

Original Paper

How Improper Recycling of Used Products Impact the Environment in Global South

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Abstract

Recycling is beneficial for society as it can reduce the consumption of nonrenewable materials and help preserve the environment. However, some countries of the Global South seem to be encountering improper recycling, which has damaged the environment. The article studies how the improper recycling of used products impacts the environment in Ghana, India, and other developing countries.

Keywords

improper recycling, environment, global south, climate change

Recycling has been a popular topic and movement these years. More people and more organizations choose to recycle their products. Proper recycling can decrease energy consumption and natural sources and reduce pollution to the environment. Therefore, many countries' governments set some policies to encourage companies to recycle and publish some laws to ask individuals to recycle in their daily lives. For example, German policymakers asked producers to take responsibility for their packaging wastes. Germany has the highest recycling rate globally, about 56.1% (Parker, 2020). However, recycling also takes some burden on humans and the environment. Many developing and underdeveloped countries do not have enough funds and advanced technologies to recycle appropriately, so they usually recycle in the wrong ways. Improper recycling can release pollution into the environment and not benefit the world. Because all countries in Global South are developing and even underdeveloped counties, the inappropriate recycling are more and always causes many environmental problems in Global South.

The south in Global South is not a geographical notion, and it does not mean the countries located in South Hemisphere. Global South is more likely a political and economic concept. Global south primarily refers to the countries which are developing and underdeveloped, which is an alternative way

to define “Third World” (World Population Review, 2022). World Population Review (2022) stated that “These countries are those who tend to have unstable democracy, are in the process of industrializing, and have historically frequently faced colonization by Global North countries (especially by European countries)”. According to *Global South Countries 2022* in World Population Review, many economy-well countries are still in Global South: China, Qatar, and the UAE.

Many people and many countries in the Global South like to burn the discarded products in public, bury the wastes in the landfill and use the wrong machines to recycle materials. These recycling methods are very harmful to the environment and the health of humans. Because of the less economic and social development, workers there are often not educated well, and companies usually do have strict regulations on recycling. If workers use metal recycling machines to recycle plastics, it must decrease the efficiency of the devices and consume more energy (Vogel, 2015). Many fuels, such as oil and natural gas, are unrenewable. So, humans should not recycle inefficiently. The improper use of machines also can cause damage to the equipment (Vogel, 2015). Repairing machines cost a lot of money and need variable energy. Non-standard operations also can put workers in danger because the power of devices sometimes can make people die. Burning the discarded products and burying the used products in landfills can contaminate the soil and water. Water is an important source to sustain the life of humans and keep the sustainability of nature. Soil is also an essential source for humans to grow foods and fruits. The polluted air can cause people to have lung diseases. Therefore, improper recycling can have many negative results in the Global South and worldwide.

There are many improper methods to recycle discarded products in different Global Southern countries. India has to recycle many plastic wastes from the world every year. Agbogbloshie in Ghana is a significant destination for electric waste. Because of the massive population in China, there are many used textile products in China. The environmental conditions in these countries are not good. China, Ghana, and India ranked in the second half of 180 countries in the 2020 Environmental Performance Index. China got the best score in these three countries, only at 120 out of 180 countries. India and Ghana were both in 168th place, and the EPI scores of both countries were 27.6. Denmark got the highest EPI score: 82.5 (EPI, 2020). Therefore, there is a significant difference between the well environmental and badly environmental countries. Improper recycling is a big reason making these countries experience poor ecological conditions.

India is a South Asian country with a large population, and India is also an essential country in the Global South. The high technology and economy have positive development these years. However, the pollutions and living conditions in India are still severe. India needs to recycle many plastic products every year. Unlike in Germany, the recycling method of plastic products in India is improper and dirty. Germany is a large recycling country in the Global North, and the technique for German to recycle plastic products is better and cleaner. There is a low-energy PET plastic recycling process in northern

Germany. Veolia, an environment company, can give plastic bottles a second life, which is likely “cradle to cradle” (Veolia, 2022). Veolia (2022) stated that “One billion bottles a year are recycled for further food use”. Plastic recycling in Germany releases less pollution into the world, and it makes fewer impacts on the environment. The reuse of plastic bottles also can save the raw materials from nature. However, about 79 percent of plastic waste in India gets into the land, water, and ocean, and 12 percent of the plastic waste gets incinerated (Manorama, n.d.). These recycling methods are harmful to the environment.

