

# A choking city

The sky over the city now looks brown. The air is thick with fumes. A filthy grey haze of winter mist, auto-exhausts and chemicals hangs lower and longer than ever before in one of the world's most polluted cities. The smog makes your eyes burn, coats your lungs with layers of microscopic, noxious soot. In fact, the air is so polluted that it can no longer be ignored. If things were left as they are today, the air in our city would become unbreathable, writes **Md. Asadullah Khan**

A recent survey by a team of environmental engineers comprising teachers of Bangladesh University of Engineering and Technology (BUET) led by DrEJobair Bin Alam has come up with some disquieting figures. Using Extrox-60 portable atmospheric monitor, the surveyors found out that the roadsides are the most polluted locations in the city. They found extremely high concentration of carbon monoxide at Science Laboratory (79,900 microgram per cubic metre), Zigatola (43,000) Panthopath (85,100), Azampur (Uttara) (22,900), Mohakhali (69,300), Shahbag (38,100), Gulistan (33,200), Jatrabari (67,000) and Mirpur (29,100). The safe limit, as defined by the World Health Organisation (WHO), is 10,000 microgram per cubic metre on an eight-hour exposure. The level of nitrogen dioxide at these locations ranged between 300 to 500 microgram per cubic metre against the WHO safe limit of 120 microgram per cubic metre. Similarly sulphur dioxide concentrations at these locations ranged from 500 microgram per cubic metre to 1200 microgram per cubic metre against the WHO safe limit of 100 microgram per cubic. Clearly the winter levels for particulate matter in Dhaka and dust particles of carbon coated with toxic gases skyrocket to almost 12 times above the standards. In stark reality, Dhaka is now a veritable gas chamber.

The number of motorised and non-motorised vehicles has gone up by 10 times since 1990, a direct result of the failure of mass transport. Some 60 per cent of the vehicles are two and three wheelers that spew more than 70 per cent of the major pollutants. Another survey shows a sobering statistics: the number of motor vehicles per thousand people in the Dhaka city is still very low -- about seven motor vehicles including autorickshaw and motorcycle per 1,000 people. But the high level of pollution is caused by very high population, poorly maintained motor vehicles and severe traffic congestion. The city's population, likely to swell to 10 million in the early part of this century from eight million at present, will see a spurt of economic activities and a consequent increase in the number of motor vehicles. The unrestrained and often illegal spread of urban industries, most without pollution control devices of any kind, also poisons the air. But they are overshadowed by the relentless tide of vehicles, which accounts for 80 per cent of air pollution in the city. Contrary to popular belief the most damaging pollutants come from petrol-driven cars, two- and three-wheelers using petrol as fuel and spewing carbon monoxide, hydrocarbons (the fuel that engines don't burn) and oxides of nitrogen, pollutants that are invisible. Particulate matter and black smoke -- the visible symbols of pollution are equally hazardous to health.

The present environmental apocalypse that has descended over the country apparently beyond redemption is the direct result of the absence of pollution control norms. Emission standards are diluted. At the same time pollution testing and certification have become a farce. Introduction of catalytic converters is still a long way off. Unleaded petrol and catalytic converters, essentially tied to emission norms, are yet to be achieved. Unlike many countries where a vehicle has to undergo periodic engine certification and tests and is often junked after ten to 12 years, there is no limit of age in our country. Vehicles as old as 40 years, belching black fumes in a gushing spiral and plying the street with a cloud bursting rattling sound are getting fitness certificate through 'some'

unholy arrangement with the concerned officials.

Analysing the present pollution scenario one might see that vehicles are using carburettor, a device that controls the petrol inflow to the engine, is a thing of the past in most countries. Today's technology is electronically controlled fuel injection. It ensures a precise supply of fuel to the engine. This means reduced emission plus lower fuel consumption. The most essential requirement for getting rid of toxic emissions is a catalytic converter attached near a vehicle's exhaust pipe. It converts toxic vehicular emissions into mostly harmless emissions but if the fuel quality is bad meaning if it contains lead then the converter gets destroyed and the pollutants return. As regards fuel quality, other than lead which the only refinery in the country is trying to get rid of, the level of sulphur and carbon in fuel is more than what it should be. Other than the shortcomings in the fuel distillation process there is large-scale adulteration at the filling stations and this adulteration worsens emission.

