle all of them together. Pollution of air, water and soil requires millions of years to recoup. Industry and motor vehicle exhaust are the number one pollutants. Heavy metals, nitrates and plastic are toxins responsible for pollution. While water pollution is caused by oil spill, acid rain, urban runoff, air pollution is caused by various gases and toxins released by industries and factories and combustion of fossil fuels; soil pollution is majorly caused by industrial waste that deprives soil from essential nutrients.

(1) Global Warming :

Climate changes like global warming are the result of human practices like the emission of greenhouse gases. Global warming leads to rising temperatures of the oceans and the earth' surface causing natural disasters that include flooding, melting of polar ice caps, rise in sea levels and also unnatural patterns of precipitation such as flash floods, hurricanes, wildfires, drought, excessive snow or desertification.

(2) Overpopulation :

The population of the planet is reaching unsustainable levels as it faces a shortage of resources like water, fuel and food. Population explosion in less developed and developing countries is straining the already scarce resources. Intensive agriculture practiced to produce food damages the environment through the use of chemical fertilizer, pesticides and insecticides. Overpopulation is also one of the crucial current environmental problems.

(3) Deforestation :

Our forests are natural sinks of carbon dioxide and produce fresh oxygen, as well as help in regulating temperature and rainfall. At present, forest cover thirty percent of the land, but every year tree cover is lost, amounting to the country



Figure 1: SAVE THE EARTH

of Panama due to the growing population demand for more food, shelter and cloth. Deforestation simply means clearing of green cover and making that land available for residential, industrial or commercial purposes.

(4) Loss of Biodiversity :

Human activity is leading to the extinction of species and habitats and loss of biodiversity. Ecosystems, which took millions of years to perfect, are in danger when any species population is decimating. Balance of natural processes like pollination is crucial to the survival of the ecosystem, and human activity threatens the same. Another example is the destruction of coral reefs in the various oceans, which support the rich marine life.

(5) Soil Degradation :

Soils get damaged due to many reasons. Such reasons include erosion, overgrazing, overexposure to pollutants, monoculture planting, soil compaction, land-use conversion and many more.

3 CONCLUSION

Our natural environment makes human life possible, and our cultural environment helps define who we are. It is therefore essential that our population and economic growth are environmentally sustainable. Environmental science helps us understand our relationship with the environment and informs our attempts to solve and prevent problems. Solving environmental problems can move us towards health, longevity, peace and prosperity. This could potentially save thousands of plants and animals and even humans that may die due to natural disasters or health issues.

Sustainable Development And Conclusion

Nakul Aggarwal

1 ORIGIN

The one who first used the term *sustainable development* was Prime Minister of Norway, *Gro Harlem Brundtland* in 1987. Then, as Chairman of the *World Commission on Environment and Development*, he presented the report *Our Common Future* which defined sustainable development as "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*". Although sustainable development was initially meant to be a solution to the ecological crisis caused by the intense industrial exploitation of resources and the resulting environmental degradation, today it seeks primarily to protect environmental quality and sustainability in a broader architecture; and now has even expanded into concepts of quality of life, their complexity, economics and social barriers.

2 INFLUENCE AND IMPACT

Declaration of *Rio de Janeiro* in 1992, expressing the political will of ONU members, states to take part in the global transition to a sustainable development model. Declaration includes 27 principles that are the basis of sustainable development. A widely accepted viewpoint is that sustainable development seeks the interaction and compatibility of four systems: economic, human (social), ambient (environmental or ecological) and technology. Frameworks of global change and changes in socio-economic landscapes mean adapting to uncertainties. ***But what if adaptation sends a negative signal to the public that we should take the backseat and get used to the fate of this planet, rather than holding the steering and fighting to bring it back from the hell?***

Every day, the world is increasingly aware of the need to look at the health of our joint perspective on new reconstruction of human society. Being in complete interdependence with other forms of "*monetary health*"; the environment, communities, organizations, institutions and even humans are seen in the present world both as a commodity and as a capital good. The *Modernization Theory of Development* distinguishes between two main categories of society in the world, namely the traditional and modern societies. The theory, according to *Tipps (1976)*, argues that the traditional societies are entangled by norms, beliefs and values, which are hampering their development. Therefore, in order to progress, the traditional societies must emulate the culture of modern societies, which is characterised by an accumulation of capital and industrialization that are compatible with development. ***But is development everything that a person can ever ask for?***

Sustainability of nature can be seen as a dynamic equilibrium in the process of interaction between the population and the carrying capacity of its environment, such that the population develops to express its full potential without producing irreversible adverse effects on the carrying capacity of the environment upon which it depends. From this standpoint, sustainability brings into focus human activities and their ability to satisfy human needs and wants without depleting or exhausting the productive resources at their disposal. This, therefore, provokes thoughts on the manner in which



Figure 1: The United Nations Sustainable Development Goals

people should lead their economic and social lives drawing on the available ecological resources for human development.

3 CAN YOU MAKE A DIFFERENCE?

Sustainable Development (SD) cannot be achieved through isolated initiatives, but rather integrated efforts at various levels are needed, comprising social, environmental and economic aspects. The successful implementation of the *sustainable development goals* will rely upon disentangling complex interactions among the goals and their targets. An integrated approach towards sustainability would require realising the potentials of its key dimensional pillars simultaneously, as well as managing the tensions, trade-offs and synergies among these dimensions.

SD thrives on the commitment of people and so in order to translate the concept into action, public participation has to increase. All people must acknowledge that the survival of the future generations depends on a responsible behaviour regarding consumption and progressive social values. It is only by integrating the pillars can negative synergies be arrested, positive synergies fostered, and meaningful SD made to happen. Economic, social and environmental "sustainability" form elements of a dynamic system. They cannot be pursued in isolation for sustainability to flourish; therefore all decisions should seek to encourage positive growth and equilibrium within the natural system. Ensuring sustainable development is everyone's business - global, regional, national organisations as well as governments and civil societies. Considering all this, *one individual alone might not be able to "save the planet" but it is a far better option as opposed to just singing songs about "Saving Nature"*.