

**Committee:** Environmental Commission (EC)

**Issue:** Reevaluating ineffective recycling methods in More Economically Developed Countries (MEDCs)

**Student Officer:** Athinais Lachana

**Position:** Deputy President

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## PERSONAL INTRODUCTION

Dear Delegates,

It is my honor to welcome you to the Environmental Commission of the 6th ACGMUN! My name is Athinais Lachana and I'm an A' Lyceum student at Pierce-The American College of Greece. This will be my first-time chairing and I am very excited to be working with all of you.

I was for the first time introduced to MUN in September 2021 by my English teacher and immediately fell in love with it. MUN has helped me develop my problem-solving skills and gain a deeper insight into many topics concerning the world. By attending conferences, I have not only learned many things but have also created great memories and gained an overall life experience. Therefore, I want to congratulate you for being an active member of the MUN community and urge you to participate in as many conferences as possible.

During this two-day conference, our committee will dive into environmental worldwide conflicts and will debate with hopes of solving them. This year's theme, "Breaking Barriers" connects to our third topic, reevaluating ineffective recycling methods in More Economically Developed Countries (MEDCs), since the goal is to break the technological barriers and achieve an effective recycling system.

I hope this study guide appears to be helpful, but I strongly encourage you to further research the topic to be able to suggest and present even more solutions and aspects of the issue. You may contact me and pose questions on the study guide, or the topic in general prior to the conference via the following email: [A.Lachana@acg.edu](mailto:A.Lachana@acg.edu)

Sincerely,

Athinais Lachana

## TOPIC INTRODUCTION

Recycling is a three-step process through which materials that would be thrown away are collected, then processed and finally remanufactured into new products.<sup>1</sup> Recycling is beneficial to the environment but also to the economy and the development of a country. More Economically Developed Countries (MEDCs) have tried to adopt recycling to protect the environment, their citizens' health but also develop and improve. Practicing recycling efficiently saves energy, lowers costs, reduces pollution, and creates new job opportunities. Overall, it also strengthens the country's economy by creating jobs, building more competitive manufacturing industries, and by converting waste into valuable raw materials. Today, the process of recycling does not meet the expected goals. For example, the municipal solid waste (MSW) recycling rate in the US remains as low as 35%. Furthermore, only about 67.2 million tons of a possible 267.8 million tons are being recycled, which is less than a quarter of total MSW, even though the EPA (Environmental Protection Agency) estimates that around 75% of all waste is recyclable. Although most people in MEDCs recycle daily it appears that it is many times done incorrectly. The current recycling process is flawed. A main factor is that contaminated recyclables are being shipped to Less Economically Developed Countries (LEDCs), that are unable to control them, since they are not developed enough, due to lack of infrastructure. Landfills<sup>2</sup> also hinder recycling efforts. Waste is disposed, and results to air, soil, and groundwater pollution. Natural disasters, such as fires, can start from landfills when large amounts of waste are mixed with the gases landfill sites produce. Landfills are a way of disposing waste that has been used for many years now, however, there have recently been made efforts to reduce them, because of how harmful they are.

The costly process of sorting plastic recyclable materials is also an obstacle in recycling. Steps of the recycling process are avoided to save money and time which leads to them not being correctly processed into new materials. Electronic waste (E-waste) is also an issue that needs to be addressed. Electrical or electronic equipment constantly ends up in waste because they are considered useless or can't "serve" their purpose anymore. Most electronics contain some form of toxic materials, that are seriously harming to the environment and once buried in a landfill can cause many problems, such as the release toxic materials leaching into the environment.

In most more economically developed countries there are many efforts made to improve recycling. Germany has had the highest recycling rate in the world since

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<sup>1</sup> US EPA. "The U.S. Recycling System." *Www.epa.gov*, 17 Apr. 2019, [www.epa.gov/recyclingstrategy/us-recycling-system](http://www.epa.gov/recyclingstrategy/us-recycling-system).

<sup>2</sup> Landfill: the disposal of waste material by burying it, especially as a method of filling in and reclaiming excavated pits.

