GENERAL

E/ESCAP/1054
26 February 1997

ORIGINAL: ENGLISH

ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC

Fifty-third session
23-30 April 1997
Bangkok

EMERGING ISSUES AND DEVELOPMENTS AT THE REGIONAL LEVEL: ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

(Item 6 (b) of the provisional agenda)

EMERGING ISSUES AND DEVELOPMENTS RELEVANT TO THE SUBPROGRAMME

Note by the secretariat

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INTRODUCTION

1. The report *State of the Environment in Asia and the Pacific* for 1995[4] presents a portrayal of degraded environment in the region. However, there is a note of optimism in the overall analysis of the report which shows that the socio-political setting has become more conducive to taking new and bold initiatives in meeting the challenges to sustainable development. A major challenge in this respect is the adoption of a multi-stakeholder approach which should involve not only governments but also the private sector and the community or civil society in the process of environmental management and promotion of sustainable development. This approach could augment the resources of the government in executing the environmental management programmes and activities and also assist in conflict resolution among the stakeholders, i.e. government, the private sector and the community.

2. The present document analyses the social dimension of environmental problems in mining, energy projects and urbanization to demonstrate the need for formulating policies that integrate market forces, state intervention and community participation harmoniously.

3. The increase in mining activities in the Asian and Pacific region, especially in the remote areas of developing countries, has brought into focus the social needs, and there is a trend for governments and the private sector to bring host communities as stakeholders in mining ventures. Accordingly, mining companies are giving adequate consideration in collaboration with governments to host community needs, such as land-use, health, education and infrastructure development, in accordance with their religious, socio-cultural and economic aspirations. Consequently, the emerging issues related to the social dimensions of mining have been elaborated with the main objective of bringing host communities into the mainstream of socio-economic development and maintaining an ecological balance in the environment.

4. The phenomenal growth of energy demand[5] would continue in the short term in the wake of rapid economic development in the region. Though an energy supply shortage is not expected in the near future, achieving sustainable development and management of resources with the minimum adverse impact on the environment will remain a challenge. An associated but often ignored fact is that the social and environmental costs of energy project development are often borne

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[4] ST/ESCAP/1585.

[5] During the period 1990-1994, the growth of commercial energy demand in the developing countries of the Asian and Pacific region registered an average annual growth rate of 5.6 per cent. Despite this impressive rate of growth, the current energy consumption level in these countries is still low compared with that of the industrialized countries. The per capita energy consumption in 1994 in developing economies (excluding the central Asian republics) was only 502 kilograms of oil equivalent compared with the world average of 1,395 kgoe and that of the developed economies of the ESCAP region, 3,719 kgoe. Therefore, to fuel their economic growth, future energy demand in developing economies of the ESCAP region would also be growing. A similar or even higher growth is expected in electricity demand. In fact, the current electricity supply situation in many countries (for example, Bangladesh, India, Indonesia, especially Java, Pakistan, the Philippines and Thailand) is vulnerable to interruptions because of the lack of adequate reserve capacity.

disproportionately by groups that receive little direct benefit from the development itself. Commonly, environmental and social costs are imposed on poor rural residents who must relocate and often lose their traditional livelihood. It is, therefore, prudent to look for a solution that benefits the people affected as well as the project developers. It is in this context that a participatory approach in dealing with the social aspects of energy projects is analysed in the document.

5. Urban areas account for a large share of the economic activities and environmental pressures in the countries of the Asian and Pacific region. The urban population is growing at a higher rate than the national average. With the current rates of growth, the region is expected to become predominantly urban in the next 25 years, with the proportion of the region's population living in urban areas expected to reach 55 per cent by 2020. Such an increase will have considerable environmental implications, especially if present densities are maintained, in which case the overall areal extent of urban areas will be two and a half times larger in 2020 than it is now. This would put tremendous pressure on the existing resources for urban environmental management. Effective community participation can augment these resources considerably. Hence, it is covered as an important issue in the present document.

I. SOCIAL ASPECTS OF MINING

A. Mining and host communities

6. The upsurge of mining activities seen in the Asian and Pacific region in the past decade and, in particular, those located in underdeveloped areas of the developing countries, has brought into focus the social impact of such activities on the host communities. In the past it was generally observed that the host communities were not considered as stakeholders in such economic activities where only the government and the private sector were involved. However, the recent conflicts between host communities, and especially the foreign mining companies, that in certain cases have escalated to public opposition, have prompted governments in the region to reorient their policies to bring the host communities into the mainstream of the mine development process.

