Agenda for Urban Concern_______ Waste Management in Dhaka City: Towards a Solution Waste Management in Dhaka City: Towards a Solution Private Concern. We have been we caused with many quarters. We caused with many quarters. We

There is no specific mention of solid waste. So the first thing is that we should have specific rules and by-laws specifying standards of storage, collection, transportation, processing and disposal of solid waste. That is vitally important. Special attention should be given to processing waste for resource recovery, which not only leads to resource gains, but also substantially reduces the quantity to be collected and disposed. Extensive recycling and composting are two possible methods of recovery. We have to put emphasis on this. About 70 to 80 per cent of our solid waste are organic waste and that can be easily converted into compost. And that is the initiative being taken by Waste Concern. The other area is extensive recycling.

The concept of pollution prevention is not a very known or common approach in Bangladesh, but it is being promoted in western countries. That should be examined in all industries and commercial institutions. This concept of pollution prevention is built on the waste management hierarchy of source reduction, on-site re-use, off-site recycling, resource recovery, treatment and disposal. Particularly in industries and commercial institutions, when we say source reduction, that means the reduction of waste through use of different raw materials or environment-friendly raw material, etc. Also on-site and off-site reuse. This pollution prevention programme could be a very useful way if we could introduce it in industries and commercial institutes. It can be introduced in every sphere. It has the benefits of saving money. It reduces regulatory burdens, reduces liabilities, improves health and safety and increases public image. Whether we need legislation for the pollution prevention programme is to be seen. The pollution prevention programme has been introduced in the US, Canada, Australia, in all industrialised countries, especially in industries. That is an approach we should examine. Through proper legislative efforts, it can be made effective. The US has an Act on pollution prevention.

Immediately what we need to do in Dhaka City is a comprehensive study of the quantity and quality of solid waste in order to determine the following technical aspects. Whenever we say 5000 tons a day or 3500 tons a day, these are not based on very comprehensive data. This is just DCC measuring a few examples or asking BUET to measure a few samples. So a comprehensive study is required to ascertain the actual quantity because quantity is a major concern. Now we have a population of say eight million in DCC service area. The population of Dhaka City might be two-fold in 2020, that is, 15 to 16 million. But the increase in waste may be three-fold or four-fold because of the rate of increase of this solid waste generation. Now we have 3500 tons every day. Maybe in 2020 we will have 12000 to 15000 tons per day. We have to ascertain the quantity to determine frequency of collection, that is, area-based collection. There could be some areas where collection twice a day is necessary, or there could be areas where once a day collection is sufficient.

Redesign of community bins that are socially acceptable is another area that should be looked into. We all know that these bins are inappropriately located, inappropriately designed and we can see waste spilt all around the bins. Therefore, we have to give serious reconsideration to redesigning these community bins so that they are socially acceptable, effective and, of course, environment-friendly.

Viability of source separation programme is another area we can think of seriously. That is, separation of waste at source. If we can separate organic waste and inorganic waste, then definitely that is an advance step, and organic waste can then directly go to the processing plant. Maybe a pilot scheme could be undertaken in this regard.

Selection of appropriate vehicles for efficient collection is an important area to focus. We can see that vehicles are not always appropriate for all areas of the city.

Regarding the institution of DCC, which is responsible for solid waste management in Dhaka City, its engineering, conservancy and health departments are not, in my opinion, strong enough to handle this huge task of solid waste management in a city like Dhaka having a population of nearly 10 million. The engineering, conservancy and health departments should be integrated. Waste management training to all professional and technical personnel and lower-level staff must be a regular programme of DCC.

