

Creating public awareness for waste management

DR MD SHAHJAHAN ALI

It has been said time and again that public awareness is imperative for proper management of city wastes. Waste management in the city is being hampered seriously due to lack of awareness of the residents who do not properly use the designated dustbins for its disposal. They usually throw household wastes outside the dustbins on the street. This is also alleged that indiscriminate dumping of wastes is frequent as there is no monitoring body to control this bad habit. This is not the case special to Dhaka city only but possibly depicts a picture of all the cities of Bangladesh.

Now there are lots of wastes usually found around the cities and can be classified as domestic, municipal and industrial which cause immediate harm to human beings, other organisms and exert pressure on our environment polluting soil, air and water. Hazardous wastes pose danger to living organisms, soil structure and environment though seepage, corrosion, toxicity and other detrimental effects. The term 'hazardous' refers to a substance that has been discarded, abandoned, rejected but may interact with other substances to their detriment. The large volume of wastes those are generated daily in all of the major cities (Dhaka, Rajshahi, Khulna, Chittagong etc) is a serious threat to the residents and environment. Improvement in quality of both life and environment with proper management of large volume of waste is a great challenge for the city authorities.

According to a non-governmental organisation dealing with waste management, around 3,500 tonnes of solid wastes is produced in Dhaka each day and the number of cleaners' not sufficient enough to keep the city clean. Suggestions are made by various experts but nothing fruitful has yet been obtained in this regard.

The ordinance promulgated by DCC in 1983 provides for punishment -- jail, and penalty of Tk. 50 to 10,000 -- for littering streets with wastes but in absence of strict

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enforcement of laws and ordinances promulgated from time to time, the environment is only degraded further with the increase in the volume of wastes generated from various sources. Lack of awareness, illiteracy and poverty of the common people have great impact on the aspect of pollution of environment with wastes.

Added to this are various inadequacies of municipal authorities. The cities suffer. All the heterogeneous substances are mixed with the municipal solid wastes which create a problem for composting. Suggestions can be made for adopting the system of collecting MSW as followed in Germany and other European countries. It indicates collection of glasses, plastics, paper, metals and batteries in different containers and more specifically it means the containers should be made of different colours and wastes of different types should be thrown and deposited in the marked containers. The common people should be fully made aware about the use of the containers. The people may be attracted by showing demonstrations of the household waste disposal in municipal containers. This also requires imposition of laws and ordinances to be followed very strictly for the management of wastes.

Recycling of organic wastes is usually done for producing bio-gas which is the source of bio-energy in our country. Energy may be classified into commercial and non-commercial and the generation of methane gas CH<sub>4</sub> indicates non-commercial form which can be easily available from decomposition of waste materials from animal sources and mixing with water hyacinth and other organic materials. Waste concern has been working since 1995 in Dhaka for collection and treatment of wastes

in plant. The plant will produce methane gas which will be utilised to generate power. But it is a matter of surprise that nothing has so far been achieved for utilising organic wastes to solve the crisis of energy. Immediate approval should be given by the government to run this Netherlands government funded project. It was reported in the press a few months ago that the huge amount of wastes of Dhaka city could be utilised for producing electricity and a Japanese company visited Bangladesh to start a project but surprisingly enough it is also kept in file and no response has been made so far.

It is reported that Asian and European foreign ministers expressed their concern over high oil prices and called for develop-

ment of alternative energy sources, including nuclear power. In a joint statement issued at an Asian-European meeting (ASEM) they expressed concern over the impacts of continued high oil prices on global economic growth. They called for enhancing energy security through energy conservation, improvement of energy efficiency and wider use of alternative energy sources. This is really very concerning for the poor people of Bangladesh where the government has already announced higher price of oil from next July and therefore it is imperative to find out alternative source of energy at a cheaper rate. At the present moment the best way is to produce methane gas by recycling

cowdung and other waste materials in bio-gas plants in remote villages to meet the burning problem of energy.

The slurry or effluent produced after the generation of methane gas from cowdung is a very good organic fertilizer which increases the fertility of soil and enhances crop productivity to a larger extent since it contains high amount of nitrogen phosphate and potassium than is obtained from direct application of cowdung into the soil. This idea will also serve to do away with wastes found in large amount in cities and other places of our country, beneficially.

