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Current Situation of Water pollution in Vietnam and Some Recommendations

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Abstract. The problem of environmental pollution not only directly affects the health and life of people but also affects the offspring and offspring. Over the years, the legal system of environmental protection and environmental management system has been increasingly strengthened, but many aspects still have not met the requirements of reality. Environmental pollution in general and water pollution in particular are becoming more and more serious. The paper addresses the current situation of water pollution in Vietnam based on relevant journal documents. A number of solutions have also been proposed to contribute to making our earth a more livable place.

Keywords: environment, solutions, sustainable development, water pollution.

1. Introduction

Not only Vietnam, many countries around the world are facing big environmental issues. In parallel with air pollution and emissions, when water resources need to be protected and preserved in countries in Europe and America and especially in Asia, where economies are growing quite fast. Contaminated wastewater has many potential dangers, which not only change the quality of life of people but also participate in destroying the habitats of many species in the world. Therefore, wastewater treatment is a top task that many governments have stepped up their management and control [1].

2. Status of water pollution and handling measures of some countries

With its large area and dense population, China always leads in the world market in fields such as economy - society, politics, culture and education. However, this country is facing quite serious water pollution [1]. Developing countries such as Indonesia and the Philippines are living in a shortage of clean water, in parallel with the indiscriminate littering that often causes pollution to not improve and become more complicated (Fig 1).



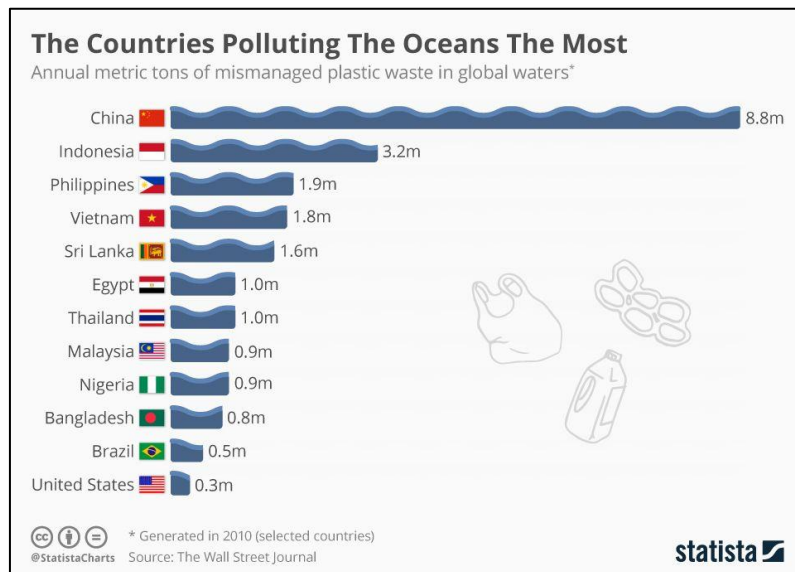


Figure 1. The countries polluting the oceans the most (Source: The Wall Street Journal)

Meanwhile, Japan is a country, despite having to deal with natural disasters, but they apply waste treatment and water treatment technologies very effectively. Although Singapore is a small island nation, they always considers water as a valuable resource that needs to be protected and economically used, so this country has always been a leader in the field of public health protection, especially the top concern for environmental issues. Singapore built a system of 40 canals with a total length of 1,000 km and a network of 8,000 km long sewer pipes, contributing to bringing the country out of flooding, providing many health solutions.

3. Current situation of Vietnam's environment

Although great efforts have made in implementing environmental protection policies and laws, environmental pollution, especially water pollution, has been becoming increasingly serious in Vietnam [2]. Water sources in some areas are polluted, especially in urban areas and surrounding industrial areas. In river basins, water quality pollution and degradation are concentrated in the middle and downstream areas (Fig 2).



Figure 2. Pollution of water sources by indiscriminate littering

Regarding the air environment, at traffic points, constructions of buildings, air pollution is showing signs of increase, especially in big cities. In Ho Chi Minh City, the concentration of pollutants in the air along the roads and PM10 (floating dust) increased by 1.07 times. In Hanoi, if there is no solution, the concentration of dust emission can reach 200mg / m³ per year by 2020, 10 times higher than the recommendations of the World Health Organization.