The large population is a critical reason India cannot recycle well. The education and energy resources are limited, so not every Indian can get an equal opportunity to learn. They lack the knowledge of recycling wastes properly, especially plastic wastes. Most Indian do not know what the results of burning and burying the wastes are. Kaur (2014) stated, “India was an agrarian nation and still major part of our economy is based on agriculture”. Therefore, India has insufficient techniques and funds to develop and use the high technology for recycling plastic wastes. Incinerating and burying plastic wastes are the easiest and cheapest ways for Indians to recycle. The workers do not need to be educated, and the company does not need to buy many devices. However, burning plastic waste in public is a significant source of air pollution (Verma, Vinoda, Papireddy, & Gowda, 2016). The burning process can release many toxic substances into the environment, such as Dioxins, Furans, and Mercury, and these substances are also harmful to the vegetation and humans (Verma, Vinoda, Papireddy, & Gowda, 2016). Verma, Vinoda Papireddy, and Gowda (2016) reported that “burning of plastic wastes increases the risk of heart disease, aggravates respiratory ailments such as asthma and emphysema and cause rashes, nausea or headaches, and damages the nervous system”. Burying the plastic wastes pollutes the soil and ocean, influencing the quality of food and water for humans. Overall, there are many negative influences on Indians to burn and bury the plastic wastes in public.

The Indian government has noticed the importance and impact of improper recycling. In 2016 and 2018, their government published the Plastic Waste Management Rules. In 2021, they announced an amendment about single-use plastics, which recommended some proper ways to recycle plastic products (Manorama, n.d.). However, laws are not always the best way to solve the problems, especially regarding recycling. The government needs to solve the issues from the bottom. Implemented education to Indian people, and making more people know the importance of proper recycling plastics is more efficient.

Agbogbloshie is a city in Ghana, and many media introduced this city as an “e-waste dump”. Between 1960 and 1965, the GDP of Ghana increased by 50 percent because of the national industrialization. Industrialization makes more people leave from rural places to Accra, the large city in Ghana (Lewblank, 2016). The new migrants lived in the slums in Accra, and they started to receive the used e-wastes from the developed countries, such as the USA, Japan, and Europe. Gradually, Agbogbloshie

in Accra became the major destination for electric devices (Lewblank, 2016). Lewblank (2016) reported that “In the years following the first e-waste, the Korle Lagoon, located inside Agbogbloshie, became one of the most polluted bodies of water on the planet, with levels of toxins 100 times the acceptable amount”. The vast number of e-wastes leads the media to name this place “e-waste dump”. The only way for residents in Agbogbloshie to recycle electronic wastes is to burn them. They put the wastes like a mountain in public and burn the rubbish with fire, and then the children can get into the dumps to collect the metals. Many metals from used e-wastes are valuable and reusable. The electric companies can buy the metals from these residents to produce new products and use metals in other ways to make money. However, these children are constantly exposed to these toxic substances and air for six dollars per day (Lewblank, 2016). Yeung (2019) stated that “Burns, back problems, and infected wounds are common ailments among these workers, as well as respiratory problems, chronic nausea, and debilitating headaches—brought on by the hazardous working environment and toxic air pollution”. The health and living conditions in Agbogbloshie are poor and awful, and people can even see acidic gusts of smoke there. The air pollution from Agbogbloshie also spread to other places in Ghana, which can even cause a global health crisis (Yeung, 2019).

