

Radioactive Air Pollution Harmful Effects on Environment and Health

by Rubina Rahman

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AIR is one of the most precious natural resources without which life cannot be sustained for more than a couple of minutes. Yet, the concern for clean air and protection of the atmosphere from damage by human activities is only a recent phenomenon. Clean, dry air contains by volume about 78 per cent nitrogen, 21 per cent oxygen, 0.9 per cent argon, 0.03 per cent carbon dioxide and other trace of elements and compounds including methane, helium, neon, krypton, xenon, ozone, hydrogen sulphide, carbon monoxide, oxides of nitrogen and sulphur, hydrocarbons, man-made CFCs and various particulates as well as very small amount of some other organic and inorganic gases whose amount in the atmosphere vary with time and place. Water vapor in the atmosphere varies from zero to approximately four per cent by volume.

Various amounts of contaminants continuously enter the atmosphere through both natural and man-made processes that exist upon the earth. That portion of these substances which interacts with the environment to cause toxicity, disease, aesthetic distress, physiological effects or environmental decay, has been labelled by man as a 'pollutant'.

There are many sources of air pollutants. The primary pollutants are carbon dioxide, carbon monoxide, sulphur oxides, nitrogen oxides, hydrocarbons, Halogen compounds, organic compounds, radioactive compounds. Secondary pollutants are those created through reaction between the primary pollutants and the natural atmospheric gases.

The term air pollution refers to the presence of solid particles, liquid droplets or gaseous compounds in the atmosphere which are not only normally present or which are present in

a concentration substantially greater than normal and harmful to living organisms.

Air pollution is not only limited to the situation in which the outdoor ambient atmosphere contains materials in concentrations but the pollution of air inside dwellings is also important and requires detailed study.

Air may be polluted by some major radioactive substances like Radium, Iodine, Phosphorus, Cobalt, Strontium, Carbon, Sulphur, Calcium and Uranium which can be found from smoke of some motor vehicles and industries, households etc. Now let us know what is Radioactivity?

There are some heavy nuclei present in earth crust which are unstable and converts into other nuclei (called decay product) by emitting radiation like alpha, beta or gamma. Here this article focuses mainly on the air pollution caused by a major radioactive substance like Radium whose atomic number is 222 which is a decay product of Radium (Ra-226). All these are harmful for our health and even may cause death.

The serious health effects are anaemia, leukaemia and cancer. Radioactive isotopes also cause genetic defects and sterility, as well as embryo defects and congenital malformations. It also shortens the life span of an individual. All these happens due to the negligence and lack of knowledge of the people. But the demand for clean, pure air comes ultimately from the general public both from villages and cities. All these pollution can be controlled through some precautions and awareness of the people.

The health hazard for the population in the environment results mostly from the alpha-radioactive nuclides of which radon is most important. Alpha is an ionizing radiation and if they accidentally be inhaled or

ingested, they tend to accumulate in certain parts of the body where their action can be harmful.

Generally for the description of air pollution the outdoor air pollutants are given major priority. But it should be mentioned that the indoor air pollutants concentration sometimes cross the standard set for outdoor concentration. For indoor generated pollution the walls and enclosed space may allow levels to become quite high in a short time. One of the major harmful indoor air pollutants is radon gas.

The main contributions to indoor radon mainly arise from several types of sources: the geographical location of the building, the materials used in construction, its foundation, the presence of pathways in soil for gas to enter the building, the domestic water supply and the ventilation rate of the structure. Radon can enter a building through soil around the foundation, through cracks and opening of the structure, through emanations from earth-derived building materials like concrete and through spring and well water due to pressure difference between indoors and outdoors. Radon and its immediate radioactive decay products such as lead, polonium, bismuth are often present in the indoor air.

The particles especially polonium are physically and chemically active and can attach to airborne particles like aerosol. The main health hazard is an increased risk of lung cancer because alpha radiation affects lung tissues.

The major problem of our transportation is traffic problem. Due to the traffic jam smokes from motor vehicles pollute the air by emitting harmful hydrocarbons, carbon monoxide, nitrogen oxides, lead and lead compounds and radon gas. The principal outdoor radon comes from these rush

exhausting smokes of different types of motor vehicles in areas of heavy traffic. Also radon gas emitting from the grave result in increasing radon gas in atmosphere.