7. However, the general trend observed in the past has been for mining companies to build towns for the benefit of the mineworkers and leave the host communities out of the improved social conditions. In certain instances, this could be the main cause of tension between the host communities and the mineworkers, especially when there is a wide disparity in socio-economic conditions within the region. In order to avoid such a situation the mining companies, with the assistance of the government, should lay much emphasis on the development of the area bearing in mind the generation of income to the host communities, so that the living standards of these stakeholders are also improved.

8. If such a development process is not pursued there are bound to be conflicts when the host community feels that it is being excluded from the economic and other benefits that accrue from mine development. Differing levels of social well-being, in cases where the host community is deprived of maximum benefits from the mining operations owing to the influx of migrant workers to the area, is also another cause for public opposition to mining ventures in remote areas.

9. The main task of the governments that promote large-scale mine development, especially with foreign direct investment, is to evolve a policy whereby the host community is brought into the mainstream of development. In the past it has been observed that the main stakeholders in mining ventures were the government and the investor. In order to safeguard the interests of host communities, most mineral investment agreements that mining companies now negotiate with the governments in the countries of the Asian and Pacific region stipulate that there should be a phased-out recruitment plan under which locals and nationals replace expatriate employees.

10. In order to improve the situation further, it is imperative that mining companies include in their feasibility study the integration of the host community into their mine development process. Such integration would necessitate an assessment of the socio-economic impact on the host community, which would include education, health, infrastructure development, utilities such as water and electricity, as well as effects on traditional values, religious beliefs and archaeological sites.

B. Integration of mining with socio-economic development

11. In order to integrate mine development with socio-economic development within the country, governments in the Asian and Pacific region are now looking into various economic instruments, such as promotion of the use of a percentage of mine income for the direct benefit of the host community, and a budgetary provision for relocating such communities in areas outside the mine sites. Foreign companies are also in the process of integrating costs to the communities into mine development and production processes.

12. Further, appropriate environmental management plans are being prepared to include restoration of the site and periodic monitoring of streams for siltation and prevention of discharge of toxic substances, and proper maintenance of tailing ponds as well as mine dumps. These requirements are being stipulated in environmental impact assessment plans, which are now mandatory in most countries of the region prior to undertaking exploration and mine development. Such plans should take into consideration, *inter alia*, the impact of mining on the host community and should strive to maintain the ecological balance upon which the host communities depend for their livelihood.

13. The traditional land-use practices of host communities should be given serious consideration when mine plans are being designed and also when the various support facilities are being planned. The mine that is being developed should be a part of the social structure within the area and should be properly integrated within the long-term development plans.

14. In order to launch a mining operation properly, taking into consideration the socio-economic conditions of the host communities, an appropriate educational, health, recreational, housing and infrastructure development master plan should be drawn up. It is important to raise the educational standards of the host communities with the main objective of absorbing them in the mine workforce. Training of host communities in various skills, such as maintenance of vehicles, welding, operating heavy earthmoving equipment, and for other essential vocations should be initiated so that there is a regular flow of such workers to the mine.

15. The mining companies operating in remote and inaccessible areas have to construct roads, ports and airstrips, as well as install modern telecommunication facilities for the efficient conduct of mine operations. Where possible, such facilities should be designed to accommodate the needs of, and be available to, the host communities without interference in the mining operations.

16. The social values of the host communities should also be given consideration during all stages of mine development. In order to understand such values, it is important in mine development to look into the traditional cultural values of the community and see that these do not clash with those of the workers brought from outside the region, where social values may be different. Any culture shocks should be avoided and immigrant workers should be taught to adhere to the cultural values of the locality.

17. The health of host communities should also be considered when evolving effective plans for the integration of society into the mining venture. It has been observed that diseases such as HIV/ AIDS could be transmitted to host communities from migrant labour. Effective monitoring of such diseases will help prevent their spread to host communities. In addition, the establishment or improvement of hospitals and health clinics in the location will eventually bring about integration of the society with the mining venture. Governments in the region should encourage such spill-over benefits.

18. Water supply and sanitation are of importance to the host community and companies operating in remote areas could assist state institutions in upgrading such utilities in the locality around the mining area. Educating the host community in proper sanitation should also be an aim of the mining company.

C. Traditional lands of host communities

19. The use of traditional lands of host communities for mining operations has caused much concern to international as well as local mining companies. The law that governs traditional lands, which in certain cases belong to host communities, has given rise to delays in embarking on projects related to exploration and mining. Early resolution of conflicts that arise from release of lands for mining in reservations for the use of host communities should be given priority. An effective way of resolving such conflicts is to bring the host communities into the mainstream of stakeholders and initiate a dialogue between the mining industry, government and the host community. The host community should be properly advised of the socio-economic benefits that would spill over from mining as well as downstream development, and also of the environment safeguards to be implemented to arrest any

degradation which would have a negative impact on the community.

