

### ***Session 5: Non-Traditional Dimensions of Energy Security (I)***

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(L-R: Mr Wibisono, Prof Yuxin and Prof Han Feng)

### ***Environmental Impact in Northeast Asia***

*Prof Zheng Yuxin*

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Professor Zheng warned that climate change is a global issue which is of a concerned to the international community. The use of fossil fuel is the main source of carbon dioxide (CO<sub>2</sub>) and thus global warming. The impact of global warming on the ecosystem would be far more disastrous in the future if no positive actions are taken soon.

He pointed out a recent study by the Netherlands Environmental Assessment Agency (MNP) which showed that a less than two-degree Celsius reduction in the current global temperature would be a reasonable baseline to mitigate future climate change related issues. However, to achieve this objective, global CO<sub>2</sub> emissions have to be reduced by at least 50 per cent of the 1990 levels by 2050. This means that developed countries should reduce their CO<sub>2</sub> emissions to at least 30-35 per cent of the 1990 levels by 2020. On the other hand, developing economies are allowed to continue with their current rate of emission until 2020 followed by a substantial reduction. However, this means that China's levels of emission can no longer increase, which would then affect further economic development.

However, China is a developing country in the early stage of its industrialisation and it does not have a significant cumulative emissions over the years compared to the developed nations. From 1950 to 2002, China's carbon dioxide emissions from fossil-fuel accounted for only 9.3 per cent of the world emissions over the same period, and its per capita carbon dioxide emissions ranks 92 in the world but recent results show that China's carbon dioxide emissions this year will surpass the United States and rank first in the world. China obviously cannot ignore such realities.

#### *The environmental problems caused by deterioration of oil security*

China is currently the world's second largest energy producer and consumer. Between 1980 and 2006, China's 9.8 per cent average annual economic growth is built on the back of an average 5.6 per cent growth in energy consumption. It was projected that in the first two decades of the 21st century, China's population would continue to increase, the total economic output would quadruple and the demand for energy resources would continue to increase, leaving its national environmental protection programme neglected.

*Some strategic thinking to cope with the change in energy systems*

One possible strategy is to transform China's production and consumption structure, as well as to lower its power consumption according to its environmental goals. China has thus proposed building a resource-saving and environmental-friendly society.

*Faced with the challenges of uncertainty*

China's Five-Year (2005-2010) Plan committed that the emissions of major pollutants, energy intensity and water consumption for industrial use will decrease by 10, 20 and 30 per cent respectively. The Chinese government also promised that it will further lower energy consumption by another 20 per cent by 2020. Also, in 2006, China promulgated the "Renewable Energy Law", which includes a series of policies to promote the development of renewable energy power. In September 2007, the National Development and Reform Commission announced its plans to increase the proportion of renewable energy to total energy consumption from 10 to 15 per cent in 2020. These show clearly China's proactive attitude facing the challenge of energy and climate change.

*Beware of falling deeper into the technical lock*

China suffers from market technology lock when some industries ignore the more energy efficient equipment and machinery for those which are technologically backward and inexpensive.

*Difficulty in following the developed countries*

China's national energy efficiency is about 20 per cent lower than developed countries and it needs at least 20 years to reduce this gap. China's per capita energy consumption is only an eighth of the United States's and a quarter of Japan's. However, there is a growing consumer trend which mirrors the consumption pattern of developed countries, which in turn affects the national supply and demand for energy. It would be difficult for China to reduce its efficiency gap if its consumption behaviour is not compatible with its efficiency level.

*Difficulty in going beyond the development stage*

In recent years, China's booming energy consumption is brought about by large-scale urbanisation. The largest energy consumer within the industries are construction and real estate which has reached 500 million square meters which is approximately half of the world's newly built houses. Construction materials, machinery and transportation consume huge amounts of energy. It is clear that the stage of extensive growth cannot go beyond current levels.

*Strengthening international cooperation in the Northeast Asia*

Due to rapid economic growth, energy demand in Northeast Asia is significantly higher than other parts of the world. However, mechanisms for regional energy cooperation in Northeast Asia are lagging behind other regions. The countries in Northeast Asia have to cooperate to promote their common interests in the field of energy security and environmental protection.