The radon decay product lead emitting from automobile, if inhaled, can effect on gastrointestinal damage, liver and kidney damage, abnormalities in fertility and pregnancy, and mental development of children gets affected. Due to all these health hazards (specially lung cancer) a thorough survey on radon activity measurements are now taking place in many countries of the world like UK.

The World Health Organisation defines health as 'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity'. In ideal condition inhaling air makes both qualitative and quantitative balance which maintains the well-being of a man. But when the balance among the air contents is disturbed, or polluted, it may affect human health.

In fact, all impurities in the inhaled air don't necessarily cause harm depending upon the chemical nature of the pollutants. Some may be harmful when present in the air in small concentrations and others only if they are present in high concentrations. The duration of exposure of the body to polluted air is also an important factor. An average man breathes 22,000 times a day and takes in 16kg of air each day.

It far exceeds the consumption of food and water. It has been estimated that a man can live for five weeks without food and five days without water, but only for five minutes without air. So it is the time to prevent all these radioactive air pollution and take care of our mother earth, its environment and human health from the risk. — BCAS Feature

Is Pele a Better Athlete than Muhammad Ali and Michael Jordan?

Dr Fakhruddin Ahmed writes from Princeton



He won the first of his three World Cups at the age of 17 in Sweden in 1958. His 1970 Mexico City World Cup winning team is considered the best ever. In a sport where scoring one goal is an accomplishment, he scored over 1200, in spite of being kicked senseless in the 1962 and 1966 World Cups. Pele is the Michael Jordan of soccer.

WHILE the whole world's eye has been focused on World Cup football in France, basketball superstar Michael Jordan has been enthralled Americans with his routine pre-summer act — winning his sixth world championship trophy with the Chicago Bulls. Sports writers in the US have run out of superlatives to describe Jordan's gravity-defying acrobatics.

Having exhausted all the words in the dictionary, they are having to coin new words to explain the phenomenon that is Michael Jordan, the quintessence of basketball. For the sixth time in eight years (he took two years off to play baseball), Michael and the Bulls have won basketball's ultimate trophy, the NBA Championship. This is like Brazil winning six World Cups with Pele. In this year's final game in Salt Lake City, Jordan scored 45 points, more than half of his team's total, including the last eight.

His team was down by three points with forty seconds to go. When Jordan was done, his team won by a point and he won his sixth Most Valuable Player award. This is akin to Brazil trailing by one goal in the final of the World Cup, and Pele scoring the equaliser and the winning goal in the last five minutes. The writer has been fortunate enough to watch basketball greats such as Kareem Abdul-Jabbar, Larry Bird, Magic Johnson and Julius Erving (Dr. J) in person. None of them had Jordan's ability to single-handedly take over a game.

Jordan's greatness lies not only in his offense, but in his defense as well. No basketball player has ever expended as much energy as Jordan at both ends of the court.

Jordan teamed up with his defensive soul mates, Scottie Pippen and Dennis Rodman, to restrict the Utah Jazz to 80 points a game in the final series — 22 points below their regular season average. In 1988, Jordan won the league's Most Valuable Player (MVP), as well as the Defensive Player of the

year awards! For his latest efforts, Jordan, who may or may not retire in the summer, made the cover of the current issue of the TIME magazine. Mirror, mirror on the wall, who is the greatest athlete of them all? According to TIME magazine, it is Pele. Having watched Pele scintillate in person in England in the 1970s, I am in no mood to argue. By the time Muhammad Ali came along, reasons TIME with the calibre of athletes who took up boxing had deteriorated. Looking at some of Ali's

World Heavyweight Champion opponents — Sonny Liston, Joe Frazier and George Foreman — that argument is hard to swallow. Around the world not too many kids play the game that Jordan has revolutionised. Therefore, Michael can best be labeled as the Pele of basketball. Pele on the other hand, played a game that everyone played. He won the first of his three World Cups at the age of 17 in Sweden in 1958. His 1970 Mexico City World Cup winning team is considered the best ever. In a sport where scoring one goal is an accomplishment, he scored over 1200, in spite of being kicked senseless in the 1962 and 1966 World Cups. Pele is the Michael Jordan of soccer. "Who is going to win the World Cup?" I asked some Brazilian colleagues. "Not Brazil. There is too much infighting between players and between coaches," they told me. "Besides, Ronaldo cannot do it alone without the injured Romario."

