

# Sanitation facilities

[Economics](#)



Sanitation generally refers to the provision of facilities and services for the safe disposal of human urine and faeces. An improved sanitation facility is one that hygienically separates human excreta from human contact. Improved sanitation generally involves physically closer facilities, less waiting time, and safer disposal of excreta. Poor sanitation is responsible for one of the heaviest existing disease burdens worldwide. The diseases associated with poor sanitation and unsafe water account for about 10% of the global burden of disease.

The most common disease of poor health associated with poor sanitation is a diarrhoeal disease. Globally, about 1.7 million people die every year from diarrhoeal diseases, and 90% are children under 5 years of age, mostly in developing countries. 88% percent of cases of diarrhoeal diseases worldwide are attributable to unsafe water, inadequate sanitation, and poor hygiene. In this essay I will analyse the economic benefits of sanitation, the economic disadvantages, the link between a rise in GDP and the access to sanitation in regions all over the world including Asia, Africa, Europe and North America.

I will do this by analysing data set curves which I have obtained from a various amount of sources such as national journals, reports and articles relating to this subject. I will be using data sets from the UNEP and carrying out multiple regressions. Finally I will be looking at the Environmental Kuznets model to see whether it applies to this relationship between economic growth and the access to sanitation.

According to 2010 figures, approximately 2 billion people do not use improved sanitation facilities, two-thirds of which live in Asia and sub-Saharan Africa. By looking at Figure 1 we can see that it is in the developed <https://assignbuster.com/sanitation-facilities/>

regions such as North America and parts of Europe where people have a good access to sanitation, while on the other hand it is the mostly the developing regions such as Asia and sub-Saharan Africa with the poor access to sanitation. This figure already makes the relationship between economic development and access to sanitation vaguely clear.

The Asian and African regions would be a good place to have a look at this relationship even more closely; this is because over the past few decades, countries in the Asian regions such as China have undergone a huge advance in economic growth while on the other hand there has been little or non-existent economic growth in the African regions. Asia is the world's fastest growing economic region. China is the largest economy in Asia and the second largest economy in the world.

Moreover, Asia is the site of some of the world's longest economic booms and by looking at Figure 2 it is evident to see that over the past few decades there has been a dramatic rise in the GDP of Asia but very little in the GDP of Africa. Now by looking at Figure 3 which is a graph showing the level of improved drinking/safe water coverage, improved as in drinking-water sources such as piped water to the house or yard, public taps and rainwater collection. Improved sanitation facilities including flush or pour-flush toilets connected to a piped sewer system.

By looking at this we can see that in Asia there has also been a dramatic rise in the access to unpolluted water which is a positive relation to the GDP. I gathered the data which is on Figures 2 and 3 onto excel and carried out a regression analysis for the Asian region to help understand to what extent the strength in the relationship between the dependent variable (GDP) and <https://assignbuster.com/sanitation-facilities/>

the independent variable (Sanitation) which is shown on Figure 4. By looking at the R squared we can see that this model has a strong explanatory power as it is very close to 1.

According to the coefficient we can also see that every time the GDP increases by \$50billion, there is an increase of almost 3.4 million people with improved access to sanitation. Poor sanitation results in an economic loss as it is linked with the costs of treatment to sanitation related diseases and income which is lost through productivity. Furthermore poor sanitation can also lead to a loss of time and effort as a result of poor facilities, lower quality of products due to poor quality of water and of course a dramatically reduced income coming from tourism as there is a great risk of disease.

According to various studies from the WHO (World Health Organisation), there has been evidence that there are huge economic costs which arise from the poor sanitation. At a global level there is a loss of around \$40billion per year due to poor sanitation; looking at South Asia alone we can see that in places such as Indonesia, Vietnam and Cambodia there is a loss of around \$10billion a year, the key impacts of this came about from poor health and tourism, poor sanitation can affect everyone but especially effects those who are poor

(Hutton, 2007). Several studies have also been conducted to estimate the economic costs associated with poor sanitation. In Ghana and Pakistan, for example, the indirect effect on child mortality of environmental risk has added more than 40% to the cost of directly caused child mortality. If one took into account the effect of such malnutrition, they will be able to see the

huge impact on impairing school performance and delayed entry into the labour market, the cost would double to around 10% of the GDP.