This is a duty of all of us and a prime need now to motivate the common people either in cities or villages regarding the harmful effects of wastes and their proper disposal. All of us and the government should come forward to take this challenge and arise awareness in the minds of the people.

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The huge amount of Dhaka city wastes could be utilised for producing electricity

Environmental auditing Supporting sustainable development

ASIF ALI

There have been notable strides in the field of environmental auditing within the International Organisation of the Supreme Audit Institutions (INTOSAI) since the establishment of the Working Group on Environmental Auditing (WGEA) in 1992. The WGEA started with 12 countries and has since grown to a membership of more than 50 countries, making it the largest INTOSAI working group. The core values of WGEA include: Independence, Integrity, Professionalism, Credibility, Inclusiveness, Co-operation and, Innovation.

The strategic Plan of the WGEA is based on the following fundamental precepts : 1. Vision is to promote good governance of national resources by enabling supreme audit institutions to help the respective governments improve environmental development through sustainable actions to protect the health and safety of the citizens. The vision statement reflects the ultimate impact desired by WGEA as a consequence of its work; 2. Mission aims to encourage the use of audit mandates and audit methods in the field of environmental protection and sustainable development by both members of the Working Group as well as non-member supreme audit institutions. Concurrent, joint and co-ordinated auditing by SAls of cross border environmental issues and policies form the priorities; 3.Strategic Goals are the intended outcomes which accrue as a result of sum total of the activities undertaken by the Working Group. However, while the Working Group may have direct influence over the attainment of these goals, it only has indirect control since other factors beyond the activities of the WGEA may affect the achievement of these goals.

Environmental auditing tools framed by the WGEA consist of standards, guidelines and research papers. Previously, the WGEA produced the following four important research reports : Auditing water by the Netherlands, Auditing waste management by Norway, Environmental audit and regulatory auditing by New Zealand, Auditing sustainable development by the United Kingdom.

For the coming work period, the WGEA has proposed that 'Biodiversity' be adopted as an added central theme. According to the results of the 4th survey on environmental auditing, biodiversity is frequently identified both as an issue of national importance and a popular topic for auditing. Furthermore, biodiversity is one of the important subject areas addressed in the INTOSAI Development Initiative (IDI)/ WGEA training programmes. It has also been proposed that the working group prepares and publishes by the end of 2007, a paper summarizing the environmental and sustainable development audits and investigations to be undertaken by SAls (Supreme Audit Institutions).

Within INTOSAI there are seven regional organisations of supreme audit institutions : Africa (AFROSAI), the Arab countries (ARABOSAI), Asia (ASOSAI), Caribbean (CAROSAI), Europe (EUROSAI), Latin American and Caribbean (OLACEFS) and the South Pacific (SPASAI). A Regional Working Group on Environmental Auditing (RWGEA) has been established in six of the seven INTOSAI regions, with only the CAROSAI region lacking an environmental working group. Since these regions independently establish their own goals and strategies, the WGEA aims assist the establishment of coherence between them.

Liaison with international organisations such as the World Bank and the United Nations Programme on Environment (UNEP) and discussing the work of the WGEA and its members are also important components of the WGEA goals.

The 9th meeting of WGEA was held in Brasilia, Brazil from May 30 to June 4, 2004. Attended by about 100 delegates from 44 member countries of INTOSAI, Bangladesh was represented by the author. SAI, Bangladesh presented a paper titled "SAI Bangladesh faces new challenges: Outcome of wastes audit on Dhaka City Corporation". SAI, Bangladesh has been consistently striving to get into environment auditing, particularly after the very successful IDI-WGEA international workshop on environmental auditing held at Antalya, Turkey a few years back. Participation in the workshop had resulted in clear awareness building and skill formation of SAI, Bangladesh.

Waste is now considered as a prime issue for environmental auditing. The phenomenal growth of Dhaka City Corporation (DCC) prompted SAI, Bangladesh to carry out audit on waste management of DCC. A population of 12 million in an area of 36 sq. km generates around 3000-4000 tons of wastes everyday. It was, therefore, imperative to target the following objectives for this audit: a. To assess effectiveness of DCC in managing wastes of the city; b. To evaluate adequacy of budget, manpower and necessary equipment/ logistics; c. To examine the strength of the regulatory instruments including empowerment; d. To evaluate the effectiveness of the national wastes policy.

