



# UNEP-DTIE-IETC Converting Waste Plastics into Fuel

**Ainhoa Carpintero Rogero**  
Associate Programme Officer, IETC

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# Converting Waste Plastics into a Resource



UNEP has started a 3-year project on converting waste plastics to fuel to:

- **Strengthen local capacity** in data collection and analysis to develop baseline scenarios for cities/countries
- Build local capacity for identification of appropriate **technologies**.
- Assess their **feasibility** with regards to local socio-economic and environmental characteristics
- **Assess** their potential for **resource conservation** and GHG reduction

**The Government of Japan, Ministry of Foreigner Affairs is financially supporting the project.**

# Phase 1 – Scoping Phase

- a) Developing **Guidelines for Assessment** (quantification and characterization) of waste plastics in industrial/municipal waste streams
- b) Developing a **Compendium of Technologies** on Converting Waste Plastics into a Resource, supported by an International Experts Meeting
- c) **Building capacity** in selected countries using the guidelines
- d) **Assessment of waste plastics in six cities** in selected countries to identify two potential cities for developing pilot technology projects (Agra and Faridabad in India, Cebu and Mandaue in Philippines and Bangkok and Chiang Mai in Thailand)



# Results

- a) **Cebu (Philippines)** is the most promising city for the implementation of the pilot project. Bangkok and Chiang Mai (Thailand) were not found to be suitable places for further work as it was also the case for Agra and Faridabad (India).
- b) Further assessment of cities in India was not considered since, as per the findings, the plastic recycling market/industry is already strongly established in India.
- c) Assessment of additional cities in Thailand showed
  - **Phitsanulok** was already in the process of establishing an agreement to set up a plastic to fuel facility in their municipality, and they were seeking for additional support,
  - **Nakhon Ratchasima** was already trying to address the plastic component of their waste.



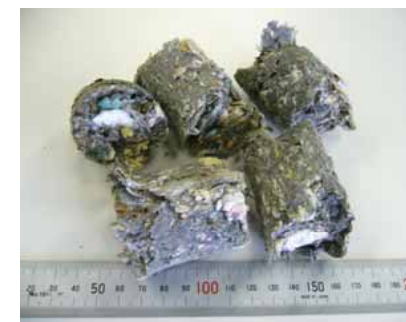
## Phase 2 – Design Phase

- a) Detailed baseline plastic waste data in the cities where the demonstration project is to be implemented
- b) Identification of local partners
- c) Technology Assessment
- d) Design of the pilot projects and feasibility study
- e) Stakeholder consultation Workshop
- f) Policy framework
- g) National Workshop



# Results

- a) **Cebu:** Converting waste plastics along with paper and wood, into solid fuel in the form of **Refuse Plastic Fuel (RPF)** using a locally manufactured plastic extrusion briquetting machine.
- b) **Nakhon Ratchasima:** The **gasification of Refuse Derived Fuel (RDF)** is the desire technology; however the pilot project will focus on the production of RDF itself. For scaling up the technology to gasification , detailed techno-economic feasibility assessment is to be carried out
- c) **Phitsanulok** The technology to be used is the conversion of plastics into **liquid fuel** based on the pyrolysis of the plastics and the condensation of the resulting hydrocarbons.



# Phase 3 – Implementation Phase

- a) **Implementation** phase to demonstrate environmentally sound technologies for converting waste plastics into fuel.
- b) **Assess** their potential for **resource conservation** and GHG reduction
- c) **Lessons learned** will be disseminated, along with generic training.
- d) **Scale up and replicate** similar efforts in other cities/countries.





## International Environmental Technology Centre

### Osaka

2-110 Ryokuchi Koen,  
Tsurumi-ku,  
Osaka 538-0036, Japan  
Tel : +81 (0) 6 6915 4581  
Fax : +81 (0) 6 6915 0304  
E-mail : [unep.tie@unep.org](mailto:unep.tie@unep.org)  
Web: <http://www.unep.or.jp>

### Shiga

1091 Oroshimo-cho,  
Kusatsu City,  
Shiga 525-0001, Japan  
Tel : +81 (0) 77 568 4581  
Fax : +81 (0) 77 568 4587  
E-mail : [unep.tie@unep.org](mailto:unep.tie@unep.org)  
Web: <http://www.unep.or.jp>

***Thank You...***

