

# The arising of environment negative externality economics essay



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Simon (1991) defined market as a world of transactions, and these transactions typically involve an exchange of goods, services, and/or money and the actors in markets involve not only producers and consumers, but also workers, firms, owners of resources, governments, and others.

Market failure exists when the self-interested behaviour of economic actors in a market leads to a suboptimal allocation of resources (ie. environment).

Market failure could also arise from uncontrolled activities of market actors, ie. over-production or over-consumption activities. Negative externalities causing reductions in the welfare of others that are not accounted for in the price system are one of the most common types of market failures.

Environment is often regarded as common pool resources with characteristics of being non-excludability and rivalry. And with growth rate of human populations exceeded the growth environment in fulfilling needs of human being, an uncontrolled human activities could potentially lead to destruction of environment. (Hardin, 1968).

In describing ways in which market fails with regards to the environment, I will start the characteristics of environment / environment goods that lead to over-exploitation by users and how economy activities could generate negative externality impact to the environment.

## **Characteristics of environment**

The human activities in the consumption and/or production of environment / environment goods are strongly influenced by the characteristics of environment of being non-excludability and rivalry.

**Nonexcludability in consumption, meaning that if it is available to one person then it is automatically available to all others thus it is difficult to exclude non paying consumers from consumption. Commonly owned land where there is no established property rights produces little incentive to care for the environment which leads to excessive exploitation. If one person makes consumption on the environment, others also will be able to consume it and thus take a “ free-ride” off this provision. And this will reduce intention of individual to spend money in the consumption of the environment. (Apesteguia & Maier-Rigaud, 2006). The common way to solve the nonexcludability problem is by assuming property rights over the resource. However, an inefficient property management can still exist. (Garrod & Willis, 1999).**

**The other essential characteristic of environment is it is rivalry in consumption: the consumption of the good by one individual would deplete the quantity available to others. Using the land for industry means that the land cannot be used for farming, etc.**

**The environment is scarce and if the use of environment is free then it will invariable be over-used.**

The over-consumption and over-production activities in the form of inefficient use of natural resources / environment goods could lead to a failure and destruction for human being, as predicted by the concept of “ Tragedy of the Commons”. “ Tragedy of the Commons” describes a situation in which multiple individuals, acting independently, and solely consulting their own self-interest, will ultimately leads to destruction. From natural environment context, Hardin (1968) argued that there was a finite amount of

resource available on Earth, and as the population grew, the human race would need to reduce its level of energy consumption instead of increasing it. Stanwick et. al (2009, p. 83) supported the argument that the tragedy of the commons would predict the eventual use of all natural resources on Earth due to lack of control over their use. The evidence of the tragedy of the commons is everywhere, from over-fished oceans, polluted air and over exploitation of forests.

## **Environment Negative Externalities arising from uncontrolled economic activities**

The swift industrialisation and rapid growth in sectors ranging from steel to IT have made China the leading importer of a whole range of commodities. China is increasingly looking to source for oil, gas and raw material for fuel its economy booms. This could leads to creation of externalities as China may over-consume of resources and as well as industries to over-produce to meet China growing market and over-produce of product from China. There are fears that China could also damage the continent's environment through over-exploitation. (Cited <http://news.bbc.co.uk/2/hi/business/4600946.stm>, 8 Feb 2010).

## **Environment Negative Externality from Consumption Context**

As the country population and economic growth, the country, there is also upward growth in the consumption rate, ie. China. Industry growth in China has increased demand for oil consumption, needs natural resources, etc. Industries development are crucial to sustain the economy growth in China, hence China's oil demand is inevitable, which eventually one of the driver for

the hike in oil price (Fan He and Donghai Qin, 2006). On the other hand, energy consumption, industries and air pollution are interlinked; industry growth will eventually increase the air pollution in the country.

With the increase of oil prices, industries in China switched to cheaper energy resources such as coal. (Cited [http://www.chinadaily.com.cn/english/doc/2005-10/20/content\\_486522.htm](http://www.chinadaily.com.cn/english/doc/2005-10/20/content_486522.htm), 8 Feb 2010). Coal is cheaply available and widely produced and consumed by factories in China and coal is also known to cause pollution and detrimental effect to human health. In other hand, regulations on emissions are one of the weakest links in China. Chinese utilities do not feel the need to filter the by-products before dispose to environment. (Cited <http://www.southasiaanalysis.org/papers20/paper1944.html>, 8 Feb 2010).

The activities of consumption of coal generate externality effect as shown in Figure 1. The externality is created because the MPB marginal private benefit (industries' benefit from usage of coal as alternative energy source) is greater than the MSB marginal social benefit (societies' benefits from coal usage). Societies could probably gain benefit from cheaper product sold to the market, however, their medical fees may increase. The market price and output of  $P_0$  and  $Q_0$  do not coincide with the level of output and the price that reflects the full cost or benefits experienced by the society. Societies live near to the coal industries would prefer the company to reduce its coal usage so as to reduce environment pollution. The price that should be paid if all the costs of the negative externalities are taken into account would be shown as  $P_1$  and the quantity would be  $Q_1$ . While by doing this the company may undergo financial loss. Thus, it is important for government to step in as <https://assignbuster.com/the-arising-of-environment-negative-externality-economics-essay/>

regulator. The market failure in this case is that the free market over-consumes. (Cited [http://www.bized.co.uk/virtual/vla/theories/negative\\_externalities.htm](http://www.bized.co.uk/virtual/vla/theories/negative_externalities.htm), 8 Feb 2010).

