Below listed are the objectives each set for the lectures and observation tours arranged for the curriculum to help the participants reap benefit from the opportunity.

(Module 1)

**Current situation and problems with waste management in Developing Countries**

| Objectives | Participants comprehend and acquire mutual awareness of the current situation and problems with waste management in developing countries. Participants confirm what they study and acquire in the training. Through the introduction of waste problems common to developing countries as well as characteristic to individual countries, participants from different countries recognize the problems. |

| Sep.2PM | **Integrated Solid Waste Management** |
| Objectives | Participants learn about the Integrated Solid Waste Management Program carried out in developing countries by UNEP-ITEC. This program gives an idea how local governments reduce the waste volume through 3R activities. Participants also learn practical methods through exercise. |

| Sep. 11 AM/PM | **Issues on Waste Management in Developing Countries** |
| Objectives | Issues on waste management common to developing countries are clarified and participants learn measures for improvement. Through the introduction of problems concerning waste management characteristic to each area and developing countries at an each developing stage, measures to solve each problem are presented in a summary. |

| Sep.16 AM | **Environmental Hygienic in Developing Countries** |
| Objectives | Participants learn the methodology for maintenance of public hygiene and prevention of outbreaks of infectious diseases through proper management of waste. Participants learn about infectious diseases and their measures in general in order to understand the importance of the roles the city planning plays for preventing outbreaks of infectious diseases. Participants learn the effects of and measures against infectious diseases by each factor, including industrial waste and industrial wastewater. |

| Sep.24 AM | **Waste Management Studies and Planning in Developing Countries** |
| Objectives | Participants learn the contents of research and the methods necessary to formulate waste management plans in developing countries. There are numerous countries that have not formulated waste management plans. In other cases, despite having formulated them, many other countries have insufficient plans. In the lectures, participants acquire the know-how of various research methods necessary to formulate waste management plans in developing countries. |
[Module 2]

**Current Situation and Problems of Waste Management in Japan**

(Objectives) Participants comprehend and acquire mutual awareness of the current situation and problems with waste management in Japan. Participants learn the mechanism and measures of waste administration in Osaka City in a summary. Participants understand how Osaka City Government promotes its projects and enlightens its citizens in the waste administration as well as the problems of the waste administration and its measures and tasks in a summary.

**Aug.27 AM  Introduction of Osaka City Environmental Bureau (Japan's Legal Framework for Waste Disposal)**

(Objectives) Organization and business outline of Osaka City Environmental Bureau is introduced. Participants also learn the outline of legal system for Waste Administration as a basic knowledge of this training course.

**Aug.27 PM  History of Environmental Management in Osaka City**

(Objective) Participants learn the history of waste management in Osaka City together with public sanitation & environmental problems since Edo Period (17C~). By studying the history of waste collection methods, incineration facilities or disposal sites, participants will find hints and ideas to solve the problems in their home countries.

**Sep.1 AM  Master Plan for General Waste Management in Osaka City**

(Objectives) In order to treat waste smoothly and appropriately, it is desirable to formulate a waste management plan, and implement measures based on the plan. Therefore, participants learn the concepts of the waste management plan that has been implemented in Osaka City and its method of formulating the plan.

**Sep.1 PM  Outline of Municipal Waste Disposal Service in Osaka City (Collection/Transport)**

(Objectives) Participants learn about the collection and transport of garbage in Osaka City. Regarding the formulation of the collection plan and transport, participants understand the mechanism and system of Osaka City. The lecture also introduces the Bureau’s services such as the road sweeping and river cleansing in its effort for beautifying the City. Also examined are the illegal dumping and countermeasures in the City, an increasingly contentious issue in the waste management as experienced in developing countries.

**Sep.4 AM  Outline of Industrial Waste Disposal**

(Objectives) Participants learn about measures against industrial waste, which has become a serious problem in developing countries. Regarding industrial waste problems that have been worsening in line with economic development, participants learn the methods of dealing with the problems, measures against illegal dumping, and the necessity for proper treatment of industrial waste.
Sep. 17 AM  Waste Management Administration of Japan
(Objectives) Participants learn about the current situation and problems of waste administration in Japan. Participants learn about the history, the current situation, future problems and prospects of waste administration in general and also acquire an understanding of the framework of waste issues in Japan.

