



General Article : Views and Analysis

The environment : then and now.

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Abstract

Environment and mankind are interdependent and inter-related branches that have been understood by man from different angles during different times. What our forefathers deciphered about the environment is not what we understand about the environment in the present era. Environment is never static and the studies on the environment also have taken meandering turns. There are several recognized scientific bodies that monitor and studies the environment. These organizations bring out regular reports revealing the status of our environment in all corners of the world. The present chapter is an endeavor to highlight the changes in our environment over the decades through the works of writers and activists topped up with a brief knowledge on documented reports that throw light on the environmental aspects. These reports can be well analyzed opening new vistas for further research.

Keywords: Environment, silent spring, pollution, climate change

1. Introduction

The book *Silent Spring* began with a “fable for tomorrow” – a true story using authentic examples pulled out from many real communities where the use of DDT had caused damage to wildlife, birds, bees, agricultural animals, domestic pets, and even humans. Rachael Carson used it as an introduction to a very scientifically complicated and already controversial subject. This “fable” made an indelible impression on readers and was used by critics to charge that Carson was a fiction writer and not a scientist. Nonetheless this book became a bestseller more so in the present generation when the environment has taken a drastic turn and where awareness drove people into better selves. Carson spent over six years documenting her analysis that humans were misusing powerful, persistent, chemical pesticides before knowing the full extent of their potential harm to the whole biota. We, human beings are selfish. We do all for only us and in this series of doing things for us we have degraded the environment. When this degradation became prominent by way of diseases and other discomforts, we again switched over to remedial measures, with

a sarcastic sense of again saving ourselves. Carson’s passionate concern in *Silent Spring* was with the future of the planet and all life on Earth. She called for humans to act responsibly, carefully, and as stewards of the living earth.

Silent Spring inspired the modern environmental movement, which began in earnest a decade later. It is recognized as the environmental text that “changed the world.” She aimed at igniting a democratic activist movement that would not only question the direction of science and technology but would also demand answers and accountability. Rachel Carson was a prophetic voice and her “witness for nature” is even more relevant and needed if our planet is to survive into a 22nd century. We humans have moved in the line of Carson’s ideology but the pace of movements towards a better environment becomes sluggish. This is because we have entered into a quicksand of scientific gadgets and without which we are uncomfortable. Of course the minimization or a modified use has been started but these measures are either heavy on the pocket or there is ignorance on the part of the target group.

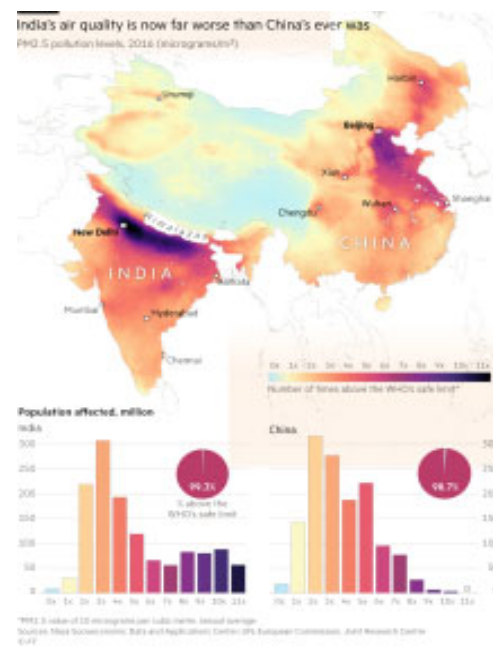
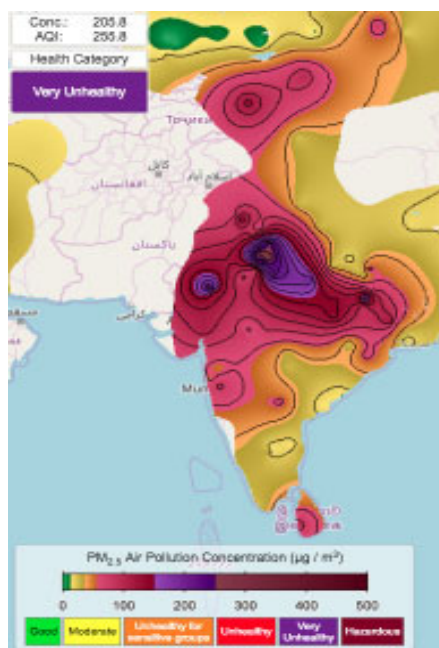
What we are now doing to the world, by degrading