Ronaldo is ubiquitous on American television with his Nike commercials these days, much to Michael Jordan's annoyance. Michael, the other Nike superstar, said he had never heard of Ronaldo. He has now. While not a perfect defensive team, thus far no team has looked better to me in the midfield and on offense than Brazil. The World Cup winner will probably come from the usual four — Brazil, Germany, Italy and Argentina — with possible stiff challenges from the Netherlands, England and the host, France.

Exploring Prospect of Flower Export

Flowers have always been linked to romance. Only recently Bangladeshis discovered that flowers can provide jobs and earn good amount of money, write Sebastin Rema, Salveen Sultana and Rita Ashraf.

NOT long ago flowers were hard to buy in Dhaka city. They were found not in many places but only in front of old High Court building. People even used to travel to Calcutta to buy a bunch of Rajmangla or tube roses. They were expensive too.

Things have dramatically changed today. Dhaka city is now dotted with hundreds of flower shops. The supply comes not from abroad but from the acres of flower farms set up in different parts of the country. There are plenty of roses, tube roses and gladiators. The business is soaring. And there are now talks of exporting flowers.

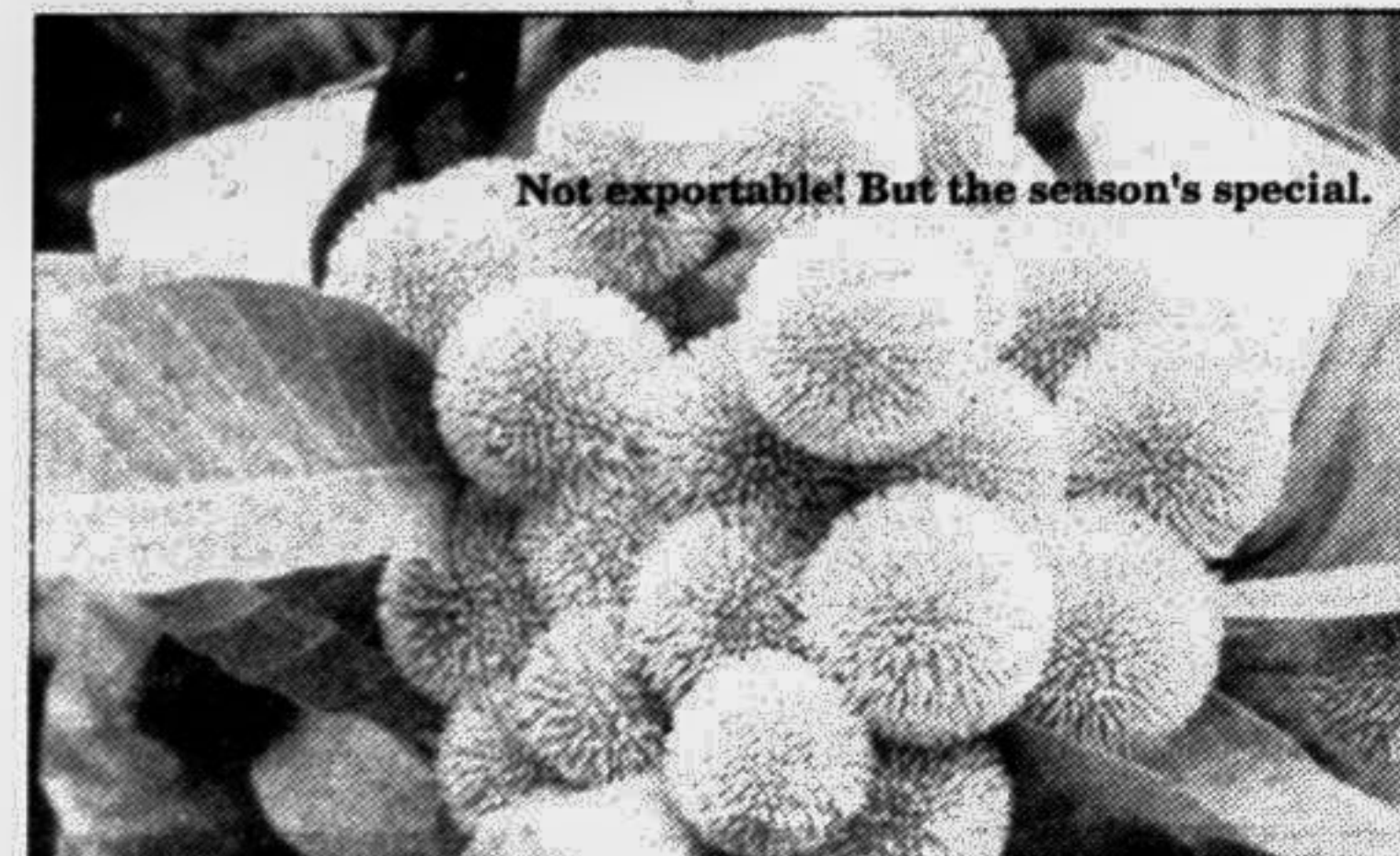
"Flowers are now good business," says Kalam Hossain, a flower trader at Shahbagh, the city's best known flower corner. "We have bright prospects for exporting roses," adds Kalam, who is also the president of a recently formed association of flower traders at Shahbagh.