The office of the CAG, Bangladesh, in its Strategic Audit Plan (2003-2006) incorporated a phase wise work plan on Environmental Auditing on the following issues: (i) Air pollution (ii) River pollution, (iii) Wastes management, (iv) Deforestation, (v) Management of fishery resources, (vi) Pesticides use in agriculture, (vii) Urban sanitation system, (viii) Floods and disaster management, (ix) Internal environmental management by public authorities and departments, (x) Eco-systems management, (xi) Traffic mobility and transport.

SAI, Bangladesh in its maiden audit of wastes management on DCC has initiated environmental auditing. But the following constraints have to be overcome at the quickest possible time to make environmental auditing effective : (i) Skill, (ii) Resources, (iii) Adequate auditing out-fit, (iv) Hiring experts, (v) Global co-operation and collaboration among the SAls.

SAI, Bangladesh has aptly responded to face the above mentioned impediments through: Formulation of CAG's Strategic Plan (2003-2006) divided into short, mid, long and tenure plans; and effecting reforms through DFID-Royal Netherlands Government-GoB funded Financial Management Reforms Programme (FMRP) (2003-2008).

The lessons learnt and experiences shared in the 9th Meeting of the INTOSAI Working Group on Environmental Auditing will go a long way in enhancing the capability of CAG, Bangladesh in carrying out effective environmental audit to measure the sustainable development of the country.

Asif Ali is Comptroller and Auditor General of Bangladesh

Mammals at peril Endangered species must be saved

Forestation of depleted areas, creating reservation and sanctuaries, cessation of human encroachment, ending of habitat fragmentation, stopping of hunting and poaching still may bring some sanctity to the ecology and to the animal kingdom.

SYED SHAMIM FARUK

THE notion of wildlife protection and conservation is still something that sounds unfamiliar and unappealing to the teeming millions of Bangladesh. However, things are gradually shaping for the better thanks to the newspaper and satellite TV, the environmentalists and conservationist who are trying tirelessly to mould the public opinion breaking the age-old concepts on how to treat other species of animals. It is no wonder that a narrow patch of land which is perhaps the smallest and most densely populated country in the world ought to be one of the most hazardous and unsuitable habitat for a lot many wildlife species.

In spite of overwhelming odds Bangladesh do give shelter surprisingly to a wide variety of mammals. However, the geometrical progression and growth of human population specially in the past five decades or so has created precarious and hostile surroundings affecting and endangering the mammals irrevocably.

A study carried out by the world conservation union, a swiss based global organisation on wildlife conservation and protection, has revealed that a total of 110 types of mammals existed in the country out of which 10 species have become extinct, 21 have been listed as critically endangered 13 as endangered, six as vulnerable, there are not enough information on 53 and only 17 species are considered as safe.

The statistics is enough to testify to the horrific state of mammal kingdom of Bangladesh.

Unicorn rhinoceros, one horned and double horned rhino, banteng, wild buffalo, two types of barking deer, hyena, the blue ox are some of the most precious mammal species that have been completely wiped out from our

ecosystem within a span of past 50 years.

Some or our most familiar and precious species like the tiger of Sundarbans, honey bear, bear cat, Eurasian otter, panther, clouded leopard, golden cat, wild dog, hoolock gibbon, pigtailed macque, slow loris etc have been listed as greatly endangered. The study shows some of them are on the edge of extinction. The list can go on and on.

Bengali race is very proud and fond of their great Royal Bengal Tiger. Sundarbans the great mangrove forest on the south and southwest fringe near the coast, is sheltering this unique and majestic species.

Researchers and conservationists differ on the actual number of the tiger prowling in the forest. A reasonable figure on their actual number may not go beyond 400 to 500 and it is dwindling rapidly. Human encroachment, habitat fragmentation, killing of the tigers by the inhabitants to save their livestock and mindless racketeering by the poachers have taken their toll. The other species of mammals are no exception. The organs and skin of a full grown tiger can fetch up to 1,50,000 dollars in the black market. The authority have totally failed to enact and implement the wildlife protection act of 1973.

Forestation of depleted areas, creating reservation and sanctuaries, cessation of human encroachment, ending of habitat fragmentation, stopping of hunting and poaching still may bring some sanctity to the ecology and to the animal kingdom.

