Case Study Fact File CUE >> Urban Waste

Urban Waste Schemes In NYC, USA [HIC]

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04.09.20 V1.1

Topic: Comparison of approaches to waste disposal in relation to a specified urban area.

Background Information:

"The Big Apple generates over 14 million tonnes of rubbish per year and spends around $2.3B disposing of it."

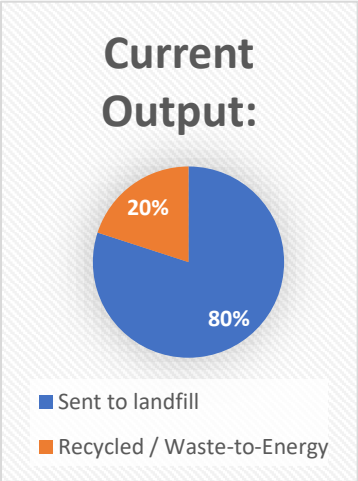
America is already one of the world's most wasteful countries – its largest city is no different. New York, with nearly 10 million inhabitants, and countless more in the wider commuter belt surrounding it, suffers from chronic overcrowding - whilst also being one of America's densest city – where the smallest amount of space comes at a premium - leading to numerous challenges of waste collection, storage and management.

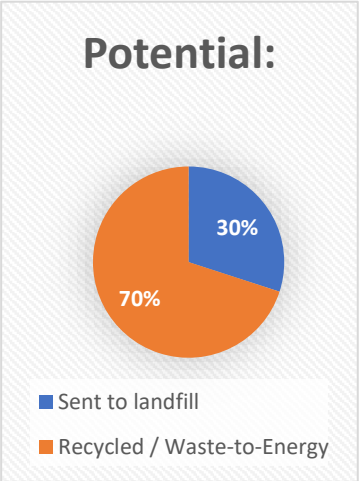
Therefore, the city runs a complex waste management ecosystem of two agencies, three modes of transport (trucks, trains, barges), 1700 city collection trucks, 248 assisting private waste haulage firms and a network of facilities.

How Is Waste Managed Today?

Until fairly recently, **up to 80% of New York's waste was deposited out at sea**, to create artificial landmasses, hence increasing the size of the city available for construction. Funnily enough, much of the CBD around Manhattan is quite literally built on hundreds of years of compacted waste.

Nowadays, the city runs off two aforementioned systems – one Private and one Public. The former is used for all forms of commercial disposal, **up to 75% of the total waste output of the city**, whereas Public waste disposal is run by the New York Department Of Sanitation (DSNY), which is the **largest public waste management agency in the world, with an annual budget itself of $1.5B.**





What's gone wrong?

In recent years, despite numerous pledges by politicians, the city is still particularly bad in international standard with recycling, which is environmentally beneficial, more sustainable and saves space. Schemes such as the composting plans and recycling bins, widespread in pretty much all cities in Europe (where up to 80% of waste is directly sent to recycling) only are open to 15% of residents. At the same time, large amounts of this existing waste going to landfills are sent hundreds, or even thousands of miles abroad – further exacerbating the environmental detriment of such systems.

Improvements Are Being Made:

Public concerns about waste-to-energy facilities are rooted in a history of incinerators that is admittedly ugly. But modern waste-to-energy facilities are dramatically cleaner than their predecessors and air emissions even compare favorably to fossil-fuel power plants. These facilities also reduce emissions from truck traffic and landfilling, which will have regional environmental benefits.

Fresh Kills Landfill

A Rare Case Study From America In What To Do Right

Fresh Kills landfill was the largest and last operating landfills within New York City proper – Staten Island to be particular. Inaugurated as a temporary landfill in **1948**, it grew over time to be **over 890 ha,** before finally being **shut down in 2001**.

At the peak of its operation, in 1986, Fresh Kills received **29,000 tons of residential waste per day**. From 1991. It held about **150 million tons of solid waste** in total.

Initially, the land where the landfill was located was a salt marsh. The tidal marsh, which helped to clean and oxygenate the water that passed through it, was destroyed. The fauna was largely replaced and native plant species were driven out, whilst groundwater became increasingly toxic by pollutants within the waste.

Since 2008, a large-scale reclamation of the site began, in order to create a new parkland environment, **'Freshkills Park'** over a 30-year masterplan, **three times the size of central park**. A comprehensive rewilding effort above the refuse site will make the area more attractive to wildlife as well as creating a **'green lung' for Staten Island**. Furthermore, a **huge solar array** will help New York's renewable energy supply, contributing to the CO_2 neutrality of the area.

Being able to successfully transform landfill sites into thriving ecosystems offers a glimpse into the future of cities, whereby brownfield sites have been repurposed in eco-friendly ways, for locals and for the environment. However, there are still issues with such schemes – keeping toxins at bay, ensuring waste isn't simply exported overseas, ensuring the correct wildlife returns to name a few.

What future options does New York have to reduce its reliance on Waste-to-Energy and External Landfills?

Pure recycling systems are often overlooked and have never been properly implemented in New York. Do you think having this with Waste-to-Energy would be a suitable alternative, allowing the city to eliminate any landfill usage?

Links & References:

What Case Studies Can This Be Linked To?

You only need one case study for this topic but using a contrasting example such as Amsterdam may be beneficial in widening your understanding.

- **A* Example I Amsterdam Urban Waste Management**
  (No specific case study fact file. See below for more information and key facts.)
  Key Facts:
  - Lansink's Ladder of waste hierarchy was passed into Dutch law in 1994, mandating prioritization of reduction in waste, reusing, recycling, and upcycling.
  - 1995 Landfill tax incentivised companies and individuals to manage waste more sustainably – until it was stopped in 2012 because landfills now only account for less than 10% of total waste (against 80% in NYC.)
  - The efficient AEB incineration plant takes in 1.4 million tonnes of waste per year, producing over 1MWh of electricity and 330,000 gigajoules of heating per year.
  - All citizens are encouraged to split up their recycling and communal underground compacting bins are available around most street corners, emptied weekly.

Extended Reading From Lessons:

https://www.nytimes.com/2020/01/29/nyregion/nyc-recycling.html

https://www.6sqft.com/the-cost-of-exporting-trash-in-nyc-is-expected-to-soar/

https://www.grownyc.org/recycling/facts

GRB | NYC Waste Article [A*]:

NYC Waste Policy Article [A*]:

Have A Go At A Practice Exam Question:

9 MARKER (AO1 & 2) QUESTION #4

Using a named case study, argue the relative successes and challenges of setting up and managing Urban Waste systems in the 21st Century.

Many questions will have exemplar answers and mark schemes available on the geographyportal.co.uk, feel free to look at them for more information.