Then there is a rather wild recommendation that can be discussed further or ignored altogether. An alternative suggestion may be a complete change in the organisational structure of DCC. The entire Dhaka City could be divided into ten city councils. Each city council will have its self-administration with an elected chairman as its head. All the development activities including solid waste management will be shared by the city councils. They will have the power of tariff setting, revenue collection and preparing budgets. That means, self-governing city councils. This is logical when we have a 10 million population when DCC is not able to manage the waste of this city. DCC will monitor the activities of the councils and government funds will be channelled thorough DGC. DCC will be an umbrella organisation. Each city council shall have its own solid waste management programmes of collection, transportation, recycling, resource recovery, composting, and final disposal. That will be totally independent for each city coun-

Dumping of solid waste is an area that needs urgent attention. The present practice, as we already mentioned, of crude dumping must be replaced by sanitary landfill methods with proper gas and leachate control. This is the traditionally more commonly used method, the landfill method. What we have in Dhaka is just crude dumping. Leachate must be contained and treated prior to disposal to avoid surface and ground water contamination.

Large-scale composting of organic waste will reduce the quantity of waste to be landfilled. The emphasis is to go for composting as an alternative, as a means for reduction of waste quantity for ultimate landfilling.

Hospital waste management is another area of great concern nowadays. The growth of private hospitals and clinics in the city over the past few years has become a major concern. Hospital waste contains toxic and infectious materials, and therefore could be more dangerous than other municipal waste unless disposed of in a safe manner. That is why we are concerned. The potentially dangerous hospital waste is being dumped into the municipal bins, which is collected by DCC along with domestic household waste in most cases. This practice is not acceptable at all. This waste has to be collected and treated and disposed of separately. What can we do about it?

First of all, the hospital management, the staff, starting from the cleaner to the top management, everybody should be aware of this hospital waste-disposal system. They should be able to identify various types of medical waste and they should be aware of this hazardous part of hospital waste. Not that the entire hospital waste is hazardous.

Just today I saw in The Daily Star that the World Health Organisation has given a data saying that 25 per cent of all clinical waste are actually hazardous. But they are all mixed up together. So we have to consider the entire waste as hazardous. So separating the waste at source is a good practice. The usual practice of hospital waste-disposal is through incineration. That is a long-debated issue. Some are against incineration and some are for it. Plastics and other materials, which produce dioxins during burning, have to be carefully considered. Other methods can be examined for more environment-friendly disposal. DCC has plans for a central incineration plant for medical waste.

Considering the rapid growth of private hospitals and pathological clinics in the city, the government should consider formulation and enforcement of appropriate laws to ensure safe disposal of hospital waste. This is another area where legislation should be in place.

Another area is industrial waste management. In Bangladesh there are a lot of different kinds of industries and many of them are highly polluting industries. In Dhaka we have concentration of leather tanning industries, textile industries, chemical and pharmaceutical industries primarily located in Hazaribagh, Tejgaon Industrial Area, in Old Dhaka area and also in Tongi area. These are the prime spots of industrial locations in Dhaka City. Industrial wastes are being discharged, in most cases, untreated into the surrounding areas. I have evidence of industries in the Tejgaon industrial area disposing their waste through the storm water system of Dhaka WASA into the Begum Bari Khal and most of the waste is untreated. And we all know of the disposal of waste in the Hazaribagh tannery area. Apart from that, the other industries scattered in the Old Dhaka area are also in need of

attention. Dr Ahmed: Thank you, Professor Mujibur Rahman.

In trying to find a solution to the problem, based on the presentation and on the experience of the participants, three groups will discuss the various issues: Solid waste, human waste and industrial waste. A fourth group shall work on the involvement of scouts in waste manage-

WASA observations

Dr Ahmed: Before we hear the recommendations of the four groups. I shall offer the floor to Mohammed Nurul Haque, the superintendent engineer of Dhaka WASA, who would like to make a brief observation on the presentation.

Mohammed Nurul Haque, superintendent engineer, Dhaka WASA: I have a few remarks to make. Dr Mujibur Rahman said that Dhaka WASA sewerage coverage is 20 per cent. The Dhaka WASA sewerage service area is 30 per cent plus.