Improvement to sanitation can bring various types of benefits to an economy, one of which are the direct benefits of preventing or avoiding illnesses as there would be no money spent on healthcare treating patients with diseases due to sanitation. There will also be indirect benefits such as a decrease in the amount of work days absent being sick and longer life, and finally and very importantly there will be a lot of time saved. As we have seen already, sanitation is also important when it comes to economic development.

In Africa many young women are dying every year as they are the ones which carry the polluted water, they are also then forced to drop out of education during puberty years in order to look after their sick children as a result of the polluted water, this means that women are not able to be educated and they can even find it difficult to join the labour supply. Every 10% raise in female literacy (due to increased attendance at school) a nation's economy can grow by around 0.

3% (Dollar et al, 1999). According to Hutton (2008) there could be an estimated that annual investments of around \$27million in Tanzania and Vietnam would result in benefits of around \$70million for the health sector alone. Hutton also estimated that there is a potential to save around \$6billion in many parts of Asia if improved sanitation can be introduced. Overall Hutton stated that there are many costs and benefits available however the benefits still do overpower the costs.

Moreover, the Disease Control Priorities Project recently found that hygiene promotion to prevent diarrhoea was the most cost-effective health intervention in the world at only \$3.35 per DALY loss averted, with sanitation promotion following closely behind at just \$11.15 per DALY loss averted. This is to say that economic growth and sanitation for sure have a strong relationship within one another; this can be shown on the environmental Kuznets curve.

The Environmental Kuznets Curve (EKC) is a relationship between income and pollution which is hypothesized to have an inverted U-shape. The idea of an inverted U-shaped Kuznets curve stems from the Kuznets' work in income inequality (Kuznets, 1955). The EKC hypothesis states that as income increases pollution goes up initially but after certain time pollution eventually declines. The point at which pollution level is the highest is called a turning point. This then evidently applies to developing countries as they are the ones which have the higher levels of income.

Looking at Figure 5 we can see that in Europe up to the year 2000 water pollution was on a rise, however sometime in the year 2000 there was a turning point where the pollution of water started to decline. According to the Kuznets curve, in the year 2000 the economies within Europe produced a certain GDP and a certain GDP per capita which led to the decline of the water pollution. According to Figure 6 in the year 2000 the turning point on the Kuznets curve was at \$18000 per capita, this is the level of GDP per capita needed in the European region in order to reverse the trend of water pollution.

Looking back at Figure 5 we can also see that in the North American region up till 1998 there was an increase of water pollution however sometime in 1998, just like in Europe, people's incomes were growing and GDP per capita was on a rise. Looking at Figure 6, according to the EKC, GDP per capita in North America will be at \$36000 which is where there will be a turning point. Both the EKC's for Europe and for North America are shown on Figure 7. This analysis clearly tells us that the relationship between the two is dependable on the economic stages of development.

In the other regions around the world there will not be a turning point on the EKC as people do not earn enough to have this effect, good sanitation facilities are the main way in which water pollution can decrease, more developed economies around the world have the funds to invest in good sanitation, however as we have discussed, the less developed countries do not have access to these sanitation facilities therefore their economies are heavily impacted and the funds for the technology needed to provide improved sanitation are hard to come by, therefore these countries are on the upwards slope of the EKC

meaning they have not yet achieved the GDP per capita in order to have a turning point. I have aimed to show the various ways in which sanitation is fundamental to good health and also economic development. Given the data I have analysed, I can surely state that the investment in improved sanitation would be beneficial to an economy. Ultimately, I can say that there is a strong relationship in economic growth and access to sanitation and I can also say that the EKC does apply to the water pollution we have in

the real world. Finally I can also say that the level of the turning point also depends on the stages of economic development.