the land surfaces, by polluting the waters and by adding greenhouse gases to the air at an unprecedented rate - all this is new in the experience of the earth. It is mankind and his activities that are changing the environment of our planet in damaging and dangerous ways. The result is that change in future is likely to be more fundamental and more widespread than anything we have known hitherto. Change to the sea around us, change to the atmosphere above, leading in turn to change in the world's climate, which could alter the way we live in the most fundamental way of all. That prospect is a new factor in human affairs.

The environmental challenge that confronts the whole world demands an equivalent response from the whole world. Every country will be affected and no one can opt out. Those countries who are industrialised must contribute more to help those who are not. During the past 50 years, substantial progress has been made on environmental health issues. We have progressed from a time when the environment was taken for granted with no thought of its degradation, to a period in which recognition of environmental issues spurred many historic laws, to the present era where we have begun to think about the environment in a much broader interdisciplinary context. This trend might best be illustrated by comparing experiences in two cities, Boston and Atlanta, 50 years ago and today. Boston typifies an older American city—one that experienced most of its suburban growth in the pre-automobile era—and Atlanta exemplifies a modern American city—one that had its greatest suburban expansion in the post-automobile era.

India is one of the top countries concerned with Environmental degradation. With a past history of bountiful natural resources and an ace environment, today India stands out for being one of the most environmentally degraded countries of the world. The State of India's Environment 2019 in Figures is an exclusive data-driven analysis of major developmental and environmental sectors. SoE 2019 in Figures is an annual quantified statement of environmental statistics and analysis put together by Down To Earth magazine, which Centre for Science and Environment (CSE) helpsto publish. The datasets can be used by the media to investigate compelling stories, ask better questions to policymakers and also to drive them to come up with better policies for sustainable development agenda.

According to the key findings of CSE, Air pollution is responsible for 12.5 per cent of all deaths in India. Its impact on children is equally worrying. Over 100,000 children below the age of five die due to bad air in the country. While India was one of the first country to pledge the phasing out of non-electric vehicles, its national scheme to promote the sale of e-vehicles is yet to pick up. Against the target of 15-16 million e-vehicles by 2020, the county had 0.28 million vehicles till May 2019. Climate change poses the biggest economic threat in the world today and features prominently in the UN Sustainable Development Goals 2030. With just 10 years to go, India is yet to identify indicators to track its climate change preparedness. Of the 13 SDGs the country is tracking, indicators exist for only a handful of the targets.



Regarding the status of water, both surface and groundwater in the country are under stress. 86 water bodies are critically polluted. The bulk of the polluted water bodies are in Karnataka, Telangana and Kerala. One of the reasons is the substantial increase (136 per cent) in the number of grossly polluting industries between 2011 and 2018. Groundwater is also reeling under overexploitation, which is running 94.5 per cent of all minor irrigation schemes in the country. There has been an unsustainable increase in the number of deep tubewells that has gone up by 80 per cent between 2006-07 and 2013-14.

India's farm sector is also under duress. While the input costs for major crops are rising, the average farmland size is shrinking. Even the share of the insured cropped area stands at a dismal 26 per cent.