Secondly, his presentation covered mostly sanitary sewers of Dhaka connected to storm sewers. There are the rivers also. Storm sewers are

also connected to sanitary sewers.

Thirdly, he made four recommendations about the solid waste disposal. I would like to emphasise on the fourth one, that is, selection of appropriate vehicles for effluent collection. I have a small publication In daily Ittefaq on this. I mentioned a solid waste carrying truck with hydraulic press. I observed it in Saudi Arabia during this year's Hajj. I got a photograph and it was published in the newspaper. It first compresses the solid waste and volume reduction is, in some cases, 70 to 90 per cent. You can take 10 truck volumes in one truck. This is not very expensive. I mentioned the cost also. The cost in Bangladesh is Tk 18 lakh. It runs on diesel and the mileage is about 10 kilometres per litre. So. instead of running 190 trucks as claimed by Dhaka City Cor-

poration, we can remove all the solid waste by 30 to 40 trucks. Prof. Rahman: Regarding the coverage of the sewerage system. I think I mentioned that the population coverage is 20 per cent in onethird of DCC's service area.

Recommendations

Dr Ahmed: I shall now invite the group that concentrated on human

Professor Dr Nazrul Islam, Centre for Urban Studies, Dhaka University, and Chairman, Dhaka WASA: Our group discussed the issue of human waste. Luckily we had a very interesting group composed of waste and sanitation experts like Dr Feroze Ahmed, Mr Anisur Rahman Khan, Mr Nurul Haq and others also including university students.

On the human waste management side, our group came up with these suggestions. The problem was already discussed very beautifully by Dr. Mujibur Rahman. We had gone direct to the problem solving.

We suggested that the present system of separate arrangements would continue. That is, a sanitary sewer system, underground sewerage plus septic tank and all that. Then we have the storm sewer system, which will also continue. We now have the underground sewerage as well as the open drains. So gradually it is going to be all underground which is a very expensive technology and method. Bangkok, Jakarta, they don't have anything like underground. Madras also doesn't have. So it can be otherwise also. It doesn't all have to be underground.

The present system of septic tank construction by individual households will continue to reduce the hydraulic and BOD loads and sewer lines and treatment plant. As you have seen from Professor Mujibur Rahman's presentation, almost one-third of the sanitary sewage disposal is through the septic tanks. This may continue and there may be a technology and arrangement by which septic tanks will be cleaned, cleared and waste can be taken out and disposed somewhere.

Zone-wise treatment plants will have to be constructed. We only have one treatment plant now in Pagla. We recommend that there should be more than one. How many we have not specified, but it will be multiple. The location of the plants shall be selected in accordance to the Dhaka metropolitan development plan. Dhaka now has a Master Plan or a development plan. It was adopted and approved by the government in 1997. It covers a large area of 1530 square kilometres. Dhaka WASA has only 400 to 500 square kilometres. So DMDP covers a much larger area. We have a plan for that. Whatever we do in terms of sewerage, housing and urban development should be in accordance to the Master Plan we already have. So we must honour that and respect it. Sometimes we forget about the plan and talk about all other things. The plan



A substantial portion of the garbage generated everyday is left out on the open to rot

was prepared by a very high-powered technical team over a threeyear period and then reviewed for another two years. So it took five years to prepare and about Tk. 16 crore to do it. We should follow it, respect it as much as possible. So we have located the treatment plants in areas where the DMDP has any allocation or provi-

Dhaka WASA presently has six zones. These should be made as much responsible as possible with necessary autonomy. The central office will have planning, supervision. This principal is already there and we recommend that it should be strengthened.