The most potent danger comes from two-wheelers and autorickshaws and tempos which emit six times the amount of hydrocarbons, three times more suspended particulate matter than a car. The most blatant fact is that in these types of vehicles having two-stroke engines, incomplete combustion increases emission. Cars, having four stroke engines are more efficient than these two-wheelers or three wheelers. Driven by diesel engines, buses spew carbon dioxide and visible pollutant like smoke. But they emit much less pollutants than two wheelers, three wheelers and cars. In absence of any effort to effect a change the pollution boom goes on with gridlocked city streets pushing up emissions drastically.

Law enforcers, vehicle owners and auto-manufacturers all are to blame for such a sorry state of affairs. Laws exist to book a polluter but law enforcers by themselves shy away from using the laws because of the unholy alliance with the vehicle drivers. Small wonder, polluting vehicles drive away emitting noxious brown fumes in the presence of law enforcement personnel without being held up of booked. People can see spurt of activities for a day or two while the World Environment Day approaches and the environment minister speaks of measures to be taken either in bringing about clean technologies or actions to be taken against violators of emission norms. However, no concrete action has been taken against the violators to improve the situation. Most shockingly the law enforcers make no such effort. Secondly, as for vehicle owners and users, they ignore vehicle maintenance and have few qualms about by passing the few checks in the system. That means nobody wants to bell the cat and all of us starting from the vehicle owners, law-enforcers, vehicle users and pedestrians blithely ignore the damage these nuisance continue to wreak on the society. Strangely true, we are to trying to short-circuit the system at every point and at every opportunity.

Even in non-industrialised countries where pollution through burning of fossil fuel has not reached such a menacing level, auto-emission of noxious fumes like carbon monoxide, carbon dioxide, sulphur dioxide, trash-boom including polythene bags and plastic containers, river pollution, and pollution of lakes and water bodies by solid waste and stagnant sewage line have taken people by surprise. The current situation in Dhaka that has taken over citizens' lives is something one could have never envisioned for him or for his children. We are living in an

environmental crisis, an air pollution emergency of unprecedented severity. Ministers, MPs, bureaucrats and city corporation officials occasionally call their plan to combat it with all sound and fury but ultimately signifying nothing. What it really means is that just to breathe here is to play a dangerous game with our health. This is not a natural disaster but it has been a daily reality for the 10 million inhabitants of the greater Dhaka, one of the most polluted cities in the world.

The economic cost of sickness and death related to air pollution in four large cities of the country has been computed to roughly at \$800 per million per year by a World Bank survey in the recent past. If the level of pollution in major cities were reduced to WHO standard, nearly about 15,000 deaths per year could be avoided, says a document of the World Bank made public here in the recent past. Besides there would be an estimated 6.5 million fewer cases of sickness requiring medical attention and

should be made both by the government and concerned agency to reduce vehicle boom on the road that has also posed a serious problem of traffic congestion on the city roads these days. People buy vehicles like two-wheelers and entrepreneurs put three wheelers on the road because mass transit systems are ineffective. It will hardly help putting Maxis (10-seater bus) and taxicabs on the road that will only worsen traffic congestion other than the pollution problem it will create.

This calls for introducing the mass transport system without any delay, if we have any concern for public health, for us and for our children. We must have a plan for introducing circular rail around the city, even if it takes time to put into action. Presumably, the World Bank might come ahead to fund such a pro-people project. Further study reveals that a car requires 44 times as much road space as a bus to transport an equal number of people. Second, a car emits 90 times more carbon

monoxide as compared to a bus meeting the same travel demand. Two wheelers emit 49 times more emissions for the same number of passengers as a bus and autorickshaws 60 times more.

