

Endangered reptiles

SYED SHAMIM FARUK

ALTHOUGH Bangladesh is a thickly inhabited country with 882 people living in a square kilometer which is the highest density in the world, nonetheless it does harbor a huge and remarkable variety of wildlife. However it is indeed very regrettable that this wealth has not been taken care of, managed or protected so far. The reptile kingdom is no exception.

Our sweet water crocodile have long become extinct. What a majestic sight to see a crocodile sauntering and sun-bathing along the river bank and water bodies! We are also on the verge of losing salt water crocodiles which wandered freely and in abundance the coastal area of Bangladesh once upon a time but now its presence can only be seen in part of south west coast and in river estuaries of Sunderbans.

The Indian gharial or the Gangetic gharial has also been earmarked as critically endangered. It was a very common sight to see a crocodile or gharial sauntering throughout the day undisturbed on the sands of river bank. But now with in a span of half a century all that has changed. We the human race rewriting the geography, demogra-

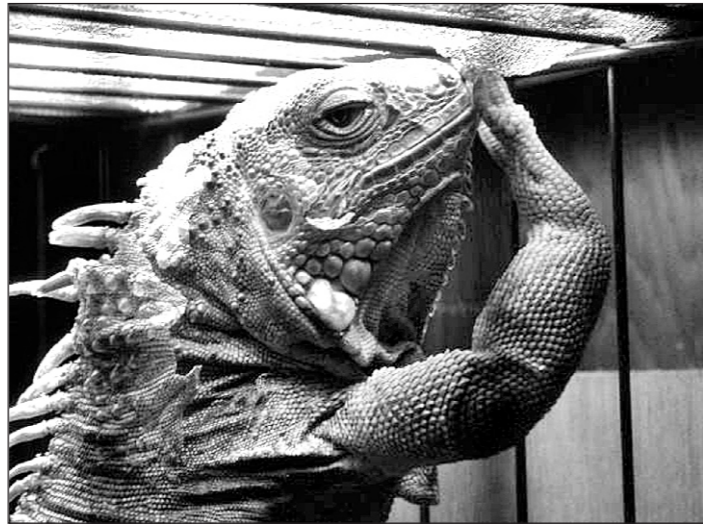
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phy, ecology, landscapes and even the sheer survival of other animal species.

A study by the world conservation union (IUCN) brought to light some innermost facts on the status of our reptilian kingdom i.e. crocodiles, tortoise, snakes, lizards etc. The study shows that there existed 109 species of reptiles in the country out of which one has become extinct, 12 are critically endangered 24 are endangered, 22 are vulnerable, there is not enough information on 39 and only 12 are considered totally safe.

Among those which are considered greatly endangered are Red Crowned Turtle, soft-shell turtle, flying lizard, reticulated python, Russel viper etc.

The natural human psyche tends to consider reptiles as ugly and dangerous and in the process we apt to forget that these reptiles are a very essential part of balancing our ecosystem.



The dwindling number of reptiles is the direct result of flagrant human encroachment, habitat fragmentation, reckless hunting, deforestation, lack of sufficient food, drying

out of rivers, tributaries, water bodies, filling of marshy lands, lack of human awareness etc.

We must realize that it is to our own benefit that we find a device to

cohabit and coexist with other species. There is hardly an animal or reptile in the animal kingdom which attacks humans unless they are provoked or feels threatened. This is core to animal instinct. If we can understand this then we might be more rationale and understanding towards the reptiles and behave as such.

A concerted effort should be made so that these reptiles are not squeezed out of their familiar habitats. We should not infringe on their living space. They must be protected from gradual extinction by creating sanctuaries, wild reserves where they can thrive themselves in familiar conditions with enough hunting space for food. Pragmatic and scientific measures should be taken before it gets too late.

Development is fine but not at the price of destroying the ecology of which reptiles have a very important part to play as a major organism.

