Why is plastic pollution a big problem for humanity?

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Ha Noi, January 18th, 2022

Preprint DOI: 10.31219/osf.io/7q3x5

Humanity has been facing a great deal of challenges. From climate change to water pollution, energy security, air pollution (Khuc, Q.V., 2020; Van Khuc et al., 2020), deforestation, and forest degradation (Khuc et al., 2018), poverty, disease. In this article, we present another big problem that is plastic pollution (Peng et al., 2021)

As we all know that plastic utensils and items are known for many benefits, leading to the situation of production in such large quantities that we today face a serious problem - plastic waste especially disposable plastic products. Plastic waste is ubiquitous and reported from the North Pole to the South Pole, from the surface to the sediment. However, plastic packaging for food, beverage, and tobacco items is often used only once contributing to 61% of global beach waste (Brooks et al., 2018). Plastic packaging and single-use items enter the waste stream shortly after use, contributing to the cumulative

Figure 1: Practice as Europe introduces ambitious recycling targets.

Photo: europarl.europa.eu

accumulation of more than 6.3 billion tons of plastic waste generated worldwide, only 9% of plastic waste has been recycled globally, with the majority of global plastic waste either being landfilled or eventually polluting the environment (80%), resulting in an estimated 4 million to 12 million tons of plastic discharged into the ocean every year. (Jambeck et al., 2015)

From 2019 until now, all of humanity has been and will have to struggle with a global pandemic - COVID-19. The World Health Organization has requested a 40% increase in disposable PPE production (WHO, 2020). If the global population adheres to the standard of one disposable mask per day after the lockdown ends, the pandemic could lead to monthly global consumption and waste of 129 billion masks and 65 billion gloves. Hospitals in Wuhan, the epicenter of the COVID-19 outbreak, produced more than 240 tons of single-use medical waste (such as disposable masks, gloves, and gowns) per day at their peak. of the pandemic, six times the daily average before the pandemic. If the increase observed in Wuhan holds elsewhere, the US could generate an entire year of medical waste in 2 months (Yudell

et al., 2020). In addition, COVID-19 makes online shopping more popular than ever. The study also reports an increase in online shopping from 12-57% in countries like Vietnam, India, China, Italy, and Germany during the same period. A market research firm, Rakuten Intelligence reported more than 50% growth compared to the 20% year-on-year growth in online shopping in the US from March to mid-April (Rattner, 2020).

The basic and most serious cause lies in the lack of good human consciousness, which is reflected in very common actions today: Abuse of using nylon bags, disposable plastic items 1. times, especially in business because of its low cost and convenience, regardless of the non-degradable properties of plastic. Disposing of garbage indiscriminately, not in the right place, without sorting waste: The littering into the sewers also clogs pipes and floods the streets. People do not pay attention to the classification of waste causing many difficulties.

From agricultural activities: waste from agricultural activities carries many toxic chemicals, polluting water sources, many farmers also "handy" to throw boats, ponds, rivers, ditches, etc. Medical activities: Waste from medical activities have been used if not handled properly. Especially, during the recent covid epidemic, the amount of medical waste is great pressure for Vietnam in particular and the world in general, because of a large amount of waste such as protective clothing, masks, medical equipment. used once for the patient,... If not handled carefully, waste not only affects the environment but also can be a risk of

spreading the disease or causing disease outbreaks in some localities. Tourism activities: the larger the number of tourists, the more waste there is, putting great pressure on the collection and treatment of waste. There have been many countries forced to close some tourist sites seriously affected by tourists' waste such as Thailand, the Philippines, etc. The waste treatment process still has many gaps: Many developing countries, including Vietnam, have outdated waste treatment processes, poor performance, not treated, sorted, and reused thoroughly. Indifference comes from local authorities: Many localities have not properly implemented regulations, decrees, and laws on waste treatment, and have not strictly complied with administrative penalties for acts Indiscriminately disposing of waste in the wrong place, not close enough in the management of the waste treatment system. Indirect causes come from the education industry: Education forgets to foster students with necessary skills and awareness in general and environmental protection in general. The sorting of waste, or throwing it in the right place, has not been strictly followed, maybe it is just a few boring lectures, not invested to attract students and help them understand the importance of waste management. waste reduction.

*Figure 2: Agricultural waste pollutes the water environment
Photo: quochoi.vn*

Figure 3: Giant trash landed on Boracay Island, Philippines.

