

**What are the High-Probability Challenges
to Continued High Growth in China?**

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Abstract

The 6th Plenum of the 16th Central Committee of the Communist Party of China (CPC) concluded on October 11, 2006, with the commitment to establish a harmonious society by 2020. The obvious implication from this commitment is that the present major social, economic and political trends are not leading to a harmonious society or, at least, not leading to a harmonious society fast enough. Analytically, if the Chinese economy is depicted as a speeding car, then are three classes of failures that could result in a car crash: (1) hardware failure, (2) software failure, and (3) power supply failure.

A **hardware failure** refers to the breakdown of an economic mechanism, a development that is analogous to the collapse of the chassis of the car. Probable hardware failures are (1) a banking crisis that dislocates production economy-wide, and (2) a budget crisis that necessitates reductions in important infrastructure and social expenditure.

A **software failure** refers to a flaw in governance that creates frequent widespread social disorders that disrupt production economy-wide and discourage private investment. This situation is similar to a car crash that resulted from a fight among the people inside the speeding car. Probable software failures could come from (1) the present high-growth strategy creating so much inequality, and corruption that severe social unrest results; and (2) the state not being able to meet the rising social expectations about governance issues.

A **power supply failure** refers to the economy being unable to move forward because it hits either a natural limit or an externally-imposed limit, a situation that is akin to the car running out of gas or having its engine switched off because an outsider reached in and pulled out the ignition key. Examples of power supply failures are (1) an environmental collapse; and (2) a collapse in China's exports because of a trade war.

My assessment is that the highest probability event in hardware failure is the weakening of China's fiscal position; the highest probability event in software failure is social disorder, and the highest probability event in power supply failure is water shortage. And my ranking of the probability of these three specific negative events in descending order is social disorder caused by outmoded governance, water shortage as a result of inept

environmental management, and fiscal crisis generated by the repeated recapitalization of the state banks and the rapid aging of the population.

Will China succeed in establishing a harmonious society and completing the overhaul of its economic system? My answer is a very cautious "yes". I am optimistic because both Chinese society and government want the economy to continue its convergence to a modern private market economy. My considerable caution comes from (1) the new major reforms being technically difficult to implement (e.g. setting up social safety nets), and having few, if any, successful precedents in the world to draw upon (e.g. designing market-compatible environmental regulation); and (2) the possibility that the many potential losers from these major reforms could successfully organise to resist meaningful implementation of the reforms.

The research focus of this Seoul conference (for which this paper is written) is to assess the power of China. My answer is that the most important measure of how powerful China is today is the degree that enlightened self-interest determines public policymaking within the Chinese Communist Party.

JEL code: H2, K4, O53, P36, Q50

Key words: harmonious society, governance issues, environmental protection, social disorder, water crisis, fiscal collapse, bank recapitalisation

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The Road to Prosperity might not be a Smooth One

China's economy has been like a speeding car for almost thirty years. Not surprisingly, it is becoming more common to hear glowingly optimistic assessments of China's future than dismissively pessimistic ones. For example, Jim O'Neill, Dominic Wilson, Roopa Purushothaman and Anna Stupnytska (2005) of Goldman Sachs have predicted that China's GDP would surpass that of the United States in 2040 even after assuming that China's GDP growth rate would slow down steadily from its average annual of 10 percent in the 1979-2005 period to 3.8 percent in the 2030-2040 period.¹

The past, however, is not a good predictor of the future. Otherwise, there would not be any turning points in history like the fast disintegration of the Soviet Union and the rapid, radical transformation of Japan upon the Meiji restoration. So there is not a modicum of innocence or of malevolence in asking whether the speeding car that is China could slow down drastically or even crash, and what factors could bring about this negative development.

I think that a good clue as to what the most likely precipitating factors are is found in the discussions of the 6th Plenum of the 16th Central Committee of the Communist Party of China (CPC) that concluded on October 11, 2006. The 6th Plenum passed of a resolution to commit CPC to establish a harmonious society by 2020. The obvious implication from this commitment is that the present major social, economic and political trends within China might not lead to a harmonious society or, at least, not lead to a harmonious society fast enough.

¹ For a review of the debate on how to interpret China's high growth in the 1978-2000 and why China, unlike the economics of the former Soviet bloc, did not experience a recession when it made the switch from a centrally-planned economy to a market economy, see Sachs and Woo (2000), and Woo (2001).

Among the disharmonious features mentioned in the fifth paragraph of the "resolutions of the CPC Central Committee on major issues regarding the building of a harmonious socialist society" were:

1. there is serious imbalance in the social and economic development between the urban and rural areas, and across China's thirty-one provinces;
2. the population and environmental problems are worsening;
3. a large portion of the population find the national situation in employment, social safety nets, income distribution, education, medical care, housing, occupational safety and public order to be seriously deficient;
4. the system of public management needs improvement;
5. democracy and the rule of law are still not adequately institutionalized;
6. the capability and work style of some leaders do not meet the requirements of the new situation and the new tasks; and
7. corruption in some areas is still very serious.

The harmonious socialist society proposed by the 6th Plenum would encompass:

- a democratic society under the rule of law;
- a society based on equality and justice;
- an honest and caring society;
- a stable, vigorous and orderly society; and
- a society in which humans live in harmony with nature.

What is revealing is not the existence of these disharmonious features in Chinese society, polity and economy in 2006, but that most of the official descriptions of the envisaged harmonious society downplay the prominence of achieving a prosperous society.² Of the nine objectives listed in the Communiqué of the 6th Plenum, "the objective of building a moderately prosperous society" was not only listed last, it was also qualified with the condition that the prosperity should be shared "all-around." And this qualifier is actually a repetition because the narrowing of income gaps had already been listed as the second objective.

This new emphasis on democratic practice, the rule of law, and income equality represents a turning point that is just as significant as the turning point in 1992 when Deng Xiaoping omitted the word "plan" (which had been ubiquitous since 1949) from the CPC's description of its proposed "socialist market economy with Chinese characteristics." Even the 2005 Plenum had reiterated the Dengist mantra that "economic development is the top priority for the CPC, all efforts should be focused on economic

² For example, in the preceding four aspects of the desired harmonious society, there is no highlighting of a prosperous society. This characterization of the harmonious society is from "CPC key plenum elevates social harmony to more prominent position," People's Daily Online, October 12, 2006.

development ..."³ This departure in 2006 from past practice can also be seen in that the 2005 Plenum stressed the centrality of scientific guidance in economic construction, while the 2006 Plenum stressed the centrality of "putting people first" in social harmonisation.

What is the origin of the CPC's decision to change its primary focus from "economic construction" to "social harmony"? And why include a target date of 2020? I do not believe that this change is merely the consequence of two leaders coming to their final term in office trying to establish their historical legacy by moving out of the shadow of their predecessors. I also do not believe that this change is the response to developments that had occurred since the promotion of Hu Jintao to General Secretary of CPC and the designation of Wen Jiabao as the next Prime Minister in late 2002. Instead I believe that this switch in emphasis from "economic construction" to "social harmony" occurs because the Hu-Wen leadership is well aware that the political legitimacy of CPC rule rests largely on maintaining, one, an economic growth rate that is high enough to keep unemployment low, and, two, a growth pattern that diffuses the additional income widely enough.

Specifically, I believe that the policy change has come about because the younger and better educated CPC leadership led by Hu Jintao and Wen Jiabao recognises that:

1. material conditions and public expectations in China have changed so much since 1978 that without accelerated institutional reforms and new major policy initiatives on a broad front, economic construction that continues using the 1978-2005 policy framework, which had produced an average annual GDP growth rate of almost 10 percent, is unsustainable; and
2. unless their new policies could produce significant improvements in social harmony by 2020, social instability would reduce China's economic growth, hence, making the leadership of CPC in Chinese politics unsustainable.

