

The Mother of Trees

NO STRINGS ATTACHED



AASHA MEHREEN AMIN

It is perhaps the greatest environmental love story of all. Saalumaraada Thimmakka, a day labourer and Bekal Chikkayya, a cattle herder, both from Hulikal village in Bangalore district, defying all the taunts from society for being childless, decided to plant trees and treat them like their children. It may have seemed like the whim of an eccentric couple but they lived up to their promise taking care of the saplings of Banyan trees, sometimes carrying water for them a good four kilometres. They were, after all, their most beloved, their children, and over 50 years these saplings grew into gorgeous banyan trees, providing a wondrous 5 km canopy from Kudur to Hulikal. Although her beloved life partner passed away in 1991, Saalumaraada, (now 105 apparently, has been awarded for her work), continued to raise her children - more than 380 of them in Karnataka.



PHOTO: CNN.COM

The world needs more people like her.

Contrast this with the millions of trees being mercilessly cut every day all over the world to make fancy furniture or make way for the accommodation of an ever burgeoning population. In our own country, once known for its overwhelming greenness, around 2,000 hectares of forest are lost (says a 2009 FAO report) due to overpopulation, weak legislation and of course the mother of all evils, GREED. The loss must be many times more by now.

You don't even need statistics to know how much greenery we have lost. Just look out the window. If you are among the majority of the 17 millions of residents of this claustrophobic city, chances are all you will see is a skyline of concrete and more concrete, with maybe a smattering of something green here and there. In some areas, trees as old as a hundred or more have been leveled to the ground to make way for high rise apartment buildings, malls, parking lots or for rows of

ugly shops selling hardware, sanitary ware, automobile spare parts and what not. This is the scene pretty much all throughout the urban areas of the country while villages have been denuded to accommodate smoke-emitting brick kilns. In hilly areas like the Chittagong Hill Tracts, hills have been butchered for human settlement, along with all the trees. And now the worst killing of all - the Sundarbans where mangroves will be brutally decimated to allow for a mammoth coal plant to spew out ash and for heavy industries to cough up their noxious fumes. Surely trees will die, along with them all those beings that depended on them. Humans, unfortunately, have started on a suicidal path, killing what can be described not as their children but rather their mothers

who have all along sacrificed everything, to keep their wards alive.

For without the rows of trees in coastlines that shielded us from the monsters called Aila and Sidr, how will we be protected from their vicious onslaught that will drown our villages, our homes and ourselves? Who will provide the cooling shade and sustenance for weary travellers battered by the sweltering sun? And those of us who have forgotten to think beyond our Dhaka, how much thicker will the smog get as we get more and more cars on the streets, more air-conditioning for our greedy ventures? Who will inhale all the carbon monoxide and other noxious gases now that we have done away with all those Krishnachura, Bunyan, Rain Trees, Koroi, Mango and Jackfruit trees and those whose

names we do not know, that once lined our streets? Now we must inhale the artificial venoms we have created and subject our young ones to wheezing lungs that may or may not survive the years of slow poisoning.

But it was not always so brutal, I might say to my grandchild (if I am lucky enough to live that long). Once upon a time we loved trees like our children. We planted saplings and watered them with utmost care. We had gardens in almost every home where the fragrance of Hasnahena, Gondharaaj, Beli, Rajanigondha and Jasmine would intoxicate the evening breeze. They were havens for the children to climb those intricate networks of branches to get to the treasure of mouthwatering *peara*, *jaam*, *tetul*, *aam*, *lichu*, *betphol*, *jamrul* and *boroi*. The trees were in

abundance in the streets, inside houses, in parks that have long gone extinct along with their green gems. Houses were decorated, not with shiny, gaudy steel, but with cascading bougainvillea of every shade - pink, fuchsia, yellow and fiery orange. There was oleander, magnolia, joba, dahlia, gada and shy periwinkle to create a fairy kingdom for butterflies and bees and tiny birds to find their nectars. And then when we got sick, there was the *neem* tree to provide leaves of soothing baths during chicken pox, the *orhohor* leaves to ease our jaundice.

Now all we can do is sigh with nostalgia for a time lost forever. Now we must drive for miles before we can escape the ugliness of the barren, concrete jungle we call home to find few patches of green. Thankfully there are still some trees bravely standing tall, trying hard to take in the fumes emitted by our deadly contraptions, defiantly facing the lecherous eyes of those humans waiting for the opportune moment to strike and steal.

For some reason, the story of Saalumaraada made me think of two guava trees in the house I once lived in. One was right in front near the gate and the other at the back leaning against an intermediary terrace. It was a special variety of guava - green on the outside and salmon coloured inside, the taste equally exquisite. They were my mother's favourite trees and she took great pleasure in picking them from the terrace and giving the treats to her children. But a few odd years later, one of the trees became visibly sick - perhaps it had been struck by lightning or its roots had been made weak by the storm. Perhaps it had caught some terminal disease. Right before my eyes, everything became black - the branches, the leaves, even the fruit. Soon its twin on the other side followed suit as if in grief for its lost mate. The death of those trees was a bewildering tragedy for us, especially my mother for whom trees always provided her solace. How I wish I had found Saalumaraada then. She would have known how to keep these children of nature alive.