Sep. 17 PM  Environmental Administration and Waste Disposal of Japan
(Objectives) Participants learn the history of environmental administration and the environment-concerned legislative system in Japan and environmental problems on a global scale, etc. Participants learn the history and the current situation of air pollution, water pollution, and soil pollution that have become problems in Japan, as well as the transition of environmental administration. Participants also learn about the positioning of waste administration in the overall environmental administration.

Oct. 15 PM  Environmental Education for Citizens
(Objectives) In the process of treating garbage, such as the reduction and the classified discharge of garbage, and appropriate discharge of garbage that fits with the measures by the administration, citizens’ actions are important. Participants learn how to enlighten citizens into actions to improve their manner of garbage discharge, in order that Osaka City Government smoothly implements garbage treatment measures.

[Module 3]
Collection and transport work
(Objectives) Regarding collection and transport work, participants learn about the tasks, problems, and methods of formulating a collection and transportation plan, and effective transportation methods, etc.

Sep. 3 PM  Selection and Maintenance of Waste Collection Vehicles (Observation of Vehicle Maintenance)
(Objectives) Through an observation of vehicle maintenance operation, participants learn the methods of solving problems with collection vehicles, and performing daily maintenance, etc. The absolute number of vehicles is in short supply in developing countries, therefore people must use a limited number of vehicles for a long time. Thus, participants understand the method of performing necessary vehicle maintenance.

Sep. 10 AM/PM, Sep. 12 AM/PM  Time and Motion Study
(Objectives) As it is difficult to acquire enough equipments and vehicles for garbage collection in developing countries, participants learn the methods to improve present collection ways by using current equipments and vehicles. Participants learn how to measure the time required for collection, transport and taking out garbage, and how to check the kinds of garbage bins, collection points and routes through exercises. Improvement strategy for garbage collection is studied through discussion.
General Study of Waste Collection by Environment Centers
(Objectives) Participants learn the activities of Environment Centers and the collection system for general garbage. Through an observation tour in garbage collection operation in Osaka City, participants learn the problems in collection work and its measures, etc. Through an observation tour about the garbage collection operation in Osaka City, participants comprehend the actual conditions, and get an idea of the collection operation at a lecture on “Time and motion study”.

Waste Composition Analysis and its Application to Waste Management Planning
(Objectives) Through comprehension of the properties of garbage based on analysis of the composition of garbage, participants learn the method of formulating an appropriate project plan. Participants understand what kind of contents the analysis should have, which is conducted for comprehending the properties of garbage, and how to make use of the analysis for formulating project items such as the collection plan.

Visit to Management & Transportation Center
(Objectives) Osaka City Government established 2 Management & Transportation Centers to cope with the garbage transportation in high-rise apartment houses in urban area. Participants visit one of the centers to observe the pneumatic garbage transportation system.

Visit to River Sweeping
(Objectives) Participants ride on a cleaning boat removing floating waste in the river in Osaka and observe the cleaning operation. The river cleaning is necessary to protect the river environment and also maintain the public health. Through the observation, participants learn the operational procedure.

Intermediate treatment work
(Objectives) Participants learn the outline of intermediate treatment including incineration disposal. Regarding each stage of intermediate treatment such as incineration, crushing, sorting of resources, and recycling, participants learn their necessity, advantages, problems and tasks, etc.

Waste Reduction Policy through Recycling Services of Osaka City
(Objectives) Participants learn the measures that the Osaka City Government has taken for reducing the volume of garbage and the recycling of garbage. Regarding the reduction of garbage and its recycling, which becomes important in developing countries next to proper treatment, participants learn the current situation, problems, tasks, and objectives, etc. in Osaka City, as well as the roles of manufacturing and retail companies in recycling for reference in the future.
Sep.4 PM  **Outline of Intermediate Treatment Facilities (including Incineration Method)**
(Objetives) Participants learn the ideal method of intermediate treatment required for reducing the volume of garbage that is sent to final disposal and for proper treatment at the pre-stage of post-process. Participants learn the outline of intermediate treatment with reference to the methods of intermediate treatment conducted by Osaka City, including incineration, crushing, and sorting.