Although sewerage is not Dhaka City Corporation's responsibility, its zones should also be made more responsible, more powerful and more autonomous. That is another issue we weren't dealing with, but this was our feeling. It can be done. These 10 zones were made in 1989 by a five-member committee of which I was a member. At that time it was very easy. We recommended and there was a military President. He immediately said, "Okay!" But now you have to go to the parliament. There is a long debate. It's not that easy. We are lucky that Dhaka has 10 zones. All we want to see is that those zones should be made more responsible, more autonomous and more democratic. It is now administered by an administrative officer, who is appointed from the civil service or the military. This zone should also be headed by an elected person. There are 100 wards in Dhaka with 10 wards in each zone. By turn, the ward commissioners can become Zonal Chiefs and there can be civil servants under them. We are several steps ahead of many cities in the world because our Mayor is elected directly. Not even the American president, as you can see now, is elected directly. We are more democratic, but it has to function efficiently.

WASA will provide services for dislodging of septic tanks on payment. When septic tanks are filled up, they are cleaned, the sludge are taken out by the household owner and he engages somebody and takes it out and throws it somewhere in some unspecified places. So we recommend that WASA may acquire necessary equipment where they can clean these septic tanks and dump these at designated specified places.

The present stabilisation ponds at Pagla shall be upgraded to serve the population connected to it. The service connections made to storm sewers shall be diverted to renovated sanitary sewers for treatment at the treatment plant. We have only one big treatment plant at Pagla that is running below capacity. It can take more sewage, but somehow we are not getting all that sewage. It's wasted somewhere because of the broken pipelines and all that. We will have to monitor and keep the pipelines in order. Then the sewage can reach there and can be treated there. If it is only sewage and treated and you get clean water, it can be used later on or there can be a fishpond or something later on. But unfortunately, we all know that Pagla treatment is also connected illegally with industrial waste. That creates a lot of problems. That should be completely stopped and there should be pollution protection at

Sanitary pit latrines shall be encouraged in low-income urban communities and slums. We have about 3000 slums. Some of these can have arrangements like sanitary pit latrines. DCC with the support of LGED and UNICEF have already done such things in about 30 slums in Dhaka. Those are quite sanitary in condition.

Public toilets shall have to be installed in large numbers in the city under the management of DCC with assistance from Dhaka WASA. RAJUK and we should also add the District Commissioner of Dhaka because they have control over the land, and NGOs and the private sector. We have only 30 or so tollets within Dhaka municipality. In a city like Dhaka with millions and millions of people, there is a need and demand for very large number of toilets. There are about half a million people who come to Dhaka City every day and go back. They are commuters. They are the floating population. For them we need toilets, as well as others who stay out the whole day but don't have access to tollets. Delhi has done it. Calcutta has done it extensively. Other cities have done it. There can be permanent toilets. There can be mobile toilets like in a stadium when a game is on.

Private initiatives in the construction and management of public toilets, water supply in slums is to be encouraged. Those who do not know the fact, WASA is already providing water to slums and squatters through NGOs. WASA cannot provide squatters legally with water. We can do it through NGOs. Maybe we can expand this programme.

Advocacy campaign for sanitation by Scouts and all other civil society groups like we are assembled here. This act of the Daily Star is very noble. There are now many organisations like Parash, Centre for Urban Studies, Institute of Architects, Institute of Planners, Engineers, everybody is now concerned. It has to be done in a concerted way. Such initiatives are very useful. Today at this moment in Chittagong there is a seminar going on. Planned Chittagong Movement. It is a civil society movement. The President is a famous mathematician, Prof. Jamal Nazrul Islam and there is a distinguished body there. Very soon Khulna will start it. Tangail is already doing it. So we are possibly on the right track. We have to move a little faster and strongly.

Finally, this is very simplified, population control macro policy. National population control has to be done. The government is doing it. NGOs are doing it. We are asking for it because the style of

growth of big cities. We want a decentralised urbanisation so that all the 522 cities and towns in Bangladesh will grow and retard the growth of Dhaka and Chittagong. We have seen that Dhaka being a mega city has already become almost unmanageable. We cannot manage the traffic, transport, waste, nothing. Maybe our capacity is for a more medium size. It is a difficult situation. We recommend that the growth towards Dhaka should be reduced by positive measures meaning provide incentive to small towns, mediumsized towns. Also, urban facilities to be developed in rural areas, rural health centres, rural schools, everything. Decentralised services, decentralised everything. With or without donor support, we can possibly improve human waste, water, sewerage situation tremendously in the next few years if only we try and have a commitment.