Along with air pollution, water pollution is becoming alarming [3]. Especially in recent years, due to the development of Vietnam's economy towards industrialization and modernization; As more cities and towns are formed, pollution is getting worse. Waste water from factories and urban residential areas heavily pollutes the water source [3]. In the suburbs of major cities such as Hanoi, Ho Chi Minh City or in areas where industrial production activities are concentrated, waste from industrial, construction and daily activities is most evident. The amount of heavy metal in the soil tends to increase. And according to forecasts of research agencies, the level of soil environment pollution in 2020 will increase by 2-3 times compared to the present and the pollution index will be proportional to the rate of industrial development and urbanization. Without policy and management solutions, the quality of the soil environment in Vietnam will be reduced to an alarming level and directly affect the health of the community (Fig 3).



Figure 3. The discharge from factories into water sources

Collecting and treating waste in industrial zones and urban areas is also increasingly difficult [4]. It is estimated that every year, the country generates about 13 million tons of garbage, of which the urban area is 7 million tons / year, accounting for 55.8%. The collection and treatment of urban waste is mainly carried out by landfill method, only 16/63 provinces and cities have landfill sites designed to be hygienic construction, but most of them do not agree. Therefore, it still causes soil environment pollution, water pollution and surrounding air pollution. Regarding sewerage system in urban areas is also substandard, there is not any centralized wastewater treatment system. Waste water is not treated before being discharged into the common drainage system and into rivers, causing serious environmental pollution (Fig 4).



Figure 4. Huge landfills and its impact on the environment

If urban areas are facing challenges of air pollution, industrial waste stagnation, rural areas are facing environmental pollution, toilets or water pollution due to waste. ; soil pollution due to excessive use of pesticides and chemical fertilizers. According to statistics, every year in rural areas generate tens of millions of tons of domestic waste, of which about 80% of the volume of waste, domestic wastewater and covers of pesticides and pesticides - hazardous waste has not been collected and treated in a hygienic manner but discharged directly into the environment, etc. causing serious pollution of water and rural air. The overuse of chemical fertilizers, growth stimulants, pesticides, and pesticides does not comply with technical procedures, does not ensure the isolation time that generates and increases the CH₄, H₂S, NH₃ pollutes the environment. Accordingly, many epidemics spread rapidly, causing great economic losses and seriously threatening people's health [5].

In addition, land degradation is taking place on a large scale in many rural areas of Vietnam. In addition, the environment in rural production areas is currently facing serious pollution. This activity in addition to the positive effects of creating jobs for more than tens of millions of workers, the pollution level and the proportion of people infected here also tend to increase, the life expectancy of people also decreases compared to Average life expectancy nationwide. Many places have not yet solved the problem of waste and waste, causing loss of beauty and polluting the rural ecological environment. Even in many localities, the phenomenon of taking advantage of lakes, low-lying areas to dump waste, forming spontaneous landfills, failing to ensure technical processes, polluting surface and underground water sources [6]. According to the survey results of the Institute of Environmental Science and Technology and the Ministry of Science and Technology, 100% of wastewater samples in production areas have polluted parameters exceeding permissible standards.

In addition, due to the rapid urbanization process, at the same time, the flow of people from the countryside to the urban areas is quite large. Problems of lack of clean water in the summer, inundation in the rainy season, sewage and toxic waste in urban areas are not treated, causing environmental pollution. The encroachment of sidewalks, ponds, canals, public places, common spaces to build, expand houses, as a place for trading, services, etc. become pressing issues in big cities, urban area.

4. Major causes of environmental results

The above environmental situation has many different causes, but concentrates on the following main causes. Firstly, the system of policies and laws on environmental protection is still inadequate. Because the system of these documents is still incomplete, inconsistent, lack of details, lack of feasibility, waste management and treatment in rural areas; collection of fees and charges in agricultural waste management, production areas is not good. Secondly, the legal authority of environmental protection organizations is not strong enough to educate and prevent against environmental abuse. Thirdly, the sense of responsibility for environmental protection of investors, economic organizations and population communities is limited; some still focus on immediate economic benefits, overlooking the environmental protection work [3].

