Addressing Climate Change Through Sustainable Development

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Courtesy of Jiahua Pan

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China has long suffered from climatic disasters throughout its history and will be more vulnerable to climate change. The key reason lies in the fact that the physical environment is highly fragile. Ever-increasing human population, physical resources, and infrastructure are exposed to climate risks, along with effects from China's development process. Sustainable development has been taken as the key approach to addressing climate change challenges, both adaptation and mitigation. China's experiences and challenges are of global significance, and international cooperation is needed for effective mitigation of and adaptation to climate change.

CLIMATE SECURITY

Extreme climatic events, such as drought, flooding, and typhoons in the coastal regions and snow storms in the northern inland region, often trigger social unrest and instability. In 1931, Yangtze River flooding killed 145,000 people, with tens of millions made homeless. The most economically dynamic and wealthy population is concentrated in the coastal areas, in particular the Yangtze River Delta, Pearl River Delta, and Bohai Rim. During the past 30 years, the sea level has been rising at 2.6 millimeters per year and this trend is to continue. In the Yangtze River Delta region, population density is at 890 per square kilometer. Fifteen large cities in the delta region occupy 1 percent of China's land area, but their share of China's gross domestic product (GDP) is as high as 17 percent in 2008. In the northwest, where human settlements are highly dependent on snowmelt in the Himalaya and Tianshan Mountains, temperature increase would mean disappearance of the oasis agriculture.

Along with population growth, a rising rate of urbanization, and overall development of the economy, climate change is no doubt a security issue. Water scarcity is another issue. Extreme events precipitated by climate

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Solar power water heaters grace rooftops in Yichang city, central China. China's Golden Sun Project, launched in 2009, aims to subsidize installation of 500 megawatts of solar generators across the country.

change make food production insecure. Sea level rises will put hundreds of millions of people and assets at trillions of Renminbi (Yuan/RMB) at high risk. Therefore, minimization of climate change impacts and adaptation to climate change constitute the foundation for sustainable development in China.

Fighting Climate Change Through Development

China is a victim of climate change. Doing nothing will certainly result in diminished sustainability. The experiences in China and the world show that climate change can be effectively addressed through development. In 1998, Yangtze River flooding occurred again, similar to the scale of 1931, and the losses were a negligible fraction as compared to 1931. The reason is very simple: The dikes are much stronger and more resources can be mobilized for flood control now. Before 2000, economic losses incurred by extreme climate events each year amounted to 3 to 6 percent of China's GDP. For the past decade or so, the losses are at 1 percent or less, although in absolute terms the monetary figure is larger. Before reform in 1978, each year typhoons would kill numerous people and destroy houses in the coastal region. Now the buildings are able to withstand the strongest typhoon. Pre-warning systems can effectively let people be well prepared. Water-saving technologies and irrigation are able to reduce demand for water.

As a developing economy, under the Kyoto Protocol, China is not required to reduce greenhouse gas (GHG) emissions in absolute terms. But this does not mean that China has not been taking actions to curb emissions. As a matter of fact, the pursuit for sustainable development in China is consistent with recommended emission reductions and has contributed substantially to GHG reductions. In China's 11th five-year plan (2006-2010), a compulsory target is to reduce energy consumption per unit of GDP by 20 percent in 2010 as compared to 2005.

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The Yellow River, China's second largest, is beset by pollution and water shortage from soaring demand and climate change.

Strong enforcement through administrative and incentive measures indicates that this target will be achievable. Reforestation and afforestation efforts, including sealing the mountains for natural regeneration and return of arable land to forest in the past three decades, has led to an increase in forest coverage from 12.7 percent in the late 1970s to 18.7 percent now. New buildings are to be 65 percent more energy efficient than old ones. According to the World Wind Energy Association, newly installed wind power capacity in China in 2008 ranks fourth, accounting for 23.1 percent of the world total newly installed capacity in 2008. China has been investing in wind and solar power so aggressively that China might be the real leader in the development of renewable energy. Social policies and advocacy of sustainable consumption also help. China has already prepared national and provincial level climate change programs. Further planning and actions will make the development process more climate friendly. For instance, climate change mitigation and adaptation must be included in the planning of transriver basin water diversion, seawall construction, and urban development.

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Despite China's aggressive mitigation efforts, China's GHG emissions have kept increasing. Since 2007, China was considered to emit more than the United States, and per capita emissions are already comparable to the world average level, although the number is still substantially lower than the Organization for Economic Cooperation and Development figure. As China is still in the process of urbanization and industrialization, increase in GHG emissions is likely to continue.

International Cooperation

Clearly, mitigation of climate change in China goes beyond national boundaries. International cooperation will effectively reduce the rate of emissions in China.

The Clean Development Mechanism (CDM) under the Kyoto Protocol has shown the potential of international cooperation. The amount of financial inflow into China is minimal, but it enables commercially unviable wind power and energy efficiency investments to become feasible. The rapid increase in wind power in the past several years is a good example for illustration. Carbon price of Certified Emissions Reductions (CER) from CDM projects signals the market that low-carbon technologies can be competitive. Technological cooperation is one of the keys. Mitigation of climate change is of global public benefit. Government must play a role in the development, transfer, and deployment of climate-friendly technologies. Technological cooperation between developing countries can also be of importance as appropriate technologies from developing countries can be workable and cost effective. In addition, demonstration of how low emissions can result in a high quality of living in developed nations will help shape climate-friendly consumption patterns in China. Climate change adaptation and mitigation require shaking hands to join forces, instead of finger-pointing at one another. ■

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