With the development of technologies, more people are using electronic devices. Most people choose to throw the electronic wastes directly, and the ships will take the wastes to Agbogbloshie. There are many poverty issues in Ghana, especially for children. 1.2 million households in Ghana cannot supply enough food to children, and cholera also makes many people to experience the sickness (Hamby, 2018). Corruption is a major problem for Ghana’s government, and it can hinder foreigners from investing in Ghana. Most incomes of Ghana are from the sale of cocoa, and there is no other profitable way for Ghana to make money (BMZ, n.d.). Therefore, many adults and children must burn the e-wastes in Agbogbloshie, and this job can help them have food for a living.

The Ghanaian government published some rules to regulate the e-waste in Ghana, which are available from 2016 to 2023. The Ghanaian government issued a law to help the Ghanaian Ministry of Environment to enhance collaboration with other government agencies to regulate the activities of private companies and non-governmental organizations. The government also gave some support for the private companies to recycle appropriately. Exchange and advisory services noticed the problems in Agbogbloshie, and they were trying to transit to a more regulated recycling site for Agbogbloshie (Spitzbart, n.d.). However, 95 percent of recycling activities in Ghana are informal. Therefore, it is difficult for the government to regulate well. The Ghanaian needs to improve the living conditions and make more Ghanaian get education. These are the fundamental and efficient methods, like India and many other countries in Global South. Corruption is a severe element hinder the development of the country and the Ghanaian government needs to solve. The Ghanaian government not only needs to regulate the problems of e-waste recycling, but also the issues of corruption.

China is a large developing country located in East Asia, and it is also an influential entity in Global South and even the world. Because of the Opening and Revolution in the 1980s, China turned from an agricultural country to an industrial nation. The pollution and industrial wastes are much more than before. Although the techniques of recycling wastes are more advanced than in many developing countries, the issue of pollution is still severe in some Chinese regions. Because of the large population, many electronic wastes, plastic wastes, and textile wastes are recycled each year in China. Textile waste is the most apparent problem in the Chinese recycling industry. Bloomberg (2020) reported that “In a country that makes more than 5 billion T-shirts a year, there is a stigma to wearing old or second-hand clothes and millions of tons of garments are discarded every day”. Chinese people have many unwanted and used clothes, and no one wants to sell and buy these clothes. Therefore, most Chinese choose to throw these used clothes to the dump directly, and the rubbish station burns and buries these used clothes after collections. However, throwing is not the best solution for textile waste recycling. Most Chinese people like to buy fast fashion products, such as Uniqlo and Zara. The style and price of these products are cheap and popular, and it reinforces the issues of Chinese textile waste. There is only about 1 percent of used clothes recycled every year (Bloomberg, 2020).

Although most clothes are made of clean materials, such as cotton and fibers, these materials do not have toxic substances to the environment and humans, but clothes can release carbon while producing and recycling. Bloomberg (2020) reported that “The fashion industry accounts for around 10% of global carbon emissions, more than is produced by all flights and maritime shipping combined, according to the Ellen MacArthur Foundation”. Carbon emission is an essential reason for global warming these years. Variable carbon emission increases the impact of the greenhouse effect. The incinerating of textile wastes in China can also boost the greenhouse effect. Rising temperatures and climate change are obvious in China these years, and they increase the health risk of the Chinese. The heatwave exposures for Chinese increased by about 4.51 days compared with the average number from 1986 to 2005, and the heatwave-related deaths increased by 92 percent in China (Cai, Zhang, Ai, Bai, & Bao, 2021). Climate change also can increase the disasters from nature. In Sichuan province, people are threatened by flood, drought, and wildfire exposure in Liaoning and Jilin (Cai, Zhang, Ai, Bai & Bao, 2021). The impacts of recycling in China are not obvious as in India and Ghana, but most people concerned for the effects in the future.

Recycling textile products like clothes cannot make many profits for Chinese companies. The used clothes are also hard to prove health and safety, so organizations and individuals are unwilling to use the second-hand clothes (Bloomberg, 2020). Wearing strangers’ second-hand garments is also a shame to most Chinese, so the market of use clothes is tiny in China. Chinese people are more likely to buy old electronic devices and books. The recycling and garbage sorting regulations are not forcible in China, so it may increase the costs of recycling textile wastes for companies. There are many garbage sorting

bins in Chinese cities, but most people just throw the clothes with other trash, such as kitchen and domestic waste. The lack of knowledge on garbage sorting and recycling probably is also why the Chinese government recycles textile products hard.