When we peep into India's rural health, we observe that the health infrastructure is also ailing. There is a 35 per cent shortfall in the number of 24×7 public health centres, where 26 per cent of the positions for medical officers are lying vacant. In fact, Kerala does not have a single 24×7 public health centre. Another worrying trend is that the number of new doctors qualifying every year in the country has decreased by 60 per cent between 2013 and 2017. The country also shares the world's largest absolute burden of at least 11 major neglected tropical diseases, which includes diseases like dengue. By 2050, India is projected to add 416 million urban dwellers to the world's urban population and will be home to about 58 per cent of the total global population. Keeping this in mind, India in 2015-16 announced its ambitious plan of creating 100 smart cities. Four years later, only 21 per cent of the allocated funds for the smart cities have been spent. In the meanwhile, most urban cities have a sizeable population living in slums, which are unfit for habitation. India has 2,613 towns with slums. Of them, 57 per cent are in Tamil Nadu, Madhya Pradesh, Uttar Pradesh, Karnataka and Maharashtra.

The burden of solid waste is becoming unmanageable in India. In fact, 79 major protests against unsanitary landfills and dump yards have been recorded in 22 states in the past three years. Maharashtra, which registered 16 major protests, leaves 43 per cent of its waste unprocessed. While India claims to process 96 per cent of its biomedical waste, eight states and UTs have defaulting hospitals. The country has also recorded a 56 per cent increase in the number of hazardous-waste generating industries between 2009 and 2016-17. At the same time, most of these industries are not properly maintaining their waste

inventory, as mandated by the law.

India's natural gas and hydro-based power plants are in shambles. Gas-based plants are running at 24 per cent of their capacity due to the acute shortage of domestic natural gas. Hydropower projects, on the other hand, are running at just 19 per cent of their capacity and their share in total installed capacity has consistently declined since 1962. The country's progress in renewable energy in 2018-19 has also been dismal. In wind, the country met only 6.3 per cent of the target this year. In solar, it met 5.86 per cent.

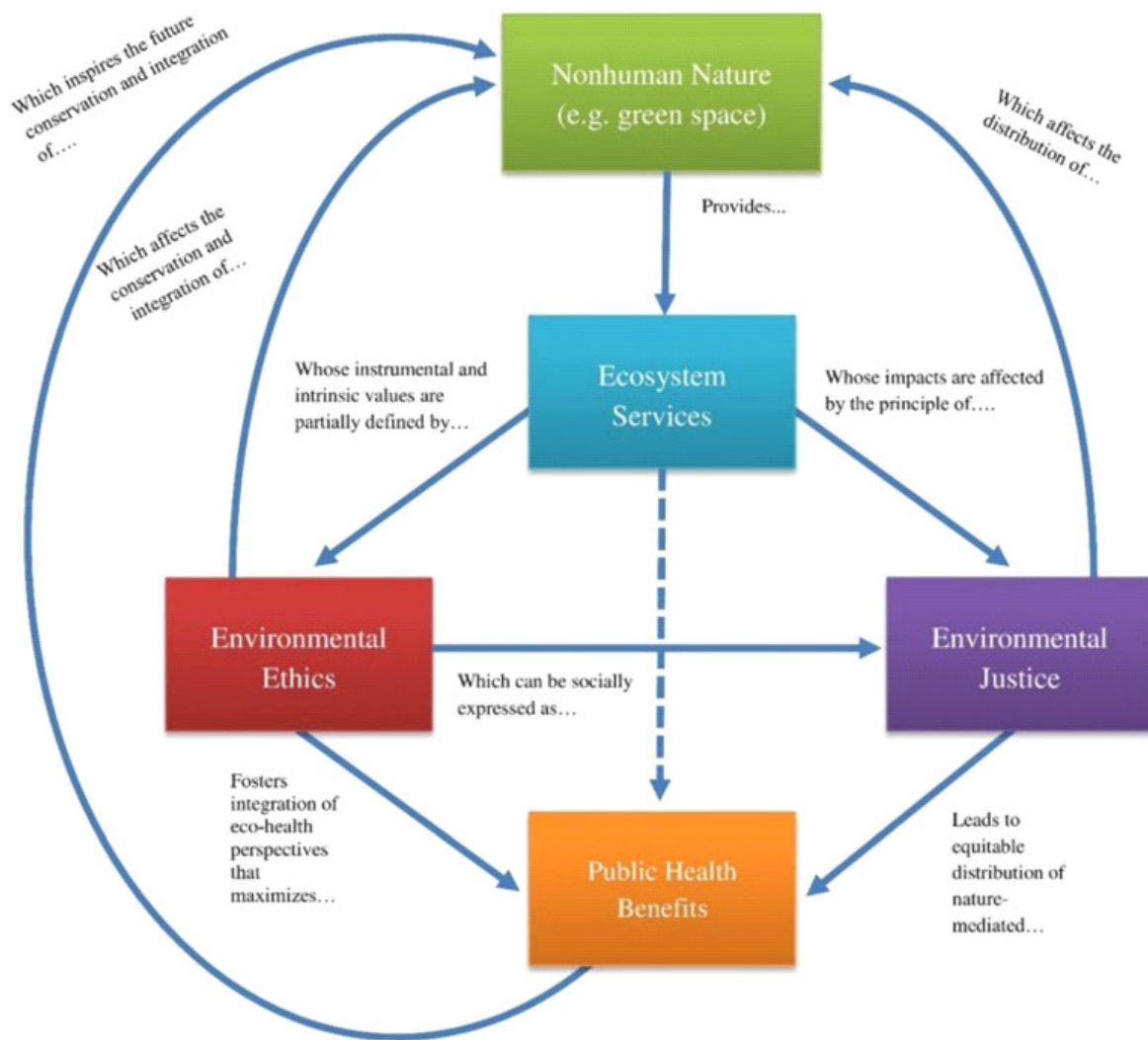
In the yesteryears India had a climate which was diverse and at the same time a very congenial set of climates were enjoyed. But with the whole world, India too is now a place where climate is against mankind. There has been a 22 per cent increase in India's greenhouse gas (GHG) emissions between 2010 and 2014. This has been fuelled by the energy sector, which is responsible for 73 per cent of the total GHG emissions. Besides, India phased out ozone depleting substances such as chlorofluorocarbon by 2011, it shifted to substances such as hydrochlorofluorocarbon, which have high globalwarming potential. India continues to bear the brunt of extreme weather events. In 2018, 11 states recorded major extreme weather events that claimed 1,425 lives.