Dr Ahmed: Just a small amendment to what Professor Nazrul Islam has said, we are now no longer Boy Scouts, we are Scouts, as there are many girls in the Scouts movement. I now invite the group on solid waste to present their case.

Architect Shaheda Rahman, Department of Architecture, BUET: Our group discussed solid waste management and hospital waste. We felt many points should be raised.

We have no policy framework, rules or regulations of how waste management should be either for the public or those managing the

First, we have to formulate this policy, rules and regulations, guidelines that will guide us all to a common goal. There is a large role of community participation in solid waste management.

The usual method for awareness development is the media and we can look at other institutions like the Imam of the mosque. You know how powerful and influential he is. And then school education. We may be working as an enlightened group, but we know that the impact of what is taught at school is for life. These issues for awareness development should be in the curriculum.

We need to look at the machinery of solid waste management. We have to educate in household responsibility. There is a need to inform people about the separation of waste, recycling and such. The people who are responsible for this management need to be reorganised. Information and training is needed. DCC can have staff training regarding waste management.

Community participation and decentralisation is an area we discussed. The ward commissioners do not have a very effective role right now. He could be a key figure in this solid waste management. Along with community participation, he should be made responsible for his ward and with the community he should be responsible for this matter. Decentralisation is something to be thought of in the administrative

There is also a need for co-ordination within the institution responsible for solid waste management as well as with others. A common goal is yet to be fixed. Perhaps DCC could be given regulatory responsibility and we go for privatisation of the service. DCC can't cope. We encourage privatisation.

We see the public authorities discouraging this. When the private sector collects waste, the volume of waste goes up and the public sector workers have more work to do. So they discourage this. Then they tell the private sector, do not collect the waste. So there is a need for private and public sector co-ordination. Sometimes after DCC clears the garbage, the private sector dumps it. So we are always seeing that mess. All these have to be co-ordinated with the Master Plan. For example, dumping grounds, dumping sites, where will they be? How far will they be? The most efficient option must be selected.

Then comes hospital waste. About 20 per cent of hospital waste are considered hazardous. If we could concentrate in this 20 per cent, we could make the city a lot safer from this impending harm. There is no proper legislation about this waste management. We need guidelines regarding storage, separation and treatment. There are many treatment options. One is incineration. Not all hospitals or clinics have the incineration facilities. We have to find out what is there and then identify a catchment area so that hospitals and clinics of a certain area can have their waste incinerated there.

Everywhere we are coming up with the same suggestion that privatisation is perhaps a necessary option. Facilities must be created.

We sometimes see that the dumping sites and the treatment plants are contradictory to each other. There is need for co-ordination among the different agencies. Who is doing what? We need a common platform for that so that we know what the other organisation is doing. It's like we see in the roads; one agency digs it up and then another comes and digs it up again. This lack of co-ordination must be eliminated.

Dr Ahmed: Now it is the turn of the group that worked on industrial

Professor Dr Jasimuzzaman, Chemical Engineeer based in Calgary, Canada, formerly of BUET: There are already more or less laws and regulations on pollution in the industrial sector. There are limitations of industrial waste, the specific amount of waste and so on. So industrial waste is essentially a problem of implementation, monitoring and implementation. We have a Department of Environment, a Ministry, Secretary and all. So what we felt is needed are:

MOE (Ministry of Environment) and DOE (Department of Environment) should display their sincerity and effectiveness by promot ing pollution prevention through motivation and incentive. We know that there are incentives for pollution prevention and that can be increased. What we have tried to focus on here is that DOE, instead of posing as a regulatory agency and an enforcing agency. can also act as a promoting agency. So it is a matter of approach. So DOE and MOE should not only try to regulate by policing, but should also try to encourage people and promote awareness about the importance of pollution prevention in the industrial circle.



