

Study Circle Booklet Environment and Health



Study Circle
স্টাডি সার্কেল
বাংলাদেশ
Bangladesh

One more step towards democracy

Study Circle Booklet
Environment and Health

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Material Development
Study Circle Project
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Bangladesh faces a lot of challenges in trying to keep up with the rapid development and growing population in the major cities. The people's health and well being are very closely linked with their surrounding environment. In these urban areas, environmental pollution is on the rise due to a number of reasons. The main reasons stem from an increase in industrialization and urbanization combined with lack of environmental awareness and poor planning. Pollution that occurs from this environmental degradation affects health in many ways. This study circle will focus on the health problems people face as a result of pollution. With awareness and participation, steps can be taken, both at the community level and at the government level, to work towards improving our environment and as a result, improving people's health and that of future generations.

Objectives of this study circle are:

- θ Identify the sources of environmental pollution in urban areas
- θ Discuss the health issues people face as a result of environmental pollution
- θ Increase awareness of environmental issues and associated health problems that are occurring everyday
- θ Discuss action and remedies to eliminate or reduce some of the problems

The study circle discussion has been categorized into five parts. The first four parts will focus on different environmental problems and issues. The last part will focus on actions and suggested remedies for improving the environmental pollution that is occurring.

Urban development

- Discussion
- Reference Material

Solid waste pollution and health

- Discussion
- Reference Material

Air pollution and health

- Discussion
- Reference Material

Noise pollution and health

- Discussion
- Reference Material

Water Pollution and health

- Discussion
- Reference Material

Urban Development



Discussion

- What are the negative impacts and environmental problems resulting from this kind of unplanned development in Dhaka City?
- What problems do you face as a result of this unplanned development?
- How can we bring awareness to these issues:
 - Encroachment of land and water bodies
 - Violation of building codes
 - Violation of land space required for housing developments

Looking ahead to Next Session

Next Session will focus on solid waste pollution. This issue is becoming a major concern as the population and the amount of waste generated increases. We shall discuss solid waste pollution and the health problems associated with it as well as discuss ways to implement effective solid waste management.

Population growth and absence of land use policy are the two main reasons for unplanned development in Bangladesh. Rural-urban migration has led to a great influx of people into the few major cities, especially Dhaka. Dhaka city has a population of more than 12 million people, and this puts a lot of strain on the available resources and physical infrastructure of the city. RAJUK is the only authority of supervising and directing construction in Dhaka. At present, the laws regarding building and planning are not adequate to meet the complex needs of urban development, and more importantly, the existing laws are not adequately implemented. Appendix I refers to such indiscriminate developments that are violating laws and are cropping up without regard to impact on the total city environment. High-rise apartments are built to meet the demand of housing needs, and this in turn leads to overcrowding of people in most areas. Since there is no comprehensive plan on how to manage these developments, problems occur with inadequate water supply and sanitation, waste disposal areas, encroachment of land, rise in slums and squatters, heavy traffic and rise in environmental pollution.

Impacts of unplanned development

The large increase in population, combined with haphazard growth and expansion has resulted in negative impact on various sectors of Dhaka city. These unplanned developments have not only put pressure on urban services, but they have also led to the reduction and disappearances of public land and water bodies. Filling up of water bodies has led to

water-logging problem as catchments areas of surface and storm drains are filled up. There is lot of illegal land encroachment taking place, especially alongside lakes and parks. These lakes become dumping grounds of indiscriminate throwing of household, commercial, and industrial wastes. Unauthorized occupation, mainly slums, crop up on the banks of these lakes and rivers; people from these slums use the water for all purposes, and incidences of water-borne and skin diseases occur. The health conditions in these urban slum settlements are very poor and due to the close proximity, this also affects health of the surrounding neighborhoods.

Reduction of unplanned urban development

It is a known fact that urbanization and increase in population are occurring very rapidly; the government needs to implement policies and programmes to manage such developments. Concerned citizens can form committees to object to commercial development, such as factories and office buildings in residential areas. The importance of public parks and playgrounds for children needs to be emphasized and awareness of policies and laws that exist regarding development, whether planned or unplanned, has to be raised to improve the urban environment.

Solid waste pollution



Discussion

- What solid waste problems do you face in your daily life?
- What do you think are the main hazards of exposed overflowing garbage bins alongside streets and neighborhoods?
- Biomedical wastes are improperly disposed and mixed with domestic biodegradable waste – In your opinion, what health hazards arise from this?
- How can we address the problem of improper medical waste disposal?
- Community-based approaches towards solid waste management – what are your views and suggestions on such ideas?