The realisation of the above two points is, in my opinion, the most important reason why China has changed its development policy from single-minded pursuit of high GDP growth to building a harmonious society. In other words, to return to the analogy of China's economy being like a speeding car, the Hu-Wen leadership saw that car could crash in the near future because there were several high-probability failures that might occur and cause an economic collapse.

To be specific that there are three classes of failures that could occur:

1. hardware failure,
2. software failure, and

³ "CPC Plenary session calls for developing the economy based on scientific concept," People's Daily Online, October 12, 2005;
http://english.people.com.cn/200510/12/eng20051012_213891.html

3. power supply failure.

A **hardware failure** refers to the breakdown of an economic mechanism, a development that is analogous to the collapse of the chassis of the car. Probable hardware failures are:

1. a banking crisis that causes a credit crunch that, in turn, dislocates production economy-wide, and
2. a budget crisis that necessitates reductions in important infrastructure and social expenditure (and also possibly generates high inflation, and balance of payments difficulties as well).

A **software failure** refers to a flaw in governance that creates frequent widespread social disorders that disrupt production economy-wide and discourage private investment. This situation is similar to a car crash that resulted from a fight among the people inside the speeding car. Software failures could come from:

1. the present high-growth strategy creating so much inequality, and corruption that, in turn, generates severe social unrest which dislocates economic activities; and
2. the state not being responsive enough to rising social expectations, hence causing social disorder.

A **power supply failure** refers to the economy being unable to move forward because it hits either a natural limit or an externally-imposed limit, a situation that is akin to the car running out of gas or having its engine switched off because an outsider reached in and pulled out the ignition key. Examples of power supply failures are:

1. an environmental collapse, e.g. climate change, a type of disaster that has happened quite often in history, e.g. Diamond (2005); and
2. a collapse in China's exports because of a trade war

My perception is that the Chinese leadership is quite confident that it could prevent most hardware failures and that it could respond appropriately to them if they were to occur. The leadership is less confident however about its ability to prevent, and react optimally to, software failures and power supply failures. Even more, the leadership knows that the negative trends since the mid-1990s of widening income disparity, worsening corruption, rising social expectations, growing trade imbalances, and deteriorating natural environment have increased the probability of software failures and power supply failures. The thesis here is that this increase attention by the Hu-Wen leadership on possible software failures and power supply failures is the origin of China's quest for a harmonious society.

The discussion of most of the high-probability events that could make China's high growth unsustainable is beyond the scope of this paper. I will limit my discussion to the event in each class of failure that has the highest probability of occurring under the present economic policy regime. My assessment is that the highest probability event in hardware failure is the weakening of China's fiscal position; the highest probability event

in software failure is social disorder, and the highest probability event in power supply failure is water shortage. And my ranking of the probability of these three specific negative events in descending order is social disorder caused by outmoded governance, water shortage as a result of inept environmental management, and fiscal crisis generated by the repeated recapitalization of the state banks and the rapid aging of the population.

I must emphasise that these three events have the highest probability of happening only as long as the present socio-economic policy regime continues. These events need not happen. With the root-and-branch reform of China's society as specified in the Harmonious Society program, and with drastic reform of the economic system and of the economic management system, China can move to a sustainable mode of economic development. This fundamental change in the overall policy regime will not only reduce poverty, income inequality, and financial shenanigans, but also enhance macroeconomic stability, strengthen the fiscal basis of the state, raise the efficiency of the financial sector, and lower the tensions in international economic relations.⁴

The Need for Improved Governance to Sustain Economic Growth

The present economic development strategy does not only generate high growth, it also generates high social tensions. At the present stage of economic development, this development strategy has great difficulties in reducing extreme poverty further and in improving income distribution significantly; see Woo, Li, Yue, Wu, and Xu (2004), and Démurger, Sachs, Woo, Bao, Chang, and Mellinger (2002). Furthermore, this mode of economic development also generates immense opportunities for embezzlement of state assets, and corruption; see Woo (2001). These features certainly make social harmony hard to sustain.

The prevention of the above negative events would be helped if China had better governance. Specifically, there would be more pre-emptive efforts at conflict mediation by the government and less abuse of power by government officials if the government's actions were monitored more closely by an independent mechanism, and the government were also held more accountable for its performance. I therefore do not think that it is naive to see the Harmonious Society program as a serious attempt at fundamental reform of China's institutions of governance, going well beyond the reform of economic institutions. This assessment is substantiated by the identification of the first component of a harmonious society as "a democratic society under the rule of law." This point was confirmed in a meeting between Premier Wen and the Brookings Board of Trustees in October 2007, where Premier Wen dwelt at length on how China intends to make greater use of democratic mechanisms (e.g. extending free elections to above the village level) to mediate social conflicts and to improve public administration.

⁴ The generation of these additional benefits is discussed in Woo (2005), and Woo (2006).

The desire by the Hu-Wen leadership to improve the institutions of governance is also borne out by the following report from the South China Morning Post about what Premier Wen said when he met a group of Chinese citizens in Japan in April 2007:⁵

"During 30 minutes of impromptu remarks, he said the key to pursuing social justice, the mainland's most important task, was to "let people be masters of their houses and make every cadre understand that power is invested in them by the people".

"..... Although he did not deviate from the official line and spoke informally on both occasions, Mr Wen is known for being careful about what he says, whether in prepared remarks or speaking off the cuff. The fact that he highlighted, in the presence of Hong Kong and overseas journalists, the need for political reform is uncharacteristic and interesting, particularly in the context of the leadership reshuffle looming at the Communist Party's 17th congress later this year.

"There have been signs that the leadership under President Hu Jintao is under increasing pressure to undertake drastic political reforms to consolidate the party's grip on power and stamp out widespread corruption."

While a cynical observer might doubt the sincerity of Premier Wen's words, he cannot doubt that Premier Wen is at least aware that democracy is one way to solve many of China's problems of governance. More important, the cynic cannot doubt that Premier Wen, like many of his countrymen, must be well acquainted with the history of democratic development in Eastern Europe and in East Asia, particularly in Taiwan and Hong Kong.

To understand the reasons behind the Hu-Wen's switch to democracy as the new important instrument to introduce external supervision and accountability into governance, it is worth quoting at length from two recent insightful analyses on social unrest in China.

In Albert Keidel's (2006) assessment:

"Large-scale public disturbances have been on the rise in China for more than a decade. Media reports describe violence, injuries, and even deaths Issues include labor grievances, taxation, land confiscation, and pollution. Corruption worsens common injustices and further inflames citizen anger

⁵ "Impromptu remarks reveal the party's pressure for reforms," South China Morning Post, Monday, April 16, 2007.

" ... It is important to emphasize that China's social unrest is not made up of street demonstrations demanding a new government or western-style democracy ... China's social unrest should be understood as the unavoidable side effects -- worsened by local corruption -- of successful market reforms and expanded economic and social choice ... Managing this unrest humanely requires accelerated reform of legal and social institutions with special attention to corruption"

Murray Scot Tanner (2004) reports from his examination of documents prepared by China's police that:

"Most available police analyses now blame unrest primarily on approximately the same list of social, economic, and political forces..., implicitly relegating enemy instigation [i.e. conspiracy theories] to the role of a secondary catalyst ... In terms of internal security strategy, this characterization typically, though not always, reduces reliance on coercion ...