2016, with 56.1% of all waste produced in 2019 recycled. Austria has also showed high recycling rates and in 2018, 58% of all municipal waste in the country was recycled.

With today's technologies and experts, the desirable results from recycling can be achieved. Educating the public, as most would think, is for sure an important mean through which the desirable outcome can be reached, but there is definitely much more that can be done to bring change. Most people know which color bin is the correct for each material, but many times the process of sorting later does not get these materials where they actually should be. Usually, the costly process of sorting and processing recyclable materials is not done correctly, leading to this recycling method being labeled as ineffective. Investing in equipment and technologies that will improve such processes is a step to fix the flaws of an already existing recycling method. The creation of new ways of recycling would sound more appealing to most but improving what already exists will bring better results and will cost less. The public is more used to already practiced recycling methods and the big fundamental investments in them have already been made. Recycling is a beneficial process when done correctly but can end up being harmful if done incorrectly and incautiously.

## DEFINITION OF KEY TERMS

### Landfill

"The process of getting rid of large amounts of rubbish by burying it, or a place where rubbish is buried."<sup>3</sup> Landfills are very harmful and demolish the process of recycling. They have been used as a recycling method by various countries for many years now and it has been proven multiple times how harmful they are.

### Microplastics

"Extremely small pieces of plastic debris in the environment resulting from the disposal and breakdown of consumer products and industrial waste."<sup>4</sup> There hasn't been a steady approach discovered to reduce microplastics yet. It is a fact though that plastic recycling can't solve the microplastics problem so therefore all current recycling methods are ineffective when it comes to microplastics.

### More Economically Developed Countries (MEDCs)

"These are countries with a developed economy. This results to a good standard of living, including good education, health care, and employment opportunities."<sup>5</sup>

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<sup>3</sup> (Cambridge Dictionary, "LANDFILL | Meaning in the Cambridge English Dictionary")

<sup>4</sup> (Cambridge Dictionary, "Microplastics")

<sup>5</sup> Britannica kids. "More Economically Developed Countries." Britannica Kids, kids.britannica.com/students/article/more-economically-developed-countries/604089. Accessed 3 Jan. 2023.

Recycling is definitely more developed in MEDCs than in the rest countries of the world. Multiple MEDCs have showed huge progress in recycling for the past years, like Germany and Switzerland but there are still nations that fall behind in recycling, such as Greece.

### Organic Waste

“Organic waste is any material that is biodegradable and comes from either a plant or an animal. Biodegradable waste is organic material that can be broken into carbon dioxide, methane or simple organic molecules.”<sup>6</sup> Organic waste that involves a huge chunk of total waste is the easiest to recycle.

### Recycling

“The process of putting a used substance through a particular process so that it is fit to use again”<sup>7</sup>. Recycling is first of all beneficial to the environment but can also strengthen the economy of a country that is a good recycler.

### Waste

“Waste (or wastes) are unwanted or unusable materials. Waste is any substance which is discarded after primary use, or is worthless, defective and of no use.”<sup>8</sup> The import of very large amounts of waste in China prevented some nations from creating effective recycling methods and after China’s importing ban, they had to face serious recycling issues.

## BACKGROUND INFORMATION

### The History of Recycling

#### Recycling During World Wars

Recycling rose from the need to save money, during both World Wars. The government established a Waste Reclamation Service in response to widespread material shortages in WWI. That is also when a famous recycling slogan ‘Don’t Waste It, Save It’ started being used. Materials were diminishing and there was a lack of resources, so both the United States and the United

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<sup>6</sup> C. Donkin, Teresa. “Organic Waste | Encyclopedia.com.” [www.encyclopedia.com](http://www.encyclopedia.com),

[www.encyclopedia.com/environment/encyclopedias-almanacs-transcripts-and-maps/organic-waste](http://www.encyclopedia.com/environment/encyclopedias-almanacs-transcripts-and-maps/organic-waste).

<sup>7</sup> Rinkesh. “Advantages and Disadvantages of Recycling - Conserve Energy Future.” Conserve Energy Future, 6 July 2018, [www.conserve-energy-future.com/advantages-and-disadvantages-of-recycling.php](http://www.conserve-energy-future.com/advantages-and-disadvantages-of-recycling.php). Accessed 3 Jan. 2023.

