



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJIRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 11, Issue 4, April 2022

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.118



9940 572 462



6381 907 438



ijirset@gmail.com



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Understanding the Relationship between GDP and Mismanaged Waste

Ananya Sood, Keisha Sahni, Pranjal Gupta, Rabjot Sethi

B.Sc, Department of Applied Statistics and Analytics, SVKM's Narsee Monjee Institute of Management Studies,
Maharashtra, India

ABSTRACT: The accumulation of mismanaged plastic waste (hereafter will be mentioned as MPW) in the environment is becoming a global issue. It is critical to know precisely where the waste is generated in order to target the concerned areas for immediate mitigation efforts. In this study using the data on waste management we would assess the total waste poorly managed by the countries in the year 2010 in comparison to the total waste produced by each country. We would also be considering the second data set that would help us in knowing the GDP per capita in the year 2010 and the population of all the countries in the year 2010. This research paper also provides the reader with conclusive evidence of how the waste mismanagement has increased or decreased with respect to the GDP of the countries in the year 2010. The motive of writing this research paper is to know whether the countries with higher GDP are managing their waste efficiently. It would also provide a corroboration of how these countries are able to manage their waste efficiently. In the end we would certainly come to a consensus as to why the efficient techniques are needed for the environment to grow and what should be done to help the countries with the maximum MPW in order to help their GDP grow and the per capita income improve.

KEYWORDS: GDP per capita, Social Technological systems, Mismanaged plastic waste.

I. INTRODUCTION

The preliminary findings of the data set we used helped us in knowing how the countries with the highest GDP per capita had less mis-managed waste. The countries with less GDP per capita in fact had a high number of Mismanaged wastes. This research paper will help us in knowing how the population has played a significant role in an increased number of mismanaged wastes. The preliminary findings suggest that Qatar one of the country's with the highest GDP per capita has the least amount of waste produced. The research paper would further dwell into how Qatar has managed to contain the mismanagement of waste. The data set also tells us how China, the country with the highest population has failed to manage the waste produced by its large number of populations. The year 2010 has been taken as our base year. The dataset has been amusing the researchers because countries like Brunei, with a higher GDP per capita has even managed to contain the waste produced by its not so big population.

The dataset is quite intriguing, it has shown us how in the top 10 countries according to the GDP per capita, United states which ranks the 10th and is the 3rd largest populated country has 86.49% of the mismanaged waste. Which is a lot for a first world country. The dataset has shown that in the top 10 countries by GDP per capital, the top 9 countries have less than 1% of the total mismanaged waste.

The dataset also compares the percentage of mismanaged waste by the population. It is amusing to see how the countries with the highest population have been the countries with the highest percentage of the mismanaged waste. The data set shows us how, countries like China, India and the United States have the maximum percentage of the waste mismanaged.

Qatar

Waste management is one of the few important problems that are being faced by the developing nations. Qatar has been of the leading nations in waste management. They have used efficient techniques to efficiently manage their waste. The proper waste management techniques have helped in an increase in the GDP per capita. Fig 1.1 shows how Qatar has been leading the group and has the least mismanaged waste by GDP per capita. It has managed to secure this position

by using out of the box techniques. Qatar has focused on social technological systems. The social technological system is one of the few systems that are used by the Arab countries to manage waste. Waste management decisions are based on reducing transportation of waste collecting trucks, increasing recycling, reducing waste production, and developing new waste treatment methods and technologies. As a result, these plans serve as the foundations of social technological systems. The social technological systems have allowed the GDP of Qatar to grow significantly. With proper waste management techniques and the social technological system Qatar has managed to provide its citizens with a clean environment. More importantly, Qatar has adopted the policy of recycle and reuse, which has instilled a sense of responsibility in the citizens. (As shown in the table fig 1.1 below)

United States of America

Although the United States has only about 4% of the world's population, it produces 12% of the world's total waste. According to the report's authors, each American creates more than 1,700 pounds of it every year, aggregating 239 million tonnes per year. ¹ Is it true that China and India produce more garbage? Yes, they are collectively responsible for 27% of the world's rubbish. However, those two countries have a combined population of 2.7 billion people, compared to our 327 million. The math is horrifying: despite having more than eight times the population of the United States, China and India produce only slightly more than twice the amount of waste that we do. According to the findings, Americans generate more than three times as much rubbish as the Chinese citizens.

