The 'Crisis' of Plastic Waste in Vietnam is Real

Thanh Hai Truong, Hai Nam Vu

***Abstract*—The issue of "white pollution" at popular tourist destinations of environmental pollution is rising at an alarming rate. According to statistics, Vietnam currently ranks fourth in the world in volume of plastic waste, with approximately 730,000 tons of plastic waste going to the sea every year. Vietnam is also known as a country with twice the amount of plastic waste compared to low-income countries. Plastic waste in the ocean will destroy the natural environment, negatively affecting the lives of aquatic products. On land, plastic waste is abundant in many places and has serious impacts on human health and life. Analysts point out that, if the pace of use of plastic products continues to increase, there will be an additional 33 billion tons of plastic produced by 2050 and thus more than 13 billion tons of plastic waste will be buried. backfill into landfills or into the ocean. Meanwhile, the recycling of Vietnam's plastic waste, has not been developed. The rate of waste sorting at the source is very low, most types of waste are put together and collected by waste trucks. Plastic recycling technology used in Vietnam's major cities is outdated, low in efficiency, high in costs and polluting the environment. The paper presents the current situation of plastic waste in Vietnam as of June 2019. The authors focus on highlighting the serious "white pollution" in Vietnam, a country with a very long coastline. But the coast is really threatened by plastic waste. This is really a wake-up call to the authorities about the promulgation of policies and the people on the morality of survival with nature.**

***Index Terms*—White Pollution, Plastic Waste, Vietnam, Environmental Pollution.**

I. Introduction

A new ranking has just named "Vietnam": Vietnam is one of the top 5 countries responsible for about 13 million tons of plastic released into the ocean / year. And the abuse of disposable plastic is growing everywhere [1]. Another noteworthy figure from the United Nations Food and Agriculture Organization (FAO) came out at the mid-2019 conference. According to FAO, an estimated 1.8 million tons of plastic waste is generated in Vietnam per year, while plastic consumption is estimated to increase 16-18% / year [2].

In some coastal areas in Vietnam, each net draws up to 1 in 3 fish to plastic waste. Each year Vietnam releases 0.28 million to 0.73 million tons of plastic waste (accounting for 6% of the world total), ranking the fourth in the world - the representative of the United Nations Environment Program publishes this information at International workshop on consultative development of national action plan for plastic waste management in the morning of December [3]. The top countries are China, Indonesia and Philippines respectively.

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Fig. 1. In each trawl, up to 3 out of 3 fish have plastic waste.

Only a small portion of the aforementioned plastic waste is collected, recycled, and the remaining is buried with garbage or disposed of everywhere. The sea is one of the final destinations of nylon bags [4].

Once released into the ocean, it takes more than 400 years for plastic waste to decompose. According to statistics, every minute goes by more than 1,000 nylon bags are consumed [5]. Restricting, approaching no plastic waste is an urgent measure to protect the ocean and also the future of the next generation.

In fact, almost everyone knows that using plastic products such as disposable cups, plastic bags, plastic straws, etc. is harmful to the environment, takes many years to decompose, but this is used increasing [6].

According to experts, garbage is only collected 70% in cities and only 40% in rural areas [7]. Landfills are overloaded, and in the context of the plastic waste crisis, the lack of landfills is an alarming situation in Vietnam [8].

For example, the waste treatment areas in Da Nang, Hue, and Hanoi are overloaded; and two landfill sites in Ha Long City are closed due to pollution[9]. For Da Nang, the urban area of over one million people catches from 900 to 1,000 tons of daily waste. It is expected that by 2025, the amount of waste will increase to about 1,800 tons. As for Hanoi, according to the report of the Department of Industry and Trade, every day, the volume of domestic waste in the city is from 5,500 to 6,000 tons, of which plastic waste accounts for 8-10% (equivalent to 60 tons) [10].

II. Situation of "White Pollution" in Vietnam

According to the United Nations Environment Program Report 2018: Every year the world uses 500 billion plastic bags and about 40% of the plastic produced for packaging [11].

In Vietnam, according to a report of the Plastic Association, in 2015, Vietnam produced and consumed about 5 million tons of plastic, of which, about 80% of imported materials used from scrap plastic. Plastic

consumption index per capita in Vietnam increased rapidly from 3.8kg / year / person in 1990, to 41kg / year / person in 2015 [12].