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Before the flood

SUJATHA BYRAVAN and SUDHIR CHELLA RAJAN

ONE of the paradoxes of global warming is that developing countries, which were not responsible for most of the greenhouse gas emissions that are changing the climate and did not reap the benefits of industrialization, will bear the brunt of the consequences. One of these consequences will be rising seas, which in turn will generate a surge of "climate exiles" who have been flooded out of their homes in poor countries. How should those of us in rich countries deal with this wave of immigrants? The fairest solution: allowing the phased immigration of people living in vulnerable regions according to a formula that is tied to the host country's cumulative contributions to global warming.

Conservative climate and hydrological models suggest that the average sea level will rise by about a foot by 2050, regardless of what new actions we take to reduce greenhouse gases. In some cases, entire nations will disappear; a harbinger of this is Tuvalu in the Pacific, whose government has asked Australia and New Zealand to accept its citizens as the sea swallows their island.

What we can do to prevent this is limited: the world's oceans have an enormous amount of what is called thermal inertia -- a phenomenon that means that the

effects of climactic changes are manifested very slowly. The cumulative impact of the past 150 years or so of greenhouse gases emitted during industrial development is only now starting to warm the planet, and that warming will continue long after we have created sensible poli-

The rising tide from climate change will not create the same conditions everywhere. While people in rich countries would generally be able to protect themselves and their property with seawalls, insurance and good warning systems, the effect of warming will be calamitous for poor countries.

cies to reduce greenhouse gases. So no matter what we do, a wave of climate change exiles is inevitable.

One option for dealing with this is to tighten our borders and inure ourselves to the exiles' cries for help. A more sensible, and just, approach is for the top greenhouse gas emitters -- including China and India -- to grant entry to the up to 200 million people who could lose their

homes to rising seas by 2080.

How many should go where? Under our formula, the top cumulative emitter, the United States, would absorb 21 percent of the climate-change exiles a year; the smallest of the 20 major emitters, Venezuela, would absorb less than 1 percent. If such a program were to start in 2010, the United States, for example, would have to be prepared to accept 150,000 to a half-million immigrants a year for the next 70 years or so (to put that in context, the United States now has one million legal immigrants annually). Accepting these immigrants could actually benefit the host countries; many of them face a demographic crisis with a shrinking labor force and growing numbers of retirees.

The rising tide from climate change will not create the same conditions everywhere. While people in rich countries would generally be able to protect themselves and their property with seawalls, insurance and good warning systems, the effect of warming will be calamitous for poor countries. A solution like the one we've suggested may be a relatively painless, yet humanitarian way to deal with one of the devastating effects of a warming planet.

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How hazardous are the brickfields ?

MD MAHBUBAR RAHMAN

ANY a people like me might have been attracted to the news "Estbhatar bishe Lapur Biparjasta" "Falmul sakshabji fashaler shavabik bridhni nei, saad nasta, shishoorao bare na" (Brickfield poison endanger Lalpur" "Fruits vegetables crops do not have normal growth, becoming tasteless, children are also stunted authored by Abul Kalam Muhammad Azad and Imam Hossain Mukti in a recent issue of the Bengali daily Prothom Alo (29th March 2005). Whatsoever be the scientific causes, the serious and deadly effects of the brickfield on the environment including humans, particularly children, must have stirred everybody's senses. As per the report, the environment of 17 villages of Lalpur upazila of Natore district now at stake. Some experts opined, "All these symptoms are the consequences of the environmental disaster caused due to the innumerable brickfields in this area."

It is now the responsibility of all concerned to critically analyse the whole issue to reach a logical conclusion. The various adverse effects of the smoke emitted from

brickfields are scientifically proven facts. Accordingly, to reduce the smoke as well as to minimise the hazards, the Department of Environment have already enforced some obligatory measures including use of long chimney. However, I do not intend here to look at whether those measures are complied with or not. What I would like to communicate are some of the most important recent scientific

through different contaminated foodstuff both vegetable and animal origin. According to the Standard Toolkit prescribed by the United Nations Environment Programme (UNEP), under well-controlled processes 0.2 microgram TEQ (toxic equivalents) of dioxins and furans are emitted as byproduct into the air during the production of each tonne of brick. As per this emission rate, if each