Sep.5 AM/PM  **Transfer Facilities and Transfer Operation**
(Objetives) Regarding a relay station for efficiently transporting garbage, participants learn the concept of the use of the relay station, the method for establishing it, and its effectiveness. As urbanization has progressed in developing countries, it has become difficult to secure disposal sites around the areas where garbage is generated. Participants learn the theory including deciding the distance between the sources of garbage to disposal sites, the necessity and the effectiveness of the relay station, and the appearance of a desirable relay station.

Sep.8 AM  **Visit to “Recycle Plaza Akagawa”**
(Objetives) Citizens can learn and practice waste reduction and recycling with fun in Recycle Plaza. Participants observe the display of clothing and furniture brought in by citizens.

Sep.8 PM  **Visit to Maishima Incineration Plant and PCB treatment plant**
(Objetives) Participants make an observation tour of the actual site for incineration of garbage. Regarding incineration and crushing of waste, that have been learnt at the lecture on the outline of intermediate treatment facilities, participants deepen their understanding of the subject by making an observation tour of the actual incineration site. Then, participants visit to PCB treatment Plant. This tour invites the participants to observe treatment process of specially controlled industrial waste, namely Polychlorinated biphenyl (PCB) waste. The observation should help the participants form further understanding of what they have learned in the preceding lectures on ‘Outline of Industrial Waste Control’ and ‘Disposal of Industrial Waste’ each.

Sep.16 PM  **Outline of Composting & Recycle**
While garbage is constantly discharged from the household, and poses hygienic problems like rotting if garbage is left as it is, prompt treatment is required. For this reason, the Osaka City Government incinerates garbage, but also takes actions for reducing the volume of garbage through composting and recycling as intermediate treatment of garbage. Developing countries, if they are agricultural countries, have numerous opportunities for utilizing fertilizers as resultant products of composting, and so it is valuable for participants to learn about the recycling of garbage.

Oct.10 AM  **Visit to Recycling and Sorting Center (Recyclable Waste / Plastic Packaging)**
(Objetives) Participants observe the sorting process of the recyclable such as cans, glass bottles and PET bottles, and the transfer operation for plastic packaging. The walk-about provides the participants with first-hand experience to see how the theory on recycling discussed in the lectures find its way in the Municipal practice of the recycling and transfer operation in Osaka City.
[Module 5]

Final disposal

(Objectives) Participants learn the theory of landfill disposal and its practice methodology. Because urbanization has progressed in developing countries, securing of disposal sites and implementation of sanitary landfills that do not affect residents in the surrounding area have become major issues. Participants learn the theory and practical methods for such issues, and actually make observation tours of the cities concerned.

| Sep.25 AM/PM, Sep.26 AM/PM | Selection of a Final Disposal Site / Planning • Design • Maintenance of Final Disposal Site |

(Objectives) Participants learn the method of selecting a place for creating a landfill and the method of designing that fits with the topography and the usage of a candidate site for landfill. In developing countries where the volume of garbage generation is increasing and urbanization has progressed, securing a site for landfill disposal is an important task. Participants learn the design method with the selection of mountains and ravines suitable for landfill.

| Sep.30 AM ~ Oct.2 PM | Outline of Sanitary Landfill Technology |

(Objectives) Participants learn the theory of landfill disposal and practical methods under the Fukuoka method. The Fukuoka method is a semi-aerobic landfill method that sends sufficient air into the inside of landfill and uses the degrading power of microorganisms. Participants learn a sanitary landfill method that developing countries can also put into practice. While developing countries only have limited budgets, technology, and knowledge, it is difficult to adopt a sanitary landfill method that requires a large budget and advanced technology. Therefore, participants learn sanitary landfill theory and its practical methods that use only simple technology and material that developing countries can obtain.

| Oct.3 PM | Visit to Sanitary Landfill Site in Fukuoka City |

(Objectives) Participants make an observation tour of the landfill built under the Fukuoka method, which participants have studied in the lecture on the outline of sanitary landfill technology. Participants observe how the theory that has just been learned in the lecture is put into practice, in order to have a concrete image.

| Oct.8 PM | Operation and Maintenance of Landfill sites/Visit to North Osaka Bay Disposal Site |

(Objectives) Participants learn the theory of landfill disposal conducted in Osaka City and make an observation tour of the actual site. Participants learn the theory of measures against offensive odors and harmful insects implemented in the landfill in Osaka City, as well as the method of applying such theories to developing countries. Participants form an image of the measures by making an observation tour at the landfill site. Participants learn the landfill theory of both the Fukuoka method and the Osaka City method and study ways to apply those methods to the own countries.
Module 6

Waste that requires special treatment

(Objectives) Regarding hazardous waste that pollutes the environment (including medical waste), participants learn the theory of their generation and the methodology of proper treatment.