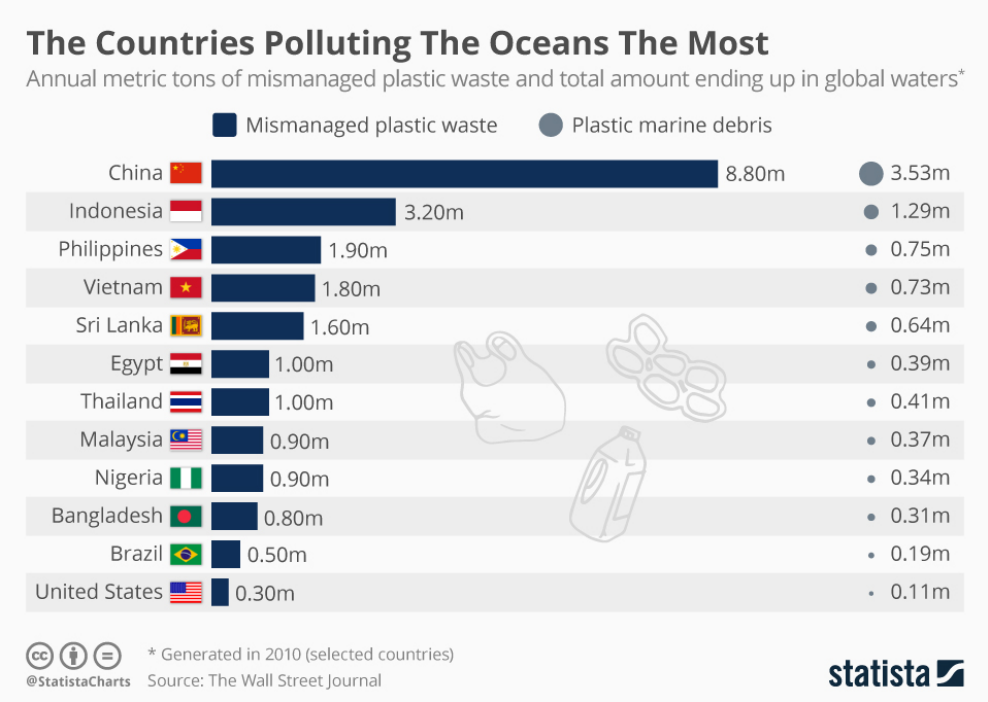

Fig. 2. The countries polluting the oceans the most with plastic waste

The import of plastic scrap has been gradually "controlled," from 2016-2018, the Ministry of Natural Resources and Environment issues a Certificate of eligibility for importing plastic scrap for 37 enterprises to use as raw production materials. a total of 208 businesses were granted with 34 direct import units and 3 entrusted import units. However, the amount of imported plastic scrap has increased, in 2016 was 18,548 tons, 90,839 tons in 2017 and 175,000 tons in the first 9 months of 2018 [13].

According to the Ministry of Natural Resources and Environment, Hanoi emits 4,000-5,000 tons of garbage every day, of which plastic waste accounts for 7-8%, only the two big cities of Hanoi and Ho Chi Minh City alone, releasing about 80 tons of plastic and plastic bags / day. Notably, the amount of plastic waste and plastic bags nationwide accounts for about 8-12% in domestic solid waste[14]. If an average of about 10% of plastic waste and plastic bags are not fully reused but completely discarded, the amount of plastic waste and plastic bags is approximately 2.5 million tons / year, which is a burden to the environment, even leading to the "white pollution" disaster [15].

Vietnam's plastic industry is divided into main groups including packaging plastics, household plastics, building materials, and high-tech plastics. The country now has about 2,000 plastic businesses, of which 450 are packaging manufacturers. Scrap plastic generated from manufacturing facilities is mostly collected and sold to recycling facilities [16].

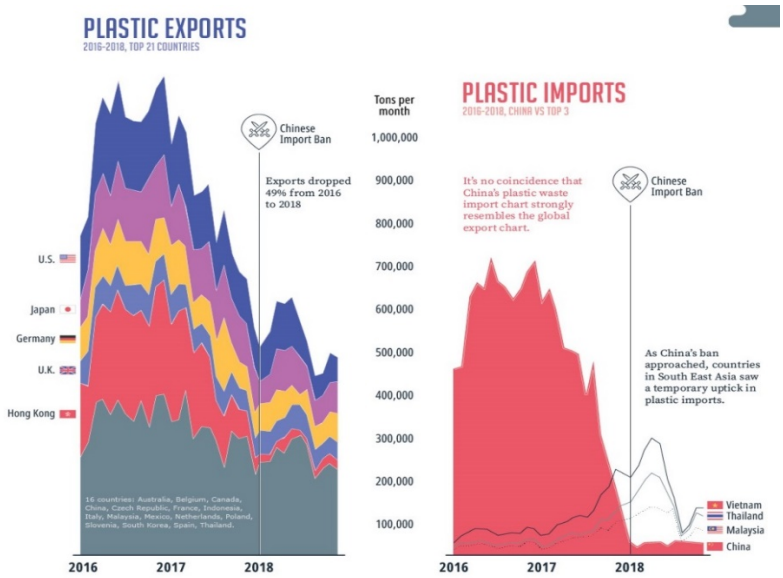

Fig. 4. Diagram of top countries that import and export plastic waste [17]

III. THE CHALLENGES OF WHITE POLLUTION

Today, the production and consumption of plastic products and plastic bags have become popular in people's daily lives. However, due to the rate of collection, transportation and solid waste (CTR) activities (including plastic waste and plastic bags) in Vietnam has not reached the target. This is a direct cause of environmental pollution caused by plastic waste and plastic bags, which has continued to increase over time [18].