"[Many] police see a new social logic taking hold, with disgruntled citizens increasingly convinced that peaceful protests is significantly less dangerous and not only effective but often unavoidable as a means to win concessions. Police sources now routinely quote a popular expression: 'Making a great disturbance produces a great solution. Small disturbances produce small solutions. Without a disturbance, there will be no solution.'

" ... Socioeconomic change may generate these underlying demands and clashes of social interest, but it is usually government failures that cause these contradictions to turn antagonistic and dangerous."

Clearly, the large economic dislocations caused by the reform of the planned economy, and the institutional failures in governance⁶ are important factors behind the higher frequency of large social disturbances.⁷ However, like Tanner, I am of the opinion that there is a third important factor behind the increasing readiness to resort to civil disorder, which is that the richer and more knowledgeable Chinese population now has higher expectations about the performance of the government.⁸ The implication of the third

⁶ To get a sense of how abusive the local leaders could be, the reader should consult Chen and Wu (2006) for documentation on 5 incidents in the 1990s in Anhui province that suggest that "[many] of China's underclass live under an unchanged feudal system."

⁷ For example, in 2004, there were 74,000 "mass incidents" involving 3.7 million people compared to 10,000 such incidents involving 730,000 people in 1994; Minxin Pei, "China is Paying the Price of Rising Social Unrest," *Financial Times*, November 7, 2005.

⁸ Tanner (2004) pointed out that the "data demonstrate that unrest began rising rapidly no later than 1993-1995 when the rate of economic growth exceeded 10 percent. Protests also show a ratchet effect, remaining quite high (and continuing to rise in at least two provinces) even as the rate of economic growth revived ..."

factor is that "Beijing may be kidding itself if it believes economic growth alone will bring unrest under control."⁹

The CPC is too astute to kid itself. In its search for new mechanisms to improve its performance on governance, it naturally had to consider democratic institutions as an option because democracy is the well-tested means of governance in all of the developed world. The two basic considerations for the CPC in deciding upon whether democracy should become the new centerpiece in its governance structure are:

1. whether democracy, the rule of law, and a stable income distribution comprise an indivisible combination that is necessary to ensure the social stability that will keep the economy on the high growth path to catch up with the United States (a vision which acts as the bedrock of CPC's legitimacy to rule)?
2. whether the CPC will be skilful and lucky enough to lead the democratic transition and emerge afterward as the most important political force?

By proposing the Harmonious Society program, the Hu-Wen leadership has replied affirmatively to both questions.

Objectively, this attempt by the CPC to reinvent itself is a difficult and risky undertaking. A functioning democracy requires not just free elections but also a free press that is responsible and a competent judiciary that is independent. So, how would the rank and file of CPC (who are used to exercising unchallenged power for 50 years) react to these institutional changes which produce a power-sharing arrangement that is alien and chaotic? Furthermore, a plan of gradual democratization might be initially lauded and endorsed by most segments of society but subsequent changes in social expectations about governmental responsiveness and personal freedom could easily outpace the actual developments as implemented according to the plan.¹⁰ So, would the CPC then be sufficiently pragmatic to accelerate the plan to avoid being run over by events?¹¹

⁹ Tanner (2004).

¹⁰ For example, in the same meeting with the Trustees of Brookings Institution in October 2006, Premier Wen outlined a step-by-step extension of free election from the village level to the provincial level. While such a plan, if proposed, would most likely receive wide societal approval in 2006, it is possible that Chinese society in 2020 might have raised its expectations to that free election should also be held at the national level.

¹¹ If such escalations in social expectations are natural, then it is likely that regardless of whether or not the CPC defines "democracy" the same way as the U.S. constitution (or the Taiwanese constitution), the form of the democracy that will finally emerge in China will be closer to the latter's definition. Perhaps, this is why the former Party Secretary Zhao Ziyang warned his colleagues in 1986-1987: "Democracy is not something socialism can avoid. The people's demand for democracy is a trend. We must meet their demand to the fullest extent." (Zhao's remarks are quoted in Minxin Pei, "How Far Has China to Go?" Financial Times, January 18, 2005.)

One possible answer to both these questions is that the CPC would rise to the demands of the occasions and transform itself into a social democratic party. An alternative answer based on the experiences from the Soviet bloc is that CPC would split and social instability would follow. While any answer to the two previous questions is necessarily speculative, what is much more definitive is the genesis of the program to achieve a harmonious society by 2020. The fact that the Hu-Wen leadership, which is well-known for its political caution, has embarked on this technically difficult and politically risky project suggests that it has concluded that new far-reaching reforms are less dangerous than partial reforms, and that, given the deep entrenchment of the disharmonious elements, time might not be on its side.¹²

The Need for Environmental Protection to Sustain Economic Growth

The present mode of economic development has given China the dirtiest air in the world, is polluting more and more of the water resources, and, is, possibly, changing the climate pattern within China. The reality is that CPC's new objective of living in harmony with nature is not a choice because the Maoist adage of "man conquering nature" is just as realistic as creating prosperity through central planning. China's fast growth in the last two decades has done substantial damage to the environmental. Elizabeth Economy (2004, pp. 18-19) summarized the economic toll as follows:

"China has become home to six of the ten most polluted cities in the world.¹³ Acid rain now affects about one-third of China's territory, including approximately one-third of its farmland. More than 75 percent of the water in rivers flowing through China's urban areas is [unsuitable for human contact¹⁴] ... deforestation and grassland degradation continue largely unabated¹⁵ ... The [annual] economic cost of environmental degradation and pollution ... are the equivalent of 8-12 percent of China's annual gross domestic product."

Water shortage appears to pose the most immediate environmental threat to China's continued high growth.¹⁶ Presently, China uses 67 to 75 percent of the 800 to 900 billion

¹² This sense of urgency explains why there is an explicit deadline of 2020.

¹³ "300,000 people die prematurely from air pollution annually, which is twice the number for South Asia, which has a roughly comparable population" Economy, (2004, pp.85)

¹⁴ Economy (2004, pp.69)

¹⁵ "... degradation has reduced China's grassland by 30-50 percent since 1950; of the 400 million or so hectares of grassland remaining, more than 90 percent are degraded and more than 50 percent suffer moderate to severe degradation." Economy (2004, pp. 65)

¹⁶ I will not talk about air pollution in this paper, and this should not be taken to indicate that it is not a serious problem. Of the twenty cities in the world identified by the World Bank as having the dirtiest air, sixteen of them are located in China. It is shocking that lead and mercury poisoning are more common than expected, see. "China's economic miracle contains mercuric

cubic meters of water available annually, and present trends in water consumption would project the usage rate in 2030 to be 78 to 100 percent.¹⁷ The present water situation is actually already fairly critical because of the uneven distribution of water and the lower than normal rainfall in the past fifteen years. Right now, "[about] 400 of China's 660 cities face water shortages, with 110 of them severely short."¹⁸

The extended period of semi-drought in northern China combined with the economic and population growth have caused more and more water to be pumped from the aquifers, leading the water table to drop three to six meters a year.¹⁹ And a study using measurements from satellites (the Global Positioning System) has established that the part of China north of the 36th parallel latitude has been "sinking at the rate of 2 mm a year."²⁰ Specifically, "Shanghai, Tianjin, and Taiyuan are the worst hit in China, with each sinking more than two meters (6.6 feet) since the early 1990s."²¹

The overall water situation in northern China is reflected in the fate of the Yellow River, "which started drying up every few years from 1972, did so for increasing periods of time over longer distances in the 1990s until 1997, when it dried up for almost the entire year over a stretch of several hundred kilometres."²²

The utilization rate of Yellow River's water is 60 percent, far exceeding the internationally recommended utilization limit of 40 percent. All the mentioned factors have contributed to lowering the "amount of Yellow River water feeding into the Bohai Sea" from an annual 49.6 billion cubic meters in the 1960s to 14.2 billion cubic meters in the 1990s to the present 4.65 billion cubic meters.²³

threat," Financial Times, December 18, 2004; and "A Poison Spreads Amid China's Boom," Wall Street Journal, September 30, 2006.

