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## Use incentive approach to promote BAT/BEP for centralized incineration facilities of medical waste in China

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### Abstract

The GEF project of environmental sustainability management for medical waste in China has been developed and implemented. The overall objectives of the project are to incorporate the concept of overall-process management in life cycle of medical waste into medical waste management and disposal of China, facilitate BAT/BEP application and promotion, improve China's abilities of medical waste management and disposal, promote reduction of medical waste and realize the target of harmlessness, by introducing the advanced experiences in medical waste management and disposal from foreign countries. Currently, most of the activities in demonstration stage have already been completed, and it is expected to reach the dioxin concentration of 0.1 ngTEQ/m<sup>3</sup> in flue gas of 15 incineration (including pyrolysis) facilities. Hence, the project decides to implement the incentive plan among eligible medical waste incineration facilities in China. In this plan, a process with steps as application, review, examination, technical transformation, verification and award was designed. To standardize and externalize the process, an entire package of files including principles, guidelines, quota and criteria, table and checklist templates were developed, considering all the involved stakeholders. As a result, with active involvements and contribution of the MEP, local governments, enterprises, experts and monitoring instructions, the incentive plan vigorously guided and promoted BAT/BEP replication and application for medical waste disposal, avoided and reduced the generation and emission of dioxin POPs and other toxic substances. Currently, there are 8 incinerators which realized the aim of controlling their dioxins emission under limited concentration of 0.1ng TEQ/m<sup>3</sup> in the flue gas.

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## 1. Introduction

China produces approximate 1,780 tons medical waste (MW) per day. MW incineration was recognized as one of the key release sources of PCDD/Fs in China, and therefore was listed into the inventory of foremost controlled sources by China's National Implementation Plan (NIP). As required by Article 5 of the Stockholm Convention<sup>1</sup> on Persistent Organic Pollutants, China give priorities to take measures to reduce releases of PCDD/Fs and and other unintentionally produced POPs (UP-POPs), by means of the application of best available techniques and best environmental practices (BAT/BEP).

Following the outbreak of Severe Acute Respiratory Syndrome (SARS) in June 2003, the Government moved quickly to establish the National Plan for Construction of Facilities for Disposal of Hazardous Waste and Medical Waste (NPHMW), in which China is committed to construct 332 dedicated MW disposal facilities across the country. Similar with the practice in many other developing countries, the NPHMW envisaged adopting incineration as the technology of choice for most of these facilities at first. Under the influence of BAT/BEP concept, nearly half of the facilities which are almost minor ones turned to choose the non-incinerations technologies, such as autoclave, microwave and chemical disinfections, which are alternative and supplementary to incinerations and could avoid emissions of PCDD/Fs and other UP-POPs. However, there are still about half facilities using incineration like rotary kiln and pyrolysis (continuous or by-batch feeding).

In order to fulfill the obligations of Stockholm Convention, and implement NIP, Ministry of Environmental Protection of the People's Republic of China (MEP, designating its branch "FECO"-- Foreign Economic Cooperation Office) and the United Nations Industrial Development Organization (UNIDO) jointly developed and executed the full-size project of Environmental Sustainability Management for Medical Waste in China in support of Global Environment Facility (GEF)<sup>2</sup>. Integrating with the implementation of NPHMW, this project was to promote the adoption of BAT/BEP in MW disposal and treatment sector, ultimately reducing environment pollution and protecting human health. There have been three incineration facilities (each stands for a representative incineration type) selected for BAT/BEP demonstration, aiming to reduce PCDD/Fs release (in flue gas) down to 0.1ngTEQ/m<sup>3</sup>, by means of engineered and managing methods. To further promote BAT/BEP for MW incineration in China, the project designed and kicked off an incentive plan<sup>3</sup> for centralized incinerators to compensate for up to 15 facilities to decrease their PCDD/Fs release limitation in the flue gas from 0.5ngTEQ/m<sup>3</sup> to 0.1ngTEQ/m<sup>3</sup>. The successful implementation of the incentive plan will substantially promote the revision of Pollution Control Standard<sup>4</sup> for Hazardous Wastes Incineration (GB18484-2001) in which the PCDD/Fs release limitation in the flue gas will be decreased from 0.5ngTEQ/m<sup>3</sup> to 0.1ngTEQ/m<sup>3</sup>, and furthermore promote the replication of BAT/BEP nationwide. In this abstract, the mechanism and framework of the incentive plan will be laid out and discussed.

### Nomenclature

MW	medical waste
PCDD/Fs	polychlorinated dibenzo- <i>p</i> -dioxins and dibenzofurans, also as dioxins
NIP	National Implementation Plan for the Stockholm Convention on POPs
UP-POPs	unintentionally produced POPs
BAT/BEP	best available techniques and best environmental practices
SARS	severe acute respiratory syndrome
NPHMW	national plan for construction of facilities for disposal of hazardous waste and medical waste
MEP	ministry of environmental protection
UNIDO	united nations industrial development organization

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