

3 Solid Waste Management

WHAT ARE THE MAIN ISSUES

Cities are the home of people, businesses and industries which support them and as a result of their consumption large amount of Solid Waste are discarded through formal and informal waste collection systems. City developers and managers often resolve to use open landfills as the disposal solution for the never ending supply of waste. However, while open landfills address an immediate waste problem, they are also large emitters as anaerobic decomposition of organic materials in the landfills produces Methane (CH₄) a potent greenhouse gas with a Global Warming Potential (GWP) of 86 (CO₂ has a GWP of 1).



POSSIBLE SOLUTIONS

Tackling emission issue associated with Solid Waste disposal in cities will not only address climate change, it will also allow cities to reduce the waste amount to be disposed. While solid waste consists of a larger mix of types of waste, solid waste can generally be categorized in broader groupings, such as organic waste, glass, paper, wood waste, electronic equipment etc. where organic waste (mainly food residue) can constitute up to over 55 % of the waste. Thus, looking how to manage the various waste types including organic matter can provide for a win-win situation aside from minimizing the need for local landfills. The below outline three broad areas of solutions, which has been shown to be beneficial

- Sorted organic waste can be used as feedstock for biogas digesters that can produce climate neutral gas for local consumption, or the waste can be converted into compost which can substitute for fossil fuel produced fertilizers
- By bringing electronic waste dismantlement and recycling into a formal sector it will be possible to bring down the release of toxins and unintentional persistent organic pollutants (POP) which occurs in the uncontrolled informal sector, while ensuring recovery of precious metals and other valuables needed for the industry.
- Recycling programmes for instance paper wood waste and plastic can minimize the overall amount of waste which will end up in a landfill.

UNDP PAST EXPERIENCE AND SUCCESSFUL CASES

UNDP has been involved in Solid Waste management projects both in China as well as internationally in countries such as Azerbaijan, Guyana, Lebanon and Malaysia to name a few.

- **UNDP in Azerbaijan: Improving solid waste management**

The project seeks to improve the legal framework of waste management and create a solid waste database.

- **UNDP in Malaysia: Developing a Solid Waste Management Model for Penang**

The project tries to carry out waste separation at source. It is anticipated that the 12–15% of solid waste that is already removed from the waste stream will increase significantly so that 85–88% no longer goes for disposal in the landfill without any further reduction or treatment.



3 固体废弃物管理

主要问题

城市是人、商业和工业的家园。城市为它们提供支持，而作为结果，它们的消费使得大量的固体垃圾被抛弃到各种正规和非正规的回收系统中。城市规划者和管理者往往想用开放式土地填埋来解决无尽的废弃物。然而，尽管开放式土地填埋解决了当下的问题，它们也成为了巨大的污染排放源。因为土地填埋过程中，有机物的无氧分解产生甲烷，而甲烷是一种全球变暖潜力指数为86的温室气体（二氧化碳的该指数为1）。



图片来源：<http://efc.web.unc.edu/2013/11/05/solid-waste-finance/>

可行措施

应对与城市固体废弃物处置相关的排放问题不仅能缓解气候变化，还有助于减少城市中需要处理的废弃物量。尽管固体废弃物由多种成分组成，它可以大致分成几类，例如：有机废物、玻璃、纸、废弃木材、电子产品等等。其中有机废物占了55%。因此，了解如何管理包括有机废物在内的多种类型的废弃物有助于我们发现一个除了土地填埋以外的双赢方案。以下列出三种卓有成效的解决方案：

- 将分类后的有机废物用作生物燃料的原料，生物燃料能产生环保燃气供当地消费，同时废弃物可以被转化成堆肥，以取代化石燃料制造的化肥
- 电子产品拆解和回收的规范化有助于减少有毒物质的排放和非正规渠道中产生的不必要的持久性有机污染物，同时还能确保贵金属和其他有工业价值的材料的循环利用
- 回收项目，例如纸和废弃木材，可以最大程度地减少土地填埋的废物数量。

UNDP的过往经验和成功案例

UNDP在中国和其他国家，例如阿塞拜疆、圭亚那、黎巴嫩和马来西亚都参与过固体废弃物管理的项目。

• UNDP在阿塞拜疆：改进固体废弃物管理

该项目试图改进当地固体废弃物的法律框架并构建固体污染的数据库。

• UNDP在马来西亚：打造槟城固体废弃物管理模式

该项目试图从源头上进行废弃物的分离。据估计，12-15%的固体废弃物已从废液中移除，并且这一数据有望显著增加。增加之后，即使不对现有废弃物做进一步对减少和处理，也会有85-88%的废弃物不再需要通过土地填埋。