Open dumpsites pose serious hazard to public health

There should be common effluent treatment plants for clusters of industries. In our country the industrial units are often small. Our tanneries in Dhaka are quite small in size and if we ask each of them to set up some pollution prevention unit, it will be too expensive for them. So in those cases, a number of them could combine and set up one pollution prevention unit instead of too many. For example, these could be for the tannery industries in the Hazaribagh area, the chemical industries in the Tejgaon area and the Tongi area.

The monitoring and enforcing capacity of DOE should be strengthened. This is an issue that is known to everyone for a long time, but nothing is being done. DOE is waiting to be strengthened. It should not wait to make itself strong. It should embark on a programme of activities right away with whatever resources it has got. Once it gets started, hopefully things will get strengthened.

Community awareness should be increased and views of the local community considered before setting up new industries. How should the views of the community be taken if a new industry is being set up? We had some ideas but we didn't want to specify any particular method.

Motivate people by motivating elected people's representatives. We also have suggestions for awareness programme in this area.

Professor Rahman: The points 4, community awareness, and 5, motivation, are already taken care of in the legislative framework. For any new industries to be set up anywhere, the entrepreneur has to go through certain processes. Like they have to undertake an initial environmental examination then a full-scale environmental examination where people's participation is a major aspect. So that is also there. Everything is in place. It's a matter of implementation.

Syed Rafiq Ahmed, President's Rover Scout, Bangladesh Scouts: He said that it is already in the legislative framework, but that is not a justified statement. If a hospital is to be built in my area, who is to say whether it is feasible or not? Just the MP saying it is not enough. The local people will have to have a view whether it is necessary there or not. That is why we want the local community to say what they want, whether they want it or not and how it is to be implemented.

Prof. Jasimuzzaman: It is true that we have many things on paper. It is a matter of strengthening the enforcement and monitoring. I will now continue with our group recommendations.

Involve independent and relevant organisations such as universities for impact assessment. There have been some suggestions that though we require environment impact assessment, sometimes those assessments are not evaluated in a very independent and unbiased manner and DOE could possibly get assistance from independent institutions like universities in order to make those

Sushil Sutradhar, Singer, Bangladesh Ltd.: I would like to place some points here. The problem is management crisis. How? We live in Dhaka. There is family waste, then we dump it on the roadside. Industrial waste, clinical waste... But I have had the opportunity to move around the world in America, Europe and Asia. I have seen at night many labourers busy in cleaning the city. The roadsides were being cleaned. Then I asked myself, what were we doing in Dhaka?

We are three friends working in this field, Mili Islam, Anwar Hossain and myself Sushil Sutradhar, in an organisation named MASS. It is a

private concern. We have been working for three years. We have discussed with many quarters. We have proposed to shops and others to pay only Tk. 5 per day and we will clean the whole Shahbagh Road and make it waste-free and dust-free. So we can call it a waste-free, dustfree and sound-free road. We need money. We ask organisations to provide us funds, that only five persons will work for 24 hours and we will show how it is possible.

Mobile urinal system is very important too. We plan one for Motijheel and one for Sangsad Bhaban grounds. The problem is where to dump the stock everyday. That is a problem. We have to come up with a practical application.

Naser Khan, POROSH: There can be some steps for the old industries and other steps for the new industries where waste is concerned. Instead of DOE, views can be taken from independent quarters like the university and so on. Then WASA, DCC and others will have to give permission. Things are being done illegally now. But with the technical views a public hearing can be carried out. This will cut down irregulari-

The other matter is overall city management. If the relevant departments functioned properly, we needn't have had this meeting today. Those involved in waste management, including the civil society, can form a management team. This could include Parash, BUET and others. If a zonal-based team could be formed for household waste management, it would be easier.