The depleting forests of India today demands better technology. India has recently shifted to a powerful forest fire monitoring and alert system, SNPP-VIIRS, which can capture forest fires with better accuracy and precision. In April 2019, the new technology recorded 69,523 forest fires, which was 9.5 times more than that recorded by the earlier technology. India was a country with a history of such rich wildlife which could not be compared with any other country. Today we are in a precarious state. As data shows, 37 species were poached or seized in 2018. Of these, 13, including lion, marked an increase over the last year; 161 wild animals were also killed due to road and train accidents

The Global Environment Outlook (GEO) is the UN Environment Programme's (UNEP) flagship environmental assessment. The first publication was in 1997 and was originally requested by the Member States. The Global Environment Outlook Report 2019 is the sixth edition. The report notes that a quarter of all premature deaths and diseases worldwide are due to manmade pollution and environmental damage. The report warns that deadly emissions, chemicals polluting drinking water, and the accelerating destruction of ecosystems crucial to the livelihoods of billions of

people are driving a worldwide epidemic that hampers the global economy. The report highlights the growing divide between rich and poor as rampant overconsumption, pollution and food waste in the developed world leads to hunger, poverty and disease elsewhere. The report notes that as greenhouse gas emissions continue to rise amid a preponderance of droughts, floods and superstorms made worse by climbing sea levels, there is a growing political consensus that climate change poses a future risk to billions. The report expresses concern that the health impacts of pollution, deforestation and the mechanised food-chain are less well understood. The report notes that poor environmental conditions cause approximately 25% of global disease and mortality and resulted in around 9 million deaths in 2015 alone. Due to lack of access to clean drinking supplies, 1.4 million people die each year from preventable diseases such as diarrhoea and parasites linked to pathogen-

