Introduction

It is common knowledge that use of plastic is not eco-friendly. But how much does plastic really affect the world’s climate? Newly published research calculates that across their lifecycle, plastics account for 3.8% of global greenhouse gas emissions. That’s almost double the emissions of the aviation sector. If it were a country, the “Plastic Kingdom” would be the fifth-highest emitter in the world (Wright, 2019). Along with the longevity of plastic, the world’s climate is also affected by its production. More than 99% of plastics are manufactured from petrochemicals, most commonly from petroleum and natural gas. These raw materials are refined to form ethylene, propylene, butene, and other basic plastic building blocks, before being transported to manufacturers (Wright, 2019). It can be assumed that the implementation of the 3 R’s is enough for the plastic to not have a negative global effect, but the demand for plastics is still growing since the general population relies on the use of plastics therefore rendering the reduction of plastic production ineffective.

Although plastic is naturally reusable up to a certain extent and is also recyclable, getting rid of all this plastic also causes problems for the planet. Just 16% of plastics are recycled – the rest goes to landfill for incineration, or is just dumped. Much of the plastic that doesn’t make it to the recycling plant ends up in our rivers and ocean. Not only is this a danger to the animals and plants whose habitats have become aquatic garbage patches, but it also poses a threat to the climate, as plastic releases greenhouse gases as it slowly breaks down. Sunlight and heat cause it to release methane and ethylene – and at increasing rate as the plastic breaks down into ever smaller pieces (Edmond, 2022).

According to a study about global plastic waste emitted to the ocean by Meijer et al. (2021), Asia leads with a whopping 80.99% waste emission. Seven of the top ten rivers that contribute to this are from the Philippines. This study aims to devise a diagnostic analysis about one of the leading countries, Singapore, when it comes to waste management and how their system could help reduce the plastic wastes emitted by the Philippines.

Problem Statement

The principal problem tackled by this analysis is the concerning amount of plastic waste emitted by the Philippine rivers on to the open ocean. The plastics that end up in the ocean breaks down and releases greenhouse gases which is one of the leading contributors to climate change. Not only will this affect the Philippines, but also the whole world.

Significance of the proposed project

This analysis will be able to give a better hope for the Philippine’s waste management problems where the main beneficiaries include the following:

Government - If the government sees how effective Singapore’s waste management system is, they can consider implementing the same system or integrate some parts of their system in order to slowly but surely make progress. With the government’s strict implementation, it can surely make a difference in keeping their country’s bodies of water in a better condition.

Community - this research can inform the community on a possible solution that can help reduce the river waste emissions and how it works. They can also pursue this Singapore’s waste management system on their own communities if ever that the government decides to go on a different route.

Future Researchers – this research can benefit the future researchers because they can use the data analyzed in this study as a reference for their own research concerning the waste management system of the Philippines.

Methods

The Data Analysis Method that will be used is Decision Tree. Since this study focuses on analyzing the data of the waste management system of a foreign country, the researchers would have to consider the pros and cons of recommending Singapore’s waste management system. In doing so, some alternative methods or system can be derived from the main system which can be implemented in the Philippines and possibly be sustainable in the country’s budget.

Expected output

This research is expected to produce a Diagnostic Analysis on Singapore’s Waste Management System which has one of the leading Waste Management Systems in the world. With the output at hand, recommendations can be made on which decision to go with. Either to implement the same system to the Philippines Waste Management System or generate an alternative solution or system that the country can sustain and manage well without using too much resources.