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By Bloomberg News - Oct 3, 2013 4:39 AM GMT-0400

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Q QUEUE

Reading in her hotel room in 1996, geology student Cao Jing noticed something alarming: the pages of her book were being coated with brown coal dust.

Her realization -- in Qinhuangdao, a tourist city where China's Great Wall meets the sea -- marks the moment when the young undergraduate at Beijing's Peking University became interested in studying the effects of China's runaway industrial pollution. It was the first step in a 17-year journey that has taken Cao, 36, into the field of economics to tackle emissions in the world's biggest producer of greenhouse gases.

Enlarge image



A man takes a photograph in front of banners of an unpolluted Hong Kong skyline at the waterfront in the Tsim Sha Tsui, Hong Kong, China, on Aug. 22, 2013. Photographer: Jerome Favre/Bloomberg

Enlarge imag



Cao Jing, associate professor of economics at Tsinghua University in Beijing, stands for a photograph on the campus of Harvard University in Cambridge. Photographer: Kelvin Ma/Bloomberg

Her work gained a new urgency after a leadership change this year installed President Xi Jinping, who has promised to combat pollution even at the cost of slowing the economy. Cao's goal is to develop a tax structure that would curb harmful emissions with the least effect on growth and company profits.

"China is in urgent need of climate policies like a carbon tax to save energy and reduce emissions," said Cao, an associate professor of economics at Tsinghua University and a consultant for the World Bank. "If they are well designed, there will be no big impact on the economy. If they are poorly designed, they may bring disastrous consequences."

Cao, also a researcher at Tsinghua National Institute of Fiscal Studies funded by the Ministry of Finance, predicts the government initially will adopt a carbon tax. She says this would have a smaller economic impact and, with appropriate tax rates, would be more effective than the cap-and-trade model adopted in the European Union, where companies buy and sell permits to pollute.

If China started with a tax of 10 yuan (\$1.63) a ton of carbon dioxide this year and raised it steadily to about 50 yuan by 2020,lcarbon emissions coul



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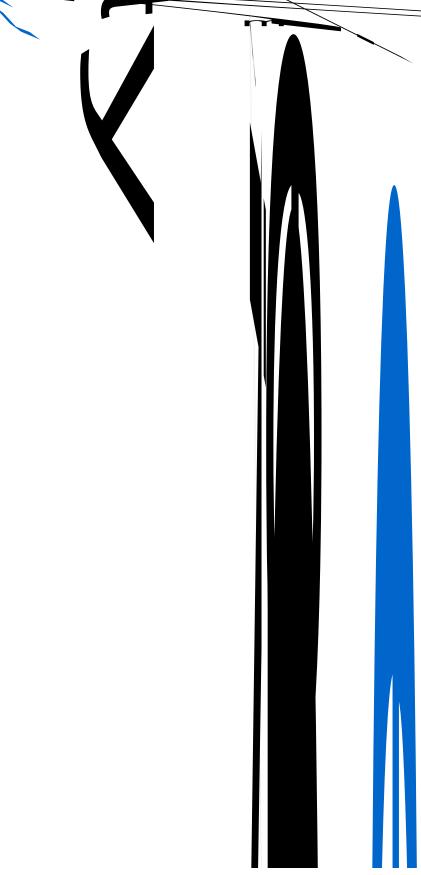
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Carbon Economy: The Design of a Carbon-Tax Policy for China with an Analysis of the CGE Model," won the McKinsey China Economics Award in 2011 for its contribution to the policy debate on "tackling greenhouse-gas emissions in an economically and environmentally sustainable way."

"She is one of the main stars in the energy and environmental economics field in China," said

Thomas Sterner, visiting chief economist at the Spyironmental Defense Fund in New York

whose 2011 book "Fuel Taxes and the Poor" includes contributions f



"People talked about what would happen in 50 or 100 years," she said. To make the debate more immediate and practical for lawmakers, Cao decided to quantify the so-called co-benefits of pollution reduction, things like energy savings and lower medical costs that provide an immediate return.

Her case study on the public-health benefits of emission reduction and technology innovation in local power plants, cement factories and steel plants helped her gain admission to a doctorate program at Harvard University's Kennedy School of Government in Cambridge, Massachusetts, where she worked under the guidance of ProfessorDale Jorgenson.

She expanded her analysis of carbon control after returning to Tsinghua, where she participated in a joint study by China's Ministry of « vironmental Protection and the U.S. vironmental Protection Agency on the cost benefits in China's power industry from energy-saving and emission-reduction policies for 2006-2010.

Cao's aim was to provide the Chinese government with tools it co d use to evaluate the real costs of policies. A breakthrough came when the government published its 12th five-year plan for 2011-2015, which included a reference to the introduction of an environmental protection tax, Cao said.

Li Shuo, a Beijing-based analyst with environmental grou/ Greenpeace, is skeptical about how quickly such a tax would be adopted, or whether it would come before a cap-and-trade market.

"We have been seeing the indication of a future carbon tax for a few years now -- most of the time with no meaningful elaboration or detailed implementing road map," Li wrote in an e-mail on Sept. 26. "We see quite some intellectual exercises here for sure, but none of them could be deemed as a concrete policy intention."

China has test programs in seven cities for cap-and-trade and could expand those to a national system, said Shobhakar Dhakal, former executive director of the Global Carbon Project, an international scientific program hosted by the National Institute for Environmental Studies in Japan.

Cao expects China will begin collecting carbon tax by 2015 at the earliest or within the next five-year plan. The levy initially will be low -- around 5 to 15 yuan per ton of carbon dioxide -- because the government likes gradual change, she said. The country also may roll out cap-and-trade measures for bigger companies later on, accompanied by an economy-wide carbon tax, she added.

"China is getting rich and our lifestyles are becoming westernized, which means the country will have higher emissions in the future due to our reliance on fossil fuel," Cao said. "The Chinese economy has developed fast, but we sacrificed so many things."

Chinese women also "sacrifice a lot," she said. "It's very difficult to strike a balance between career and family." Time is "a luxury for me; my family have breakfast, lunch and supper in canteens either in Tsinghua University or China Academy of Sciences," where her husband works as a researcher. While she splits the housework with him, she spends more time with their seven-year-old son.

She said she cooks on the weekend, including her son's favorite dishes: spicy fish with lots of chili. Otherwise, her free time is dedicated to helping him with schoolwork or taking him on trips to museums.

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## Devise Green Tax

3 hours ago

One of the major American economic problems of the last 15 years has been the part of our large trade deficit that has come from importing foreign oil. Even without any consideration of climate concerns, the rational case has been good for a tax on gasoline to discourage consumption. But, even with relatively low American gasoline prices, that policy has been politically a non starter. If that kind of policy can't be imposed in a country with an history of consuming much more than its share of the world's resources, what are the prospects in parts of the world where people are barely getting by?

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in reply to Wally Wanks 4 hours ago

Cao is certainly more intelligent than you are. Street smarts is needed here.

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