Based on all such available evidences, Dhaka's pollution scenario is possibly the region's grimmest and we are saying the least if we call it most critical. If we are not thinking about ourselves, we must have some thoughts about our children who will turn sterile if they are forced to live in such "unliveable" cities. It only makes sense that we appreciate the sound environmental practices that also make good economic sense. Our elected public representatives are either ignorant of the environmental hazards or content to pay lip services only to public causes. It has to change. We can no longer afford the high cost of pollution every year that wreak havoc on our population, health and economies.



Faulty vehicles and their dreadful exhausts continue to harm the city-dwellers.

-- Star photo

# Rare one-horned rhinos ride on the horns of a dilemma

Nepal has succeeded in boosting the numbers of the rare one-horned rhino, saving it from near-extinction. But despite government efforts, poachers and encroachments continue to threaten their existence. Ironically, moves to enlarge protected forests are likely to invite further poaching, writes **Jan Sharma** from Sauraha, Chitwan, Nepal

ARMED men riding two dozen elephants encircle several rhinoceros in Nepal's Royal Chitwan National Park, shoot the massive horned animals and load them onto a waiting truck.

Poaching? No, the man leading the 'hunters' is Claude Martin, international director of the Worldwide Fund for Nature conservation. The weapons Martin and his fellow elephant riders carry are tranquilliser dart guns to immobilise the endangered animal.

Six of the 10 captured rhinoceros have been moved to western Nepal's Royal Bardia National Park, which had 67 rhinos -- the second largest concentration of these animals in this Himalayan kingdom. The rest have been relocated to the Royal Shukla Phanta Wildlife Reserve, which had only one rhino.

The move is part of a Nepalese government programme to replenish the population of the one-horned rhinoceros, an animal once hunted to near extinction.

The rhino was in abundance in South Asia -- from Pakistan to Myanmar -- at the turn of the 20th century, but today only 2,500 survive in protected parks in Nepal and the Indian states of West Bengal and Assam.

Nepal has 612 one-horned rhinos, according to the government's Rhino Count 2000 report, released in May. An estimated 450 rhinos were found roaming Nepal's protected areas in 1994, when the first scientific count was conducted. In 1976, the country had an estimated 100 rhinos.

Rhinos have been relocated among three protected parks in Nepal since 1986, when 13 rhinoceroses were moved from Chitwan to Bardia.

"It is critical to protect the rhinoceroses from any natural disasters by developing viable populations in Bardia and Shukla Phanta," said Dr Tirtha Man Shakya, director general of the Department of National Parks and Wildlife Conservation.

Bardia and Shukla Phanta are not only blessed with savannas and grassland an ideal habitat for rhinoceros -- but the protected parks also boost the odds of survival.

"Three different populations

in three different parks is a better option to save the animal from extinction," the department's chief ecologist Narayan Paudel says.

The translocation between parks is expected to help minimise interactions between humans and rhinos in and around Chitwan, where the rhino habitat is shrinking due to their growing numbers and rapidly expanding farming around the park.

Chitwan, once popular for big game hunting before it became a national park in 1973, has 544 one-horned rhinos.

Although Nepal's efforts have boosted the country's rhino population, illegal hunting and a lack of resources still threaten the animal.

Since 1996, poachers in Nepal have killed 26 rhinos for their prized horn, which fetches Rs 50,000 in the local market. One kilogram of rhinoceros horn can fetch up to Rs 1.5 million. Ground-up powder from the dried rhino horn is a cherished ingredient in traditional Chinese medicines, and the main customers for this powder, believed to be an aphrodisiac, are the wealthy in Hong Kong, Japan, Taiwan, Thailand and Singapore.

Illegal hunters dig deep pits to ensnare the rhinos or tap into high-tension electrical lines that criss-cross the parks to electrocute the animals when they walk onto the live wires.

Farmers living on the fringes of the Chitwan reserve are offered Rs 50,000 to report poaching activities. They do report incidents to park officials, who file cases with the police. Yet nothing is done when rhinos are killed, park officials complain.

Police officers are reluctant to comment on the matter officially, saying only that they are doing their best to bring the culprits to the books.