riddled water and poor sanitation. The report notes that chemicals pumped into the seas causes potentially multi-generational adverse health effects, and land degradation through mega-farming and deforestation occurs in areas of Earth home to 3.2 billion people. The report states that air pollution causes 6-7 million early deaths annually. The report also calls for a root-and-branch detoxifying of human behaviour while insisting that the situation is not unassailable. Food waste for instance, which accounts for 9% of global greenhouse gas emissions, could be slashed. The world currently throws away a third of all food produced. In richer nations, 56% goes to waste. The report makes a strong case for a rapid drawdown in greenhouse gas emissions and pesticide use to improve air and water quality. The report also notes lack of any international agreement for the environment close to covering what the 2015 Paris accord does for the climate.



Unable to improve its air quality, protect its biodiversity, and cut its greenhouse gas emissions, India—say all available data—stands today at the bottom of the Global Environment Performance Index (EPI) rankings. In 2016, the country had ranked 141 out of 180 countries. In 2018, according to the just released State of India’s Environment (SoE) 2018 in Figures, it has slipped to the 177th position.

The SoE in Figures is an annual compendium of environmental statistics put together by Down To Earth magazine, which Centre for Science and Environment (CSE) helps publish. Sunita Narain, director general, CSE, said, “The State of India’s Environment 2018 in Figures is a quantified statement on issues and concerns of environment and development—issues and concerns which affect us deeply. While our other annual State of India’s Environment in print is a descriptive report, this one is a completely data-driven version for easy access and use.”

According to SoE reports, India scored 5.75 out of 100 in air quality. India’s disappointing performance and the gravity of the situation is further

highlighted when compared with countries such as Switzerland and Japan which have scored over 90.

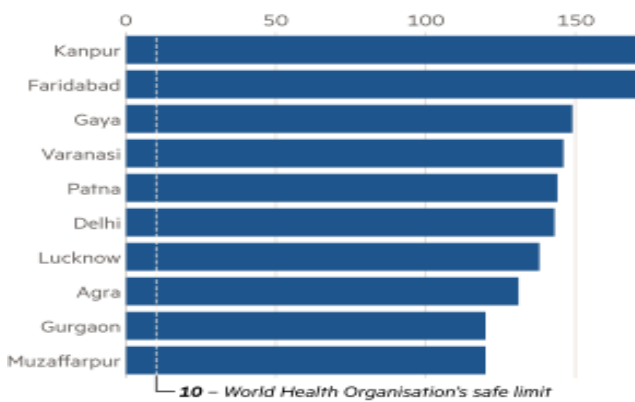
Delhi is always in the news for its poor air quality. However, an analysis of the winter (November and December 2017) and summer (April-May 27, 2018) air quality levels of 10 state capital cities shows that they too are in the dangerous grip of a multi-pollutant crisis, and are currently facing a severe health challenge.

While in the summer months, Delhi had 65 per cent days when poor and very poor air quality was recorded, in winters this percentage increased to 85. On only about 1 per cent of the monitored days in summer months was the air quality observed to be satisfactory in the city.

Lucknow fared much worse in the winter months, where very poor air quality was recorded on over 70 per cent of the monitored days and severe levels of air pollution witnessed on around 24 per cent of the days. Thiruvananthapuram, Bengaluru and Chennai, on the other hand, experienced comparatively better air quality.

The 10 most polluted cities in the world are all in northern India

Average annual PM2.5 pollution (micrograms/m³, 2016)