¹⁷ "Top official warns of looming water crisis," South China Morning Post, November 7, 2006.

¹⁸ "China may be left high and dry," The Straits Times, January 3, 2004. The shortage is reported to be most acute in Taiyuan in Shanxi and Tianjin (Becker, 2003).

¹⁹ "Northern cities sinking as water table falls," South China Morning Post, August 11, 2001; and Becker (2003).

²⁰ "Northern China sinking... as the south rises," The Straits Times, March 18, 2002. "Some 60 percent of the land in Tianjin municipality is plagued by subsistence" (Becker, 2003).

²¹ "Chinese cities, including Olympic host Beijing, slowly sinking," Agence France-Presse, July 23, 2004.

²² "China may be left high and dry," The Straits Times, January 3, 2004.

²³ "Top official warns of looming water crisis," South China Morning Post, November 7, 2006.

Water shortage and the increasing pollution of what water there is²⁴ are not the only serious environmental threats to the economy of northern China. The desert is expanding (possibly, at an accelerating pace), and man appears to be the chief culprit. The State Forestry Administration reported that 28 percent of the country's land mass was affected by desertification in 1999, and 37 percent was affected by soil erosion. The report identified about 65 percent of the desert as having been created by "over-cultivation, overgrazing, deforestation and poor irrigation practices."²⁵ The rate of desertification is 3,900 square miles a year,²⁶ an annual loss of a land area twice the size of Delaware. One direct upshot is a great increase in the frequency of major sandstorms²⁷ that play "havoc with aviation in northern China for weeks, cripples high-tech manufacturing and worsens respiratory problems as far downstream as Japan, the Korean peninsula and even the western United States."²⁸ In the assessment of Chen Lai, Vice-Minister of water resources: "It will take nearly half a century for China to control the eroded land and rehabilitate their damaged ecosystems in accordance with China's present erosion-control capabilities."²⁹

While northern China has been getting drier and experiencing desertification, nature as if in compensation (or in mockery) has been blasting southern China with heavier rains, causing heavy floods which have brought considerable deaths and property damage almost every summer since 1998. The sad possibility is that the northern droughts and southern floods may not be independent events but a combination caused by pollution that originates in China. I will have more to say about this possibility later.

²⁴ Examples of serious water pollution are "Main rivers facing a 'pollution crisis' ," South China Morning Post, June 6, 2003; "Booming cities polluting scarce water supplies," The Straits Times, September 18, 2003; "Rivers Run Black, and Chinese Die of Cancer," New York Times, September 12, 2004; " 'Cancer villages' pay heavy price for economic progress," South China Morning Post, May 8, 2006; and "Rules Ignored, Toxic Sludge Sinks Chinese Village," New York Times, September 4, 2006.

²⁵ "Quarter of land now desert -- and Man mostly to blame," South China Morning Post, January 30, 2002.

²⁶ This is average of the 3,800 square miles reported in "Billion of Trees Planted, and Nary a Dent in the Desert," New York Times, April 11, 2004, and the 4,014 square miles reported in "Quarter of land now desert -- and Man mostly to blame," South China Morning Post, January 30, 2002.

²⁷ The number of major sandstorms in China was 5 in the 1950-59 period, 8 in 1960-69, 13 in 1970-79, 14 in 1980-89, 23 in 1990-99, 14 in 2000, 26 in 2001, 16 in 2002, and 11 in 2003 according to Yin Pumin, "Sands of Time Running Out: Desertification continues to swallow up 'healthy' land at an alarming rate," Beijing Review, June 16, 2005.

²⁸ "Billion of Trees Planted, and Nary a Dent in the Desert," New York Times, April 11, 2004

²⁹ "Quarter of land now desert -- and Man mostly to blame," South China Morning Post, January 30, 2002.

Clearly, without water, growth cannot endure. And in response, the government begun implementation in 2002 of Mao Zedong's 1952 proposal that three canals be built to bring water from the south to the north: an eastern coastal canal from Jiangsu to Shandong and Tianjin, a central canal from Hubei to Beijing and Tianjin, and a western route from Tibet to the northwestern provinces, and each canal will be over a thousand mile long.³⁰ Construction of the eastern canal (which would build upon a part of the existing Grand Canal) started in 2002, and the central canal in 2003. Work on the western canal is scheduled to begin in 2010 upon completion of the first stage of the central canal.

The scale of this water transfer project is simply unprecedented anywhere:

"Together, the three channels would pump about 48 billion litres of water a year -- enough to fill New York's taps for a quarter century. Only a tenth as much water flows through the next-largest water diversion project, in California."³¹

This massive construction project will not only be technically challenging but also extremely sensitive politically and fraught with environmental risks. The central canal will have to tunnel through the foot of the huge dyke that contains the elevated Yellow River, and the western canal will have to transport water through regions susceptible to freezing. The number of people displaced by the Three Gorges Dam was 1.1 million, and this water transfer scheme is a bigger project. The enlargement of the Danjiangkou Dam (in Hubei) alone to enable it to be the source of the central canal will already displace 330,000 people.³² Moving people involuntarily is certainly potentially explosive politically. The project could also be politically explosive on the international front as well. One plan for the western canal calls for "damming the Brahmaputra river and diverting 200 billion cubic metres of water annually to feed the ageing Yellow river," a scenario that is reportedly "giving sleepless nights to the Indian government ... [which is concerned that this 'Great Western Water Diversion Project] could have immense impact on lower riparian states like India and Bangladesh."³³

The environmental damages caused by this project are most serious for the central and western canals. In the case of the central canal,

"environmental experts [in Wuhan where the Hanjiang River flows into the Yangtze] are worried about ... [whether the annual extraction of eight billion cubic metres of water could affect] the river's ability to flush out the

³⁰ "Ambitious canal network aims to meet growing needs," South China Morning Post, November 27, 2002.

³¹ "China approves project to divert water to arid north," South China Morning Post, November 26, 2002.

³² "Massive scheme aims to quench China's thirst," South China Morning Post, May 12, 2003; a lower estimate of 300,000 is given in "China Will Move Waters to Quench Thirst of Cities," New York Times, August 27, 2002.

³³ "China's river plan worries India," Times Of India, October 23, 2006.

massive pollution flows released by the thousands of factories and industries along the tributaries ... The reduced flows could increase the frequency of toxic red algae blooms on the Yangtze near the confluence with the Hanjiang River. There have already been three blooms ... [by May of that year, 2003]."³⁴

The western canal has generated a lively controversy. Some scientists are contending that it "would cause more ecological damage than good"³⁵ because it "could cause dramatic climate changes ... [and] the changed flow and water temperature would lead to a rapid decline in fish and other aquatic species."³⁶

Many opponents of the water transfer project have argued that water conservation could go a long way toward addressing this problem because currently a tremendous amount of the water is just wasted, e.g. only 50 percent of China's industrial water is recycled compared to 80 percent in the industrialized countries,³⁷ and China consumes 3,860 cubic meters of water to produce \$10,000 of GDP compared to the world average of 965 cubic meters.³⁸ The most important reason for this inefficient use of water lies in the fact that "China's farmers, factories and householders enjoy some of the cheapest water in the world"³⁹ even though China's per capita endowment of water is a quarter of the world average.⁴⁰

I now want to raise the unhappy possibility that neither the price mechanism nor the three canals can solve China's water problem and make its growth sustainable unless the present mode of economic development is drastically amended. There is now persuasive evidence that China's voluminous emission of black carbon (particles of incompletely combusted carbon) has contributed significantly to the shift to a climate pattern that produces northern droughts and southern floods of increasing intensity.⁴¹ The biggest source of what has been called the "Asian brown cloud" in the popular media is burning of coal and bio-fuels in China. If the pollution-induced climate change analysis is valid, it means that:

1. China's massive reforestation program will not succeed in reducing sandstorms in the north because trees cannot survive if the amount of rainfall is declining over time; and

³⁴ "Massive scheme aims to quench China's thirst," South China Morning Post, May 12, 2003

³⁵ "China Water Plan Sows Discord," Wall Street Journal, October 20, 2006.

