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IMPACT OF POLLUTED WATER ON THE MALAYSIAN ECONOMY

Abstract: this article describes the extent to which polluted river water affects the economic development of Malaysia. The article reveals negative external effects caused by water supply disruption at the national level, which cause an increase in both economic and social costs.

Key words: negative externality, GDP, Malaysia

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ВЛИЯНИЕ ЗАГРЯЗНЕННОЙ ВОДЫ НА ЭКОНОМИКУ МАЛАЙЗИИ

Аннотация : в данной статье описывается, в какой степени загрязненная вода рек влияет на экономическое развитие Малайзии. Статья выявляет отрицательные внешние эффекты, вызванные нарушением водоснабжения на национальном уровне, вызывающими рост как экономических, так и социальных издержек.

Ключевые слова: отрицательные внешние эффекты, ВВП, Малайзия.

In Malaysia, the pollution of water is becoming more apparent as the quality of river waters of Klang Valley are declining [7]. The quality of river water at Klang Valley decreases as waters are contaminated by E. coli., inorganic chemicals and other contaminants with most of it are caused by industries activities [2], resulting in

water supply disruption. This water supply disruption sometimes result in an absolutely no water supply for a period of almost 12 hours due to a total water treatment plant shutdown. Furthermore, this shutdown will normally affect several other areas such as Shah Alam, Klang, Kuala Lumpur, Ampang, and Hulu Selangor [7].This water crisis can cause a stressful moment for the community living in those areas as this is not a small area.

This article focuses on the impacts of polluted water, generated from the wet market and its solution from an economic view in Malaysia. Wet market is a physical consumer market that acts as a platform for buyers and sellers to exchange goods including poultry, fish and pigs. This agriculture sector contributed 7.3 per cent (RM99.5 billion) to the Gross Domestic Product (GDP) in 2018. Palm oil was the major contributor to the GDP of agriculture sector in 2018 at 37.9 per cent followed by other agriculture (25.1%), livestock (14.9%), fishing (12.5%), forestry & logging (6.9%) and rubber (2.8%) [7].

However, wet markets have caused some negative impacts to the environment through its wastewater production. To dispose wastewater easily, most wet markets are built near rivers and the main sewages [2]. When these wet markets produce wastewater, externalities exist. An externality occurs when one side's action has an effect upon a third party. If the effect is harmful, it is known as negative externality [9]. Moreover, if the polluted wastewater forces water treatment plant to shut down, resulting in water disruption problems, negative externalities occur at a bigger scale as millions of residents and household will be affected. This can be seen through the pollution of Sungai Semenyih (a district in Klang Valley) causing the closure of the Semenyih Water Treatment Plant (LRA) that affects water supply to more than one million residents in the Klang Valley district [5].

Negative externalities of wastewater from wet markets can create economic, social and environmental costs. These costs is called the extra welfare cost that the government need to bear, on top of the operating cost of the wet market [7].

Economic costs can cover a huge area. It can range from town sewage system, water treatment facilities and water purification system. These costs can cause a

significant toll on the municipal budgets. This negative externality is difficult to overcome and cannot be avoided since there are supply and demand for water in urbanized regions, especially large cities [5]. High investments in infrastructures such as water treatment plants are needed to purify the wastewater [2]. Since polluted water affects the sustainability of fresh water, this can also affect the country economically. In Malaysia, The River of Life project totals an amount of RM7.8 billion project to clean the river and sustain fresh water availability. The process of restoring the quality of the polluted water requires a high spending cost and this will surely burden the financial status the government has to bear. Not only polluted water has affect towards the maintenance costs of water systems, but it can also affect the economies of that particular area. When polluted water causes shut down of water treatment plants, water disruption will happen and it has a very huge negative impact on economies. Since Klang Valley holds key national economies, water disruption that occurs because of shut down of water plants due to polluted water can widen the negative externalities to other areas such as industries, business activities and productivity of workers.

Water disruption will affect industries activities such as factories will be on hold because of unavailability of resources necessary for the continuance of the project [9]. Manufacturers will have to bear the increased costs to pay the overtime operations to cover the previously affected production. This will surely cause the investors of the project to withdraw from investing in the country, due to investor's low confidence in the resources and infrastructure availability in the country. Withdrawal of investors from a country can surely cause the Gross Domestic Product, GDP value to decrease thus, affecting the economical stability of the country [8].

For those involved with business activities, especially in the food business sector, the source of water is a very crucial to be used in the process of preparing food and drinks [4]. This hygiene factor forces entrepreneurs to increase their working capital to rent vehicles to transport water to the premises to ensure the cleanliness of the food provided [4]. This can cause income to be reduced and profit reduced thus, giving a little tension in managing daily expenses. Social costs also

arises because if these water sources are affected by polluted water, diseases might arise and affect people and the health of the community [4]. It will also affect the human economic system itself because when the human is unhealthy, man will automatically not be able to do any work and a sick student cannot go to school. As a result, productivity decreases because of frequent absence in the workplace and schools [4].

All these negative externalities show how far polluted water can give impacts to the community economically. Frequent water supply disruption in the Klang Valley area has result the government to lose billions of ringgit to cover all these negative externalities [1]. According to Professor Dr Aimi Zulhazmi Abdul Rashid from UniKL Business School, a decrease of about 0.3 to 0.5 % of the country's Gross Domestic Product (GDP) value would happen if water disruption at Klang Valley lasts for a month [1].

Hence, to overcome these negative externalities, it is important for the government to tackle the issues of polluted water first since it is the root problem. In modern societies, a suitable wastewater management is a necessity, not a choice. The system should be designed to collect, treat, and decompose wastes from human and in wastewater [6]. There are several legislation both at the federal and state levels responsible for the control of environmental pollution or management of the environment [3]. Therefore, it depends on the government to rectify the situation.

There is a number of options to tackle this negative externalities. Firstly, by legislating on responsible firms to invest in research and development (R&D) that can restrict pollution output in some way. In Malaysia, the government has already started appropriate measures regarding the water problems since early 2008. It is really important to build a specific water treatment plant for the wastewater from wet markets as the rate organic and inorganic waste from the wet market is much more higher than the other sources. For the Malaysia government, the cost of enforcing laws and investing in R&D is lesser than the cost of the pollution.

In Malaysia, Kuala Lumpur mayor, Datuk Seri Ahmad Phesal Talib said DBKL started with treating water in five major wet markets in Kuala Lumpur by

employing wastewater treatment plants that use membrane bio-reactor (MBR) technology from South Korea, a country well known for its river rehabilitation [5].The water treatment plant in all four wet markets, successfully improved the water standard from Class V to Class IIB [5]. After seeing significant improvement in the quality of the treated water, the government have decided to build six more plants [1]. This result in RM 25.5 million for the implantation of the second generation water treatment plant. This proves that the cost to reduce the negative externalities is lower than the cost of the total negative externalities that costs the government billions of money to cover. In addition, this cost of negative externalities can be the opportunity cost and put to alternative uses such as improving the education or healthcare services. This way, the spending money can be put in a more better use for the welfare of the community as a whole. From the examples shown, wet market does contribute to the pollution of water so authorities have taken some measures to tackle the wet market waste water and shows a positive results afterwards from an economic perspective.

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