Should the present trend continues then most of the mammals earmarked as critically endangered shall be wiped out from this land very rapidly and our posterity would blame as for our sheer indifference and callousness. Let's act now before it gets too late.

Syed Shamim Faruk is a conservationist.



The endangered Royal Bengal Tiger

Noise pollution: Needs immediate attention

SOROWAR CHOWDHURY and AMAR KRISHNA BAIDYA

POLLUTION is the undesirable state of the natural environment being contaminated with harmful substances as a consequence of human activities. It involves any contamination -- of air, soil, water, even loud noise and sound is also a part of pollution. Most of us are certainly thinking about 'Green House Effect' and other crucial environmental crises. At the same time at least a small segment of the urban people are also worried about the widely underestimated but serious environmental issue like 'noise pollution' -- environmental noise that is annoying, distracting or physically harmful -- also popularly known as 'sound pollution'.

Noise pollution should indeed be a great concern for people particularly living in urban areas. Urban people are engulfed with a variety of noises, viz, automobiles, construction equipment and plants, loud speakers, bomb blasts, hydraulic horns, aircraft sounds and so on.

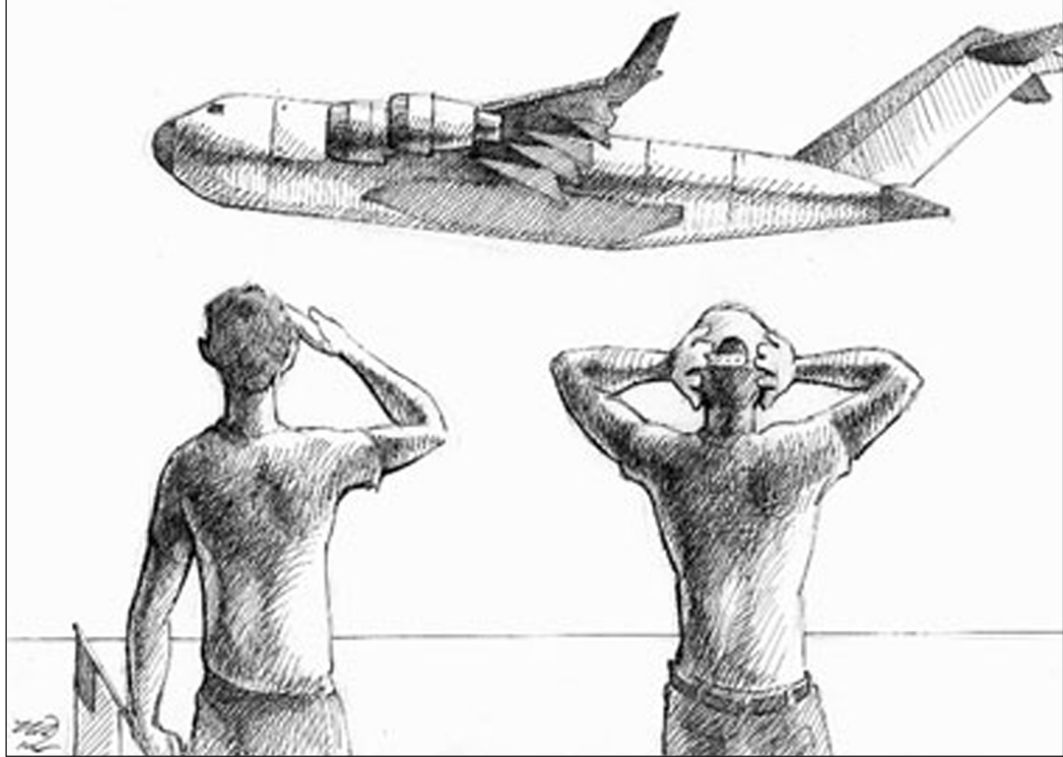
In fact noise is one of the increasingly prevalent environmental pollutants. The day-night sound level of residential areas is considered not to exceed 55 decibels (db) to protect against activity interference and annoyance. But it is estimated that nearly half of the US population (more than 100 million people) live in areas where the noise exceeds this level. While looking at the European Union, Susan M Booker finds nearly 80 million people 20 percent of the EU population -- are exposed to noise levels high enough to cause adverse effects. She also suggests that in terms of cost such as lowered property market value, abatement measures, annoyance, prevention, medical care, and production losses, the annual cost of noise pollution has been estimated by the EC to be as high as E38 billion!