Oct. 3 PM  Visit to Kitakyushu Eco Town

(Objectives) Vigorously practiced in this “Kitakyushu Eco Town” in Kitakyushu City, Fukuoka is the concept known as “Zero Emissions” which aims to make as much use of all types of wastes produced from one industry as materials for another industry whereby to finally bring the waste generation to zero in an attempt to build the “material-cycle society”. The day’s program offers the participants an opportunity to visit the place for the briefing and the walk-about tour of the recycling center there so that they will learn its unique regional policy that integrates the environmental policy and the industrial promotion as pursued there.

Oct. 6 AM  Outline of Hazardous Waste Disposal

(Objectives) Regarding hazardous waste that pollutes the environment, participants learn the mechanism of its generation and the method of dealing with the waste. There are some developing countries that do not apply proper treatment to hazardous waste. By learning the mechanism of generation of gas and industrial waste as hazardous waste, the methodology of handling the waste, and measures against the waste, participants understand the method of preventing environmental pollution.

Oct. 6 PM  Disposal of Construction Waste Disposal

(Objectives) Regarding the treatment of construction waste, participants learn its features, properties, and the method of proper treatment. Many developing countries bury waste directly in the landfill without incineration. Therefore, the remaining capacity of landfill becomes limited unless a large volume of waste generated in the dismantling of buildings is properly treated. Participants learn the theory necessary for proper treatment of construction waste, and the method of treatment, in general.

Oct. 7 AM/PM  Disposal of Industrial Waste Disposal, Visit to Disposal Site

(Objectives) Further to the preceding lecture on industrial waste control, the lecture is focused on how the City’s policy on industrial waste is translated into practice by presenting selected instances of industrial waste treatment. Particularly, the need and importance of proper treatment of specially controlled wastes is brought to attention in the course of the lecture.

Oct. 9 AM/PM  Disposal of Medical Waste from Laboratories and Hospital Waste, Visit to the Scene of Hospital Waste Treatment-Kyoto University Hospital

(Objectives) Participants learn the theory and the treatment methodology for medical waste, and make an observation tour of the site at a university hospital to actually learn the proper treatment. In developing countries, medical waste treatment has not been sufficiently conducted in terms of the prevention of the outbreak of infectious diseases and proper treatment. Regarding how to collect, transport, and incinerate medical waste, and the need to treat medical waste in such ways, participants
learn the theory, and make an observation tour of the actual site to learn the practical method.

**Module 7**

**Collaboration with Citizens**

(Objective) Participants learn how to encourage citizens to take part in waste management activities, which is indispensable for Waste Administration.

**Oct.14 PM  Public-Private Collaboration (Waste Reduction Promoters)**

(Objectives) It is effective that citizens, the administration, and companies play their own roles, and the three entities perform work in collaboration in order to carry out the measures. Thus, in order to promote independent actions of citizens and companies, through the introduction of “Waste Reduction Promoters”, etc., participants learn how to promote measures in collaboration with citizens.

**Oct.15 AM  Beautification Efforts by "Beautification Partners"**

(Objectives) Taking a part in sweeping activity in the ‘No Fly-tipping’ zone and engaging in communication with regularly participating citizens of the activity program, participants are expected to grasp the need and importance of collaboration with citizens for provision of public services.

**Module 8**

**Country Report Presentation/Action Plan Making**

(Objectives) Participants make presentation on their countries’ Waste Administration and their challenges. Through a series of workshops, participants find out a main problem to be solved and make an action plan which should be practical and feasible.


(1) ~ (4)

Aug.29  Presentation of Country Report

Sep.22 AM  Workshop for Action Plan Making (5)

Sep.22 PM  Mid-term Review

Oct.17  Workshop for Action Plan Making (6)

Oct.20  Presentation of Action Plan