<sup>8</sup> Wikipedia. “Waste.” Wikipedia, 18 Feb. 2023, [en.wikipedia.org/wiki/Waste#:~:text=Waste%20%28or%20wastes%29%20are%20unwanted%20or%20unusable%20materials](https://en.wikipedia.org/wiki/Waste#:~:text=Waste%20%28or%20wastes%29%20are%20unwanted%20or%20unusable%20materials). Accessed 5 Mar. 2023

Kingdom, requested public assistance. Campaigns collecting different materials gained recognition during WWII. Overall, the British were very strict with recycling. By cooking what was required and cultivating as much as they could at home, the British people decreased food waste. The government promoted repairing damaged furniture and reusing discarded garments as rags. Promoting recycling of unwanted metal helped governments collect resources and build necessary equipment for the war effort. Initially, recycling methods as proved rise from an urgent need for change or a matter of surviving as seen during the war.

### **Modern Recycling**

Modern recycling originates in the 1970s. After WWII and until the 1970s landfills had reached their maximum capacity. Initially, Public Service Announcements (PSAs) and other initiatives, rose awareness attempting to solve the issue. Between 1970 and 1980, a beverage container deposit law and new recycling programs were enforced. This also supported the formation of environmental movements.

### **Importance of Recycling in MEDCs**

Recycling is very beneficial to MEDCs. It leads to a cleaner environment, a more powerful economy, and supports sustainable development. The conversion of waste to valuable raw materials increases employment, improves competition between manufacturers, and strengthens a nation's economy. Reduction of energy consumption, decreases greenhouse gas emissions which cause global warming. The conservation of natural resources and reinforcement of environmental sanitation are also important outcomes from recycling. Lastly, recycling saves production and energy costs since products being recycled usually require much less processing to turn them into usable materials.

### **Supervising Recycling Methods**

All government aspects and the Department of Environmental Affairs are responsible for supervising waste management and recycling. The Department of Environmental Affairs was founded in 2009 and later replaced (2019) by the Department of Environment, Forestry and Fisheries by the South African government. Specifically for the US, The United States Environmental Protection Agency's (EPA), mission is to protect human health and the environment. The EPA regulates household, industrial, and manufacturing solid and hazardous wastes under the Resource Conservation and Recovery Act (RCRA). The RCRA is the public law that creates the framework for the proper management of hazardous and non-hazardous solid waste "RCRA's goals are to protect us from the hazards of waste disposal; conserve energy and natural

resources by recycling and recovery; reduce or eliminate waste; and clean up waste that which may have spilled, leaked or been improperly disposed of.”<sup>9</sup> Despite that, there is still not enough supervision of recycling systems and methods all around the world, and especially in MEDCs.

### **Evaluation of Recycling Systems/Programs**

An effective way to evaluate recycling systems and methods is using an evaluating methodology, ‘Lifecycle Evaluation’. The evaluation of a recycling system or program is crucial both when it is being practiced and after it is over. This methodology includes an economic assessment of the environmental consequences. Lifecycle Evaluation refers to the combination of lifecycle assessment and economic evaluation. When evaluating a recycling system, it is important to evaluate its effectiveness, environmental results, costs, financial results and the difference or improvement it brings. Two other important measures are recorded per capita: Material Recovery Rate (MRR), and Recycler Material Recovery Rate (RMRR) as is the participation rate (PR). MRR, Material Recovery Rate refers to the total amount of output useable materials by weight as a percentage of the amount by weight of input materials.

### **Features of a Good Recycling System, Effective Recycling Methods**

It is important to recognize the good features and already existing effective recycling methods and programs. Reducing plastic bags has been applied in many countries.

Energy Recycling is the conversion of plastics into both thermal and electric energy, which has so far been an effective recycling method mainly used in MEDCs. Waste-to-Energy power plants are waste management facilities that combust waste to generate electricity. It is a potential strategy for energy diversification, especially practiced by Sweden, which has been a leader in waste-to-energy production for the past 20 years. An effective way to practice recycling, is the sale of high-quality recyclable materials, for example, construction ones, leading to increased numbers of uses of recycled materials.