The above scenario illustrates the situation of developed countries, where vehicle horns are strictly prohibited, people normally do not create any public nuisance. Keeping in mind the above figures, one can easily assume the situation of developing and least developed countries. As Bangladeshi citizens, it is time to anxiously recognize Dhaka city scenario and decide on whether we should live there. Similar is the case with Chittagong. But the paradox is that we, the people living in these two cities, do not have any alternative. We should address the issue right at the moment.

Following table depicts various sources of sound with its intensity

Source of sound	Intensity
Whisper	20 30 db
Normal conversation	40-60 db
Tape recorders or orchestra	70 db
Heavy traffic	90 db
Pneumatic drills and other machines	100 db
Generator	120 db
Jet engine (about 90-100 feet away)	140 db

Scientists, academics, government, non-government and community-based organisations, development agencies, journalists and mass media people may take necessary steps so that we can make the country a noise-free place to live in.



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psychiatric problem. The general hazards of noise pollution are, as found in relevant documents:

λ Eardrum is damaged when exposed to very loud and sudden noises. The hair cells in the inner ear are chronically damaged. Prolonged exposure to noise of certain frequency pattern leads to hearing loss.

λ Noise causes heart output to decrease with fluctuations in arterial blood pressure and vasoconstriction of peripheral blood vessels.

λ Blood is thickened by excessive noise. Eosinophilia, hyperglycaemia, hypokalaemia and hypoglycaemia are caused by alteration in the blood due to noise.

λ Noise affects sleep and work performance, especially of watch-repairers and others where precision is called for.

**Some more specific ear damages suggested by Dr. Pankaj Tripathi are:**

**Temporary Deafness:** This Persists for about 24 hours after exposure to loud noise.

**Permanent Deafness:** Repeated or continuous exposure to noise of around 100 db results in permanent hearing loss. Even single exposure to noise of 160 db can lead to rupture of eardrum and

permanent deafness.

**Auditory Fatigue:** Noise of 90 db causes buzzing and whistling in the ears.

Besides, he suggests decreased work efficiency, increased intracranial pressure, increased blood pressure, increased heart rate, respiration rate and sweating, diminished Night Vision, Colour Perception and visual disturbances due to noise pollution.

Let us look at the effects of noise on our lovable children -- for whom we work hard and to whom we will leave the nation in future. The situation is rather disappointing. Literature suggests that noise pollution is linked to impaired cognitive development in children and to diminished short-term memory span.

At noise levels of 55 to 66 db, ability to concentrate is severely compromised or impossible for many children. Reliable studies have demonstrated this and conclude that exposure to high levels of noise can adversely affect reading ability in school-aged children. It has been revealed in a study that the reading and math scores of pupils in classrooms where noise was controlled were higher than those in classrooms where this was not the case. Children living on the bottom



floors of an apartment building near heavy traffic for four years or longer, scored lower in reading ability tests than children residing on the top floors, further from the traffic.

Scientists found that noise affects several aspects of children's behavioral and psychological functioning, including learning to read as well as their chronic stress levels. Noise has two types of effects on children: one "nonauditory" effect and another "auditory" effect. The nonauditory effects of noise in children fall in two main categories: reading and other aspects of cognitive performance, and stress-related responses such as annoyance, blood pressure, secretion of stress-related hormones, and mental health. These two categories are also linked to the auditory effects of noise. A very important auditory effect of noise is interference with the intelligibility of speech. Hearing other people talk is critical to children's early language development. But trying to hear someone talk in a noisy environment can produce other nonauditory effects. Memory and performance can be impaired because of the extra effort required to decipher speech. The auditory and nonauditory effects of noise are often interrelated.

Considering the foregoing discussions the following steps can be taken by the authorities concerned for the betterment of the countrymen especially the city dwellers:

λ Make people aware of the effects of noise

λ Stop horn of vehicles on the city streets

λ Ban the hydraulic horns of vehicles like those used by some bus, trucks etc.

λ Ban private use of loud speakers, mikes etc., e.g., in election campaigns or other publicity

Scientists, academics, government, non-government and community-based organisations, development agencies, journalists and mass media people may take necessary steps in this regard so that we can make the country a noise-free place to live in.

Sorowar Chowdhury and Amar Krishna Baidya are development activists.