D. Small-scale and artisanal mining

20. Small-scale and artisanal mining (see box 1) has been considered unhealthy as it may give rise to dangerous and wasteful use of resources. Such activities are often injurious to the health of host communities by affecting the environment and spreading diseases. They may also result in the influx of migrant workers. However, there are several arguments to support the promotion and strengthening of such mining operations. For example, the activities can provide a basis for other economic activities, contribute to the development of community infrastructure and improve the quality of life of workers, their families and the community at large. The mineworkers have the potential to become economically self-reliant and net positive generators of wealth, much of which can be retained within the community. In many areas of the Asian and Pacific region it has been observed that small-scale and artisanal mining has helped the rural communities survive extended drought periods, economic recession and other adverse conditions.

Box 1. Socio-economic dimensions of small-scale mining in Asia

Small-scale mining, often referred to as artisanal mining, is prevalent throughout Asia and in many countries constitutes a major component of total mining activity. The economic and social impact of small-scale mining is significant and the mines contribute 15-20 per cent of the value of the world's non-fuel mineral output. In many developing countries their contribution to national mineral production is far higher. More than 25 per cent of the gold production in the Philippines comes from small-scale mining, and the activities now involve the production of chromite and industrial minerals. In India, small-scale mining involves more than 500,000 workers and supplies a large part of national industrial mineral requirements; it provides close to 40 per cent of mineral export earnings. In China, as of 1992, there were 167,351 small-scale mines, producing coal, metals and construction materials, which account for a large portion of the national output.

The International Labour Organization suggests that more than 6 million people including women and children are involved in artisanal mining worldwide. This is equivalent to more than 20 per cent of the global mining industry employment. It is known that in China alone there are over 3 million artisanal coal miners. Small-scale gold miners are also active in Cambodia (80,000), Indonesia (200,000), Lao People's Democratic Republic (50,000), Malaysia (60,000), Myanmar (50,000), Papua New Guinea (40,000), Philippines (220,000) and Viet Nam (100,000) [a/]

Small-scale mining activities have both positive and negative impacts. Such activities could be closely linked to economic development, particularly in the rural sector of the Asian region, and provide foreign exchange earnings and employment to a significant number of people. They also enable the exploitation of resources that are considered uneconomic for large-scale mining operations. However, the full potential of small-scale mining cannot be achieved owing to the lack of a legal and fiscal framework and meagre production, processing and marketing arrangements. Further, uncontrolled small-scale mining can have a major adverse impact on the environment and can be dangerous and unhealthy for mineworkers.

[a/] See A.L. Clark and J. Cook-Clark "Small scale mining in Asia: a social program or a contribution to sustainable development", Centre for Resource Studies, Queen's University, Kingston, Ontario, Canada, *CRS Perspectives*, No. 52, January 1996.

21. For many individuals or communities, artisanal mining offers the only feasible source of entry into the business of mining. However, this should not be encouraged in every case and efforts should be directed at the achievement of a more efficient, safe and formalized type of operation. Most countries in the Asian and Pacific region have drafted new mining codes and regulations, or modified such legal instruments to control small-scale and artisanal mining by issuing permits. However, the governments should also strive to upgrade these on a more commercial footing and establish institutional, fiscal, legal and safety regulations as well as provide for the security of tenure. The governments should also consider the establishment of judicial mechanisms for conflict resolution between mining interests, government and miners as well as simplification of registration, reporting and compliance procedures.

22. The foreign mining companies can also play a positive role in the promotion of the small commercial mining industry and collaborate in the upgrading and improvement of artisanal activity. Cooperation and assistance to this end could take various forms, such as establishing joint ventures with local entrepreneurs in mining and in the provision of ancillary supplies and services; initiating complementary work and marketing relationships with indigenous small-scale producers; voluntarily returning marginal or small deposits to the national mineral inventory; and joint or sole sponsoring of demonstration projects, education and training programmes, as well as small miner awards and competitions. Businesses in the private sector, both domestic and foreign, can also participate as equity owners and developers in marketing as licensed buyers.

E. Monitoring of impact

23. The social impact of mining is being closely monitored by non-governmental organizations, which need to be brought in as stakeholders; as such, they could function effectively as facilitators of the flow of information so as to assess the reaction to the mining venture at the grass-roots levels. Public hearings of proposals for mine development are in practice in some developing countries in the region and non-governmental organizations are active in educating host communities on the adverse impact of mining as well as on the economic gains. These organizations could be an effective bridge between the host communities, the mining company as well as the government on constructive analyses of socio-economic issues such as education, responses to environmental deterioration, community participation, access to credit and loan funds and even investment promotion and the marketing of products.