### **Flaws of Modern Recycling**

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<sup>9</sup> US EPA, OMS. “Regulatory and Guidance Information by Topic: Waste.” US EPA, 10 Nov. 2014, [www.epa.gov/regulatory-information-topic/regulatory-and-guidance-information-topic-waste](http://www.epa.gov/regulatory-information-topic/regulatory-and-guidance-information-topic-waste). Accessed 4 Jan. 2023 [www.epa.gov/regulatory-information-topic/regulatory-and-guidance-information-topic-waste](http://www.epa.gov/regulatory-information-topic/regulatory-and-guidance-information-topic-waste). Accessed 4 Jan. 2023.

Contamination prevents large batches of material from being recycled, because items in incorrect recycling stream make their way through the recycling system, contaminating or damaging other recyclable materials.

### **High Costs**

The costs of creating recyclable materials are high. Recycling was relatively inexpensive for many years. Millions of tons of recyclables were shipped from North America and Europe to China, where they were purchased at a price that helped offset the cost of local recycling programs in exporter countries. China banned such imports in 2018. China imported about 600,000 metric tons of plastic waste in 2017, the year before its strict import ban went into effect. With 56% of the global market, China was the biggest importer of used plastics. This ban caused scrap metal prices to plummet as exporting countries were left with waste they could not process because they had been relying on China instead of investing in domestic recycling facilities.

Recycling programs are sometimes hampered by the systems that they employ. Multi-stream recycling, in which materials are separated before collection, necessitates more consumer effort but is easier to sort and generally less expensive. Nonetheless, many cities use single-stream recycling, in which all materials are collected in the same bin. This is convenient for consumers, but it frequently results in contamination, as materials must be sorted by both machine and human hand, thus increasing costs. Single-stream recycling was used in 20% of recycling communities in 2005, but the number increased and 64% of them did so in 2010. Simultaneously, communities that used multi-stream decreased recycled materials from 70% to 34%. These factors have led to not only higher recycling costs, but also lower recycling rates, as many municipalities have resorted to incineration or landfills for scrap materials that are less valuable or simply cannot be processed. High upfront capital costs are also a major issue. Constructing a new waste recycling unit is costly. The associated costs include purchasing various utility vehicles, enhancing the recycling unit, waste, chemical disposal, and educating the locals through the implementation of useful programs and seminars.

### **Non-Durable Recycled Waste Products**

The quality of products made from recycled waste is poor. Such products are made from waste material gathered from mountains of other waste materials that have been overutilized and brittle. Recycled waste products are less durable and less affordable. Furthermore, there is no guarantee that high-

quality products will be obtained from waste recycling if the input raw material is of poor quality. So, due to poor quality, some items designated for recycling are eventually burned or disposed of in landfills.

### **Energy Consumption, Pollution and Unsanitary Environments**

To recycle tons of material, waste must be transported, sorted, cleaned, and processed in separate factories, all of which require energy and may produce by-products that pollute soil, air, or water. Even vehicles used to pick up recyclables contribute to air pollution by releasing toxins that are all airborne. Any waste recycling site will almost always have unsanitary conditions. Locations where various types of waste are piled provide an ideal environment for the formation of debris and the spread of infectious diseases. The hazardous chemicals emitted by these wastes can also be dangerous. Aside from causing massive pollution, the entire recycling process poses health risks to the individuals who are in charge of recycling these waste products.

## **MAJOR COUNTRIES AND ORGANIZATIONS INVOLVED**

### **China**

For many years, EU countries and the USA exported their waste to China. They received back an amount of money, but that changed when China banned waste import in 2018. China realized the disadvantages of this process were more than the advantages. This ban brought many negative consequences to the exporting countries and challenged them to find solutions and new recycling methods. China's latest efforts in recycling plastic waste have made a significant contribution to fighting climate change, reducing crude oil consumption and minimizing carbon emissions. China has developed a market-based plastic recycling system with broad coverage, accounting for 45 percent of global plastic recycling. Despite all that, China produces more than 60 million tons of plastic a year, and its recycling rate is only around 30%.