³⁶ "Chinese water plan opens rift between science, state," American-Statesman, September 10, 2006.

³⁷ "China may be left high and dry," The Straits Times, January 3, 2004.

³⁸ "Alert sounded over looming water shortage," The Straits Times, June 10, 2004.

³⁹ "Water wastage will soon leave China high and dry," South China Morning Post, March 8, 2006.

⁴⁰ "Alert sounded over looming water shortage," The Straits Times, June 10, 2004.

⁴¹ Menon, Hansen, Nazarenko, and Luo (2002), and Streets (2006).

2. the number of south-north canals will have to be increased over time in order to meet the demand for water in northern China; until China reduces its emission of black carbon significantly (presuming no new large emissions from neighboring countries (like Indian)).

The general points is that effective policy-making on the environmental front is a very difficult task because much of the science about the problem is not know. For example, China must no longer select its water strategy and it energy strategy separately. A systems approach in policymaking is necessary because the interaction among the outcomes from the different sectoral policies can generate serious unintended environmental damage. If part of the shift in China's climate is integral to the global climate change, then a sustainable development policy would require a complete rethink about the location of population centers, and types of enhanced international cooperation on global environmental management.

The uncomfortable reality for China is that unless ecological balance is restored within the medium-term, environmental limits could choke off further economic growth. And the uncomfortable reality for the rest of the world is that the negative consequences of large-scale environmental damage within a geographically large country are seldom confined within that country's borders. The continued march of China's desertification first brought more frequent sand storms to Beijing and then, beginning in April 2001, sent yellow dust clouds not only across the sea to Japan and Korea but also across the ocean to the United States. China's environmental management is a concern not only for China's welfare but also for global welfare as well.

In discussing the environmental aspects of the water transfer plan, it is important to note that there is now an open controversy in China involving a key government infrastructure project, and that this controversy is not limited to members of the technocracy. The very public nature of the controversy and the involvement of more than just scientists, engineers and economists in it reveal how very far social attitudes have progressed. The important point is that this change in social expectations will require any government in China to live in harmony with nature. However, any government will have great difficulties in doing so even if it wants to because a green growth policy involves a systems approach, and scientific understanding of many ecological sub-systems and the nature of their interactions is still rather incomplete,

The Challenge of Fiscal Sustainability

Among doomsayers, one favorite mechanism for the forthcoming collapse of an economy is the inevitable fiscal crisis of the state. What is noteworthy is that this fiscal mechanism is used by doomsayers of all stripes. The Marxist economist, James O'Connor (1973), predicted that the dynamics of capitalist America would precipitate a fiscal crisis that

would destabilise the economy completely. In turn, the capitalist lawyer, Gordon Chang (2001), predicted that a fiscal crisis could be the triggering event in the unavoidable disintegration of socialist China.

This fixation of the doomsayers upon a large negative fiscal shock as a totally destructive systemic shock is understandable because fiscal imbalance is the proximate cause in most crises. The reason is that the state budget is often faced with the task of defusing the cumulative tensions unleashed by deeper, more fundamental social processes. To a first approximation, fiscal capacity is a fundamental determinant of system stability because economic sustainability depends on the ability to cover production costs, and political viability depends on the ability to reward one's supporters and to pay off one's enemies.

The reality in many cases is that fiscal sustainability is the prerequisite for both economic sustainability and political viability, and that economic sustainability and political viability are intricately linked and mutually reinforcing. To see the mutual interdependence of the two, one has only to recall the many times that near-bankrupt governments have been driven out of power after raising the prices of a subsidised item like food, petrol, or foreign exchange.⁴² One could indeed go so far as to say that the degree of economic and political resilience of a state can be measured by the state's ability to cover an unexpected, prolonged increase in expenditure or an unanticipated, protracted shortfall in revenue.⁴³

A recent OECD (2006) report has raised grave concerns about China's fiscal management. Specifically:

"China's officially reported spending figures reflect only about three-quarters of total government spending. Extra-budgetary spending, social security outlays and central government bond financing of local projects are not part of the official budget. Notwithstanding recent reforms, the government remains overly exposed to extra-budget and off-budget activities, which make public expenditures difficult to plan and control and which impair their accountability and transparency. Contingent liabilities have been a major source of unplanned spending and pose perhaps the greatest risk to the controllability of future expenditure." (pp. 10)

I share the concerns expressed in this OECD report. I want to add that there are other equally important concerns about China's fiscal situation (e.g. there are fundamental

⁴² See Bates (2005) for examples of African governments falling after removing food subsidies, and see Cooper (1971) for examples of government changes after currency devaluations. Soeharto of Indonesia was pushed out of office in May 1998, one month after raising fuel prices

⁴³ Of course, a strong fiscal position cannot overcome all challenges, e.g. when the challenger thinks that he can assume political power and hence take control of the fiscal mechanism, it will be very difficult to bribe him to go away.

improvements that should be made to the public revenue side), and there is also the even more important issue of fiscal sustainability. In my opinion, fiscal sustainability is more important than fiscal efficiency because – the former determines the survival of the system, while the latter only influences the output growth rate.

The fact that fiscal sustainability is central to economic management can be seen in the two fiscal targets that the original Growth and Stability Pact of the countries in the Euro-Zone specified for its members to meet:

- the consolidated government budget deficit should not exceed 3 percent of GDP except in case of unusually severe downturn, and
- the debt-GDP ratio should be brought down to 60 percent or lower.

Table 1 gives an international perspective on the fiscal situation in China by comparing it with those in the OECD countries. I chose the year 2001 for China because I want to postpone until later the discussion on the fiscal consequences of the now ongoing recapitalization of the state-owned banks (SOBs). I use the year 2003 for OECD because the cross-country data were conveniently available for this year.⁴⁴ Table 1 reports that China's official debt-GDP ratio was 16.4 percent, which compared very favorably with the OECD average of 75.3 percent. If the tiny state of Luxembourg is treated as an exception and excluded from the comparison, then the lower half of the OECD distribution of debt-GDP ratios ranges from 18.6 percent (South Korea) to 55.5 percent (Denmark); and the upper half of the distribution ranges from 58.1 percent (Hungary) to 154 percent (Japan).

As China's debt-GDP ratio of 16.4 percent is below the 18.6 percent of South Korea, and as China's annual budget deficit has nearly always been below 3 percent of GDP, it would seem that China has a sounder fiscal situation than all the OECD countries.⁴⁵ Such an impression needs to be qualified however. Many analysts have noted that China's official debt-GDP ratio understates the extent of China's fiscal burden because it does not include the nonperforming loans in the SOBs that the state would have to take over during recapitalization, and it does not include many contingent liabilities (e.g. pension schemes of state enterprises) that the state would have to assume responsibility for in order to preserve economic and social stability. Citigroup (2002), for example, has estimated that the cost for SOB recapitalization was 46.9 percent of GDP, social security obligations was 26.1 percent, and external debts was 15.6 percent.