Photo: AFP

For human health: They are discharged into the environment or buried, they will be decomposed into plastic pieces of different sizes such as micro, nano, pico... mixed into the soil, environment, and air, making marine species, Human consumption is in danger of health. Well-treated plastic waste produces toxic gases: dioxin gas, furan... will greatly affect the endocrine glands, reduce immunity, even cause cancer. In plastic bags can be mixed with sulfur, pure kerosene, burned with steam to form sulfuric acid, which causes acid rain, dangerous to human health. Many low-quality plastic products are produced in large quantities, During use, it

Figure 4: Lungs at risk for cancer

Photo: www.vinmec.com

will produce BPA - this is a toxic substance and causes many dangerous diseases in humans such as infertility, diabetes, cancer...(Tâp, 2020b) For the environment: The existence of plastic waste in the environment will affect the soil and water, because the plastic bags mixed in the soil will change the physical properties of the soil, causing erosion, making the soil unable to retain water, nutrients, etc. Prevents oxygen from passing through the soil, affecting plant growth. For the creatures: Plastic waste when dumped into the sea will destroy or degrade biodiversity, kill marine life if they are unfortunately caught in or eaten, reduce the ability of organisms to absorb food. When marine creatures ingest additives in plastic and negatively affects their endocrine systems and hormone regulation in their bodies. These marine organisms can either die from the plastic or become deprived of food because the plastic kills the creatures in their food chain. For marine creatures, when caught in discarded fishing nets or other plastic waste, they will not be able to escape, so they will weaken and die (Tâp, 2020a). Impact on human tourism activities: When the environment is polluted, tourists also have a bad impression of the tourist destination, affecting the tourism income of the locality, the country, making the tourist area unable to recover and becoming a tourist destination. "dead" tourist destination (Tâp, 2020a). Impact on human fishing activities: The number of organisms that die from plastic waste is high, the production of seafood catches will decrease. Moreover, plastic waste blocking the water intake or getting caught in fishing nets, caught in propellers, etc. can cause equipment damage.

The Prime Minister of Vietnam has directed offices and agencies to stop using single-use plastic products by 2020. In the process of developing a draft Directive to restrict the use of plastic products at agencies, the Ministry has assessed the abuse of plastic products. The Prime Minister has directed ministers, heads of ministerial-level agencies, Governmental agencies, People's Committees of provinces and cities to issue directives or plans to treat plastic waste from October. According to the plan, the whole country sets a goal to not use single-use plastic products by 2025 (Thu Thủy, 2020).

The Government of Canada has taken the following steps to reduce plastic pollution in partnership: ban harmful single-use plastics as early as 2021 under the Canadian Environmental Protection Act, ensure that the company that manufactures plastic products or sells items with plastic packaging is responsible for managing their collection and recycling of plastic waste, working with industry to prevent and recover ghost fishing gear, invest in new Canadian technologies, Mobilize international support to tackle plastic pollution, reduce plastic waste from federal operations (Mont-Saint-Hilaire, 2019)

In June 2019, Japan announced a plan to reduce RTN. The Japanese government aims to use effectively 100% plastic bottles by placing dedicated recycling bins next to vending machines. In addition,

Japanese authorities have increased patrols to prevent illegal dumping. Accordingly, the Government will install special bins for collecting RTN nationwide; promote activities to pick up trash in rivers and seas; development of biodegradable packaging materials (Nguyễn Việt Cường, 2020)... To address the global threats from RTN and plastic bags, in 2018, the United Nations launched the theme "Tackling plastic and plastic pollution" to propagate, mobilize, and call on everyone to change the habit of using single-use plastic products, reduce environmental pollution and protect human health.

In short, plastic pollution is an urgent global problem that threatens the entire ecosystem, causing climate change and many other consequences that humans have to bear. Therefore, to tackle this problem, one could use the 3D mechanism and cultural tower to find innovative solutions (Vuong, Q. H., 2022; Vuong, 2021; Vuong & Napier, 2014). As such, one must focus on using the solution ecosystem including information and communications, science and technology, environmental culture transformation, collaborations, and strong enforcement of environmental regulations (laws) (Nguyen & Vuong, 2021; Vuong, Q. H., 2022; Vuong, 2018). It is noted that environmental culture must be one of the most important measures (solutions). Citizens need to uphold their sense of responsibility, consciously change living habits, say no to single-use plastic products. Protecting the environment, limiting plastic waste is protecting ourselves.

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