

# Setting-up an Integrated Resource Recovery Center in Islamabad's Sector G-15

## Background

The rapid economic and urban population growth in Asia-Pacific has resulted in a corresponding increase in the volume and complexity of solid waste. In order to solve the problem it is imperative to shift from the conventional end-of-the-pipe waste management system (focused merely on collection and disposal) towards a resource management approach.

To tackle this challenge, the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) in partnership with Waste Concern, Bangladesh, is implementing the project "Pro-poor and sustainable solid waste management in secondary cities and small towns". The project contributes to this goal by setting up Integrated Resource Recovery Centres (IRRCs), which are facilities that enable cities to turn waste into resources through composting, recycling and bio digestion, thereby diverting municipal solid waste from landfills or open dump sites. IRRCs typically process 80-90% of waste streams, in proximity to the source of generation, and in a decentralized manner. Plants with a capacity to process between 2 and 10 tons of municipal solid waste per day have been established in cities in Cambodia, Sri Lanka and Viet Nam and, now in Pakistan.

## What is an Integrated Resource Recovery Center?

Integrated Resource Recovery Centers, IRRCs, aim at recovering valuable resources from waste. Three major activities can be carried out by the IRRC: collection of segregated waste, processing of waste and sale of the resources generated. The main focus of IRRCs is on organic waste, which typically comes from kitchens, restaurants, and wholesale vegetables or fruits markets. Inorganic waste – mainly paper, packaging materials made of plastic, glass, tin, aluminum, etc. – can also be collected and stored on an IRRC, for subsequent sale, when market rates are at its most favorable.

One of the distinctive features of IRRCs is that they use simple mechanical technology. Local organizations can quickly become familiar with this technology and adapt it to the local context. Using technology that requires little energy keeps operation costs low and equipment breakdowns are minimal. Besides, simpler technology is also more labor intensive, thus creating more job opportunities for the poor.

Through the processing of organic waste, IRRCs produce high-quality compost. For this to happen, the segregation of waste at source is a key success factor. As such, for an IRRC to function properly, the close involvement of the surrounding communities is a must, as households are trained on how to separate organic and inorganic waste. With adequately sorted organic waste, IRRCs apply the aerated box composting method to produce good quality compost.

IRRCs are designed to be run as businesses, and therefore they aim to achieve, at a minimum, a revenue-cost balance. To ensure profitability, the proponent of an IRRC must formulate a business plan before starting any work, which should prove that the IRRC can be financially sustainable.

IRRCs can be initiated and operated by municipalities, private-sector enterprises and civil society organizations, or a combination of all the three through different partnership models.

An IRRC can deliver the following benefits:

- **Economic Benefits:** value can be derived out of waste by converting waste into resources, while reducing and/or avoiding costs associated with end-of-pipe solutions;
- **Environmental Benefits:** reduction of greenhouse gas emissions by treating the organic fraction of waste; avoids the formation of leachate water and the spread of bad odors;

### What does an IRRC operation look like?



Source: ESCAP and Waste Concern

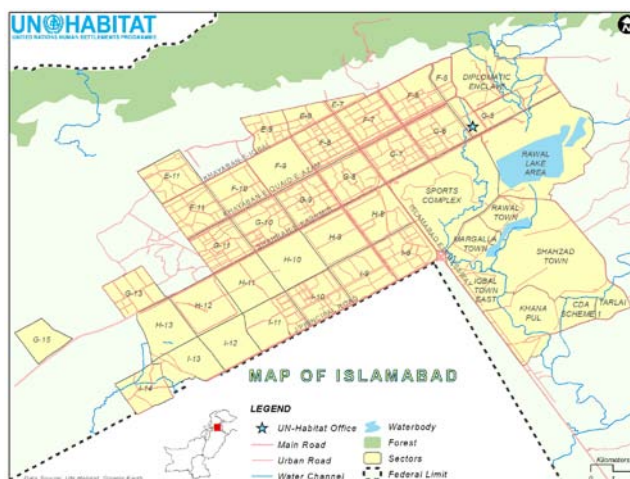
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- **Social Benefits:** creation of jobs for the urban poor, including waste pickers; reduction of diseases from untreated waste; increased community awareness to 3R principles.

## Activities in Pakistan

In Pakistan, until now UN-ESCAP has extended its support to the cities of Islamabad/Rawalpindi, Karachi and Mardan, in partnership with UN-Habitat and the International Union for Conservation of Nature (IUCN). This support has consisted in the preparation of baseline surveys that assessed existing waste management practices as well as waste generation rates and compositions. Among these cities, it was concluded that Islamabad/Rawalpindi was the most suitable location for a pilot IRRC.

In this connection, UN-ESCAP and UN-Habitat are partnering with the Dr. Akhtar Hameed Khan Memorial Trust to set-up the first IRRC in Pakistan, which will be located in Islamabad's sector G-15. This IRRC will have the capacity to process 4 tons of municipal solid waste per day. It will treat the waste generated in the sector as well as from nearby vegetables' markets. So far design of IRRC in the proposed location is finalized and Initial Environmental Examination (IEE) is in process. The IRRC in sector G-15 will be a pilot project that will test the feasibility of this model in Pakistan and its potential for replication to other sectors in Islamabad/Rawalpindi. In the medium term, it is envisaged the replication of this model to cities across the whole country. UN-ESCAP and UN-Habitat have been adopting a multi-stakeholder approach on their activities, and the participation of the Ministry of Climate Change could be instrumental in the successful implementation of this model, as well as in capitalizing from the climate benefit of setting-up decentralized solid waste management systems, through IRRCs, in Pakistan.



## Climate Change and Decentralized Solid Waste Management

One of the envisaged objectives of an IRRC is to achieve financial sustainability, i.e. that the revenues produced from waste recovery can outweigh the operational costs incurred. In order to improve the financial robustness of an IRRC, it should be possible to leverage carbon financing, considering the greenhouse gas emission reduction potential from treating the organic component of waste. Until recently, the Clean Development Mechanism (CDM) has been the vehicle of choice for tapping into carbon financing for these projects. However, the recent sharp decline of carbon emission reduction prices prompted UN-ESCAP and UN-Habitat to look into alternative climate financing avenues. Among those, Nationally Appropriate Mitigation Actions (NAMAs) have been found to hold the greatest promise.



UN-ESCAP and UN-Habitat has been conceptualizing a NAMA-approach derived from the IRRC model and consultations are in process with the stakeholders under the leadership of Climate Change Division of Pakistan. Having as a starting point some of the core principles of this model, the NAMA programme would hinge in the promotion of 3R principles, the avoidance of end-of-pipe solutions, and the biological treatment of the organic fraction of waste. Such programme would be backed-up by international support in terms of finance, technology and capacity building.

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