United States has been going through a problem of failing to recycle waste which has caused a widespread problem of mismanaged waste. When objects are placed in the wrong bin or a filthy food container is placed in the recycling bin, many recyclables become contaminated. Large amounts of material can be contaminated, preventing them from being recycled. Certain facilities are unable to process other materials. All of this that has happened in the US has led to a fall in the GDP per capita. The United States economy has been adversely affected by the mismanagement of the waste. (As shown in the table fig 1.2 below)

1 Entity	Code	Year	GDP per capita, PPP (constant 2011 international \$)	Total population (Gapminder, HYDE & UN)	Mismanaged waste (% global total)
2 China	CHN	2010	9525.818483	1368811008	2769.66%
3 India	IND	2010	4404.697005	1234280960	188.36%
4 United States	USA	2010	49374.17889	309011008	86.49%
5 Indonesia	IDN	2010	8433.497357	241834000	1010.19%
6 Brazil	BRA	2010	14537.56719	195714000	148.04%
7 Pakistan	PAK	2010	4283.607312	179424992	150.89%
8 Nigeria	NGA	2010	5150.158818	158503008	267.40%
9 Bangladesh	BGD	2010	2442.728888	147575008	247.25%
10 Russia	RUS	2010	23107.78522	143479008	25.36%

Mismanaged waste of the top 10 countries by Total Population (Gapminder, HYDE & UN) fig 1.2.

India and China

India has been one of the fastest developing economies and it is one of the oldest countries. On the other hand, China is a developed economy and one of the largest exporters of several plastic based products. It is very important to note that China is responsible for about 90% of the plastic waste produced by the entire planet. Similarly, it is also responsible for 2769.66% of the mismanaged waste. China has been using techniques that are quite inefficient. For a country like China, using inefficient techniques for recycling waste and facing the same problem has the United States, it is quite strange. After being one of the largest producers of waste it has still not managed to proactively participate in contributing to the wellness of the environment. All of this has resulted in its GDP getting affected due to the large percentage of mismanaged waste. It is pertinent to observe that actions of both the nations have led to a low GDP per capita even after such a high population. It is ironical that how a country with a large population and with all the latest waste disposing techniques can still be one of the ones with the highest percentage of mismanaging the total waste produced. (As shown in the table fig 1.2 above)

Since the year 2010, the total waste produced by these two nations have increased significantly, even though people in India have gained a lot of literacy in respect to personal hygiene but still the nation as a whole has not managed to dispose of the waste properly. One of the few examples of India not being able to manage waste properly could be the large dump of garbage that you see when you are about to enter New Delhi via Haryana, that itself is predominantly one of the examples of how the government has failed to recycle the waste that is produced. And this is just a single



example, you go to any metropolitan city and you will witness a similar kind of dump. India has been trying to improve its image at the international level but has failed to improve its GDP per capita because of the large number of mismanaged wastes.

China on the other hand has been a vocal supporter of clean and green environment but it has failed again in mismanaging 90% of the plastic waste it produces. It has been a tough ride for its citizens as they have been affected by it a lot since the year 2010. With the increasing population day by day, China has repeatedly failed to use proper waste disposal techniques. It has instead started transporting its waste to other countries which shows how it has failed as country. All of this has resulted in its GDP per capita being affected. Had the waste management been proactive and efficient, china would have had a great GDP per capita in spite of the large number of populations.

II. CONCLUSION

To conclude, The GDP per capita in the above data set has been significantly affected by the percentage of the waste mismanaged. Solid waste management is a vital component for sustainable, healthy, and inclusive cities and communities in an era of fast urbanisation and population development. When it comes to urban development, however, it is frequently overlooked. Every year, more than 2 billion tonnes of municipal solid waste are produced around the world. Without immediate action, this figure will nearly triple to 3.4 billion tonnes in the next 30 years. Despite accounting for only 16 percent of the worldwide population, high-income countries produce more than one-third of the world's trash.

Even when plastic waste is collected, many countries lack the infrastructure to treat it, resulting in waste dumping or mismanagement. Data and planning for solid waste are also a part of the solution. It's crucial to know how much and what kind of garbage is produced, as well as where it's generated. This can assist governments in developing more effective waste management strategies and programmes for their respective communities. If nothing is done, we will force ourselves and our children to live in a society that is more wasteful and polluted. The cost to people's lives, livelihoods, and the environment would be far higher than it is now.

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SJIF Scientific Journal Impact Factor
Impact Factor: 8.118



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