The scientific-technological revolution of the mid-20th century brought many valuable new products to mankind, including plastic [19]. Plastics have quickly come to life in every field. However, overuse and the incompatibility of collection, recycling and reuse have caused plastic waste to spread in the environment, causing "white pollution". Scientists say plastic waste can persist for a long time in an environment that seriously affects soil and water. For example, when plastic bags are used as packaging, even if collected and sent to landfill, the plastic bags and the soil still exist for hundreds of years, causing damage to the soil, affecting plant growth. Plastic bags also clog drains, ditches, canals and ditches, causing sewage stagnation and flooding to produce many pathogenic bacteria for humans. When burning them, if there is no good management of toxic emissions, they will cause serious environmental pollution [20].

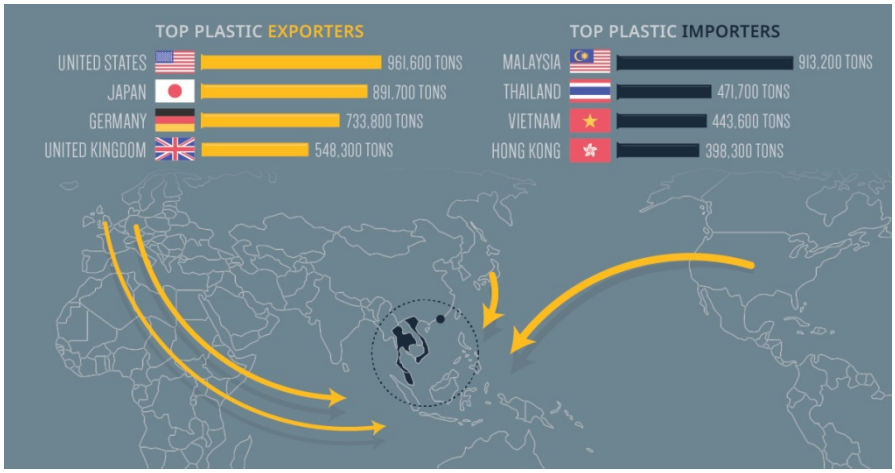

Fig. 3. Map of top plastic exporters and importers [21]

Plastic waste generated from daily-life and consumption activities, not yet classified at source; Plastic waste with recyclable value is collected spontaneously in the household scale, garbage collectors and free scavengers. Plastic waste from daily life is collected from many places such as households, supermarkets, landfills .... Plastic waste without or having low recycling value is plastic bags, foam boxes of all kinds, plastic straws are discharged into the environment, especially, currently the use of plastic bags is usually a kind of ultra-thin, hard-wearing bags [22]. Destroy and discard after one use.

As of May 2018, there are 43 products of 38 companies that have been certified by the Ministry of Natural Resources and Environment as environmentally friendly plastic bags such as Tan Chi Thanh biodegradable plastic bags (Long An), bags biodegradable AAA of An Phat Plastic and Green Environment Joint Stock Company (Hai Duong), ALTA biodegradable plastic bags of Tan Binh Cultural Joint Stock Company (Ho Chi Minh City) [23].

According to experts, it takes hundreds, even thousands of years, the waste from plastic and plastic to decompose. Plastic waste when incinerated will create toxic gas, lasting in the environment, directly affecting human health.

Meanwhile, according to the United Nations report, each year the amount of plastic waste generated is enough to surround the earth 4 times. 1,000 plastic bags are consumed every minute, but only 27% of these are processed and recycled [24]. Plastic waste is very much on the bottom of the ocean and will become a food poison to poison marine creatures.

IV. SOME MACRO SOLUTIONS TO THE PROBLEM OF PLASTIC WASTE

Vietnam has policies to strengthen control of environmental pollution due to the use of hard-biodegradable plastic bags in daily life, integrated management of solid waste. In addition, the Ministry of Natural Resources and Environment in collaboration with ministries, sectors and localities organize workshops to popularize and propagate the harmful effects of the one-time use of persistent plastic bags, encourage the community to strengthen recycling. use plastic bags, use more friendly products like biodegradable plastic bags.