The evaluation and assessment of environmental impacts on investment projects still face many shortcomings and have not been properly considered, even conducted in a formal manner. Recently, in order to attract foreign investment, Vietnam has tended to loosen environmental protection standards. Therefore, some serious environmental incidents have occurred [7]. In addition, due to Vietnam's restrictions on technical regulations, foreign investors can introduce obsolete technologies to maximize profits without regard to the environment (Fig 5).

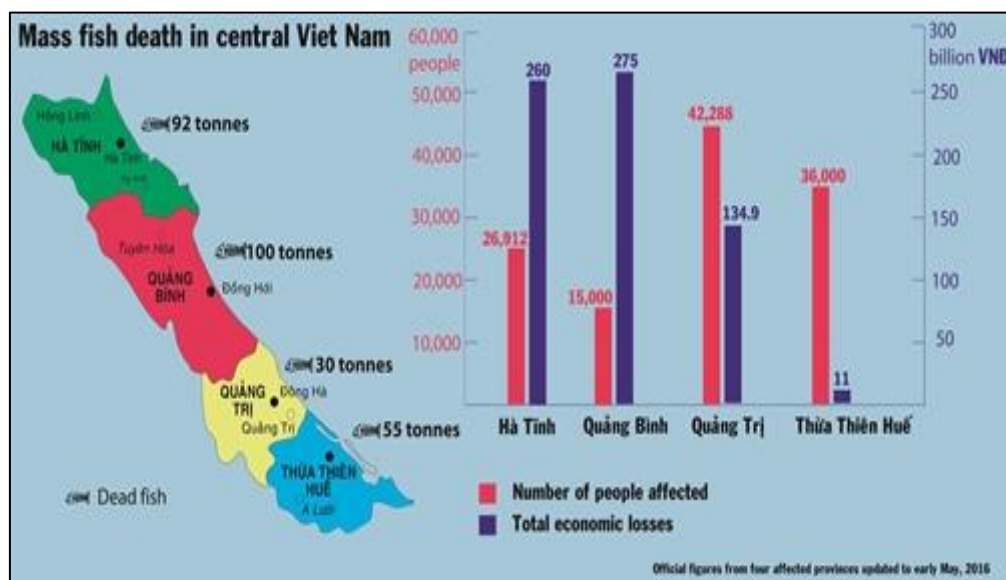


Figure 5. Water contamination in Ha Tinh Province (Source: Vietnam news)

Fourthly, investment in environmental protection is still very limited, meeting only part of the demand. Fifthly, the professional qualifications of the staff in charge of environmental protection are still limited, the technical facilities serving the inspection have not met the requirements of reality. Sixth, we have not promoted the role of organizations and people of all strata to actively participate in environmental protection. Seventhly, the propaganda and education on environmental protection in society is limited, leading to not promoting the sense of self-awareness and responsibility of organizations, individuals and communities in participating in preserving and protecting the environment [8].

5. Hidden risks from polluted water sources

In industrial zones, hundreds of manufacturing units, large and small tons of untreated waste water have been discharged directly into pipelines, organic pollutants and intact domestic metals. water source. In cities, domestic waste is scattered around, obstructing sewers, water cannot drain, so every

rain comes, people have to go to drain for drainage. In rural areas, due to difficult living conditions, backward facilities, domestic wastes and untreated cattle and poultry permeate into underground water circuits, if using untreated groundwater, likely to cause water-borne diseases.

In addition, the overuse of fertilizers and plant protection substances in agricultural production leads to polluted canals and rivers affecting human health [7]. According to statistics, up to 9,000 people die from water pollution each year, and discover 100,000 cases of cancer each year, mainly caused by the use of polluted water. In some localities, the incidence of water-related diseases such as diarrhea caused by water contaminated with ecoli, dermatitis, or eye-related diseases is increasing, and is likely to spread into epidemics.

6. Resolution of water pollution issues

In order to solve the above-mentioned environmental issues, we should focus on solving pressing issues in order to prevent the increase of environmental pollution, biodiversity and natural resources decline, and ensure environment security. To do so, the study as well as supplementation and completion of the legal system on environmental protection ensure uniformity to meet environmental protection requirements are necessary. Local environmental protection authorities need to strengthen their organization and strengthen their capacity. At the same time, we need to focus on training and fostering qualified personnel in accordance with the requirements of environmental management.