Finding alternatives for plastic bags, straws, packaging, bottles can reduce the amount of products that need to be recycled. To address the issue, it has already encouraged major cities to implement trash sorting policies, construct industrial-scale recycling plants, and prohibit restaurants and e-commerce platforms from using single-use items such as plastic straws and shopping bags.

## Germany

Germany has the strictest recycling system and highest recycling rate in the world, and which was formed during the 1990s. There are numerous recycling bins, requiring its citizens to do the sorting themselves, in contrast to the United States, where most counties have a trash can and a recycling bin. There are six different bins: black for general waste, blue for paper, yellow for plastic, white for clear glass, green for colored glass and brown for composting. The strict government recycling policy combined with Germans embracing recycling, bring a positive outcome. Germany recycles 66% of their trash, according to the researchers, who compiled their data from official sources and adjusted the numbers to account for different countries' methods of measuring.

The percentage of reusable bottles placed in the German collection machines is 97.9% and the percentage used to produce new bottles is much lower. The recycling methods applied in Germany have proved to be effective, since recycling rates are high. Moreover, sorting recyclables in different bins instead of a common one, has made the process of recycling easier and more efficient.

## Greece

Although an MEDC Greece is a late developer in recycling. The main problems are illegal landfilling and reliance on landfills, very low recycling rates, the management of hazardous waste and overall poor organization. Financing appears to be a significant issue as well, particularly in areas where EU funding is not available. Because waste in landfills decomposes more quickly in the Mediterranean climate, more methane is produced. Methane is vented and released into the atmosphere in a controlled manner on the small Greek islands. Larger landfill sites burn off the methane, and this process could also be used to generate energy from waste and gases. Certain ways and laws that are proposed can help improve and change the ineffective recycling methods in Greece or replace them with new ones that are effective. Waste packaging can be collected separately (plastic, paper, metal, glass) and it has been decided that municipalities will be able to charge lower municipal fees to those who produce less waste and/or recycle more, like the "pay as you throw" (PAYT) scheme used in other parts of Europe. Moreover, municipalities that send waste to landfills should face higher landfill fees and all new buildings must have waste collection areas with four distinct streams.

## USA

Bearing in mind that there is no federal recycling law, in the beginning of July 2020, individual state action had been taken, regarding recycling. In 27 states there has been a recycling policy created and at least one product from disposal in its solid waste facilities has been banned. During the 2020 legislative sessions, there was a suggestion of more than 600 new bills, for both reducing waste and strengthening recycling systems. Data collection is for many states the first step in improving recycling systems. States are also investing heavily in recycling programs and providing funding to municipalities and businesses to support market development, education campaigns, infrastructure improvements, and other initiatives.

Some also aim repairing the already existing ones. The recycling process differs in each US state but the main three steps are same for all. Consumers or businesses produce recyclable items, which are subsequently collected by a private hauler or government agency. The collector transports the materials to a processing facility, such as a paper mill or a materials recovery facility. The recyclables are sorted, decontaminated, and ready for delivery to a milling facility or directly to a manufacturing facility at the processing facility. Some products could need more processing in order to undergo additional sorting and decontamination. For instance, glass and plastic are frequently delivered to facilities that convert them into mill-ready forms: glass beneficiation plants and plastics reclaimers. Lastly, recyclables are transformed into new products in recycling plants or other facilities, such as paper mills or bottle manufacturing facilities, when all essential processing is finished.

The main flaw in the recycling of the US is that although metal and glass recycling work very effectively and 70% of US paper is being recycled, the majority of plastic is non-recyclable. Although every kind of plastic might theoretically be recycled, the majority of plastics are very challenging to breakdown and convert into new items. For starters, collecting and melting down plastic is expensive. Recycling paper, metal and glass requires less energy and resources and is therefore less expensive, but recycled plastic is in fact more expensive to produce than new plastic. To improve the ineffective recycling of plastic, the US should produce less items that contain plastic and should search for ways of producing plastic that is made out of recyclable materials. Another problem with recycling in the US is that according to the United States Environmental Protection Agency (EPA), about 55% of all garbage in the US is buried in a landfill, among the 2,000 active ones in the US. This is equivalent to 139 million tons of waste. The harmful effects of landfills as they are previously mentioned in the guide, make the process of recycling more difficult but also have an impact on human and planet

health. A suggestion for tackling this issue could be the progressive legal ban of landfills, by slowly decreasing them.