Engineer Anisur Rahman Khan, World Bank Consultant: Some days back I made an investigation of how to discharge the sewage from Shere-e-Bangla Nagar. I found there was no sewerage network of Dhaka WASA around that area, although in Manik Miah Avenue there is a very large-diameter storm sewer. This is connected to a brick storm sewer, which terminates at Gabtali. I was very suspicious. I was in search of secret pollution. I was astounded to find that this brick sewer. in places, has been tampered with. A lot of unauthorised connections have been made, but one connection, which has been very dangerous, is the connection from Suhrawardy Complex. This is a complex, which treats so many patients and has very toxic waste. This has been very secretly connected. That was shocking to me, how very secretly a tunnel has been made. That is going into Turag River. I don't know what harm has taken place to this river.

Then, my good friend has spoken eloquently on solid waste disposal. I am engaged in this exercise. I am the team leader for preparing an environmental management action plan for the cities of Khulna and Rajshahi. I have been engaged by the World Bank through the LGED (Local Government Engineering Department). While working there. have conducted some social survey from house to house. I asked them, what does the electricity department do if you don't pay the electric bill? The electric connection is cut off. What do they do if they don't pay the water bill? They cut the connection off. What about waste collec-

What is very unusual in this country is that all the city corporations collect the conservancy rate as a lump-sum amount, which is about 60 pr cent of the municipal tax. This includes graveyards, roads sweeping, lighting and henceforth. So there is no mechanism by which you can force a city man to pay for his waste disposal. There has to be a mechanism in this regard. The polluter pays. There has to be a system where the sweeper collects the money from the household. Then he pays a part to the municipal corporation. Once in two days he will come and collect the domestic waste. If he doesn't get paid, he won't collect it and will let it lie there and let it stink. This will force the householder to pay for waste disposal.

Transportation is another ball game. The municipal corporation comes into the picture in this case.

I have designed several landfill sites in Bangladesh. None has been implemented till now. Bangladesh does not have a properly designed sanitary landfill site. I have also made an investigation into industrial pollution in Khulna. I think it is nine lakh gallons a day of water from Khulna Newsprint alone. Newsprint mill waste is such a mess. Unless you have gone there and smelled it, you will not understand. They have killed Rupsha River. There is no fish left. There are so many jute mills and other chemical factories all disposing into the Rupsha River. Individually pollution from an industry may not be that bad, but when more effluents join from another industry and mixes with it, something nasty may be happening due to chemical reactions. This is what is happening to river Rhine in Europe. No industry is allowed to discharge into river Rhine. I am going to propose to the World Bank there has to be a hydraulic model which will include this pollution elements for river Rupsha. Unless this is studied in a model form, nobody can sav what has happened to the river. How far up has it gone? Maybe into the Sundarbans

Md. Abul Husain Sikder, Executive Secretary, Bangladesh Scouts: What is most necessary is social awareness. Without this. whether there is DCC or WASA or whatever, no one can do anything. We have seen many educated persons and high-class persons throwing garbage here and there. In the Secretariat I have seen a senior officer spitting on the stairs. I have seen a director of a large company spitting on the stairs. This calls for awareness.

Why should we go abroad for examples? Chittagong is much cleaner than Dhaka. DCC covers almost 50 per cent of the solid waste. DCC has about 4000 to 4500 waste bins. If we take Dhaka's population and per capita waste is .5 kg then 8000 waste bins will be needed in the city. If we assume that DCC is very sincere in its work, even then it is not possible for them to manage this. But it is also true that if DCC were a bit more sincere in its work, things would be a bit better. In our areas we see private systems are good, but the sweeper throws the waste in the community waste bins.