Figure 1: Negative Externality on Consumption

(Figure was extracted from: [http://www.bized.co.uk/virtual/vla/theories/negative\\_externalities.htm](http://www.bized.co.uk/virtual/vla/theories/negative_externalities.htm), 8 Feb 2010).

## **Environment Negative Externalities in Production Context**

Steel, tyre production in China as well China's famous "Three Gorges Dams" together with other China products were example of market fails the environment arising from production context due to ineffective use of natural resources, producer produces more than what society needs and society's benefit from the product is lesser than producer's benefit. Rapid industrialization in one hand created workplaces for China's huge population, but in other hand indirectly caused China to over-produce. According to Feng (1994), the growth of China steel industries are contributed by strong demand of steel arising from its rapid industrialization and China's improved comparative advantage in steel production. And currently, the supply of steel has exceeded its domestic demands, and in 2009 China has become net exporter of steel. (Cited <http://news.e-to-china.com/industry/Business/Trade&Investment/2009/0915/61460.html>, 9 Feb 2010). Steel industries increase China's GDP, but it also contributes to increase of environment pollution. Steelmaking is a very energy-intensive manufacturing process and accounts for over 10% of China's primary energy use and related carbon dioxide emissions. (Price et al, 2002).

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Figure 2 shows negative externality in production activities. The MSC curve is society's supply curve while the MPC represents the marginal cost curve that the firm with the negative externality faces. When a negative externality exists in an unregulated market, producers don't take responsibility for external costs that exist. Thus producers have lower marginal costs and the supply curve is effectively shifted to the right of the supply curve that society faces. Because the supply curve is increased, more of the product is bought than the efficient amount—that is, too much of the product is produced and sold. The optimal production quantity is  $Q_1$ , but the negative externality results in production of  $Q_0$ . Marginal benefit is not equal to society marginal cost, a welfare loss results (shown in blue). (Cited [http://www. bized. co. uk/virtual/vla/theories/negative\\_externalities. htm](http://www.bized.co.uk/virtual/vla/theories/negative_externalities.htm), 9 Feb 2010).

#### Figure 2: Negative Externality in Production

(Cited [http://www. bized. co. uk/virtual/vla/theories/negative\\_externalities. htm](http://www.bized.co.uk/virtual/vla/theories/negative_externalities.htm), 9 Feb 2010).

The Three Gorges Dam project could be considered as an example of market fails with regards to the environment. The dam produces sufficient electricity for China's population; however, it also contributes to huge ecological disaster, land shortages, etc. The Three Gorges Dam was built with origin intention for providing energy to fuel China's economy boom and also as mitigation from flooding disaster along the basin of the Yangtze. The project supporter claimed that the dam would be able to generate electricity to offset annual coal consumption thus reduce air pollutant and greenhouse gases emission. (Cited [http://en. wikipedia. org/wiki/Three\\_Gorges\\_Dam](http://en.wikipedia.org/wiki/Three_Gorges_Dam), 9

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Feb 2010). The project was strongly supported by the China's government as the dam could produce alternative energy sources to meet its demand for electricity. And as a communist country, State has the largest decision making power, as such, even though there were critics, objections and substantial negative externalities aroused during the construction of the project, the project was carried out and has been in service since 2003.

(Cited <http://www.timesonline.co.uk/tol/news/world/article2537279>. ece, 10 Feb 2010).

The operating cost of the company generating electricity from Three Gorges Dam would probably limited to electricity, materials, workers, while the individuals living around the dam would have higher medical expenses, undrinkable water, unhygienic of the environment. (Cited <http://www.time.com/time/world/article/0,8599,1671000,00.html>, 10 Feb 2010). Thus the production of electricity by the firm generates external negative cost to the people in the surrounding area—a cost that the firm doesn't have to pay. If the price of electricity generates from the Three Gorges Dam include the external cost arising from its production, the supply curve will shift left (due to increase in production cost) and the quantity produce will be reduced and this which leads to reduce of negative externality to the surroundings.

## Summary

Economic activities in free market could potentially create negative externality impact on the environment, ' fails' environment, due to excessive / ineffective use of resources. Environment / land is commonly regarded as open resources, meaning it is available to all, hence there is no incentive for individual to care for environment. In addition to that, due to finite resources <https://assignbuster.com/the-arising-of-environment-negative-externality-economics-essay/>



availability, in the process of meeting their needs, people could subconsciously and/or due to self interest, tend to ignore the consequences of their activities to the environment, this situation becomes worse in some country whereby, the government is not powerful enough to reinforce the law for environmental