The Ministry of Natural Resources and Environment has carried out a number of scientific research projects such as "Researching theoretical basis and international experience on plastic waste control at sea" "Study on micro waste management plastic, "" Study and propose solutions to manage and control marine plastic waste, especially in countries with similar conditions to Vietnam. "

The Ministry of Science and Technology shall coordinate with the Ministry of Industry and Trade in carrying out the programs "Application research and development of new material technologies," "Technology innovation till 2020," ... to include the contents of the Project. control of environmental pollution caused by plastic bags into the Science and Technology program on environmental protection [25]. Local authorities have issued decisions or directives to strengthen the management and use and disposal of persistent plastic bags, and even stop licensing

investment for businesses that produce indestructible plastic bags. Many supermarkets and commercial centers in special and type I cities such as Big C, Maxi Mart, Vinmart, Coopmart ... have used environmentally friendly plastic bags instead of difficult to biodegradable plastic bags.

Emphasizing on solutions, Master Nguyen Thuong Hien, Director of Department of Solid Waste Management, General Department of Environment, Ministry of Natural Resources and Environment said to the effective management and implementation agency of Decision No. 491. / QD-TTg dated May 7, 2018 of the Prime Minister approving the adjustment of the National Strategy on integrated management of solid waste by 2025, vision to 2050 with specific targets for solid waste urban activities.

All special and grade 1 municipalities have solid waste recycling facilities suitable for household classification; The remaining 85% of cities have solid waste recycling facilities suitable for household sorting; increase recycling, reuse, and treatment associated with energy recovery[26]; using 100% environmentally friendly plastic bags to replace indestructible plastic bags at trade centers and supermarkets.

The Ministry of Natural Resources and Environment reviews and amends the Prime Minister's Decision 73/2014 / QD-TTg on the list of scraps allowed to be imported in the direction of allowing only the import of high-recycling plastics; guide ministries, branches, localities and organizations and individuals to strictly implement waste and scrap management, including requirements for classification of recycled plastic waste from daily-life and solid waste of industry; Waste must be managed from generation to collection, transportation and disposal [27].

The Ministry continues to implement the Prime Minister's Decision No. 582 / QD-TTg approving the Scheme on strengthening environmental pollution control due to persistent nylon bags in daily life by 2020, in which identifying task groups of services, synchronous solutions for the economy and society as well as the treatment of environmental pollution with the goal "In 2020, to reduce 65% of the volume of persistent plastic bags used in supermarkets and trade centers compared to the year. 2010".

State management agencies shall work out appropriate policies, strategies and planning to bring small scattered dispersed plastic recycling facilities with simple technology into concentrated industrial parks and upgrade treatment technologies. suitable recycling and recycling; encourage the application of new technology in treating and recycling plastic waste; establish concentrated plastic recycling industrial zones; limit and proceed to end the import, production and supply of indestructible nylon bags from 2026 at commercial centers and supermarkets for daily-life purposes; further promoting the collection of environmental protection taxes for persistent plastic bags; enhance propaganda and advocacy to raise public awareness about plastic and plastic waste management [28].

Enterprises strictly abide by the environmental protection regulations in the production process of their products and commit to register for recognizing environmentally friendly plastic bags; coordinating with management agencies and specialized agencies in propagating and disseminating accurately about technical characteristics as well as types of environmentally friendly products so that communities and consumers have a proper understanding of types product picture.

V. Conclusion

Plastic and plastic products have been polluting the environment, leaving unpredictable consequences for human health and plant and animal species for the world, including Vietnam.

Most items for daily life of people are made of plastic, from televisions, refrigerators to spoons, drinking glasses, straws ... Even high-class, sophisticated products robots, microchips, etc. all have plastic. The reason this material is widely used is because of its low cost and durability; Has physical properties such as electrical insulation, thermal insulation, moisture resistance, toughness, durability and ease of processing. The value that it brings is a huge utility but at the same time contains countless environmental hazards, so much so that the whole world is raising a wake-up call about the fear of being called "plastic waste".

Not only humans, the ecosystem on Earth is also seriously threatened. Images of animals dying from plastic are no stranger to humans. Whale bodies washed ashore with tons of plastic in their bellies; fish and birds die from eating the wrong plastic ... Plastic rubbish is becoming a poison to creatures both on land and underwater.

To overcome the danger of causing environmental pollution due to plastic bags, over the past time, Vietnam has implemented many practical activities, spreading widely the message of solving plastic and nylon pollution, in order to call the community together. change consumer habits and discard plastic waste. Specifically controlling the collection, transportation and disposal of waste and garbage; concentrating resources to thoroughly solve the environmental pollution issues from waste and rubbish, which are directly affecting people's lives and livelihoods; encourage the organization of construction commencement, construction and handover of environmental protection facilities to serve the community's interests such as wastewater treatment facilities, urban and rural solid wastes; planting green trees to block sand, prevent erosion and prevent saline intrusion; implementation of environmental criteria in new rural construction; support people to adapt to climate change.

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