The Export Promotion Bureau also thinks so. "The prospects of flower export are great in Bangladesh," says Mohammad Jamaluddin, Deputy Director at the EPB. "We should have good markets mainly in Europe and Middle Eastern countries."

The international flower market has now business of US\$25 billion. The major exporters are England, Germany, the Netherlands, USA, Holland and Thailand. A new comer in the business is India. Bangladesh, according to officials and businessmen, can have a share in the international floral trading.

Though still at a nascent stage an initiative has been taken to explore flower export from Bangladesh. The United Nations Development Programme (UNDP) promoted in 1995 a Bangladesh flower delegation to England, Germany and Holland and in 1996 to Thailand.

Majnu Miah, who opened the city's first modern-day floral shop, led the teams to these



countries. "We have found during the visits that Rajmangla is on high demand in these countries," Majnu Miah says. Some test export consignments were shipped to some Middle Eastern countries. Majnu Miah, owner of the city's first floral shop, Malancha, estimates that flowers worth more than Tk. one lakh are sold each day in the capital city of nine million people. The business, according to him, is growing in areas outside Dhaka.

In exploring the exports businessmen find preservation one of the main difficulties. Flower will fast. So they need to be properly preserved so that they don't lose their freshness and fragrance.

"A large number of flowers fade away on way from the gardens to the shops. Because we lack on proper preservative technology," Majnu admits.

Flower business is fraught with risks. Majnu gives an ex-

ample. "The other day the FDC ordered for 20,000 roses. But it finally took only 5,000 of them. The rest, if not sold in the market, is going to wilt and become useless," he says.

Today, flowers are commercially grown in farms. Middle men lift the flowers from gardens and bring them to Dhaka's Shahbagh area, where they have a wholesale market that sits each morning. From here retailers buy the products for their small shops. Truckloads of Golap, Rajmangla and Bely move to the city each morning from areas such as Jessore, Joydevpur, Savar and Narayanganj.

"From Jessore we get Rajmangla. Savar and Joydevpur grow Golap and Bely comes mainly from Narayanganj," Abdur Rab, a wholesale trader says. Flowers have opened up job opportunities for thousands of people in Bangladesh. Starting from the gardens to the shops. The capital city itself

has now more than 200 registered flower shops. In addition small makeshift stores are in plenty mainly along the footpaths. Shops are coming up outside Dhaka too. At least 10,000 people depend on flower business.

The business has produced a plethora of flower children. Small children from the city's slums sell flowers at traffic signals as well as on the pavements. It's possible for a child to earn up to Tk. 50 a day.

"During festivals I can earn even Tk. 100 a day," says Mili, a flower child in front of Dhaka Sheraton Hotel.