and release into air take place from several other sources, too, such as, incineration of medical wastes, incineration or burning of municipal wastes, cremation, cigarettes and bidi smoking, burning of wood, straw, kerosene oil, coal, gas etc. for different purposes. The combustion processes of brickfields, glass, cement, ceramics factory etc., pulp and paper industry discharges, the manufac-

masculinization of females, compromised immune systems, behavioral abnormalities, neurobehavioral impairment including learning disorders, a shortened period of lactation in nursing mothers, endometriosis, increased incidence of diabetes, tumours and cancers, and gross birth defects. The other effects include loss of appetite, weight loss, nausea, headache, liver and renal damage, cardiac arrhythmias, allergic conjunctivitis, blepharitis, and retinal angiopathy.

In consideration the above hazardous effects, the WHO has prescribed 1-4 picogram (pg) TEQ/kg body weight (bw)/day (1 picogram=10⁻¹² g) as the maximum limit of intake. A recent Dutch study reported that nursing infants typically consume about 112-118 pg/TEQ/kg bw/day, and adults typically take in only about 2.2 pg TEQ/kg/bw/day. But we do not know the quantity of daily intake of the people of Baknai, Lalpur or similar other places in Bangladesh. However, the quantity estimated based on the quantity of dioxins accumulated in air through years together and the population density of Baknai, Lalpur or Bangladesh as a whole may give a special kind of intake rate of dioxins.

However, the complexity of the issue and the deadly consequences of the causes deserve further detailed scientific investigation. Because till today Bangladesh doesn't have any well-organised set of information on the above issues. However, fortunately, Bangladesh, as a signatory and likely to be a party to the Stockholm Convention, has been implementing through Department of Environment in collaboration with Department of Agricultural Extension and Power Development Board, a project named Persistent Organic Pollutants (POPs): Bangladesh Preparations, financed by the Global Environment Facility through UNDP. Under this project, the basic activities are underway to generate a large set of good information and to prepare a national implementation plan on POPs, which, I believe, may address the dioxins and similar other POPs related issues very effectively in future, if the plan is appropriately prepared, well-organised and properly implemented.

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reports related to the emissions from brickfields as well as other similar sources and the chemicals contained in those emissions, posing deadly effects on the environment including human lives.

The recent scientific report states the combustion of clay and fuels for making bricks in the brickfields produces dioxins and furans as byproducts, which first enter into the air from where the humans, birds and other animals either directly inhale or intake

brickfield produces 2,550 tonnes of brick a year, then the reported 17 brickfields within 4-km around the worst affected village Baknai emit into air a total of 510 microgram TEQ dioxins and furans per year. Since the brickfields around Baknai or in Lalpur or for that matter in Bangladesh do not have well-controlled system and cleaning processes, they are likely to release much more quantity of dioxins and furans into the air.

Dioxins and furans emission

ture of polyvinyl chloride (PVC) plastic, PCBs used in electrical transformers and other similar equipment etc. everyday are producing significant amount of dioxins and furans and releasing them into the air. But highly concentrated brickfields in a small area such as in Baknai/Lalpur are emitting dioxins and furans at a level, which, in combination with emissions from all other sources, might be enough to cause such hazards, which the people of Lalpur have noticed. May be, similar situations exist in many other places of the country, which are still beyond anybody's notice.

Dioxins (polychlorinated di-benzo-para -- dioxins) and furans (polychlorinated di-benzo-para -- furans) are two groups of several chlorinated organic chemical molecules. Dioxins have 75 molecules (congeners) while furans have 135. All these together are also called dioxins. All these dioxins are chlorine rich, persistent for years together, self-transportable from one place/country to another, bio-accumulative because of their strong affinity for fats, and thus increase manifold through the food chain and cause harms to the host lives. Since they accumulate much in mothers' breast milk, the nursing infants intake much more quantity of them.

Since the dioxins are partially soluble in fats, they accumulate in fat-rich organs and tissues of humans particularly in breast, uterus, intestine of women, in testes and adipose tissues of men and other similar organisms. These are highly persistent and thus magnify manifold in those organs and as deadly elements cause several adverse effects. They cause abnormally functioning thyroids and other hormone system dysfunctions, feminization of males and

9x3

13x3

4x2