Relevant agencies should strengthen environmental inspection and supervision in order to identify areas at risk of environmental pollution in order to take measures to strictly control discharge activities by appropriate technical measures. The definitive handling of these polluting facilities must be conducted clearly and comprehensively. Relevant agencies also need to build capacity to cope with environmental incidents and environmental pollution cases.

The budget for environmental protection activities must be appropriate, ensuring that there is sufficient capital to carry out environmental remediation and improvement programs. We need to innovate and improve tools to support the process of analyzing, managing and operating environmental issues. We need to inherit and develop scientific and technological achievements of the world on environmental issues, tools to support the process of assessing and forecasting the potential impacts of economic activities on environment, in order to make appropriate recommendations and actions.

We need to promote the propaganda and education of the environment in the whole society, at all school levels, at workplaces. Most important is the cooperation of every citizen. Promoting communication and propaganda to the people about the impact of water pollution on the environment will have an adverse impact on the health of each person playing a quite important role. Every citizen needs to be aware of protecting water sources and the environment around them, littering in the right places, limiting the use of plastic bags, using biological and organic products to protect the environment together. school.

We need to build general waste collection points, to bury and treat them by special methods, to avoid being absorbed into groundwater. Production units need to treat waste and waste water before discharging to common pipelines, minimizing the concentration of pollutants to be handled. Production units need to strictly follow environmental protection laws.

For areas with unsafe water, people should use water filters to remove heavy metal contaminants and bacteria to ensure water for living, helping families prevent diseases. regarding water sources.

7. Conclusion

The process of economic growth and development of Vietnam currently has an urgent requirement on environmental protection for all organizations, businesses and all citizens. The pressure from the socio-economic development process has continued to increase many pressures on the environment, causing many environmental problems, increasing conflicts related to the environment in the society. This issue poses significant challenges for planners and implementers of resource management and environmental protection policies, businesses and citizens in harmonizing the relationship between economic development. and environmental protection towards sustainable development. The role of water is extremely important to everyone's life, so let's join hands to build and protect the clean, unpolluted water environment.

References

- [1] Qin, R., 2019. *Study on Utilization and Pollution of Water Resources in Guanqiao Village of Guangxi Province*. In IOP Conference Series: Earth and Environmental Science (Vol. 300, No. 3, p. 032056). IOP Publishing.
- [2] Quyen, P.B., Nhan, D.D. and Van San, N., 1995. *Environmental pollution in Vietnam: analytical estimation and environmental priorities*. TrAC Trends in Analytical Chemistry, 14(8), pp.383-388.
- [3] Liu, D., Huang, F., Kang, W., Du, Y. and Cao, Z., 2019. *Water pollution index evaluation of lake based on principal component analysis*. In IOP Conference Series: Earth and Environmental Science (Vol. 300, No. 3, p. 032010). IOP Publishing.
- [4] Shi, X. and Zhang, W., 2019. *Heavy metal pollution and spatial distribution in Surface Water and Sediment of Nanchang Section of Ganjiang River*. In IOP Conference Series: Earth and Environmental Science (Vol. 300, No. 3, p. 032045). IOP Publishing.
- [5] Schwarzenbach, R.P., Egli, T., Hofstetter, T.B., Von Gunten, U. and Wehrli, B., 2010. *Global water pollution and human health*. Annual Review of Environment and Resources, 35, pp.109-136.
- [6] Herbst, S., Benedikter, S., Koester, U., Phan, N., Berger, C., Rechenburg, A. and Kistemann, T., 2009. *Perceptions of water, sanitation and health: a case study from the Mekong Delta, Vietnam*. Water Science and Technology, 60(3), pp.699-707.
- [7] Wu, C., Maurer, C., Wang, Y., Xue, S. and Davis, D.L., 1999. *Water pollution and human health in China*. Environmental Health Perspectives, 107(4), pp.251-256.
- [8] Anh, P.T., Kroeze, C., Bush, S.R. and Mol, A.P., 2010. *Water pollution by Pangasius production in the Mekong Delta, Vietnam: causes and options for control*. Aquaculture Research, 42(1), pp.108-128.