The markets have brought a few women entrepreneurs into the business. Women are involved from wholesale to retail trade. Happy Flower at Kataban is owned and run by Mrs Happy who has been in the business since 1990. Mrs Madhabi owns the Madhabi Kunja at Shahbagh. "I love this business. It is full of colour and fragrance. It brings money too," a delighted Mrs Happy says. "I would like more women coming in this business."

Sale of flowers is steady on normal days. Business is brisk during festivals, anniversaries, weddings or any other special occasions. People's taste is changing for the better.

It's been a tradition to buy flowers to celebrate national anniversaries such as Independence Day, Victory Day and Language Movement Day. People do buy flowers during Eid or Puja festivals. Days dedicated to love and romance mean more money to florists. Imagine what has happened during this year's Valentine Day, the day of romance.

"Hundreds of university students bought flowers on the Valentine Day," says Mrs Happy.

Her face wears a shy smile as she says, "we have started to say it with flowers. It's time to make money with flowers."

— News Network

Blood Money to Save the Tiger

THE Year of the Tiger got off to a bad start in India as evidence mounted that villagers in and around two National Parks in Uttar Pradesh and a tiger reserve in Andhra Pradesh have been poisoning tigers they believed were preying on their cattle.

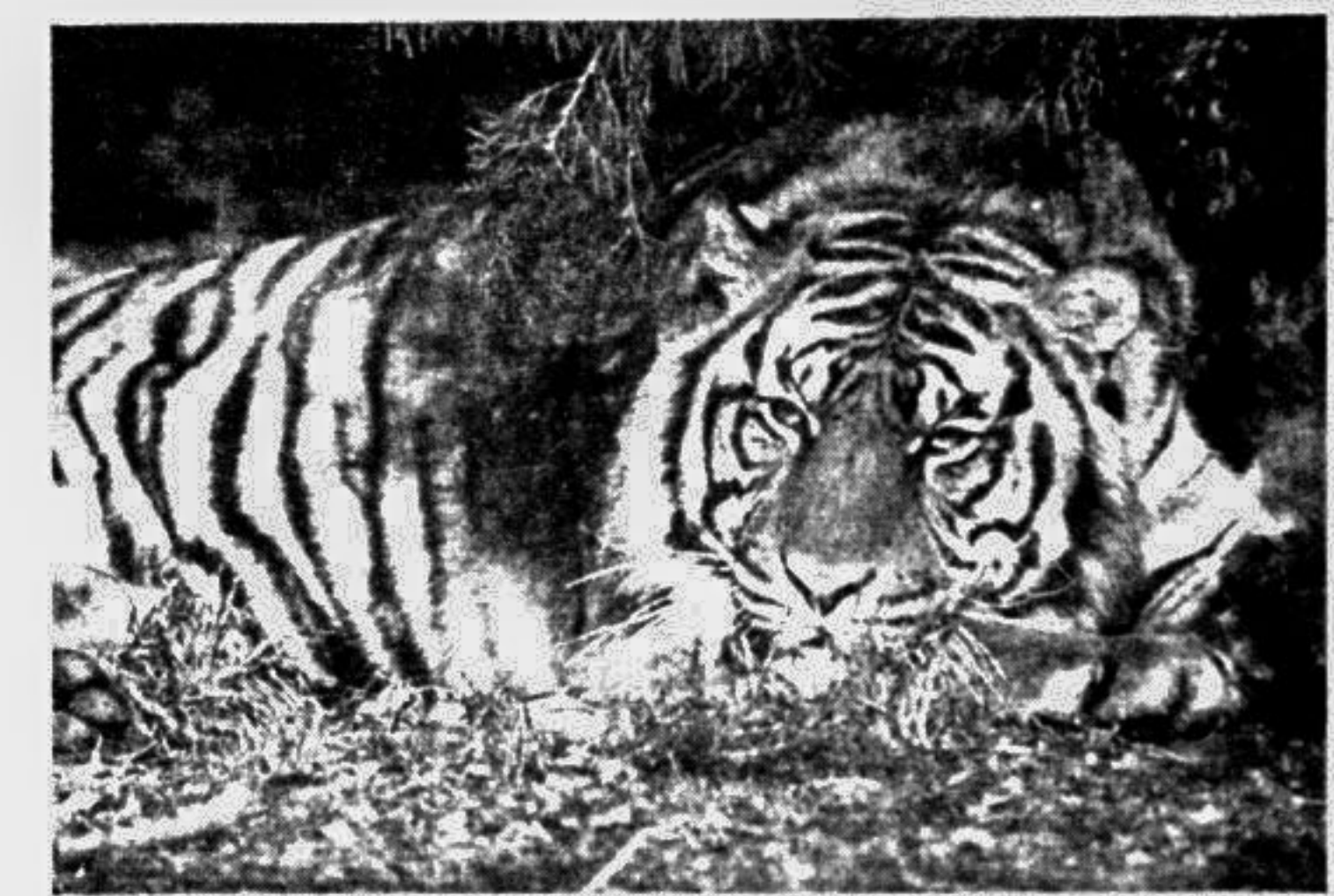
Shortly before the year began, a tiger and her cub which had shared a kill were poisoned to death in a buffer zone of the Corbett Forest reserve. Then, in the adjoining Dudhwa National Park, a mother and three cubs were found to have been poisoned, and in February the decomposed bodies of two more tigers were discovered. Experts suggest that villagers in the area had become very upset after up to 20 cattle were believed to have been taken by tigers in the space of two months.