24. International donor and technical assistance agencies and development banks are also giving adequate consideration to the socio-economic impact of mining projects, especially in developing countries of the region. Such entities are also looking at the development of small-scale and artisanal mining as a major tool in integrating host communities into the mining industry. To this end, these entities should take a more practical and supporting role as sponsors, project executors or facilitators of basic research on critical issues and policies, institutional strengthening and finance and investment promotion.

F. Recommended strategies

25. It is important in all major mining projects to consider the host community as a major stakeholder. The cultural, religious, historical and archeaogical records should be properly evaluated during the feasibility studies prior to the launching of a mining project. Such an approach should be supplemented by detailed environmental impact assessment, including ecosystem analysis, that has a direct consequence on the community. Most governments in the region are examining new policy directions in harmonizing mining activities with the social, cultural and economic aspirations of host communities. A formal dialogue between mining companies, host communities, non-governmental organizations and the government will be an effective way of resolving conflicts. In terms of small-scale and artisanal mining, while promoting such ventures for the benefit of host communities there is also need to control these through appropriate institutional, fiscal and regulatory measures. All in all, the effective trade-offs between economic progress and the environment should bring the community into focus, and governments should strive to evolve an effective way of bringing such communities into the decision-making process to enhance the mining activities, especially with foreign direct investment.

II. SOCIAL DIMENSIONS OF ENERGY PROJECTS

A. Current situation

26. Although the need for comprehensive environmental assessments is now widely accepted in the region, thorough social impact assessments[6] of new projects are not always addressed adequately in pre-development regulatory reviews. Even where substantial experience with social impact assessments exists, the specific targeting of the impact on low-income groups (who commonly bear a disproportionate share of the social and environmental costs) is a new and largely unexplored idea.

27. During the period following the United Nations Conference on Environment and Development, held in 1992, an important achievement has been a better awareness of environmental problems in the region. While this is certainly a positive development, some related implications need

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[6] Social impact means the consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organize to meet their needs and generally cope as members of society. Social impact assessment has been defined in terms of efforts to assess or estimate, in advance, the social consequences that are likely to follow from specific policy actions (including programmes, and the adoption of new policies), and specific government actions (including buildings, large projects and leasing large tracts of land for resource extraction) (Interorganizational Committee on Guidelines and Principles for Social Impact Assessment, United States Department of Commerce, National Oceanic and Atmospheric Administration, *Guidelines and Principles for Social Impact Assessment*, NOAA Technical Memorandum NMFS-F/SPO-16, May 1994).

to be looked at closely so that energy development and the environment are not seen as adversaries; rather, these two aspects are to be integrated to find a way towards sustainable energy development. Unfortunately, in many countries environmental concern is becoming more and more an issue that is dividing proponents and opponents of development projects, including power plants, transmission and distribution facilities of electricity, gas and oil pipelines. This is one of the reasons for the slowing of the growth rates of some forms of energy.

B. Issues to be addressed

28. The Committee on Environment and Sustainable Development, at its third session held in October 1996, noted that "there was apparent stagnation in the growth rate of primary electricity (nuclear, hydro and geothermal). Moreover, the economics of power generation were changing owing to additional costs for the mitigation of environmental impact.".[7] Often projects are being shelved because the goals and technical and/or legal requirements of the owner or developer of projects, by both public and private enterprises, are not well understood by intervenor groups. At the same time, project developers are not accustomed to drawing on the experience of these groups to solve problems towards the realization of common goals and interests. Clearly both groups need to acquire the skills that will allow them to develop strategies towards achieving common goals.

29. Major hydroelectric projects often inundate large land areas; in some cases wildlife habitat, fragile ecosystems and riverine fisheries may be destroyed or permanently damaged. Rural people often depend on these resources to maintain their subsistence lifestyle. Consequent opposition from local communities can severely disrupt construction schedules and may result in the closure of projects already operating. In addition, environmental degradation and the permanent loss of important ecosystems are often opposed by environmentally oriented non-governmental organizations which, through their ability to exert pressure on international organizations, can delay project implementation significantly. This is an issue that needs to be addressed in earnest. The minimization of stakeholder conflicts over the socio-environmental impact of energy projects is a critical factor for sustained economic growth.

30. In parallel with the extension and targeting of the social impact process there is growing recognition that residents and other stakeholders (e.g. non-governmental organizations) need to be directly involved in the project preparation process. Experience suggests that unless people are informed about and involved with the project decision-making, the risk of public backlash against project development is significantly increased. This problem is especially acute where population resettlement is involved.