Part II of Table 1 uses estimates from Citigroup (2002) and Fan (2003) to revise China's official debt-GDP ratio. The outcomes are that China's debt-GDP ratio is:

- 57.4 to 65.9 percent when only SOB recapitalization is undertaken; and
- 74.7 to 114.9 percent when all contingent liabilities are recognised.

⁴⁴ <http://stats.oecd.org/wbos/viewhtml.aspx?QueryName=2&QueryType=View&Lang=en>

⁴⁵ Except for Luxembourg which was excluded because of its atypical nature.

This change in China's debt-GDP ratio:

- moves China from the bottom of the OECD distribution to the top half of the distribution; and
- in the worst case scenario, puts China in the group of the five OECD countries with the highest ratios; 74.7 to 114.9 percent for China versus 75.7 percent for Canada, 103.2 percent for Belgium, 108.8 percent for Greece, 121.4 percent for Italy, and 154 percent for Japan.

Should the much higher revised debt-GDP ratio raise concern about China's fiscal sustainability? Our cautious reading of the evidence is that a fiscal crisis is not imminent in China. China's ratio not only falls within the OECD experience, its worst-case ratio of 114.9 percent is still lower than Italy, which has been performing satisfactorily in overall economic performance. Most importantly, China's ratio is still substantially lower than the highest OECD ratio of 154 percent (Japan).

While I believe China's fiscal regime to be sustainable, there are two fiscal features that have rendered the fiscal system vulnerable to a crisis. The first fiscal feature is that China has a lower capacity to service its public debt than all the OECD countries. While China's revenue-GDP ratio has been increasing rapidly from 10.7 percent in 1995 to 16.8 percent in 2001, and to an expected 21.6 percent in 2007, the 2007 level of 21.6 percent is still too low by OECD standards. The average revenue-GDP ratio in the OECD in 2003 was 36.3 percent, with the three lowest ratios (25.3 percent for Japan and South Korea, and 25.6 percent for the United States) higher than China's. While China's best-case debt-GDP ratio of 57.4 to 65.9 percent puts China in the same group as Denmark (55.5 percent), Hungary (58.1 percent), Sweden (59.8 percent), and Netherlands (61.9 percent), China's revenue-GDP ratio is only 21.6 percent compared with Denmark's 48.3 percent, Hungary's 38.5 percent, Sweden's 50.6 percent, and the Netherland's 38.8 percent. For the OECD countries with debt-GDP ratios that are similar to China's worst-case debt-GDP ratio of 74.7 to 114.9 percent, all of them also have higher revenue-GDP ratios: 21.6 percent for China versus 33.8 percent for Canada, 45.4 percent for Belgium, 35.7 percent for Greece, and 43.1 percent for Italy.

The important point about this first fiscal feature is that as China's public debt rises from 16.4 percent of GDP to 74.7 percent with the incremental assumption of the contingent liabilities, the state will have to reduce expenditure steadily to accommodate the additional debt service unless there is an increase in state revenue.

The second fiscal feature that renders China vulnerable to a fiscal crisis is the constant need to recapitalise the SOBs. In 1998-1999, the government injected new capital into China's banks and transferred a large proportion of the NPLs to the state-owned asset management corporations (AMCs) in order to raise the capital adequacy ratio (CAR) of

the four largest state-owned banks, commonly referred to as the Big Four⁴⁶, from 4.4 percent at the end of 1996 to over 8 percent at the end of 1998. However, the rapid appearance of new NPLs after 1998 has lowered the average CAR of the Big Four to 5.0 percent by the beginning of 2002.

The outcome is that China has been engaging in a second round of recapitalisation of the SOBs since 2003. Some unorthodox methods have also been used, e.g. in late 2003, Bank of China and China Construction Bank received a capital injection US\$22.5 billion each from the foreign reserves of the People's Bank of China.⁴⁷ The results of this still-ongoing second recapitalisation, and the rapid expansion of loans in the last two years is that the NPL ratio has improved, and the CAR of the Big Four was about 8 percent respectively at the end of 2004.

The important question is how many more rounds of bank recapitalization can China afford without generating a fiscal crisis? The simple fact is that fiscal sustainability lies at the heart of whether a banking crisis would actually occur. As long as the state is perceived to be able and willing to bail out the SOBs, depositors would retain their confidence in the SOBs regardless of the actual state of their balance sheets. Since the stock of publicly-acknowledged government debt in 2004 is only about 33 percent of GDP, it is usual to hear official assurances that the current fiscal deficits of less than 2 percent of GDP do not pose a problem for debt servicing by the state.⁴⁸ However, the current value of the debt-GDP ratio is not a good indicator of the sustainability of the existing fiscal policy regime, a better indicator would involve working out the evolution of the debt-GDP ratio over time.

Briefly, a fiscal regime that causes the debt-GDP ratio to:

- grow explosively is unsustainable,
- decline secularly to zero is sustainable,
- attain an equilibrium steady-state value that is "low" is unlikely to destabilise the economy; and vice-versa.

To put the issue formally, the evolution of the debt-GDP ratio as given by:

$$d(\ln[\text{Debt}/\text{GDP}]) / dt = r + [\text{GDP}/\text{Debt}] \cdot [f + b] - y$$

⁴⁶ The Big Four are Agricultural Bank of China, Bank of China, China Construction Bank and Industrial and Commercial Bank of China.

⁴⁷ The People's Bank of China established an investment company (Central Huijin Company) under the State Administration of Foreign Exchange to undertake this injection of capital. This gave Huijin 85 percent of the ownership of China Construction Bank, and 100 percent of Bank of China.

⁴⁸ One should really use the consolidated debt of the state sector because it includes at least some part of the contingent liabilities (e.g., foreign debts of SOEs and SOBs, and unfunded pension schemes in the SOE sector) that the state might have to assume responsibility for when the state-owned units default on their financial obligations

where

r = real interest rate on government debt

f = primary fiscal deficit rate

= [state expenditure excluding debt service – state revenue] / GDP

b = NPL creation rate

= [change in NPL in SOBs] / GDP

y = trend growth rate of real GDP

As long as $y > r$, then the Debt/GDP ratio will have a steady-state value that is nonzero when sum of $(f + b) > 0$. Specifically,

$$(\text{Debt/GDP})_{\text{steady-state}} = (f + b) / (y - r) \text{ when } y > r$$

China appears to belong to this case because its post-1978 annual growth rate has averaged 9.4 percent, its growth rate in the next ten years is likely to be above 8 percent; and the real interest rate has been about 4 percent. For the generation of likely future scenarios, I will make the conservative assumptions that y is 8 percent, f is 1 percent, and r is 6 percent.⁴⁹ It is difficult to predict b , the rate that banks would generate NPLs, because it depends on the type of banking reform undertaken. If no meaningful reforms are undertaken, then b is likely to remain at the historic value of 6 percent.