Local people deny having poisoned the animals found in February, saying they think the tigers probably fought to the death. But wildlife authorities noted scratch marks on trees near the bodies and believe these may indicate that the animals died writhing in agony, which could have been the result of poisoning.

In Andhra Pradesh, the poisoning of some 20 tigers over a period of two years has given rise to serious concern among conservation groups. Such cases add to the threat posed by poachers and are helping to push the numbers of animals down towards extinction level.

Experts point to the fact that government compensation for

As cases of tiger poisoning increase in some parts of India, a WWF compensation scheme for villagers whose livestock is killed by tigers may help to prevent them from retaliating against that most endangered species, writes Usha Rai from New Delhi



lost stock is poor — never reflecting the actual value of the cow or buffalo — and takes up to eight months to reach the villagers. The villagers are therefore inclined to take matters into their own hands with attempts to remove the threat to their livestock.

To counter this problem, the

In Dudhwa National Park, for example, well-known wildlife campaigner "Billy" Arjan Singh uses a jeep provided by WWF to monitor livestock kills as they happen, and makes sure compensation is paid quickly. Between 100 and 300 rupees (\$3 to \$9) are paid to informants who notify the authorities of a kill in the area of National Parks.

At the same time, WWF is working with park authorities to ensure the carcasses of livestock are guarded so that poison cannot be laid before they are fully consumed. Volunteer guards are paid 100 rupees a night.

"By providing affected farmers with immediate compensation, WWF wishes to contribute towards ending this growing insidious threat," observed Jean-Pierre d'Huart, head of WWF's Species Programme. "Given the great importance given to tigers by India, we hope that local governments will be able and willing to fulfill their responsibilities by quickly implementing this compensation scheme."

The compensation scheme has been started in three areas and could be extended to others where cases of poisoning are proved. It is too early to tell whether the idea will be a success. But it is no exaggeration to suggest that upon such projects hinges the very survival of one of nature's most magnificent creatures.

The writer is a consultant with WWF-India, based in New Delhi

Delhi's Ubiquitous Autorickshaw Headed for the Junkyard

In an effort to curb pollution in one of the most polluted cities in the world, the Delhi government has decided to dismantle from July 1 all autorickshaws that are more than 15 years old.

NEW DELHI, Jun 20: The rattletrap autorickshaw, the yellow-and-black three-wheeler taxi that is the lifeline for much of Delhi's middle-class commuters, is headed for the junkyard.

In an effort to curb pollution in one of the most polluted cities in the world, the Delhi government has decided to dismantle from July 1 all autorickshaws that are more than 15 years old.

The move is significant as hundreds of thousands of Delhi's residents depend on the 80,000 three-wheelers that ply the capital's roads. It is more expensive than buses but, being less expensive than cabs, is a necessary alternative in the absence of an efficient public transport system.