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[7] "Report of the Committee on Environment and Sustainable Development on its third session"(E/ESCAP/1052), para. 57.

C. Participatory approach

31. To address the above issue it is essential to engage all concerned parties in a dialogue. In this respect, experience from both within and outside the region needs to be shared to enhance the capability of developing economies to address the issue in a structured way. It has become increasingly apparent that the planning of new energy projects must go beyond the traditional areas of technical and financial feasibility. For their part, project sponsors who attempt to address local concerns are often uncertain about how to work with people at the grass-roots level.

32. Since the experience in the region in conflict management through public participation is rather limited, it may be useful to learn from the experience of industrialized countries. In this respect, the secretariat has taken the initiative and is currently preparing a technical assistance programme, through a pilot project on the public participation process and social strategies in environmental impact assessment funded by the United Nations Development Programme within the framework of the Programme for Asian Cooperation on Energy and the Environment (PACE-E).

D. Pilot project objectives, implementation plan and expected results

33. The pilot project is expected to produce three different types of output. In the first place, the aim is to strengthen the capability of the local officials by enhancing their skill in addressing social impact and public participation issues in the development of their hydropower resources. This will be done through training and the implementation of a popular participation plan in connection with a project. In the second place, the popular participation plan could be used in other areas as a guideline. Finally, the experience could be shared through the dissemination of results by way of publications and holding a regional workshop for possible replication in other countries.

34. Since there is considerable variation in the experience of Asian countries with social impact assessment and participation techniques, the developing countries of Asia will be grouped into three clusters: Indo-China, South Asia and South-East Asia. In terms of implementation, the project will proceed down two parallel paths: one will concentrate on public participation issues while the other will address the social impact assessment process, though they will complement each other. The social impact assessment component will prepare national experts, through training workshops, on how to address social issues in an environmental impact assessment process and involve the public or the community in them. The popular participation activity will be a pilot project, to be applied initially in a particular project.

35. In the process a number of officials would be trained in addressing social impact issues that would benefit people affected by the power development project under implementation in the pilot country.

36. At the regional level, the results of the pilot project in a host country and the social impact

assessment case studies in two or three other countries will be disseminated at the regional workshop on the "lessons learned" for the benefit of countries in all the clusters. The expected replication of the lessons learned, following the meeting, will provide the benefits to other countries as well.

37. The activity is expected to result in improved identification of the social impact (particularly on low-income rural groups), and involving rural residents and concerned non-governmental organizations in project decision-making. It would also provide significant long-term benefits to all energy project stakeholders. These benefits include the adoption of strategies for mitigating adverse social consequences, better project design through utilization of local knowledge, and improved construction and operation of the energy project.

E. Social strategies in the pilot project

38. The social strategies component of the pilot project will include case studies and training workshops. The activities will focus on the role, costs and benefits of social impact assessment as part of the environmental impact assessment process. While environmental impact assessments, as such, will not be the focus of the activity, a review of that process is important to put the social impact assessment issues in proper context. The target group will include participants at the senior policy-making level who will benefit from a broader appreciation of the benefits from state-of-the-art social techniques. In addition, the project will provide capacity-building activities for planners, technicians and other parties who are directly involved with the preparation or review of social impact assessments. Local case studies of these assessments for projects already operating will be used to illustrate how modern techniques and methods can be applied to highlight the interests and needs of particular (low-income) social groups.

39. The objectives of the social strategies component of the pilot project are (a) to provide senior officials of government ministries and utilities with increased appreciation of the role, costs and benefits of social impact assessments and the value of stakeholders' involvement in the project life cycle; (b) to provide planners and technicians with information on state-of-the-art methodologies for undertaking and reviewing social impact assessments and public participation programmes; and (c) to develop a base for increasing public awareness and public education on the socio-environmental issues associated with energy projects.

III. SOCIAL DIMENSION OF URBAN ENVIRONMENTAL MANAGEMENT

A. Stakeholders in urban environmental management

40. In the Asian and Pacific region, most urban areas already suffer from a wide spectrum of environmental problems with serious social consequences. These range from unsatisfactory water supply and sanitation owing to lack of basic infrastructure, to the release of man-made chemicals and hazardous wastes from the industrial and metallurgical processes causing air, water and soil pollution.

The gravity of these problems has increased with time. The reason for deteriorating environmental conditions in urban areas of the region is not the phenomenon of urbanization but rather the absence of effective governance for the sustainable development of cities, particularly lack of the effective involvement of stakeholders in the development process.