So conditional on the effectiveness of reforming the SOBs, the steady-state ratio is:

$$(\text{Debt/GDP})_{\text{steady-state}} = 350 \text{ percent when } b = 6 \text{ percent}$$

$$(\text{Debt/GDP})_{\text{steady-state}} = 200 \text{ percent when } b = 3 \text{ percent}$$

$$(\text{Debt/GDP})_{\text{steady-state}} = 100 \text{ percent when } b = 1 \text{ percent}$$

The noteworthy finding from above scenarios is that China will produce a level of $(\text{Debt/GDP})_{\text{steady-state}}$ that is high by international experience despite the optimistic assumptions that long-run growth rate is 8 percent, that that b will be lowered from 6 percent of GDP to 1 percent. The most optimistic outcome is still two-third larger than what the European Union has set to be the "safe" debt-GDP target (60 percent) for its members. The banking system has made China vulnerable to a fiscal crisis even though there is a theoretical steady-state level for the debt-GDP ratio. Of course, the creation of NPLs cannot be attributed entirely to the SOBs, their chief customers, the embezzlement-ridden and inefficiency-ridden SOEs⁵⁰, deserve an equal share of the blame.

⁴⁹ f has been above 1.5 percent for the past seven years. r was 4 percent in the past only because the interest rate was regulated. I think that the implementation of financial deregulation that is necessary for normal healthy development of the financial sector will render r to be at least 6 percent because, one, according to Solow (1991), the stylised fact for the real interest rate in the United States is that it is 5 to 6 percent; and, two, both the marginal rate of return to capital and the black market loan rate have been more than 20 percent.

⁵⁰ See Woo, Hai, Jin, and Fan (1994), and Woo (2001).

The important point from this second fiscal feature is that the present ongoing recapitalization of the SOBs is the last time that the government can afford to recapitalize the SOBs, and possibly the last time that the government can do so without upsetting confidence in the financial markets about the soundness of China's fiscal regime.

Now, how difficult is it to raise China's revenue-GDP ratio and to stop losses in the SOBs in order to ensure fiscal sustainability? On the subject of raising state revenue, I make two inter-related observations.

The first observation is that since the state has the right to raise taxes, it is a mystery that fiscal crises have happened so often and in many parts of the world. In theory, a government faced with a repayment of principal could impose a new tax on bondholders and then use this new revenue to redeem the bonds from the same people. In practice, however, such an act would be perceived correctly as a confiscation of wealth by a profligate (possibly, also incompetent) government, and could lead to a political unrest that topple the government. In short, even though governments can introduce new taxes anytime, this is an option many governments are very cautious in exercising because of political reasons. The worry is that raising taxes might be interpreted by the populace in the same way that a currency devaluation is usually interpreted, the outcome of governance failure.

The second observation about tax-raising ability is that the G-7 countries with the highest revenue-GDP ratios are western European countries, e.g. France (43.4 percent), Germany (35.5 percent), Italy (43.1 percent), and United Kingdom (35.6 percent) versus United States (25.6 percent) and Japan (25.3 percent). In these western European countries, the citizens voted in politicians who then raised taxes to finance social democratic programs (e.g. subsidized universal healthcare, subsidized higher education, and public pension schemes).

The reasons why the United States has low taxes and fewer social programs than the western Europe are many and complex, two of which are that the United States was founded on the basis of a tax revolt against England, and that it has a stronger cultural emphasis on individualism. In short, a government could raise more taxes and survive politically only if the citizens like these state-provided services and are willing to pay for them. This explains why the highest tax burdens are found in democracies and not in authoritarian societies, the taxes could be collected in the former only because the people had agreed to their imposition and to their intended use.

On the issue of how to raise China's revenue-GDP ratio to make the fiscal regime sustainable, it is unlikely that the ratio will continue growing at the speed of the 1995-2001 period because the VAT and the company income tax are becoming the main sources of state revenue, and these are flat taxes and not progressive taxes. Therefore

China's revenue-GDP ratio is unlikely to increase much more unless new taxes or higher tax rates are introduced. Because it would be highly unpopular for the Chinese government to raise taxes in the name of covering the losses of the banks and of taking over the pension schemes of the state enterprises, it might be politically more astute to generate the needed revenue by selling state assets instead.

On the issue of how to stop the losses in the SOB sector (the second requirement for fiscal sustainability), the solution lies in imposing a hard budget constraint on the SOBs. SOB managers have to be convinced that the present recapitalization is indeed the last free supper (which the 1998 recapitalization was announced to be), and that their compensation and promotion will depend only on the profitability of the SOBs relative to the profitability of private banks.

At the same time, the prudential supervision and monitoring of bank operations will have to be strengthened to prevent asset stripping and discourage reckless investments fostered by the asymmetrical reward system under the soft budget constraint.⁵¹ The operations of SOBs could be further improved by bringing in foreign strategic investors who would be part of the management team, and by removing the influence of the local governments on bank operations.

One additional way to harden the budget constraint faced by the SOBs is to privatise some of their branches, and use the performance of the new private banks to gauge the performance of the remaining SOBs. The privatisation of some branches will also help convince the SOB managers that the government is indeed serious about the present SOB recapitalization is indeed the last free supper.

In my discussion of the fiscal challenge, I have not addressed the adverse fiscal implications of China's demographic time bomb of a rapidly aging population. The state expenditure on social programs will expand with the growing ranks of the elderly, and this will be increasingly hard to cover with the tax revenue from the shrinking labor force -- unless unanticipated massive productivity improvements were to appear.

Final Remarks

It might seem surprising to hear that China needs fundamental and comprehensive reform of its social, political, and economic institutions when it has experienced high growth for almost 30 years. Why meddle with success? Why fix it if it is not broken?

There are two parts to the answer. The first part is that "it is broken." The reason why growth has stayed so high for so long is because the government has continually changed

⁵¹ The asymmetry is from the absence of financial punishment when a loss occurs.

policies to keep marketising the economy, deepening integration into the international economy, and, since the mid-1990s, reducing the discrimination against the private sector. In short, policies changes were the reason for keeping past growth high, and they will have to continue if future growth is to remain high.

The second part of the answer is that satisfaction with the status quo depends inversely on the level of expectations, and the expectations of the Chinese people towards their government have risen along with income, and, more importantly, risen along with their growing knowledge of the outside world. A Chinese government that consistently fails to produce results in line with the rise in social expectations runs the increasing risk of being challenged by another faction within the CPC. However, there has not been just rising expectations but also diversification of expectations. In this new situation, the greater use of democratic procedures is a natural way to accommodate the rising social expectations and mediate the emerging differences in social expectations.

In today's China, doing more of the same economic policies will not produce the same salubrious results on every front because the development problems have changed. For example, in the first phase of economic development, the provision of more jobs (through economic deregulation) was enough to lower poverty significantly. At the present, many of the people who are still poor require more than just job opportunities, they need an infusion of assistance (e.g. empower them with human capital through education and health interventions) first in order to be able to take up these job opportunities. This is why the poverty rate (defined by a poverty line of a daily income of US\$1) in China has stayed at about 11 percent since 1998.

Worse yet, it appears that after 1998, the post-1978 development strategy has not able to prevent the poor from getting poorer. Woo, Li, Yue, Wu and Xu (2004) found that the average income of the rural poor fell from 72 cents in 1999 to 63 cents in 2002; and a recent World Bank⁵² study found that the average income of the poorest 10 percent of China's population fell 2.4 percent in the 2001-2003 period. As the national average income went up in the 1998-2003 period, the implication is that the traditional trickling-down mechanism has morphed into a trickling-up mechanism. Development policymaking has now become even more challenging.

On the sustainable growth front, proper management of the environment has now become critical if China is to continue its industrialisation process. Pan Yue, deputy head of the State Environmental Protection Agency, summed up the present situation in China very well when he said:

⁵² "China's poorest worse off after economic boom," Financial Times, November 21, 2006 reported a 2.4 percent drop; and "In China, Growth at Whose Cost," The Wall Street Journal, November 22, 2006 reported a 2.5 percent drop.