"Operators can gradually phase out their vehicles, in a year's time. I want all old autorickshaws off Delhi roads," State Transport Minister Rajendra Gupta told IANS.

This may be the first serious step taken by the government to contain pollution. To ensure that the number of autorickshaws, which the capital's environmentalists regard as the greatest polluters, does not increase, the government had stopped issuing fresh licences from May 31, 1996, he said.

Autorickshaws that are more than 15 years old cannot operate after March 31 next year. That leaves autorickshaw drivers with no choice other than getting their vehicles junked at a government-run junkyard and selling the scrap.

The state government has invited quotations from contractors for dismantling the autorickshaws at a government-run junkyard in northwest Delhi. In the past five months alone 2,000 autorickshaws have been dumped at the junkyard.

Once the autorickshaw drivers submit their vehicles, they can then get their licences renewed by the State Transport

Authority (STA) by showing proof for the sale of the scrap. Autorickshaw drivers are far from pleased with the government order. They say they could get barely Rs 1,500 (\$37) by selling the scrap of their old vehicle while a new autorickshaw would cost at least Rs 70,000 (\$1,750).

Bhim Singh, whose two autorickshaws are lying in the government-run junkyard waiting to be dismantled, feels that the government should provide some monetary help for buying new vehicles. "We agree that our vehicles emit a lot of smoke, but then they are also our only source of livelihood."

Singh said he would have got much more money, even Rs 5,000 (\$130), had he sold his battered vehicle without dismantling them.

"We are not forcing them to get their vehicle scrapped. They can sell their autorickshaws outside Delhi without getting them dismantled," Gupta countered.

— IANS

Afghanistan: Plight of Girl Students

Zarina Geloo writes from Washington

THEY cannot reveal their names or those of their organisations, but the two Afghan women between them, run 32 schools in areas where the Taliban presence is not so strong. They wear the cloak of anonymity for survival.

"We dare not return to Afghanistan," says one of them who runs 20 co-educational schools. Her colleague runs 12 schools exclusively for girls. Both women have lived in exile in Pakistan for the last 19 years.

One a medical practitioner and the other a physiotherapist, they met each other for the first time early this month in Washington, at an international conference on Educating Girls: A Development Imperative.

They know the odds are stacked against them. While Afghanistan has the second largest population (19.7 million) in Central Asia, it has the lowest figures (29 per cent) for primary school enrollment in the region, according to the latest 'Progress of Nations' report brought out by the United Nations International Children's Educational Fund (UNICEF).

They rely on international donors and local NGOs to run the schools. To escape detection, they have evolved complex and covert methods of fund transfers. Still, fear is a constant companion.

"The situation is bad. There are public executions for those who try to break out of the

mould that the fundamentalists are trying to create. Girls cannot go to school even if they are fully covered. We have to help them, we cannot just sit back and thank our stars that we managed to escape."

What spurs them on is their awareness of the stark lives of their female family members who are counting on them to draw the world's attention to their plight. One of them has a daughter still in Afghanistan who has finished high school but is unable to work or enroll for further training. "She is vegetating at home," says her mother.

It has been a tumultuous life for both the women: they ran away from Afghanistan 19 years ago after the invasion of the erstwhile Soviet Union.

More recently, when the Taliban began to overrun parts of the country, they feared afresh for their children's education, their careers and for the future of their country. Their years in exile have not lessened their feelings for their homeland, which seems to be sliding deeper and deeper into the morass.

According to the latest figures from the office of the UN High Commissioner for Refugees (UNHCR), of the total 13.2 million child refugees worldwide, the greatest number — 2.7 million — are from Afghanistan. Pakistan, the second ranking country of asylum, currently has 1.2 million

Afghan refugees. Operating on a shoestring budget, the schools are housed in makeshift structures or in single rooms. Students are all put into one class, then later separated into groups.

It is not poor infrastructure alone that forces the children

into single classes. Many of the children, including teenagers too, have never been to school. So they all have to be admitted into first grade. "For too many years their young lives have been disrupted by war," explains Yacobi.

— WFS/News Network

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