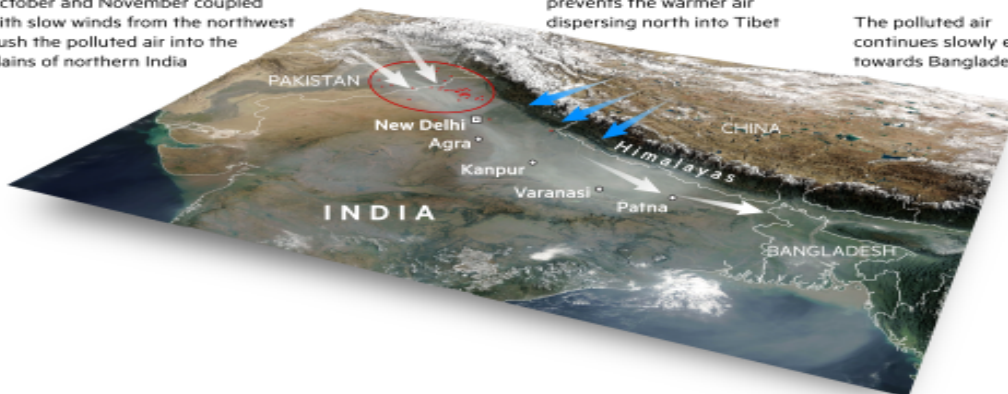


The Himalayas form a natural barrier to cleaner air in northern India

The **burning of crops** during October and November coupled with slow winds from the northwest push the polluted air into the plains of northern India

Cold air from the Himalayas prevents the warmer air dispersing north into Tibet

The polluted air continues slowly east towards Bangladesh



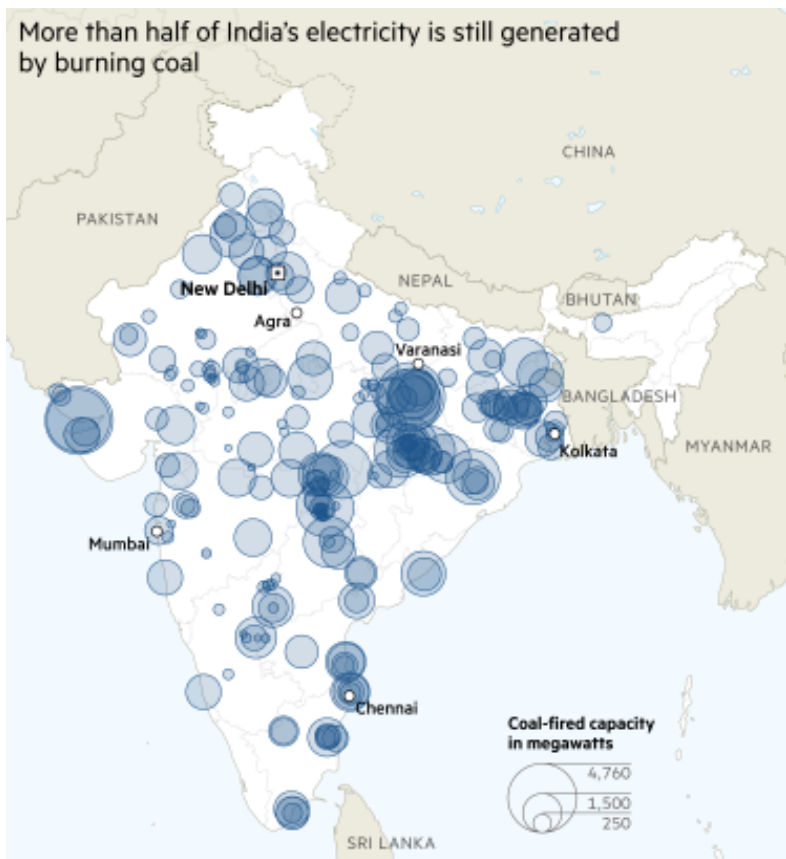
Sources: WHO; Nasa Eosdis Worldview © FT

The state of our water according to the SoE report confirms that the Ministry of Drinking Water and Sanitation launched the HarGharJaYojana to provide piped water supply to every household by 2030 to meet the Sustainable Development Goals. However, in 18 Indian states and UTs, over 82 per cent rural households, which is the national average, remain without a tapped connection. The dependency on groundwater has increased between 2004 and 2013. SoE in Figures says that 70,736 rural habitats with a combined population of 47.4 million live on contaminated groundwater. Traces of new contaminants are now being reported in the country, suggesting a steady decline in the quality of groundwater.

