

# Forests, rivers and pollution

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PROBIR KUMAR SARKER

**A**MID growing industrialisation and pressure of increasing population, and consequent massive pollution due to gross violation of environmental rules, the government has cut this year the budgetary allocation for the Ministry of Environment and Forests, putting the pace of preservation and cleanup of the nature to lag behind an expected level.

Human beings rely on the nature's air, water, crops, trees, birds and animals to survive, whereas those hardly need human assistance, only need to be saved from human aggression. Human beings need to shoulder the major responsibility to take care of the ecology, at least taking into consideration its importance in their lives.

But even though we know the facts, do we really care? Do our government's regular activities and special initiatives protect and

manpower shortage, non-cooperation from other government agencies, wraths of some businessmen largely responsible for pollution, and criticisms from the green groups for inactive attitude including inefficient monitoring.

The Department of Environment (DoE) has reportedly performed better than the forestry wing. But what brought the DoE into the podium is a "one-man-show", a senior enforcement official who has been relentlessly, but occasionally, enforcing his power against the business moguls indiscriminately torturing the environment.

However, in his voyage -- aiming at compelling violators to behave themselves by imposing exemplary fines and other immediate measures like shutting down units -- the officer is supported and followed by only a few in his organisation, although admired by thousands of citizens. But his

reports of massive corruption, has been facing severe shortage of manpower. However, it's no issue whether the forest guards and rangers are capable of carrying out their duties or not, most of them seem to have no love and fascination for the Mother Nature. The proof is the news reports of involvement on the forest department officials and staff in felling trees from reserve forests arbitrarily, assisting in poaching and other criminal activities and approving establishments harming biodiversity in different areas. The people living in the forests and around may give more shocking description of their cruelty and brutality.

Whatever the real scenario out there, whichever the government comes to power claims of giving much priority to protection and maintenance of forests and ensuring a clean environment for the people, while blaming the previous government for "doing nothing". Such claims are usually made in budget speeches or a government's yearly meetings of review.

The finance minister in this year's budget speech has made some similar remarks about the environment with regard to the ministries concerned.

The minister gave an outline of a master plan that would cover different ministries over a wide range of issues concerning the environment and climate change.

Ministries of Agriculture, Fisheries and Livestock; Local Government, Rural Development and Cooperatives; Power, Energy and Mineral Resources, and the Ministry of Land have their own environment agenda. He hoped that this master plan would be prepared by next year and the development partners would come forward with support.

Surprisingly, the minister in his speech also elaborated "successes and remarkable initiatives" in environment and climate change-related matters in the "last three years", after the ruling Awami League-led grand alliance government assumed office.

The minister said the government was "working relentlessly to shift all the tannery factories spread all over the country including Hazaribagh of Dhaka city to the Leather Industrial City being built around the vicinity of Dhaka metropolis".

But in reality, only 150 industries out of around 200 from Hazaribagh could be shifted to the proposed tannery estate next year if the construction works of the central effluent treatment plant (CETP) is completed. The project was undertaken around a decade back but due to bureaucratic and other common glitches in our system it could not be handled seriously, and has lingered. Ironically, setting up of ETPs or CETPs have not been a new provision, it was there in the environmental law of 1997.



Denudation of forests goes on unabated

The finance minister cited that implementation of two priority programmes of environment were in progress -- making the river Buriganga free from pollution and bringing 20 percent land of the country under afforestation by 2015 (current progress rate is about 13pc).

The cleaning up of Buriganga and the inter-linked rivers around Dhaka has been an issue since their waters went dark around a decade ago. The other nearby and connecting rivers -- Turag, Balu, Shitalakkhya (Dhaleshwary) and Bongshai -- too are carrying water which is unsafe for use. The government has recently initiated a mega plan, some say it's already part of an existing long-term plan, to remove the waste piled on Buriganga riverbed through excavators. And as part of a long-term plan, water will be brought from river Jamuna by dredging 162 kilometres of Pouli, Shitalakkhya, Bongshai and Turag rivers. There was a little work done last year in Buriganga to extract waste. So it seems the mega cleaning work may take several decades.

To elaborate the government measures regarding forests, the minister mentioned that 28 locations of the country were declared as reserve forest areas, which represents 1.8 percent of the total area of our country. During the last three years, block gardens over 31,267 hectare of land and strip forests covering 11,445 kilometres have been created, he said.

In addition, raising of as many as 256.57 lakh plants has been completed. In 2012-13, a target has been set to create block garden over 15,000 hectare of land and strip forests covering 4,500 kilometres. It also includes

raising of 22.94 lakh plants against the target of 80 lakh. For proper management of various programmes in environmentally vulnerable areas, appropriate regulations have been finalised."

The long list of initiatives and figures may surprise us, until we look at the scenario at the field level. However we all wish these plans come true, but at the same time also want to "expect" something "rationally". Either big or small, no plan can be effectively executed until there are honest, sincere and talented people in the chain of its management. We don't see reforms in the forest department for long; manpower, equipment and logistics not increased or improved much.

It seems like the government allows the problems to be created and then undertakes plans to solve those, perhaps to ensure own credit out of it. This has been continuing for decades, and we mustn't be in any complacency.

The minister also told people possibly heroically that several crucial policies or programmes -- taken in the last three budgets -- were "successfully implemented".

We hope the government will be serious in executing those proposed programmes. The measures are highly appreciable.

Only, let's not claim beyond reality and not plan beyond what is possible to execute. Let's join hands and ensure a clean and healthy environment for us and the progeny.