41. There is already a growing realization that urban development can proceed more effectively if the energies and capacities of local authorities, and other stakeholders such as private sector organizations, non-governmental voluntary agencies and community groups, can be channelled into this process. Each type of institution has its own strengths and weaknesses and the challenge is to optimize the role of each of the actors and make them function in a synergistic manner. Moreover, for any development programme to be equitable and sustainable, there is need to create conditions that maximize people's involvement and participation, and increase their decision-making opportunities.

B. Stakeholder participation strategies in urban environmental management

42. Stakeholders can be involved in urban environmental management in several ways, ranging from awareness creation about environmental issues and mobilizing "people's action" for pollution control, to the provision of environmental infrastructure and services. Perhaps the most efficient way to ensure the ability and willingness of the stakeholders to contribute their resources to environmental management is to involve them in every stage of planning, design and implementation of an activity. This would ensure that their concerns and ideas are incorporated, thereby increasing their willingness to contribute to the costs of the project and its environmental enhancement.

43. Stakeholder or people's participation strategies imply a change in the role of government from that of provider to that of facilitator. In other words, instead of providing infrastructure and services, the government creates conditions in which stakeholders themselves contribute to meet these needs, with their own resources, while the government supports them with technical and managerial assistance and enabling laws and regulations.

44. It is being increasingly recognized that the promotion of such strategies could release pressure on local governments which cannot tackle urban environmental problems alone. Their human and monetary resources are usually insufficient to undertake such a mammoth task. Stakeholder or people's participation offers opportunities to supplement local governmental efforts with the monetary and human resources of communities and of the private formal and informal sectors.

C. Examples of stakeholder involvement in urban environmental management

45. Although stakeholder or community participation has not taken formal shape in urban environmental management in most countries of the region, some innovative and non-formal approaches have been or are being undertaken. Boxes 2-5 illustrate various measures that have been or are being utilized to promote the participation of various stakeholders or actors in the community in urban environmental management. The examples range from the involvement of stakeholders in solid waste management and the provision of water and sanitation infrastructure to the creation of awareness of the environment and the need for rehabilitation and maintenance of urban green areas.

46. With expanding economic activities and growing consumption of consumer items, the quantity of municipal solid wastes is increasing rapidly in cities of the region. With the limited availability of finance for improving the standard of waste management in urban areas, community involvement could not only substantially improve the existing system but also help in the expansion of coverage to currently unserved areas in cities (box 2).

Box 2. Solid waste collection

In Wat Chonglom area of Bangkok, officials approached a community through a non-governmental organization which was already active in assisting people in improving their housing conditions. The city and the organization carried out a survey of problems caused by open dumping of solid wastes. These were explained to the community at a general meeting. Health and other environmental hazards, such as flash floods, caused by dumping solid wastes in man-made or natural drainage channels were also emphasized. When people saw that open dumping of solid wastes was a problem affecting them directly, they decided to cooperate with the city authorities and the organization to solve it.

The organization then helped the community to organize itself by blocks, lanes and other groupings which were found to be organizationally most efficient. Each group of households was made responsible for collecting and depositing their garbage at a central location, which was easily accessible to municipal collector trucks and not too far from their regular routes.

Intra-community collection arrangements varied among household groups, depending on their socio-cultural background and income. For example, some groups of households engaged a person to collect the garbage and collectively paid him a monthly salary, while other groups distributed the responsibility for collection among themselves.

47. It is not possible to give prescriptions for the best cooperative arrangement between communities and city agencies for solid waste management. However, to find a workable arrangement for the community participation process in solid waste collection may require pilot projects in one or two communities before the process can be formalized and introduced on a city-wide basis through inter-community sharing of experience. A constant dialogue between the community and the government agency could be very helpful in coordinating the efforts of the community and the government in this regard.

48. One of the greatest threats to human health in the urban areas of the region is the lack of sanitation services. Despite the progress made in recent years, more than a third of the city dwellers in the Asian and Pacific region are still deficient in sanitation services. The rapidly growing urban population is further enhancing the gravity of the problem by increasing the size of the communities to which services need to be provided. A partnership between city government and community/non-governmental organizations could be very useful in tackling this problem.

Box 3. Provision of water and sanitation infrastructure in Orangi, a low-income settlement of Karachi, Pakistan

A successful programme on improvement of sewerage and drainage infrastructure in low-income settlements was undertaken by a non-governmental organization without any assistance from the city authority in Orangi, Karachi. The organization commenced the project by convincing the residents that environmental infrastructure was necessary for improved health conditions. This meant not only less household expense on health care, but also more income, as fewer working days would be lost due to illness. This process of creating awareness of the close link between environmental conditions and health was perhaps the most critical stage in the improvement programme. It took the social workers of the non-governmental organization over three months to convince the residents of the lane to take the initiative to improve the environmental conditions of their lane. The organization initially worked on only one lane adjacent to a natural drainage canal.