The Chinese government has already noticed the problems of textile waste and its negative influences. China is a member of the Paris Climate Agreement, and the goal of the Chinese government is always significant to decrease the greenhouse effect. China has already reduced coal consumption, and China achieved nine of the 15 quantitative targets in 2015 climate commitments (Stalley, 2021). The Chinese government has published some more serious rules to regulate recycling. In Shanghai, the citizens are asked to use garbage sorting bins correctly. The police can give the tickets to people who do not use these bins correctly. Some Chinese companies and organizations also have plans to collect the used and old clothes for people living in poorer countries. The companies and organizations export some high-quality used clothes to some African countries, and the export of used clothing rose from 1 percent in 2010 to 6.4 percent in 2015 (Bloomberg, 2020). Because the education system is mature now, more people know the importance of recycling and donate their old clothes to companies and organizations. Students can study the impacts of pollution and the benefits of recycling correctly in school. The recycling bin of old clothes has become more widespread in each Chinese community.

With the development of the economy, many countries in Global South choose to avoid importing waste from developed countries. China likes to import some wastes from the USA and recycle these wastes to satisfy the demands of the industry before. However, China banned the import of plastic waste from other countries in 2017, forcing many developed countries to find new places to export waste (Wen, Xie, Chen, & Dinga, 2021). The living conditions and environments are not good enough in China these years, and importing waste is essential for the harmful environment. China already has many wastes from local people, and most waste ends up in landfills. The volume of solid waste imported from other countries was 45 million tons before the ban, said the Chinese government minister (Rapoza, 2020). These solid wastes are burdening the Chinese government and citizens, and they can contaminate the water and soil, and the landfill's capacity has its maximum. Therefore, the Chinese government needed to ban waste imported from other countries. The economic development helped China no longer need to import waste for money. The main goal of the Chinese government is to keep good living conditions and a proper economy increasing, so importing waste is not a good choice for China now.

Malaysia is a developing country located in Southeast Asia, and most Malaysian origins are from China. Malaysia has a similar culture and norms to China, and it became a popular destination for waste after the Chinese government banned waste import. However, the Malaysian government is trying to avoid importing some unofficial wastes from developed countries. Malaysia stated that they had already sent 267 containers of illegal plastic waste back to their original countries since 2019 (Reuters, 2019).

China's ban is a direct reason for countries like Malaysia to stop importing waste from developed countries (Lee, 2019). The economy of Malaysia also has a good score these years, and the Malaysian government focuses on protecting the local environment more. The government wants to have sustainable development, and the living condition should not be destroyed in Malaysia (Lee, 2019). However, Malaysia permitted some waste imports from the USA on March 14, 2021. The Malaysian environment ministry stated that these wastes were clean and licensed. Therefore, these wastes do not need to be shipped back. Chen, Nath, Chong, Foo, Gibbins, and Lechner (2021) stated that "In Asia, the percentage of plastic in solid wastes generated in Malaysia is second only to the Philippines. Significantly, by 2018, Malaysia produces more than 0.94 million tons of mismanaged plastic wastes per year". The environmental issues are severe, and the growth of the population is fast these years in Malaysia, so the Malaysian government needs to stop waste import thoroughly.

Not only China and Malaysia tried to ban the wastes imported from the countries in Global North. Rapoza (2020) indicated that "Reports last month of returned British recyclables from Sri Lanka, Thailand, the Philippines, Malaysia, and Turkey—to name a few—show that these countries want out of the garbaged goods trade". All these countries are from Global South, and the emerging market nations are trying to send the trash back to the original countries. The government of Sri Lanka companies that some containers from the UK are unrecyclable and exceed the maximum amounts, so they returned 21 containers in October (Rapoza, 2020). In Vietnam, the government stopped issuing more licenses to import waste and regulated the illegal waste shipments. The debris caused many Vietnamese ports to be crowded, and about 6000 containers of waste need to be handled (Reuters, 2018). Like China, Vietnam imported wastes to make raw materials for the paper, plastic, and steel industries. However, the Vietnamese government also realized the waste only benefited the waste processors but not the environment and every Vietnamese (Reuters, 2018). Because the costs of factories increased in China, more companies chose to move the factories to Vietnam. The factories not only take the money to Vietnam but also take the pollution to this developing country. One foreign steel plant contaminated Vietnamese coastal water, and many Vietnamese citizens were angry. More developing countries in Global South realized the importance of the environment, so they were trying to increase the efficiency of recycling old products and stop importing wastes from developed countries.