But some claim that politics keeps enforcement at bay, and refer to the 1996 arrest of a former politician who was charged with rhino-poaching and later released at the request of then-prime minister Lokendra Bhadrachand.

Nepal's eight anti-poaching units, established five years ago, have been of little help to nab the

# Time to prevent a toxic future

On the eve of the fifth and final Intergovernmental Negotiating Committee on Persistent Organic Pollutants (POPs) -- and their desired elimination -- another tanker carrying toxic chemicals came to grief in the English Channel. A proper treaty would ensure the consequences of such an accident might be considerably less severe because the ship's cargo would not be so deadly, writes **Claude Martin** from Gland Switzerland

ALONG with death and taxes, it is beginning to look as if one of the inevitabilities of life today is the regularity with which ships carrying dangerous cargoes come to grief and cause environmental disasters.

The latest in the long line of such events occurred on October 31 last year, when the levoli Sun, with 6,000 tonnes of toxic chemicals on board, went down off the island of Alderney in the English Channel, and started leaking its contents into the sea. The incident has caused outrage -- not surprisingly, given that it is less than a year since the fuel tanker Erika sank in the same narrow seaway and seriously polluted hundreds of miles of the French coast. But the question is, will the anger provoked by yet another maritime pollution catastrophe be translated into action this time, so that the sad catalogue of carelessness is finally closed?

It is surely self-evident, especially in the light of these two recent cases, that there is an urgent need for far higher standards of safety in transportation by sea. We have the mechanism to introduce and enforce such standards through the International Maritime Organisation: what appears to have been missing so far is the will, among the world's leading shipping nations.

To begin with, vessels carrying hazardous cargoes and oil, and facing adverse weather, should be required to remain in harbour or to move to sheltered locations. Any resulting delay, in a world where time is money, would certainly be more cost-effective than total loss, especially when the additional burdens of pollution control and cleaning up are taken into account. There must also be improvements to inspection regimes for oil and chemical tankers, and a review of the performance of the classification bodies responsible for ensuring that sub-standard ships are prevented from putting to sea. Both the Erika and the levoli Sun were given a clean bill of health by the same company, Rina, which was charged with certifying their seaworthiness.

However, enforcement of tighter controls is only the beginning. The companies that charter these ships to transport their products -- which are, for the most part, highly dangerous for the marine environment -- must be required to take their full share of responsibility for them. In the case of the Erika, it was TotalFina that chartered the vessel, Shell and Mobil-Exxon in the case of the levoli Sun. It is all too easy for oil companies to clothe themselves in a green mantle, yet at the same time to leave a significant part of their business -- the transportation of the product -- in the hands of shipping companies which demonstrably have little or no regard for environmental concerns or consequences.

The public will rightly expect, and should demand, more comprehensive responsibility on the part of the companies that own these danger-

ous cargoes. If they were subject to penalty for the use of unsuitable or unseaworthy vessels, their reaction might well help stamp out the unacceptable laissez faire attitude in the maritime industry.

But there are deeper considerations relating to toxic cargoes which, by coincidence, are coming to public attention in the aftermath of the levoli Sun accident. This is a time when decisions need to be taken to ban some of the nastiest substances that threaten human and animal life all round the planet.

In Johannesburg at the beginning of December, government representatives at the fifth and final Intergovernmental Negotiating Committee have the opportunity to reach agreement on a global treaty that contains proactive measures to restrict and eliminate the manufacture and use of persistent organic pollutants (POPs). Delegates will be faced with a large number of issues, among which the most important are the elimination of POPs such as dioxins and PCBs, which can wreak havoc in human and animal tissue, and adoption of the 'precautionary principle', which holds that scientific suspicion should be enough to trigger protective measures even when conclusive evidence is not yet available. There will also have to be agreement on the process for adding toxic substances to the treaty once it has been ratified, on trade rules in relation to environmental and public health concerns, and on those chemicals which are exempt from the treaty.