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River water remains polluted to the extreme

nourish the environment?

The government for the 2012-13 fiscal year has raised the development allocation slightly, cutting the non-development allocation significantly. Precisely, the proposed total allocation for the environment ministry this year has been Tk 973 crore, whereas it was Tk 1,231 crore in 2011-12 and Tk 1,116 crore in 2010-11 fiscal year.

The ministry saw budget cut this year at a time when its two wings -- forests and environment -- have been experiencing

symbolic operations have not been able to put threats against the other culprit industries and individuals. This could have happened because of unethical practices by maximum DoE officials and staff. This is another major reason behind the regulator being mostly ineffective in the face of massive pollution and destruction of the environment, despite having many laws and rules.

The forest department, highly condemned for years for its inefficiency and

arguments as they are to patterns of climate that repeat themselves each year.

El Nino is one such pattern a gigantic blob of warm water that sloshes around in the Pacific Ocean, causing weather changes across wide swaths of the globe. Another is the West African monsoon, which brings rain to the west coast of the continent. Each is subject to behaving like dynamical systems which means they are prone to "flip" from one state to another, like one of Scheffer's ponds, over time periods that vary from a year to a few hundred.

The most frightening prospect that

Lenton has found is the vulnerability of the Indian monsoon. More than a billion people depend on this weather pattern each year for the rain it brings to crops. The monsoon, though, is being affected by two conflicting forces: the buildup of carbon dioxide in the atmosphere is adding energy to the monsoons, making them more powerful. On the other hand, soot from fires and coal plants acts to block the sun's energy, weakening the monsoons.

This opposition creates potential

instability and the possibility that the atmospheric dynamics that bring the monsoons could change suddenly. Lenton's analysis shows this could occur in a remarkably short time. The monsoons could be here one year, then gone the next year.

Other possible tipping points are

the melting of the North Pole's sea ice, Greenland's glaciers and the Antarctic ice sheets, and the destruction of the Amazon rain forest and Canada's boreal forests.

# The climate change tipping point

*Once you reach a tipping point, it's very difficult to return things to how they used to be. It's easy to roll a boulder off a cliff, for instance, but much harder to roll it back.*

FRED GUTERL

**S**O FAR 2012 is on pace to be the hottest year on record. But does this mean that we've reached a threshold, a tipping point that signals a climate disaster?

For those warning of global warming, it would be tempting to say so. The problem is, no one knows if there is a point at which a climate system shifts abruptly. But some scientists are now bringing mathematical rigor to the tipping-point argument. Their findings give us fresh cause to worry that sudden changes are in our future.

One of them is Marten Scheffer, a biologist at Wageningen University in the Netherlands, who grew up swimming in clear lowland ponds. In the 1980s, many of these ponds turned turbid. The plants would die, algae would cover the surface, and only bottom-feeding fish remained. The cause: fertilizer runoff from nearby farms was well known, but even after you stopped the runoff, replanted the lilies and restocked the trout, the ponds would stay dark and scummy.

Scheffer solved this problem with a key insight: the ponds behaved according to a branch of mathematics called "dynamical systems," which deals with sudden changes. Once you

reach a tipping point, it's very difficult to return things to how they used to be. It's easy to roll a boulder off a cliff, for instance, but much harder to roll it back. Once the ponds turned turbid, it wasn't enough to just replant and restock. You had to get them back to their original, clear state.

Science is a graveyard of grand principles that fail in the end to explain the real world. So it is all the more surprising that Scheffer's idea worked.

By applying the principles of dynamical systems, Scheffer was able to figure out that to fix the ponds, he had to remove the fish that thrive in the turbid water. They stir up sediment, which blocks sunlight from plants, and eat the zooplankton that keep the water clear.

His program of fixing the Netherlands' ponds and lakes is legendary in ecology. Scheffer and other scientists are now trying to identify the early-warning signals for climate that precede abrupt transitions. Tim Lenton, a climate scientist at the University of Exeter in England, has identified a handful of climate systems that could reach tipping points in the not-too-distant future. These are not so much related to global average temperatures as the main metric for climate-change

the melting of the North Pole's sea ice, Greenland's glaciers and the Antarctic ice sheets, and the destruction of the Amazon rain forest and Canada's boreal forests.



Snows melt in the arctic due to global warming and climate change

We know that the dynamical-systems idea worked for Scheffer's ponds because he achieved real-world results. But why should we believe that the principle explains things like El Nino and the Indian monsoon? The acid test will be whether the real world behaves the way Lenton says it will. If the Indian monsoon disappears, we'll know he is right.

What then? The real worst-case scenario would have one such event triggering others, until you have a cascade of weather flips from one end

of the planet to another. It wouldn't be quite as dramatic as Hollywood might want to depict, perhaps, but it would be dramatic enough to rewrite the predictions for sea level and temperature rises that are part of the current consensus. This worst case is highly speculative, but sudden shifts in climate patterns may already be happening.

The policy makers aren't likely to be discussing dynamical-systems theory anytime soon. Fortunately, scientists like Scheffer and Lenton are

trying to work out the details of how closely nature hews to these mathematics, what a true tipping point would look like and what we might do if and when we face one.

We need a tipping point in climate politics, where all of a sudden we start paying attention.

The writer is the executive editor of Scientific American and the author of *The Fate of Species: Why the Human Race May Cause Its Own Extinction and How We Can Stop It*.

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