The improper recycling of wastes can negatively influence the country, especially in the environmental industry. Burning the wastes can release toxic substances into the air and impact the health of humans, and most workers must suffer lung disease because of exposure to toxic air. Burying the wastes in landfills can contaminate the soil and water. Soils and water are important sources for humans to have healthy and clean food. If the soils and water are contaminated thoroughly, the food will be dirty. These recycling methods also increase the consumption of unrenewable metals because some metals from

e-wastes can be used many times. The countries in Global South need to suffer these problems more than the developed countries in Global North. Many developing countries must import waste to make raw materials and earn money from the waste. Although some economy-well countries, such as China and Malaysia, have tried to increase the efficiency of recycling products and have banned the wastes imported from developed countries. The efforts of minor countries are strenuous to improve the environment and living conditions for the whole Global Southern world. Educated workers and efficient governments are essential factors to keeping sustainable and making the environment suitable. In a word, improper recycling of waste is a global issue, and the countries from both Global North and Global South need to take responsibility for waste.

References

- Bloomberg. (2020, October 18). *China's Next Problem Is Recycling 26 Million Tons of Discarded Clothes*. Bloomberg. Retrieved from <https://www.bloomberg.com/news/features/2020-10-18/china-s-big-fashion-problem-is-recycling-26-million-tons-of-used-clothes>
- BMZ. (n.d.). *Good prospects and big challenges*. Federal Ministry for Economic Cooperation and Development. Retrieved from <https://www.bmz.de/en/countries/ghana/economic-situation-38968>
- Cai, W., Zhang, C., Zhang, S., Ai, S., Bai, Y., Bao, J., Chen, B., Chang, N., Chen, H., Cheng, L., Cui, X., Dai, H., Danna, B., Di, Q., Dong, W., Dong, W., Dou, D., Fan, W., Fan, X., ... Gong, P. (2021). The 2021 China Report of the Lancet countdown on Health and Climate Change: Seizing the window of opportunity. *The Lancet Public Health*, 6(12). [https://doi.org/10.1016/s2468-2667\(21\)00209-7](https://doi.org/10.1016/s2468-2667(21)00209-7)
- Chen, H. L., Nath, T. K., Chong, S. et al. (2021). The plastic waste problem in Malaysia: Management, recycling and disposal of local and global plastic waste. *SN Appl. Sci.*, 3, 437. <https://doi.org/10.1007/s42452-021-04234-y>
- Environmental performance index. (2020). *2020 EPI Results*. EPI. Retrieved from <https://epi.yale.edu/epi-results/2020/component/epi>
- Hamby, M. K. (2018, August 22). *Top 10 facts of resiliency about poverty in Ghana*. The Borgen Project. Retrieved from <https://borgenproject.org/top-10-facts-of-resiliency-about-poverty-in-ghana/#:~:text=Overcrowding%20and%20homelessness%20are%20some,of%20inside%20toilets%20in%20homes>
- Kaur, R. (2014, February 24). *Is stopping India to become a developed country?—India*. My India. Retrieved from <https://www.mapsofindia.com/my-india/india/what-is-stopping-india-to-become-a-developed-cou>