Once the residents of the community were convinced that the environmental conditions of their lane had to be improved, discussions were initiated on how to improve sanitary conditions. It was realized that traditional municipal sewerage infrastructure designs and construction methods were too expensive for the lane residents and the municipality could not be expected to provide the infrastructure free of charge. Consequently, the organization designed a modified infrastructure system which could easily be constructed. The lane was organized in a group, with an elected lane manager and a treasurer. Construction management functions were entrusted to them. The organization provided managerial, accounting and technical training to the lane officers. The lane residents were informed of the costs involved in constructing the sewerage line using local, small-scale contractors. The lane officers then started collecting the money for the construction of the infrastructure. A lane account was opened in a local bank, with regular auditing services provided by the organization. After a period of about four months, when the total amount of money had been accumulated, the lane officers engaged the contractors who built the infrastructure. Throughout the construction process, regular lane meetings were held to resolve various problems as they arose. Often a representative of the organization was present as an arbitrator at these meetings. Upon the completion of the sewerage line, the improvement in the environmental conditions was immediately evident. When residents of the surrounding lanes saw the improvements, they too approached the organization to assist them in building sewerage lines. As more lanes joined the project, a block organization of lane managers was created to discuss inter-lane issues such as connections in sewerage lines and exchanges of experience on technical and managerial matters.

One of the major problems with the project now is that while sewerage lines have been laid in most of the settlement, bulk sewerage lines, which would transport the sewage to a treatment plant, are missing. Consequently, all the raw sewage is being disposed off in the natural drains. Thus, while environmental conditions in the neighbourhood have improved, those of the city have exacerbated. If the non-governmental organization and the city authorities involved had coordinated their efforts and worked in cooperation, this problem could have been avoided, as the city could have provided bulk line connections to its sewage treatment plants.

49. The example in the box shows that communities can be involved through existing informal sector structures and processes, operated by the low-income groups. It further shows that citizens' participation can promote cost-sharing. It also shows, however, that while working independently, non-governmental organizations and communities could solve local problems but might affect environmental conditions adversely in other areas of the city. Thus the lack of dialogue between the non-governmental organization and the city authorities might only transfer the problem rather than solving it effectively.

50. Raising awareness to tackle the social aspects of urban environmental problems is the first crucial step towards the solution of such problems. Programmes to raise public awareness in the urban environment can take several forms, ranging from education programmes to anti-pollution campaigns. However, direct involvement of the city in public awareness campaigns, especially anti-pollution campaigns, can be costly as well as sometimes politically sensitive. Often enforcement of pollution control legislation is beyond the jurisdiction of city authorities and their involvement may be interpreted as undue interference by agencies responsible for enforcing these regulations. The city of Bangkok has overcome these problems by cooperating with a non-governmental organization, to which several leading officials of the city government provided valuable data and information. The amalgamated result of the campaigns by the organization in collaboration with city authorities contributed not only to citizens' participation but also to expedite approval of funds from the central government, to enable Bangkok to initiate the installation of a sewerage network in the most congested areas of the city.

Box 4. Public awareness in Thailand

A non-governmental organization successfully carried out a multi-faceted environment awareness creation programme in Thailand. It started with an anti-littering "Magic Eye Campaign". With the cooperation of the city authorities in Bangkok, litter boxes were placed in public places. At the same time, a media "blitz" was organized with advertisements in newspapers, television and the radio, as well as through stickers and posters. To increase the recognition factor, a logo was developed and included in all visual advertisements. Thus, every time people saw the logo they associated it with the anti-littering campaign. The organization also initiated a series of seminars for schoolchildren, teaching them the importance of resource conservation and the impact of pollution.

The organization's next campaign was to promote the "Clean-up of the river programme". Aquatic life in the major river which flows through the city was reportedly on the brink of extinction owing to heavy pollution from households and commercial and industrial effluents. In this campaign, a similar strategy was adopted. After a media "blitz", restaurants, hotels and other commercial and industrial establishments along the river front were surveyed. The results of the survey were published in local newspapers, informing the public as to which of the businesses were disposing of untreated waste into the river. Those discharging treated wastes in the river were allowed to use the logo of the "Save the river" campaign in their advertisements, proclaiming them as "river-friendly" businesses. For fear of negative publicity caused by this campaign, several riverside businesses installed waste-water treatment plants.