I have a proposal. I have heard that many small organisations are working on a private basis. They are succeeding too. DESA has handed over, on experimental basis, some areas to the private DESCO. Similarly, waste management can be handed over to a private company on

Aminul Islam Sujon, environmental worker: We should see if the media could play a role in this area. About 60 per cent of the people are involved in the media in some way or the other in this country. Whether it is newspaper. TV or radio, about 60 per cent of the people are connected to the media. In the villages, radios are common; then televisions are there too. In Dhaka there is television with several channels. Newspapers are there in all offices. Media can play an important role. Bangladesh Scouts can have a role to play. Daily Star has a role to play in environmental issues and the other papers can follow.

We are having an experiment in Old Dhaka. Garbage is collected from door to door. (Government) Secretaries and others have obstructed us. Low-level workers of City Corporation have obstructed us. We have been reducing polythene bags too.

Mohammed Nurul Haq, Chief Monitor, Dhaka WASA Environmental Cell: In my position I have attended about ten such seminars on Dhaka City. We have a lot of orientation and presentation. Now we need implementation.

We have a severe law approved by the government about strengthening and increasing the enforcing capacity. I have heard that the punishment for treason in this country is a maximum of Tk. 1000. For pollution there is a five-year imprisonment and 100 thousand Taka Engineer Anisur Rahman Khan: The biggest polluter of Buriganga

is Dhaka WASA itself. When I along with my foreign counterpart designed a sewerage treatment plant, we said, please relax these standards. We cannot afford such high standards. I asked for a daily recording of dissolved oxygen. The World Bank

man asked for monitoring. Everybody points their fingers to the tannery, but it is Dhaka WASA itself. ETV showed a documentary recently on 'Save Buriganga'. Unless you see that, you can't imagine what the situation is. Slush disposal itself is a problem.

Dr Ahmed: Now it is the turn of the group on the role of scouts in waste management.

Natasha, Viqarunnissa College: What can the role of the Scouts be? Firstly, to hold rallies. They can play a basic role. I am in the first year of Vigaranunnissa. I know that several colleges in Dhaka City have environmental clubs. Our club is rallying for banning polythene bags and so on. The Scouts can do the same.

To distribute leaslets and posters. Holding quiz competitions. Our parents can play a role in making us aware. Public awareness meetings. This is most important. Scouts can hold

such meetings ward-wise, with the electronic media. We can use the computer to spread information. Publicity through a mass media. Scouts can do this.

Install sanitary latrines in collaboration with UNICEF, NGOs and so

on. Our college clubs will help too. Observe 'Conservancy Day' periodically. Once a week may not be possible, but we can have it on a regular basis.

To inform the competent authorities. We may not be able to do things, but we can inform the authorities. Architect Shahada Rahman: I want to say something about the recommendations for the Scouts. One is motivation. All the groups have had this as their first agenda. No matter what steps we take, we

cannot be effective unless there is awareness. It is time for school children to have environmental issues in their curriculum. Their mind is impressionable. And children educate their parents. In hospital waste management, even the directors and doctors don't have this awareness. When we were small, we had to watch documen-

tary films. This can be a powerful tool. Dr Ahmed: Thank you all for your time and contributions. We have

seen heard that 59 per cent waste is contributed by the wealthy people of Dhaka City and about 30 per cent by the middle class. So although we are less in number than the poor, we are generating more sewerage, 85 per cent. Thank you all for coming today

I now invite Mr. Habibul Alam, Bir Pratik, National Commissioner, Bangladesh Scouts, to make some closing remarks.

Habibul Alam: I am grateful to you all for being here today. This subject is too vast for Bangladesh Scouts to handle, for the people in this room to handle. Because of your support, we will not close here. We would like to see the end of the tunnel. Let us try to do something so that our future generations can live better than we do now. I humbly

thank every one of you. We may pick up this issue again after Eid so that we know how far we have gone. Let us work out the problem together. Neither the World Bank nor any foreigner is going to do anything. We will be doing it.

Thank you