Looking ahead to Next Session

In the next session we will focus on air pollution and the health problems associated with it. Air pollution is one of the major causes of respiratory illnesses and premature deaths. The sources of such pollution will be discussed. The importance of having both clean indoor and outdoor air quality will be discussed as well.

Sources of solid waste pollution

Everyday the population of Dhaka city produces nearly 4,000 tones of solid waste. The Dhaka City Corporation is in charge of collecting and safely disposing of this waste. All kinds of wastes are thrown in the DCC garbage bins- household, commercial, industrial and medical waste; however DCC resources are not adequate and efficient enough to handle this waste management. Although the DCC has a large fleet of waste carrying vehicles available, most of them are inoperable and out of service. As a result, there is a big gap between the amount of waste accumulated in these garbage sites and the amount of waste collected. Appendix II refers to such problems that are not being addressed by the government. It has been estimated that only forty percent of waste generated is collected by DCC. Garbage bins are non-existent and dumping sites alongside streets and neighborhoods are always overflowing. Lack of awareness about hygiene and environment as well as lack of civic sense leads to indiscriminate dumping of waste everywhere. Street animals and crows make the situation worse by spreading the waste. Noxious smells and unaesthetic sights pollute the neighborhood, and accumulated solid wastes provide a suitable environment for growth of microorganisms, insects and rats, which affects public health.

Solid waste
pollution

Health hazards at final dumping sites

There are no proper sanitary landfills for urban wastes; their disposal in the final dumping sites involves throwing the waste into low-lying areas around Dhaka city. Presently, there are three main garbage sites where these wastes are taken - Matuail, Mirpur and Lalbagh. The collection crew and residents of these neighborhoods are exposed to air pollution- methane and other gases in landfills produced from decomposition of organic waste- and possible groundwater pollution from leachates produced at the dumping sites. The leachates include dissolved organic and inorganic contaminants as well as heavy metals.

Medical waste health hazards

Disposal of hospital and bio-medical waste is a major health and environmental issue. This waste can transmit viral, bacterial and parasitic diseases to human beings. At present, there is no regulation for the disposal of medical wastes. Half of the clinics in the city are situated in residential areas. Due to lack of awareness of safe disposal and handling of medical waste, there is no treatment or disposal method available for these wastes. Medical wastes include contaminated syringes, expired drugs, pathological waste and anatomical wastes like body parts. All these are a source of contamination and pollution to both humans and the environment. Disposable needles are often collected at these dumpsites and resold and reused by various people. This becomes a major health hazard as it can spread infectious diseases like AIDS and Hepatitis B.

Community-based management

A number of communities have taken it upon themselves to solve some of the waste disposal problems. They have pooled resources and have organized vans to collect wastes door to door from households and collectively take it to the final dumping site. The brochure on Dhanmondi R/A solid waste management project refers to such an initiative taken by Center for Urban Affairs. Another solution that has evolved in solid waste management is composting municipal waste and converting it into a resource. Appendix II has an article on 'Converting waste to wealth' and this gives more details about the effective methods implemented by a local NGO 'Waste Concern.' Awareness and initiation of project activities to improve waste management needs to be implemented both at the community and government level.

Air Pollution



Discussion

- What are the leading causes of air pollution in your area?
- Discuss some of the health problems and discomfort you and your family face due to exposure to air pollution.
- Proper ventilation in kitchens and continuous burning of gas stoves – What are your views on the importance of indoor air quality?
- How does passive smoking affect your life? How can we reduce this in public places?
- How do you think brick kilns and other air polluting industries on the outskirts of Dhaka affect the air quality that you are exposed to?

Looking ahead to next session

Our next session will focus on noise pollution and the negative health impacts resulting from it. Noise pollution is on the rise in Dhaka city and has become a major source of stress at the workplace and elsewhere. The sources and negative health impacts arising from noise pollution will be discussed.

Health hazards from air pollution

Air pollution is the leading cause for some of the major illnesses that people face in Bangladesh. According to the World Health Organization report of February 2001, air pollution kills about 15,000 people in Bangladesh each year. The report also states that 6.5 million people in the major cities suffer from respiratory diseases like asthma, acute respiratory infections, bronchitis and many other diseases. Air pollution is not only causing health problems but poses a serious social cost as well. The World Bank has estimated that Bangladesh faces an economic loss of 200 million to 800 million US Dollars each year in dealing with health problems and sicknesses due to air pollution. Children are even more susceptible to illnesses as a result of air pollution. Appendix III has an article on child health that gives an overview on the relation between environmental impact and health problems faced.

