China is facing a problem— an energy crisis. With the surging population and booming economic development in China, its energy shortage is becoming a more pressing problem than ever. The frequent blackouts in Eastern China, prominent smog problem in Beijing and degrading environmental quality in the whole of China is now under the global spotlight. Therefore, the Chinese government is considering the development of methane hydrate to address these issues.

What is methane hydrate? Methane hydrate (NGH), also commonly known as “flammable ice”, is a frozen mixture of water and concentrated natural gas that is formed under low temperature and high pressure. It has been associated with a number of advantages and disadvantages to China.

In the environmental aspect, it can alleviate the serious pollution problems in China. Compared to other conventional energy sources, especially coal that China currently relies most on, NGH has many comparative advantages, such as it releases a negligible amount of carbon dioxide and does not emit any ash and sulfur dioxide, which are largely responsible for acid rain in China. Its environmental friendliness is certainly in line with China’s sustainable development to have obvious improvement in environmental quality. Yet, the other side of the coin is that NGH brings about various potential environmental risks. One of the major risks is the large-scale methane leakage, which would substantially worsen global warming as methane is a greenhouse gas more potent than carbon dioxide. Consequently, such leakage will result in ecological imbalance and irreversible climate change. Besides, submarine NGH extraction technology is detrimental to the environment in a way that it may destabilize the seabed, leading to the huge release of pressure that may trigger earthquakes and tsunamis.

In the socio-economic aspect, NGH development lends itself well to the mutual growth in living standard and GDP. On the one hand, since NGH has a higher life-index than coal, it is probable that people would experience fewer blackouts if it is to be developed as a major energy source. With improved environmental quality, less people will be susceptible to respiratory illnesses, which in turn can alleviate one of the “Three New Burdens” and boost labour productivity. Hence, their living standard can be greatly enhanced. On the other hand, the Chinese government could also reduce its expense on environmental protection and focus on other areas such as
housing and education. Conversely, the low cost-effectiveness and energy security of NGH may completely outweigh the benefits. Due to the relatively immature current NGH extraction technology, its price level is still uncompetitive and it is subject to a high incidence of interrupted availability. Such may cause China’s attempt in developing NGH to be futile, which means the waste of capital and resources.

There is only a fine line between “cure” and “curse”. Whether the development of NGH as a future energy source in China worth the candle solely depends on how much effort and resources the Chinese government is willing to put in and how determined it is in combating the pollution problems.

Name: Siu Cheuk Lam
School: Marymount Secondary School