- entry#:~:text=India%20was%20an%20agrarian%20nation,irrigation%20that%20is%20highly%20unpredictable
- Lee, Y. N. (2019, January 25). *Malaysia, following in China's footsteps, bans imports of plastic waste*. CNBC. Retrieved from <https://www.cnbc.com/2019/01/25/climate-change-malaysia-following-china-bans-plastic-waste-imports.html>
- Lewblank. (2016, May 16). *Agbogbloshie*. Atlas Obscura. Retrieved from <https://www.atlasobscura.com/places/agbogbloshie>
- Manorama. (19AD). *Plastic Waste Management in India*. Manorama Yearbook. Retrieved from <https://www.manoramayearbook.in/india/special-articles/2021/10/19/plastic-waste-management-in-india.html>
- Parker, T. (2020, November 13). *From Austria to Wales: The Five best recycling countries in the world*. NS Packaging. Retrieved from <https://www.nspackaging.com/analysis/best-recycling-countries/>
- Rapoza, K. (2020, November 29). *China doesn't want the world's trash anymore. including "recyclable" goods*. Forbes. Retrieved from <https://www.forbes.com/sites/kenrapoza/2020/11/29/china-doesnt-want-the-worlds-trash-anymore-including-recyclable-goods/?sh=26bf6cca7290>
- Reuters. (2018, July 26). *Vietnam to limit waste imports as shipments build up at ports*. Reuters. Retrieved from <https://www.reuters.com/article/us-vietnam-waste/vietnam-to-limit-waste-imports-as-shipments-build-up-at-ports-idUSKBN1KG0KL>
- Reuters. (2021, April 6). *Malaysia sends back over 300 containers of illicit plastic waste*. Reuters. Retrieved from <https://www.reuters.com/article/us-malaysia-environment-plastic/malaysia-sends-back-over-300-containers-of-illicit-plastic-waste-idUSKBN2BT1YT>
- Reuters. (2021, March 31). *Malaysia permits import of US plastic waste after it passes new UN Treaty Test*. New York Post. Retrieved from <https://nypost.com/2021/03/31/malaysia-permits-import-of-u-s-plastic-waste-shipment/>
- Spitzbart, M. (n.d.). *Environmentally sound disposal and recycling of e-waste in Ghana*. GIZ. Retrieved from <https://www.giz.de/en/worldwide/63039.html#:~:text=In%20Ghana%2C%2095%20per%20cent,a re%20open%20to%20unskilled%20workers>

- Stalley, P. (2021, November 7). *China's climate change record: Beijing tends to meet its targets, but sets the bar too low*. The Conversation. Retrieved from <https://theconversation.com/chinas-climate-change-record-beijing-tends-to-meet-its-targets-but-set-the-bar-too-low-172138>
- UP TO US. (n.d.). *Germany, a plastic recycling hub in Europe*. UP TO US. Retrieved from <https://www.up-to-us.veolia.com/en/recycling/germany-plastic-recycling-hub-europe#:~:text=Thanks%20to%20a%20low%20energy,recycled%20for%20further%20food%20use>
- Verma, R., Vinoda, K. S., Papireddy, M., & Gowda, A. N. S. (2016). Toxic pollutants from plastic waste- A Review. *Procedia Environmental Sciences*, 35, 701-708. <https://doi.org/10.1016/j.proenv.2016.07.069>
- Vogel. (2019, July 15). *What Happens When The Wrong Things Go Into Recycling?* Vogel. Retrieved from <https://www.vogeldisposal.com/vogel-disposal-news/what-happens-when-the-wrong-things-go-into-recycling-4022>
- Wen, Z., Xie, Y., Chen, M. et al. (2021). China's plastic import ban increases prospects of environmental impact mitigation of plastic waste trade flow worldwide. *Nat Commun*, 12, 425. <https://doi.org/10.1038/s41467-020-20741-9>
- World Population Review. (2022). *Global South Countries 2022*. World Population Review. Retrieved from <https://worldpopulationreview.com/country-rankings/global-south-countries>
- Yeung, P. (2019, May 29). *The Toxic Effects of Electronic Waste in Accra, Ghana*. Bloomberg. Retrieved from <https://www.bloomberg.com/news/articles/2019-05-29/the-rich-world-s-electronic-waste-dumped-in-ghana>