A grey rectangular box containing the text "Air Pollution" in a serif font, with "Air" on the top line and "Pollution" on the bottom line.

Sources of air pollution

The major air pollutants that causes harm to people's health are: suspended particulate matter (PM), volatile organic compound (VOC,) carbon monoxide, nitrogen oxides, sulfur oxides, lead and other heavy metals. Although much success has been achieved with the removal of two stroke auto-rickshaws on the streets of Dhaka, city people are still suffering from the thousands of faulty vehicles and brick kilns that emit fumes and black smoke. Emissions from diesel exhausts and badly maintained old vehicles still contribute to most of the sulfur dioxides in the air (55.8 %,) followed by the brick manufacturing industry (28.8 %.) Other air polluting industries contribute to 10% of Sulfur dioxide emissions. Primary source of No emission is also traffic vehicles, followed by brick manufactory industry.

Brick kilns

Due to the non-availability of natural gas in most parts of Bangladesh, coal and wood are used as the source of energy in brick-making kilns. Air pollution resulting from kilns is not just due of the type of fuel used, but also due to the inefficient combustion in the conventional kilns; this leads to emissions of sulfur oxides, carbon monoxide and particulate matters into the air. The most significant factor is the large cluster of brick kilns around the outskirts of

Dhaka city. The close proximity of these leads to smog in the city as a result of concentrated amounts of dust particles (SPM) and other air polluting gases in the air.

Indoor air pollution

Indoor air quality is also very important for people's health since they spend a lot of time indoors. Tobacco smoke is the biggest indoor pollutant, and people are greatly exposed to passive smoking. Even though it is a known fact that passive smoking carries the risk of lung cancer and coronary artery disease, smoking is still not banned in most public places. People are exposed to passive smoking in hospitals, restaurants, outside schools, public transportation vehicles and most other public places. At home in the kitchens, poor ventilation is not maintained, and the smoky environment leads to poor air quality. Gas stoves are left lit for hours during the day and sometimes even at night.

Ways to reduce air pollution

Initiative to reduce air pollution has to be done both at the individual level and at the government level. Proper ventilation in households through cross ventilation and smoke free environment has to be established. Communities need to pressure the authorities to ban or segregate smoking in public places. The Bangladesh Road Transport Authority (BRTA) and the Traffic Department need to establish rules and regulations as to who is responsible for taking actions to make sure unfit vehicles are not allowed on the roads. Brick kilns around the outskirts of the city have to abide by environmental laws and become more efficient and environment friendly.

Noise Pollution



Discussion

- What are the major sources of noise pollution in your area?
- Do you face any negative symptoms after exposure to noise pollution?
- Do you think efficient traffic control will reduce some of the pollution that results from honking constantly?
- In your opinion, are hydraulic horns necessary in regular cars?
- Should microphones and loudspeakers be monitored or regulated when they are used in residential or school areas?
- Accepted levels for noise and the situation existing in Dhaka city are quite different (Appendix V). What can we do to reduce the noise level?

Looking ahead to next session

In the next session we shall discuss water pollution and the health problems associated with it. Water pollution is the major cause for diseases like diarrhea, cholera, dysentery and many others. Sewage discharge into water bodies combined with poor sanitation lead to most of these diseases. We will be looking into the sources of water pollution and the effects it has on human health.

Sources of noise pollution

Urbanization and industrialization has led to an increase in the noise level in Dhaka city. There are many sources of such noise pollution. Some of the main ones include motor vehicles, increase of industries- especially in the residential areas, brick breaking, frequent use of loudspeakers on the streets and construction work on roadsides. The most common is motor vehicles and this is due to a number of reasons. Improper maintenance of vehicles, old engine noises, use of high-pitched hydraulic horns and the frequent use of horns create an unbearable noisy atmosphere in the streets. Inefficient traffic control, haphazard pedestrian crossing and poor road surface conditions make matters worse. Construction work and brick breaking alongside roads and neighborhoods also add to the noise level in a significant way. Nowadays a lot of factories that have night shifts are set up in residential areas and they do not comply with the set noise standards.