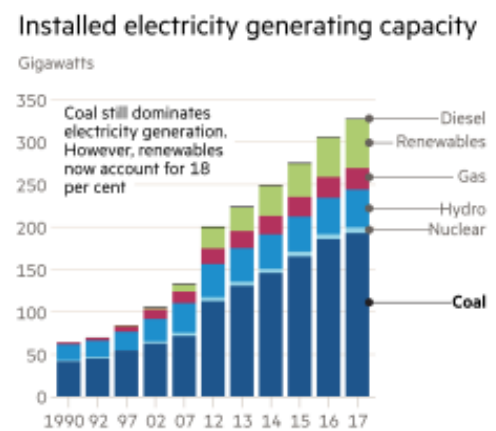
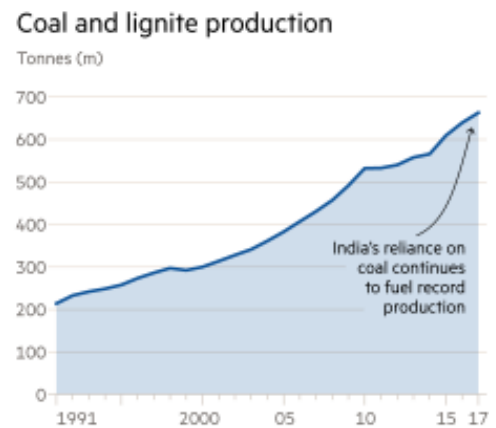
Sanitation plays a great role in the maintenance of our environment. Under the Swachh Bharat scheme, 72.1 million individual household toilets in rural India have been constructed; however, little has been done to popularise their use.

In 2017-18, states have used just 1.3 per cent of the funds for carrying out IEC (Information, Education and Communication) activities to raise awareness in rural areas. The situation in urban areas is worse, according to CSE’s water and sanitation experts, with close to a million households waiting for over six months for toilets to be constructed.

India is yet to develop on the Energy Sector. After missing its targets for two consecutive years, the Centre, it appears, is fast losing interest in meeting its ambitious target of installing 175 gigawatt (GW) renewable energy by 2022. The poor performance will also hit the job-creation potential of the scheme which was estimated to be over 300,000. Only 9 per cent of the roof-top solar target has been met so far. On the other hand, even as the Centre’s UjjwalaYojana has covered all states, LPG distribution has taken place significantly in only 15 states. And even here, a substantial portion of rural population relies on unhealthy firewood for cooking.



Sources: World Resources Institute; Haver Analytics; Central Electricity Authority © FT

