

## INDIA MAKES STRIDES TO TACKLE CLIMATE CHANGE

Dr Dhurjati Mukherjee

Facing the grave challenges of climate change India has taken some definite strides in two fields—the Swachh Bharat campaign and the pursuit of renewable sources of energy, especially solar power. On both fronts, the country has been quite successful and there has been commendable progress. In fact, toilets are being built all over the country with government assistance with the objective of making the country defecation free by the year 2019. The pace of activity in the solar power sector has picked tremendously in the last two years due to strong government support and increasing price competitiveness of solar power.

Facing the grave challenges of climate change, India has taken some definite strides in two fields—the Swachh Bharat campaign and the pursuit of renewable sources of energy, especially solar power. On both fronts, the country has been quite successful and there has been commendable progress. In fact, toilets are being built all over the country with government assistance with the objective of making the country defecation free by the year 2019. The pace of activity in the solar power sector has picked tremendously in the last two years due to strong government support and increasing price competitiveness of solar power.

There is a hue and cry over natural resources of the earth being mindlessly exploited globally, resulting in a poor state of their regeneration and causing irreversible damage to the planet. Every year, the World Environment Day is observed with great fanfare but in reality whatever is being done by most countries is not sufficient to restrict global warming to save mother earth.

One cannot deny the fact that climate change and global warming has become a problem and at the end of the last five-six years, it is declared the warmest year. This is expected to continue as experts believe that the declarations by individual countries as per the Paris Accord, even if implemented in letter and spirit, may result in global warming increasing between 2°C to 3°C, if not more.

Coming to India, the environment is being threatened as ecological disruptions are taking place in various ways. The November 2015 report of the World Bank found that climate change could effectively negate economic progress, pushing 45 million Indians into extreme poverty over the next 15 years. Other reports point out that India lost more people to the impacts of climate change than any other country and suffered third highest financial losses from extreme weather events as per a report on global climate vulnerability released on November 9, 2017. The Global Climate Risk Index 2018 referred

to India's intense heat waves, extreme rainfall events and severe floods to label the country as the sixth most vulnerable in 2016 after Haiti, Zimbabwe, Fiji, Sri Lanka and Vietnam.

The report, prepared by German Watch and other organizations from across the world, found climate change impacts had killed 2119 people in India during 2016, a number higher than any other country. However, analysts believe that India's actual vulnerability may be even higher than assigned because the effects of long-term climate impacts such as sea level rise which, in the country, affects regions like the Sunderbans with a population of five million had not been considered in assessing the climate risk. It estimated that India lost about \$ 21,500 million due to extreme weather events during 2016, the third highest financial loss after those suffered by China and the US.

Again, India is set to overtake China and become the world's largest emitter of sulphur dioxide, an air pollutant that is generated when coal is burnt and can lead to severe haze, acid rain and asthma complications. A US study (released on November 9 last year) found that though China's sulphur dioxide emissions have fallen by 75 per cent since 2007, India's emissions increased by 50 per cent. The findings, based on measurements by an instrument on NASA's Aura satellite, point to "effective sulphur dioxide control in China and lack thereof in India", the researchers pointed out in the journal, Scientific Reports. The number of Indians exposed to dangerous levels of



the pollutant increased from 13 million in 2013 to 33 million in 2016. China's share of such population dropped from 457 million to 99 million over the same period.

All this clearly point to the fact that there is an ecological crisis in the country that needs to be tackled effectively. Though one cannot deny the fact that environmental awareness has been growing, the dimension of the looming crisis has surely threatened our ecological system.

Estimates reveal that India needs over \$1 trillion to meet its requirements to counter climate change and would like to have a meaningful resolution of the issue of long-term finance at the global climate negotiations. It is estimated that India needed \$ 206 billion to support plans to curb emissions, \$ 189 billion to execute national and state level climate action plans and \$ 134 billion for low carbon growth related mitigation.

It goes without saying that we are on the brink of the worst impacts of climate change. However, it may be pointed out that experts and even the UN Secretary General, Antonio Guterres has expressed optimism about the start on decoupling emissions from economic growth and massive economies such as China and India are on track to surpass their Paris pledges. But experts have been questioning whether the steps taken are adequate to tackle the looming crisis ahead.

All the above developments confirm that the so-called modern civilization is destroying the tropical forests, hastening land degradation and desertification, destroying the environment, destroying livelihoods of poor farmers and turning human lives into well trained slaves, specially in Third World countries, including India. Moreover, a latest report of the

Southern University of Science & Technology in China has pointed out that even if global warming is limited to 2<sup>o</sup>C, as per the Paris Accord, around 25 per cent or even more of the total land surface will become drier. And this includes land in all five climatic zones – hyper arid, arid, semi arid, dry sub-humid and humid.