Noise
Pollution

Harmful effects of noise pollution

Numerous exposures to high level of noise affects people physically and mentally and can cause damage to ones health. Appendix V gives data on what the level of noise should be at certain times in different areas. It also gives data on what the noise level actually is in different parts of the city. People have experienced headaches, hypertension, stress, bad temper and an overall increase in anxiety level when exposed to high level of noise over a long period of time. Students

have a hard time concentrating on their studies, especially at nighttime. Many people have developed hearing impairment over a period of time. Work for a Better Bangladesh (WBB) has conducted studies and interviewed students, drivers and the general masses. Their results give some indication of how much of a negative impact noise pollution has on people in general. Appendix V has case studies conducted by WWB; it will show how serious the problem can become if measures are not taken to reduce such pollution.

Reduction of noise pollution

Some measures can be implemented to control noise pollution sources. Public awareness about the harms of noise pollution as well as the importance of silent or limited noise zones in residential areas, hospitals and educational institutions needs to be addressed. Limiting the use of horns, mikes and loudspeakers would improve the situation significantly. More efficient traffic patterns should include better traffic control, use of signal lights, limiting haphazard pedestrian and rickshaw crossing and better maintenance of vehicles. The use of hydraulic horns should be banned in regular cars and also inside the city areas. Noise limits should be reinforced in sensitive areas like hospitals and education institutions.

Water Pollution



Discussion

- What are the leading water pollution problems in your area?
- Direct sewage and garbage disposal into lakes and rivers– What are your concerns?
- Industrial wastewaters released into rivers are negatively impacting the environment and people's health - how is this affecting you?
- Many major diseases are water borne and result from fecal pollution and poor sanitation. How can we reduce this?

Looking ahead to next Session

The next session will be the conclusion of our discussion on health and environment. Possible remedies and actions that can be taken to solve or reduce some of the problems will be discussed. The focus will be on the outcome and impact of this study circle and whether we have fulfilled the objectives of this study circle.

Industrial water pollution

Industrial discharge and sewage disposal into lakes and rivers are the two most polluting sources of water pollution in urban areas. There are a number of industries that are situated around rivers in the outskirts of Dhaka city. Buriganga, Turag, Balu and Sitalakhya are the four most polluted rivers in Bangladesh as a result of these industries. The pollution is mostly due to wastewater discharge from the tannery industries in the Hazaribagh area into the Buriganga; Tongi textile industries into the Turag River; Tejgaon chemical and paper mills into the Balu, Turag and Buriganga river; and textile and steel re-rolling industries in Narayanganj into river Sitalakhya. Pollutants from these industries are categorized into three parts:

Water
Pollution

Bio-degradable organic waste, Non bio-degradable inorganic waste and Toxic waste

Disposal of such untreated industrial waste is gradually destroying aquatic environments and this in turn is affecting people's health. Heavy contamination of fish and other aquatic life has been found in these water bodies. Fishermen have complained about the reduction of fish in these rivers. People living near these rivers suffer from bad odors and health problems. Many people suffer from ulcers, skin and intestinal diseases. During the dry seasons, some of the rivers become almost black in color and emit noxious smells.

Feecal pollution and poor sanitation

With the increasing population in Dhaka city, there is a lot of pressure on the sewer systems and waste disposal. Dhaka lacks proper sewage disposal methods; these systems are old and outdated and they cannot keep up with the increasing sewage generated. There tends to be a lot of direct sewage disposal without any kind of treatment into lakes and rivers and this leads to feecal pollution. Diseases like cholera and diarrhea are transmitted by feecal contamination of water. People living in slums around the city use these contaminated waters for all recreational purpose and this results in spreading of water-borne and skin diseases. Appendix IV refers to an article on water crisis and diseases occurring in countries like Bangladesh.

Reducing water pollution

Identifying the sources of water pollution in urban areas and raising awareness of good sanitation practices are required to achieve prevention and reduction of water pollution. The government needs to enforce laws and environmental standards and regulations on polluting industries. Due to bureaucracy and glitches in the system, existing laws and policies are not enforced and these industries continue to discharge their toxic effluents into rivers. Appendix IV refers to an article on tannery in the Hazaribagh area; this is an example of how violation of laws is continuing to take place in an already severely polluted area. Direct disposal of domestic and commercial waste into lakes and rivers need to be restricted. This involves identifying the sources of pollution, strict enforcement of laws prohibiting such actions and educating the public about good hygiene and sanitation practices.

Discussion

- Looking at the objectives of this study circle:
 - Connecting environmental pollution and health
 - Identifying sources of environmental pollution
 - Identifying the health problems faced
 - Finding remedies to reduce some of the pollution and improving our health
- Do you feel we have accomplished some or all the above?
- Do you feel concerned citizens can take action and make a difference in improving our environment and health?
- Should this study circle take action on the findings and recommendations suggested? If so, what actions should be taken?

Thank you for your participation