"If we continue on this path of traditional industrial civilisation, there is no chance that we will have sustainable development. China's population, resources, environment have already reached the limits of their capacity to cope. Sustainable development and new sources of energy are the only road that we can take."⁵³

On the fiscal management front, the state budget is often called upon to change the spending flows to stabilise the price level, to apply the grease of infrastructure investments to crash through the production bottlenecks that are hindering economic growth, and to supply the financial glue to hold the polity together. It is therefore hard to over-emphasize the importance of fiscal soundness in economic management. The strong conclusion our analysis is that frequent bank recapitalization is the biggest threat to China's fiscal solvency, and that the present ongoing second recapitalization of SOBs since 1996 is the last one that China can afford. Because fiscal solvency is ensured when the state keeps interest rates low through regulation to contain the cost of debt service, China faces a difficult tradeoff between easy debt management and the promotion of financial market development via bank recapitalization and interest rate deregulation.

The analysis suggests two main policy suggestions to reduce the vulnerability of China to possible future fiscal difficulties:

1. increase the extractive capacity of the state so that the revenue-GDP ratio would increase to 25 percent in the medium term. This extra revenue will be the fiscal cushion that allows the state to accommodate unexpected expenditure demands or revenue shortfalls. As noted in the paper, the collection of revenue might probably first require overcoming the challenge of forging the political consensus for a tax increase.
2. reform the management of state assets and the regulation of the financial sector to eliminate the phenomenon of repeated recapitalization of the SOBs. The privatisation of some units of the SOBs, and the emergence of large domestic private banks will help in strengthening the budget constraints perceived by the managers of SOBs.

The fact that the probability of a software failure and the probability of a power supply failure are both higher than the probability of a hardware failure means that development policymaking in China has become more challenging. So, will China succeed in establishing a harmonious society and completing the overhaul of its economic system? My answer is a very cautious "yes". I am optimistic because both Chinese society and government want the economy to continue its convergence to a modern private market economy, exemplified by the developed world. My considerable caution comes from

⁵³ Quoted in James Kynge, "Modern China is facing an ecological crisis," Financial Times, July 26, 2004.

1. the new major reforms being technically difficult to implement (e.g. setting up social safety nets), and having few, if any, successful precedents in the world to draw upon (e.g. designing market-compatible environmental regulation); and
2. the possibility that the many potential losers from these major reforms could successfully organise to resist meaningful implementation of the reforms.

The present social, economic and political ills of China have been perceptively analysed by Minxin Pei (2006) as coming from being in a *trapped transition*, "a transformative phase in which half-finished reforms have transferred power to new, affluent elites"⁵⁴ who are using crony capitalism to generate high economic growth that is not sustainable. The Harmonious Society program (with its emphasis on democracy, rule of law, justice, equality, and harmony with nature), should therefore be recognised as the attempt by the Hu-Wen leadership to take China away from its present state of *trapped transition* to a sustainable high growth path. However, in Minxin Pei's assessment⁵⁵, the Hu-Wen leadership is unlikely to succeed:

"In a 'trapped transition', the ruling elites have little interest in real reforms. They may pledge reforms, but most such pledges are lip service or tactical adjustments aimed at maintaining the status quo."

While the sophisticated theoretical framework of Minxin Pei allows us to think through the problem of Chinese policymaking in a consistent manner, it is still not a fail-safe guide to the future for quite a number of reasons. Most fundamentally, because any model is a distillation of the average behavior of each identified group, and a summary of the most important shocks to the class of countries that China belongs to, an error term has to be included into each equation⁵⁶ of the model because unanticipated shocks (i.e. the excluded low-probability events) do happen. And these error terms are not necessarily white noises (i.e. self-offsetting), they could, for example, be random walks instead. In contrast to error terms that are white noises, error terms that are random walks have the mathematical property of actually shaping the long-term outcomes.

One real world manifestation of this random-walk error terms is the emergence of atypical leaders who are public-spirited rather than self-interested.⁵⁷ World history provides just too rich a menu of outcomes to allow us to indulge in the notion of inevitability. The French monarchy and the British monarchy reacted differently to the

⁵⁴ Minxin Pei, "China is Stagnating in Its 'Trapped Transition'," Financial Times, February 24, 2006.

⁵⁵ Minxin Pei, "China is Stagnating in Its 'Trapped Transition'," Financial Times, February 24, 2006.

⁵⁶ Except when the equation is an accounting identity.

⁵⁷ Conceptually speaking, the error term changes from a white noise to a random walk during the duration that this atypical leader is in power. Since the outcomes are "atypical" only during the term of this unusual leader, and the error term in this case does not affect the "long-term" outcomes, i.e. there is a temporary regime shift.

popular requests for reform, and the outcomes were very different. The lesson is that that enlightened self-interest does sometimes prevail and allows a non-disruptive process of change to occur.

The research focus of this Seoul conference (for which this paper is written) is to assess the power of China. My answer is that the most important measure of how powerful China is today is the degree that enlightened self-interest determines public policymaking within the Chinese Communist Party.

Table 1: Comparative Perspective on the Size of the National Debt
(as a percent of GDP)

(I) OECD's Fiscal Situation

	<i>General government gross financial liabilities</i>		<i>Total tax revenue</i>	
	<u>1995</u>	<u>2003</u>	<u>1995</u>	<u>2003</u>
Luxembourg	6.7	6.7	42.3	41.3
Korea	5.5	18.6	19.4	25.3
Australia	43.4	18.9	29.8	31.6
Ireland	81.2	31.1	32.8	29.7
New Zealand	51.7	32.0	36.9	34.9
Iceland	59.4	41.4	32.1	39.8
United Kingdom	52.7	41.9	35.1	35.6
Czech Republic	19.3	46.8	37.5	37.7
Slovak Republic	n.a.	49.7	n.a.	31.1
Norway	40.5	50.4	41.1	43.4
Finland	65.1	52.0	46.0	44.8
Poland	n.a.	52.1	37.0	34.2
Spain	68.8	54.8	31.8	34.9
Denmark	77.6	55.5	49.5	48.3
Hungary	n.a.	58.1	42.4	38.5
Sweden	82.2	59.8	48.5	50.6
Netherlands	87.0	61.9	41.9	38.8
United States	74.2	63.4	27.9	25.6
Germany	55.8	64.6	37.2	35.5
Portugal	69.9	66.6	33.6	37.1
Austria	69.6	69.4	41.1	43.1
France	62.6	71.7	42.9	43.4
Canada	100.8	75.7	35.6	33.8
Belgium	135.2	103.2	44.8	45.4
Greece	108.7	108.8	32.4	35.7
Italy	125.5	121.4	41.2	43.1
Japan	87.0	154.0	26.7	25.3
OECD total	72.8	75.3	35.7	36.3

(II) China's Fiscal Situation

	<i>Debt-GDP (%)</i>	<i>Revenue-GDP (%)</i>		
	<u>2001</u>	<u>1995</u>	<u>2001</u>	<u>2007 estimate</u>
Official data	16.4	10.7	16.8	21.6

Revised debt-GDP ratio in 2001 after taking into account:

	<u>(a) 2nd recapitalisation costs</u>	<u>(b) all contingent liabilities</u>
Citigroup (2002)	65.9	114.9
Fan (2003)	57.4	74.7

OECD data from: <http://stats.oecd.org/wbos/viewhtml.aspx?QueryName=2&QueryType=View&Lang=en>
China revenue data for 1995 and 2001 are from China Statistical Yearbook 2005, and revenue estimate for 2007 is from Deutsche Bank (2006).

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