As general environmental awareness, especially the effects of global warming, destruction of forests etc., was high in Thailand, the organization went a step further and approached various large corporations for financial sponsorship. Because of the positive image environmental protection connotes for businesses, many firms joined the fund-raising drive. The organization also organized a concert of popular music to raise funds for its activities. This approach not only produced financial returns but also increased the coverage of environmental issues in the media with a multiplier effect on public awareness and environmental improvement.

51. The example in box 4 shows that the selection of a specific theme such as "littering", air pollution etc. on which public attention should be focused can contribute to the success of an awareness creation programme. It also shows that the involvement of private firms in environmental protection as donors or participants is possible as it gives them a positive image in the eyes of the people. Further, it generates funds for sustaining awareness-creation programmes in the future.

52. Box 5 gives two other examples of the involvement of the private sector in raising public awareness for urban environmental management. It may be emphasized that while awareness-creation programmes are needs of the day, by themselves they will not improve the urban environment and will not yield fruitful results unless they are accompanied by the creation of political will for implementing environmental protection and improvement measures. Moreover, it should also be noted that environmental consciousness is very dependent on the level of education in the society, its prosperity and the extent and intensity of the environmental problems in the city.

Box 5. Maintenance of urban green areas: private sector involvement in Mumbai and Hong Kong

Local government in Mumbai started an awareness-creation programme on the urban environment involving the private sector in the maintenance of urban green areas. Several billboard spaces were hired and the slogan "Keep the city clean and green" was painted on them. The city government approached major corporations and arranged a scheme for maintaining green areas in the city, such as roundabouts, road divides etc. Under this arrangement, the maintenance of green areas was leased out to private corporations. In return, they were allowed the use of signboards to advertise that they were maintaining that particular green area. Several corporations joined the scheme as it projected a positive image towards the environment. It even generated competition between corporations to beautify the green areas under their management.

In another programme, Hong Kong leased out amusement and food and beverage concessions in city parks to private companies, with the stipulation that they would maintain and beautify the parks. As the environment of the park determined its usage by the general public and consequently the number of people who would spend money on food and beverages, the companies had an incentive to maintain and beautify the parks. The city has tried out several options. It has contracted out the management of parks to park-wide monopolies as well as to cooperatives of small-scale vendors.

53. Consistent efforts are required for enhancing public awareness and increasing stakeholders' involvement through innovative means as this introduces a series of checks and balances in various aspects of the development projects. In the short term, it helps in conflict resolution and the augmentation of resources. In the long term, it makes the stakeholders confident and more self-reliant. Moreover, when programme accountability to the community develops and a fair opportunity to debate decisions is provided, those decisions that may otherwise seem unpopular with stakeholders or impossible to achieve become easier. Even raising resources at the community level to pay for the services becomes possible.

54. Bringing about systematic change for participatory management, however, is not easy. The traditional bureaucratic approaches and attitudes of distrust in officials of public agencies, and other vested interests, are major impediments. This is why, although a number of countries have an official policy of cooperation with stakeholder or non-governmental organizations, their true involvement in urban management and development decisions is minimal.

55. Furthermore, though stakeholders such as non-governmental organizations and community-based groups have played an important role in assisting the poor and weaker segments of society, their impact has been limited in the region because their projects have remained isolated success stories without any kind of institutional arrangements for large-scale replication.

56. In view of the importance of community participation in urban environmental management, ESCAP is promoting urban forums to provide an interface between the community, non-governmental organizations and local governments. It is cooperating with the Regional Network of Local Authorities for the Management of Human Settlements (CITYNET) and non-governmental organizations in promoting better urban management. It is also conducting a study on public awareness of the local environment. Under this study, reports are being prepared by community members recording their observations of the state of the local environment, including water and sanitation, afforestation programmes, national park management, household waste segregation, land erosion and soil pollution. The reports include documentation of successful projects, a majority of which reflect people's participation and involvement. The information material will be used to enhance public environmental awareness and assist community leaders in encouraging stakeholders' or people's participation in environmental conservation and improvement. The secretariat is also developing a project for funding by the Netherlands to involve all actors in transport planning through a multidisciplinary approach.

IV. ISSUES FOR CONSIDERATION BY THE COMMISSION

57. The Commission is invited to give its views on the social aspects related to mining and energy projects as well as urban environment and advise the secretariat and countries on how best the capacities of countries could be built in addressing the issues appropriately. In view of a dearth of government resources, the Commission may wish to recommend that countries adopt policies to channel the energies of all stakeholders such as the private sector, community groups and non-governmental organizations towards environmental management and the promotion of sustainable development. In view of the growing importance of the social dimension of environmental projects, the Commission may also wish to recommend that donors provide support for pilot projects and for carrying out technical cooperation projects as a follow-up.