### India's Initiatives

Gandhiji had the foresight to recognize the imminent danger threatening the existence the Earth as a result of environmental destruction and violence and references are found in his famous book, Hind Swaraj. He predicted "We all have to die with it (modern civilization), if we do not act, that is, if we don't do our duty".

In such a critical situation, India has taken some definite strides in two fields –the Swachh Bharat campaign and the pursuit of renewable sources of energy, specially solar power. On both fronts, the country has been quite successful and there has been commendable progress. In fact, toilets are being built all over the country with government assistance with the objective of making the country defecation free by the year 2019. Certain sections believe that this may take another year or so to achieve the objective and, within this time frame, the habits of people are also expected to change.

Also, as stated by the Union Water Resources Minister Shri Nitin Gadkari, the result of Ganga cleaning would be visible on the ground by March next year as water quality would be 70 to 80 per cent cleaner from 2014-15 levels. "It is a general perception that nothing significant is being done under 'Namami Gange' programme but this is not correct. Our works have started results on the ground", Shri Gadkari said. A total of 195 projects worth Rs 20,959 crores have been sanctioned under the programme which is being



implemented by the National Mission for Clean Ganga (NMCG) in association with the states.

The water resources secretary of U.P. confirmed that water quality of the river has improved in terms of three parameters – biochemical oxygen demand (BOD), dissolved oxygen (DO) and coliforms which indicate the health of the river. The DO levels have improved at 33 locations and BOD levels at 26 locations while coliform bacteria count is reduced at 30 locations, while referring to water quality monitoring data of Central Pollution Control Board (CPCB) for 2015-17 period.

As regards the power sector, the Prime Minister Shri Narendra Modi wants to raise renewable capacity to 175 gigawatts by 2022 from 45 gigawatts at present. In addition to meeting its own energy targets, which Bloomberg New Energy Finance estimates may cost \$200 billion. India wants to emulate industrial development in neighbouring China, where solar manufacturing has created a world-leading export industry.

Meanwhile India has become one of the biggest clients of Chinese photo-voltaic manufacturers in the absence of its own domestic capacity. But this is expected to change as our country has the necessary skills and along with finance, being provided by the government, future prospects appear quite bright. Moreover the switch to renewable sources of energy should create more and more demand for photo-voltaic products, not just in India but also in the neighbouring countries.

Reports indicate that installed solar capacity, including rooftop and off-grid segments, in the country has crossed 10 gigawatts (GW). In fact, the pace of activity in the sector has picked tremendously in the last two years due to strong government support and increasing price competitiveness of solar power. "India is expected to become the world's third biggest solar market from next year after China and the US", according to consultancy firm, Bridge to India stated.

This was a dramatic increase from the 20,000 MW envisaged in the Jawaharlal Nehru National Solar Mission launched in the year 2010. The present stress on solar power at the behest of none other than the Prime Minister himself is indeed a strategic tool for the government under its changed attitude after the Paris Accord.

India receives about 5000 trillion kilowatt hours (kWh) equivalent of energy per year through solar radiation. Just one per cent of the country's land area can meet its entire electricity requirement till 2030.

Experts believe that solar power is one way of meeting India's shortfall and increasing energy requirements in the coming years. It is indeed regrettable that nearly 400 million people in the country do not have access to electricity but less than 6000 solar lanterns are used to day.

In a survey undertaken by McKinsey & Company (in May 2009), it was pointed out that India has one of the world's highest solar intensities with an annual solar energy yield of 1700 to 1900 kilowatt hours per kilowatt peak (kWh/KWp) of the installed capacity. After India, US mainly California state, Hawaii and Spain are the largest solar power producers with 1500 to 1600 kWh/KWp followed by Italy, Australia, China, Japan and Germany. It may also be heartening to note that as per Ernst & Young's renewable energy country attractiveness indices which ranks countries based on regulatory environment, fiscal support, unexploited resources, suitability to different technologies and other factors determining renewable energy growth in a country, India attains a ranking within the top five in the world.

### Future Outlook

Afforestation, desiltation of rivers and canals and replenishment of soil with organic matter – will need maximum resources that now flow to power, large industry and irrigation. The present thrust on solar power and wind power are, no doubt, steps in the right direction but this has been very late in the day. As it is quite obvious, "afforestation can be successful only if, for a few decades, the forests are freed from the pressure of firewood and dams and other development do not replace these forests, causing extermination of wild life". This is the price we have to pay for the destruction we have carried out in the name of development.

Finally, it needs to be reiterated that at this juncture a civilization that is ecologically balanced has to be the strategy of all countries, including India. Humans have to learn to care about what happens to other species and ecosystems that is, to treat nature as if it mattered. What is more important at this juncture is that humans can no longer treat the environment and other species as mere objects but take care of them for their own well being.

*(The writer is a well known journalist and author, specializing on economic, developmental and environmental issues. He is a Guest Faculty with Xavier University, Bhubaneswar and many other academic institutions.  
E Mail: dhurjatimukherjee54@gmail.com)*