**Environmental Protection Agency (EPA)**

“Reduce, Reuse, Recycle” is the EPA’s main goal and moto. The EPA aims to teach individuals that recycling is beneficial to them as well as the community and environment. This can be achieved by saving money, energy, and natural resources. In addition, this organization manages recycling programs on local and state level. The EPA’s main goal on a national level is working to build an economy that keeps materials, products, and services in circulation for as long as possible, which forms a “circular economy.” A circular economy reduces material consumption, redesigns materials to be less resource intensive, and reclaims "waste" as a resource to produce new materials and products. The National Recycling Strategy is the first in a series of policies designed to help the EPA realize its vision of a circular economy for all.

**European Union (EU)**

The European Union’s environmental legislation, includes approximately 300 legal acts, including directives, regulations, decisions, and recommendations. This act began after discovering the following surprising statistics: 5 tons of waste is produced by the average European each year, only 38% of waste in the EU is recycled and over 60% of household waste still goes to landfill in some EU countries. Therefore, the EU has created a special list of waste-related laws. This was an effort made to protect the environment and human health. Also, the use of recovery and recycling techniques to reduce pressure on resources and improve their use. These laws concern reducing the waste of specific materials (ex. Batteries), controlling landfill waste, the transportation of waste and more.

**TIMELINE OF EVENTS**

WW1-WW2	Campaigns to promote recycling for war efforts started gaining attention
1970s	Beginning of Environmental Movement but also by the end of the 1970s landfills had reached maximum capacity
1970-1980	Beverage container deposit law and new recycling programs passed
2000	‘Fantastic Three’, was San Francisco’s attempt to implement effective recycling methods
2005	Single-stream recycling was used in 20% of recycling communities

October 7 <sup>th</sup> 2009	The Department of Environmental Affairs was founded
July 15 <sup>th</sup> 2009	'Fantastic Three' passed legislation
2010	The number of recycling communities using single-stream recycling increased to 64 %
25 September 2015	A/RES/70/1 Transforming Our World: the 2030 Agenda for Sustainable Development passed by the General Assembly of the UN and was introduced to the people
2016	Germany reached the highest recycling rate in the world
1 January 2016	The 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development were introduced by the UN
2017	One year before their waste import ban, China imported about 600,000 metric tons of plastic waste
2018	58% of all municipal waste in Austria was recycled
January 1 <sup>st</sup> 2018	China banned waste import
April 1 <sup>st</sup> 2019	The Department of Environmental Affairs was replaced by the Department of Environment, Forestry and Fisheries by the South African government
Beginning of July 2020	Individual state action was taken in the US, regarding recycling
2020	Legislative sessions happened where there was a suggestion of more than 600 new bills, for both reducing waste and strengthening recycling systems (US)

## RELEVANT UN RESOLUTIONS, TREATIES AND EVENTS”

### “Zero Waste” Challenge by the United Nations

The “Zero Waste” challenge was developed by the Moema Viezzer Environmental Education Observatory. It started as an effort to educate and change daily lifestyle and the management of garbage. Workshops were also built based on the following: Rethink the consumption; Reuse the materials; Reduce consumption; Recycle the materials and Compost the garbage. At the same time, it proposes and implements methods such as garbage separation stations, furniture from reused materials and sustainable fashion.

## **Sustainable Goal number 12 “Responsible Consumption and Production” (SDG12)**

The 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development were introduced by the UN on the 1<sup>st</sup> of January 2016. According to the UN, SDG12 aims: “decoupling economic growth from environmental degradation, increasing resource efficiency and promoting sustainable lifestyles.” It sets as a goal sustainable management and efficient use of natural resources by 2030. Through efficient recycling methods this can be faster achieved and without many spendings.

