

Session 3

Urban Environment and Health

Chairpersons : Prof. Shinichiro Ohgaki, Prof. Keisuke Hanaki
Keynote speaker : Dr. Monthip Sriratana Tabucanon
Speakers : Dr. Joan B. Rose, Prof. Ju-Chang (Howard) Huang,
Prof. Zhan-Peng Jiang, Dr. Paul D. Reiter

Health issue is the most critical point in sustainability of megacities not only in Asia but also in other regions. Environmental issues and health issues are related each other. Environmental deterioration such as air pollution and water pollution often causes health problem. Major health concerns related with urban development are infectious disease and toxic pollution in developing countries. In addition to these issues, cancer and metal problems are serious problems in developed countries. Among the various environmental media water is especially critical to influence the health condition of citizens.

Dr. Monthip Tabucanon provided a keynote speech on “Bangkok in the 21st century: urban environment and health.” She covered almost all of the environmental and health issues which Bangkok is facing with. As a typical rapidly developing city, various kinds of environmental deteriorations are taking place at the same time. This is common circumstance in rapidly developing countries. Increase in economic activities pressurizes the environment. Particulate matters from automobiles cause severe pollution and health impacts that cost more than 400 million US\$ equivalent per year. National Agenda on Air Pollution and Bangkok’s 13 countermeasures are being introduced. Water pollution is being solved by implementation of wastewater treatment system, but the coverage of the system is still low. Use of ground water has caused land subsidence problems. The solid waste is the remaining problem. Risk of hazardous waste and increase of household solid waste are the pressures.

The Bangkok city government sets up agenda to fight with these issues. The following ten targets are set: Sustainable Bangkok as a safe city with high quality of living standard; Manage urban economy towards sustainability; Manage urban planning to improve quality of life; Reorganize traffic and transport to raise quality of air and neighborhoods; Invest in green urban area; Make Bangkok a clean city; Good governance to meet the challenges in the future; Secure easy access to information in Bangkok Metropolitan Administration; Use human resources as a strategy tool in social and economic development; Involve the citizens in the development of a better Bangkok.

This agenda is valid to most of the megacities in the world in both developed and developing countries although this should be tailored to each of the city. Good governance and public participation are rather new issues to be emphasized.

Prof. Joan Rose gave overview on health issue by “Investment in Science and Technology for the Protection of Water Resources and Human Health.” More than one billions of people in the world use unsafe water, and 80% of diseases in developing countries come from unsafe water. However, this is not the issue only in the developing countries. Developed countries still face risks of infectious microorganisms. Risk of water-transmitted infectious diseases has increased due to globalization. Water is really key issue which also connects with agricultural activity and sustainability of urban activity. Science and technology have large potential to contribute to solving this problem.

Prof. Ju-Chang Huang introduced a novel technology of wastewater treatment in his paper “Use of hybrid reactor to maximize wastewater treatment capacity and nitrification with short sludge age operation.” This is an example of how new technology helps the abatement of water pollution problems that take place in many megacities. This technology is relevant to the cities with high density.

Prof. Jiang Zhanpeng introduced “Water resource management and water quality issues in Beijing.” Beijing is a rapidly growing megacity with scarce water resources. Ground water has been used intensively for water supply, and that can cause land subsidence problem, but surface water resources are limited. Wastewater reuse has been initiated there. Beijing water authority was established to improve poor governance of water by many different sectors.

Dr. Paul Reiter reviewed world water problems in “Wishes and realities: coping with water, growth and urbanization in Asia.” He pointed out the necessity of paradigm change to: integrate planning and management of water, organized management within basins, using water efficiently and multiple times, matching needs with water sources, recovering and reuse of nutrients rather than minimizing pollution. Strategy for better water management is different depending on situation about social-economic level of country and availability of water.

In these presentations and discussions, the following aspects were discussed.

- 1) Management strategy should include both short-term and long-term ones to abate urgent issues and to form environmentally sound society. As shown in presentations on Bangkok and Beijing, each megacity has different urgent issues to be solved. On the other hand, all megacities should be changed to be environmentally sound in long-term.
- 2) Interactions of environmental and health aspects with urban and social development are important. The environmental abatement is often behind the rapid growth of megacity. Management of such urban growth from the viewpoint of environmental sustainability is also necessary.
- 3) Role of technology is obviously essential, but the choice of technology and policy are very important issues. Mere technology transfer is not satisfactory and implementation of the most suitable technologies is the key for the success. Scientists and engineers should contribute in this regard.
- 4) Each megacity has its own experiences on environmental and health issues and their abatement. The first step is to share these lessons among cities of various countries. The second step is to apply such knowledge in accordance with circumstances of each city.

It was recognized in the session that environmental and health issues are one of the most critical issues in sustainable development of society especially in Asian megacities.