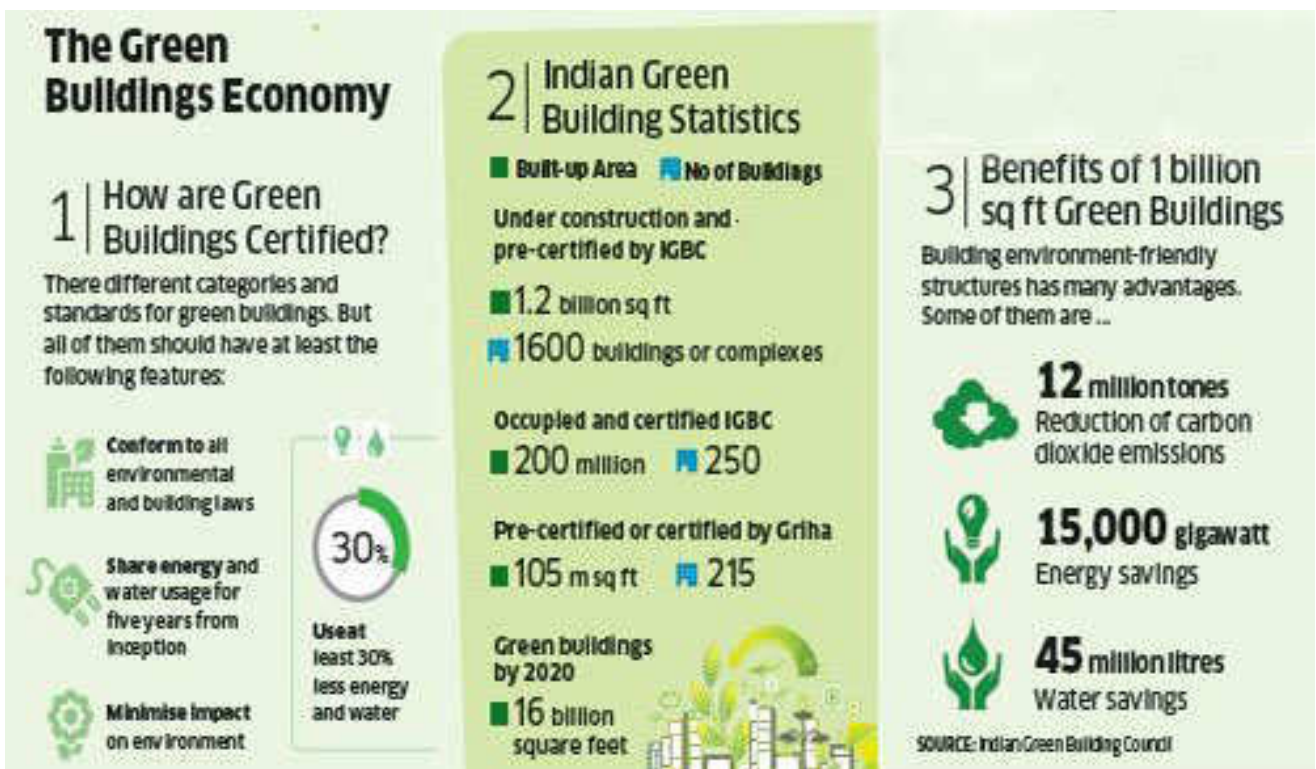


Once upon a time India’s wealth of Forests was luxuriantly rich. While India’s total forest cover has registered a 0.2 per cent increase between 2015 and 2017, there are some serious concerns over the growth pattern. According to Richard Mahapatra, managing editor, Down To Earth, the SoE in Figures clearly shows that the bulk of the increase has taken place in the open forest category, which includes commercial plantations—which is worrying. And this has happened at the cost of moderately dense forest category, which is normally the area close to human habitations. When it comes to forest clearances, in 2017, the Central government, on an average, gave clearances to close to six developmental projects a day in forest areas. Overall, there has been a 146 per cent increase in forestland diversion for non-forest activities in the past one year with maximum diversions recorded in Madhya Pradesh, Telangana and Odisha, which together accounted for 54 per cent of the total diverted area. Adding to the report, there is an increasing number of forest fires in the country—which have gone up by 125 per cent within just two years (2015-2017). The government, in this regard, has failed to utilize funds earmarked to contain forest fires.

The SoE report on environmental crimes says that since the National Green Tribunal (NGT) was set up in 2010, the number of environment-related police

cases seems to be gradually decreasing. However, the number of court cases has drastically gone up. In 2016, the number of registered environment-related crimes stood at 4,732, while 1,413 cases were pending police investigation. Cases pending in the courts were at a staggering 21,145. This made up for 86 per cent of the total environment-related offences in the country. With the NGT forced to close its regional benches in 2018 due to staff crunch, the situation is likely to worsen. The number of cases being disposed per day stands at 9.3 on an average, according to 2016 data. At this pace, it will take six years for the court to finish the existing backlog. To make matters worse, 15 states registered an increase in environmental crimes between 2015 and 2016. Uttar Pradesh, Rajasthan, Maharashtra and Assam were among the states that witnessed the highest number of registered environmental crimes.

The Indian green building movement is now so deep and vast that it promises to change the course of its construction industry. The country has 1.2 billion square feet of green buildings being built or ready, and pre-certified by Leadership in Energy and Environmental Design (LEED), of which IGBC is the representative in India. It has another 105 million square feet of Griha-certified buildings ready or being built. India’s total built-up space is 25 billion square feet and is expected to increase in the coming years.



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