### **A/RES/70/1 Transforming Our World: the 2030 Agenda for Sustainable Development**

Is a plan of action introduced to people, on 25 September 2015, passed by the General Assembly of the United Nations. States many issues including the improvement of recycling. It suggests new solutions and encourages nations to apply them. It mentions the sustainable management of natural resources, which is a way to reduce waste. Sustainable management is also one of the main expected results of the process of recycling. By achieving an effective recycling system, the goal can be reached.

### **PREVIOUS ATTEMPTS TO SOLVE THE ISSUE**

#### **‘Fantastic Three’, San Francisco**

‘Fantastic Three’, was San Francisco’s attempt to implement effective recycling methods, which started in 2000 and passed legislation in 2009. But, it had been criticized, because the system was built on a highly unusual partnership with a single waste company, Recology. Recology has had a monopoly on handling San Francisco’s waste for almost 90 years. Many support that if the city broke ties with the company it would save a large amount of money. Others believe that since the program has been working well there is no reason to break up Recology’s monopoly.

### **POSSIBLE SOLUTIONS**

#### **Creating Legislation**

There is a need for legislation to pass not only in the UN or the EU but in each nation individually, promoting and proposing effective recycling methods. It is important that laws for each sector will be separated and will include the use of more recyclable materials in manufacturing, since recyclables would reduce waste. In manufacturing waste is any cost incurred in a process that does not benefit the customer. There are

7 wastes: Transport, Inventory, Motion, Waiting, Overproduction, Overprocessing and Defects. All these combined create a total of 7.6 billion tons of industrial waste. Furthermore, for this to be accomplished, major companies should be equipped with recycling equipment and be offered with recycling friendly infrastructure.

### **Developing the Domestic Market**

Developing the domestic market requires the improvement of technology that sorts and recovers recyclable materials. Consequently, recyclable materials will be efficiently converted into new products. As these products will be presented in the marketplace it is important that there is an audience which has been formed, waiting to purchase them. In that way, consumer demand will exist, and the products will get more recognition. In order to reach an audience, these products could for example replace products the market is short in or be offered in more reasonable prices.

### **Improving Already Existing Recycling Methods**

Reevaluating is all about improving what already exists, and therefore identifying the flaws of the already existing recycling methods and suggesting ways to improve them would save time and valuable resources. Experts have already identified the weaknesses of recycling systems in MEDCs. Creating educational programs for citizens for them to learn how to practice the already existing recycling methods correctly, to achieve the expected results is a feasible idea. In addition to that, giving the companies an initiative by offering them an “award” such as a small reduction of taxes if they reach a percentage of waste recycling.

### **E-Cycling**

The number of electronic equipment that is being thrown away proportionately increases per annum. Citizens should be informed about how harmful e-waste is, since it is a significant issue. It is harmful, because the components used to make devices such as laptops, cell phones, and televisions, contain metals and chemicals known to harm human health. Therefore, the solution to e-waste could be the creation of an accessible to every citizen center where electronic equipment can be exported. Apart from recycling them, these centers could donate the equipment to different facilities that might need them, after repairing, for example in schools. Another solution is to “retouch” them by upgrading them and making them available to the market again.

### **Supervising Agencies**

The United Nations could create a supervising agency checking if each country implements its recycling laws and keeps its recycling rates high. The agency will be funded by the UN and will be run by experts, such as environmentalists and chemists as well as lawyers. It should also create a goal for each country, based on its economy

and recycling capacity, which would obligate them to recycle at least a specific percentage of their waste. In collaboration with each nation, this supervising agency could also form and suggest laws for each country based on its status. More specifically, taking in account its financial state, current recycling state, current recycling laws and how informed and sensitized citizens are on the concept of recycling. Another responsibility this agency could have, is the reformation of ineffective recycling methods and programs. Lastly, an idea to help each nation implement the laws and recycling methods suggested could be a “reward” such as the title of the best recycler or most improved recycler, for countries that were late developers in recycling but improved.

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