As with all such treaty negotiations, vigilance will be necessary (mostly on the part of non-governmental organisations) to avoid loopholes through which participating countries can escape their responsibilities. For instance, when governments sign the treaty and agree to follow its procedures, it is important that later amendments to the various annexes are binding on all parties. The role of technical and financial commitments by donor nations is also crucial if all nations are to be able to implement the treaty.



All this will require courage and strong political will, but the rewards of success will be enormous, not only in financial terms, but also in terms of human health and environmental protection. Prevention measures are expensive -- particularly when they fail. Elimination of POPs, and their replacement with benign of less harmful substances, will offer benefits right along the chain from the producer to the user, not forgetting the innocent bystander.

A proper treaty would ensure that even if, with tighter maritime regulation, we could not altogether avoid another levoli Sun in the future, the consequences of such an accident might be considerably less severe because the ship's cargo would not be so deadly. -- WWF feature

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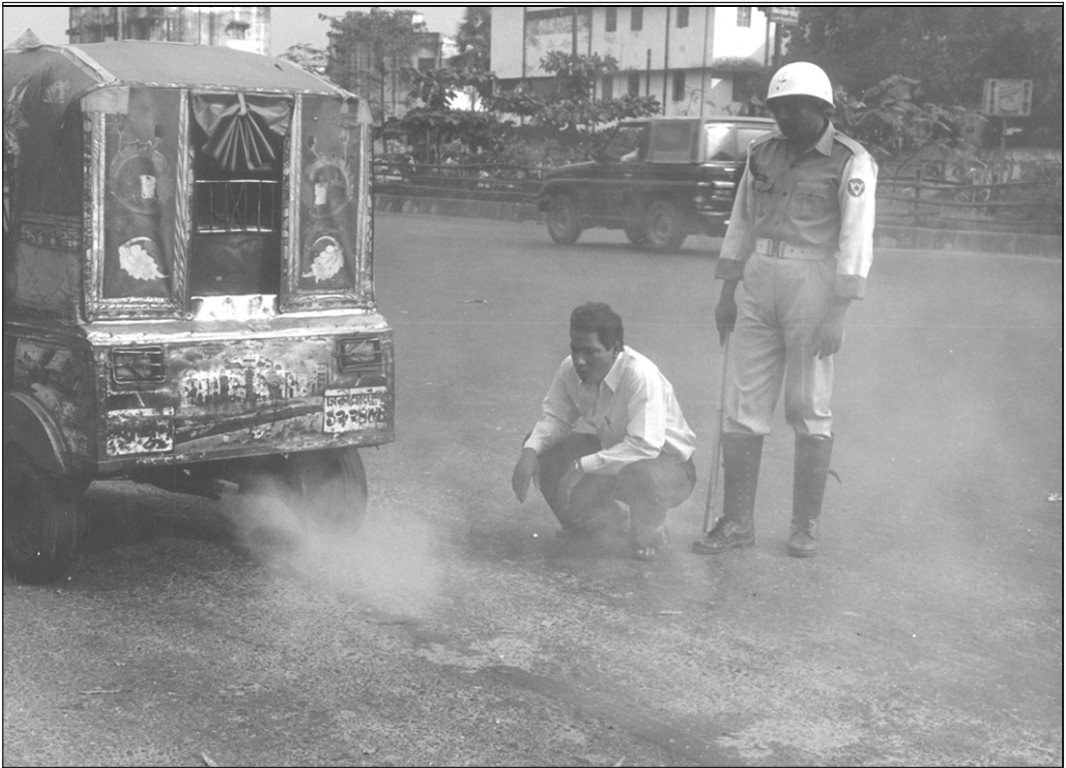
## One-horned rhinos return

- Weight 1,800 - 2,700kg
- Height 1.75 - 2m tall at shoulder
- Length of single horn 20 - 61cm
- 2nd largest land animal, after elephants
- Feeds on grasses, fruit, leaves and shrub branches



● There are approximately 2,500 rhinos distributed throughout northern India and southern Nepal

Source: International Rhino Foundation



Enforcement of anti-pollution laws is still a rarity.

-- Star photo