The writer is Deputy Editor, Editorial and Opinion, The Daily Star.

EFFECTS OF CLIMATE CHANGE ON NUCLEAR POWER PLANTS

Stop challenging nature

QUAMRUL HAIDER

THE tiny carbon footprint of nuclear fuel has made nuclear energy an important player in the battle against climate change. Yet this advantage would be moot if nuclear power plants cannot operate, or become too dangerous to operate because of global warming.

Nuclear power plants are usually built near low-lying coastlines because they need access to vast quantities of water to keep their reactors cool. Even when a plant isn't running, its fuel continues to generate heat that needs to be controlled and cooled to prevent explosions or radioactive leaks. It is this attachment to water that makes nuclear power plants susceptible to climate change.

Nuclear reactors cannot be operated safely during heat waves because searing summer heat affects the performance of their cooling systems. In August 2012, the Millstone Nuclear Plant in Waterford, Connecticut, had to shut down one of its two reactors because water drawn from the Long Island Sound was too warm to cool it. A month earlier, the Vermont Yankee Plant had to limit output four times because of low river flow and overwhelming heat.

These incidents tell us in unambiguous terms that we are already seeing the effects of global warming on the operation of nuclear power plants. Indeed, if global warming continues unabated and if summer temperatures soar above average, many nuclear power plants could face a dilemma - either cut output or violate safety regulations.

According to the Intergovernmental Panel on Climate Change, the earth warmed roughly 0.85 degrees Celsius from 1880 to 2012. However, if we consume ever more fossil fuel, greenhouse gas concentrations, and hence global temperature, will continue to rise at an alarming rate. Based on various climate models, NASA predicts that the earth's average surface temperature could rise between 2 and 6

degrees Celsius by the end of this century. These numbers are significant because it takes a vast amount of heat to warm all the oceans, seas and land by that much.

Because of global warming, the temperature of oceans is rising, thereby causing the water to expand and raise the average water level each year. Also, with the rise in global temperature, polar icecaps, glaciers and the ice that is currently on land, such as ice sheets in Greenland, are melting. As these water flow into the oceans, the water levels rise even more.

Since 1880, sea levels have risen by about eight inches, notes Climate Central, an independent Princeton-based organisation of leading scientists and journalists researching and reporting the facts about our changing climate. Their projections show there's a high likelihood that sea levels will rise by at least another eight inches by 2050. The US National Oceanic and Atmospheric Administration's worst-case scenario, meanwhile, predicts that the oceans will rise nearly seven feet in the next 84 years.

Higher sea levels mean seawater will travel farther inland, creating potential hazards in areas that may have previously been considered safe for nuclear power plants. A study by American and German scientists reveal that rising sea levels could put more than 60 US nuclear plants within reach of the so-called "100-year flood" by the end of the century if emission of greenhouse gases is not checked.

Another consequence of global warming is an increase in the intensity of hurricanes. This is not to say that an accident will happen every time a hurricane passes by a nuclear plant. Unlike earthquakes, hurricanes can be predicted, allowing time for preparation.

But most nuclear power facilities were built well before scientists understood just how climate change will affect them in the future. Hence, their design did not take into account the effects of catastrophic floods, high storm surges and heavy rainfall resulting from a powerful hurricane.

As Hurricane Sandy barreled ashore in 2012,



COASTAL NUCLEAR PLANT.

the storm forced the shutdown of several northeast coastal nuclear power reactors, including the Oyster Creek plant on the Jersey Shore, which took the brunt of Sandy's huge storm surge. The storm caused problems with the plant's water intake structure affecting the pumps that circulate cooling water through the plant. Another reactor at Indian Point, north of New York City, shut down because of power grid disruptions, and a third reactor in southern New Jersey shut down when Sandy knocked out four of its circulating water pumps.

We can no longer deny that most forms of energy generation, including nuclear power, are vulnerable to the effects of climate change. With the passage of time, the effects are only going to get worse. A recent report of Climate

Central predicts that in the future, storm-driven floods reaching four feet above the high-tide line will more likely occur twice as often as today. This is yet another argument against a wholesale shift towards nuclear power.

If nuclear power is to be used to mitigate the effects of climate change, it must also be capable of adapting to them. There are, however, serious doubts that it can. The decision to close Diablo Canyon, the last remaining nuclear power plant in California, reaffirms the doubt. Advocates of clean and safe energy herald the closure as the "end of an atomic era" and "a clear blueprint for fighting climate change."

Finally, a few words about Rooppur are in order. The vulnerability of nuclear power plants to risks posed by climate change raises serious questions about the wisdom of

Bangladeshi policymakers to go ahead with the nuclear project in a country where inland sources of water are becoming scarce, where coastal nuclear plants are impractical, where killer cyclones and violent twisters wreak havoc, where catastrophic floods occur at regular interval and where summer months are unbearably hot. If they do build the nuclear power plant, they will be challenging not only Mother Nature, they will also be playing Russian roulette with unsafe nuclear reactors built by Rosatom, a company whose nuclear expansion ambitions both within and outside Russia pose unnecessary and unacceptable risks to communities and customers alike.

The writer is Professor of Physics at Fordham University, New York.

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