PROJECT OUTLINE

1. **Country:**
   Vietnam

2. **Project name:**
The project of enhancing development of sanitary landfill in Hanoi

3. **Background and Necessity of the Project:**
   (Background)
   In Hanoi, appropriate management of waste in agricultural areas is a top-priority issue. Fukuoka Prefecture cooperated with Hanoi on a project, selecting appropriate sites for application of the semi-aerobic landfill system (the Fukuoka Method) and conducting feasibility studies. Hanoi and Fukuoka came to an agreement regarding technical cooperation on construction of a model Fukuoka Method landfill.

   (Necessity)
   This project will enable Hanoi to build sanitary landfills and will contribute to the improvement of residents’ living conditions.

4. **Project Purpose:**
   To contribute to improvement of Hanoi residents' living conditions through augmentation of the Hanoi Department of Natural Resources and Environment’s practical ability to implement effective waste disposal measures.

5. **Site of Implementation:**
   Xuan Son Village, Son Tay District, Hanoi City, Vietnam

6. **Beneficiary Groups:**
   (1) Direct beneficiaries
      a. Staffs of the Hanoi Department of Natural Resources and Environment
      b. Residents in the vicinity of the landfill located in Xuan Son Village, Son Tay District, Hanoi City, Vietnam

   (2) Indirect beneficiaries
      a. Vietnamese local governments acquiring landfill expertise as a result of this project
b. Residents of agricultural areas of Hanoi City, Vietnam

7. **Expected Outcomes**

1. Creation of sanitary landfills
   (Waste disposal that minimizes adverse impact on the sanitary conditions of residents in the vicinity can be achieved through construction of a Fukuoka Method landfill on the site allocated for expansion of the Xuan Son landfill).

2. Improvement of ability to construct sanitary landfills
   (Hanoi will be able to plan and construct Fukuoka Method landfills on its own initiative and construct them in areas other than the site allocated for expansion of the Xuan Son landfill, contributing to improvement of sanitary conditions for Hanoi residents.)

3. Contribution to improvement of the Hanoi Department of Natural Resources and Environment’s public relations capacity
   (Joint convention of seminars on the significance and necessity of constructing and maintaining sanitary landfills)

8. **Actions:**

(Dispatch of experts)

1—1 Design cooperation (all expenses already accounted for in Fukuoka Prefecture and Hanoi City budgets)
   A team of experts dispatched from Japan conducts design-oriented surveys and provides design guidance

1—2 Construction management cooperation (Approx. 5 sessions of 5 days each)
   During key periods of the construction of the Fukuoka Method landfill, engineers are dispatched from Japan to provide management and guidance for the commencement of construction, excavation, installation of groundwater facilities, laying of waterproof liner sheet, installation of leachate collection equipment, installation of gas release equipment and so forth. Also, during various phases of construction (installation of groundwater facilities, laying of waterproof liner sheet, installation of leachate collection equipment, installation of gas release equipment, etc.), Vietnamese engineers are widely invited to undergo training and receive technical guidance on site.

1—3 Maintenance and operation (Approx. 5 sessions of 5 days each)
   To ensure adequate maintenance of the Fukuoka Method landfill, engineers are dispatched from Japan to provide Hanoi engineers with technical guidance on maintenance and operation of the Fukuoka Method landfill. Also, during various phases of maintenance and operation, Vietnamese engineers are widely invited to undergo
training and receive technical guidance on site.

① Evaluation of model landfill

Japan will supervise and provide guidance for the formulation of Hanoi City plans for monitoring leaked water quality (BOD, T-N, SS, etc.), unpleasant odors (hydrogen sulfide, methane, etc.), and other effects on the surrounding community, and will perform an evaluation of the model landfill constructed during this project.

② On-site seminar in Vietnam

Experts will be dispatched from Japan to convene a seminar in Hanoi, in partnership with the Hanoi government and Vietnamese universities, on the significance and necessity of constructing sanitary landfills. (Target: Hanoi City residents, Hanoi government personnel, university personnel, totaling approx. 30 persons). A brief questionnaire will also be distributed to seminar attendees in order to gauge the opinions of Hanoi residents.

(Acceptance of trainees)

① Design cooperation (6 trainees, 1 session of 5 days) (all expenses already accounted for in Fukuoka Prefecture and Hanoi City budgets)

In Fukuoka Prefecture, trainees receive guidance on the functioning of Fukuoka Method landfills, and engage in designing a Fukuoka Method landfill under Japanese supervision.

② Construction management cooperation (approx. 3 trainees, 1 session of approx. 7 days)

In Fukuoka Prefecture or elsewhere in Japan, trainees receive technical training on construction management of actual landfill sites, etc.

(Other: Actions that do not entail dispatch of experts or acceptance of trainees)

③ Preparation of “Guidelines for Construction of Fukuoka Method Landfills in Hanoi”

Based on the above-described stages ①-1 - 4, to enable Hanoi to plan and construct Fukuoka Method landfills on its own initiative, Japan and Vietnam collaborate on preparation of Guidelines for future landfill construction tailored to the particulars of Hanoi City, based on Japanese technical documents and technologies related to the construction of a Fukuoka Method landfill during this project.

9. Period of implementation:

December 2013 – December 2016

10. Implementing bodies:

- Japanese side: Organization for Creative Environmental Research
- Vietnamese side:  Hanoi Department of Natural Resources and Environment