



C A R N E G I E E N D O W M E N T
for International Peace

CHINA'S PEACFUL RISE?

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**PANEL III: "SUSTAINING CHINA'S RISE: OBSTACLES AND RISKS:
MODERATOR: RICHARD BUSH, BROOKINGS INSTITUTION**

SPEAKERS:

JAMES BURKHARD, CAMBRIDGE ENERGY RESEARCH ASSOCIATES;
HARRY HARDING, THE GEORGE WASHINGTON UNIVERSITY;
ANGANG HU, TSINGHUA UNIVERSITY;
ASHLEY TELLIS, CARNEGIE ENDOWMENT

MR. BUSH: Ladies and gentlemen, if I could ask you to return to the conference room and take your seats, we will get started. My name is Richard Bush. I'm a senior fellow at the Brookings Institution. Actually, my predecessor on the podium, Ken Lieberthal, is at the Brookings Institution this year as a visiting scholar, and we're very happy to have him. It's my honor to chair the panel on "Sustaining China's Rise - Obstacles and Risks." The last panel started to get into what the late Mike Ochsberg, a mentor and friend to many of us, called the "so-what" question. This is very much a "so-what" panel, and the people we have speaking are very good at answering the "so-what" question. I will not read their bios because we're going to be squeezed on time as it is, and I want to save plenty of time for your excellent questions.

We've changed the order a little bit. Dr. Hu Angang of Tsinghua University will go first, and then Jim Burkhard of Cambridge Energy Research Associates, Harry Harding of George Washington, and Ashley Tellis of Carnegie. So, Dr. Hu Angang.

DR. HU ANGANG: Thank you for giving me the opportunity to give a brief introduction to China, the economic growth potential for the next two decades. The main topic I would like to touch are the cost of Chinese economic development pattern, and how China's economy shift from traditional pattern to a new pattern. I would focus on four issues. The first I would like to mention is about the source of the economic growth for the last two decades, second I would mention about five effects of China economic growth actually and why China keeps the high growth rate, third I would mention about the cost of the Chinese economic high growth, and the last point I would mention about

China's economic growth pattern.

First thing first, China is now taking place a great transformation, and its contribution to world economy is a typical model of the catching-up. There have been five catching-up models in the world and China is the fifth. The first model was that the U.S. caught up with UK; second, the USSR caught up with the U.S.; third Japan caught up the U.S.; and the fourth was Korea, Taiwan, Hong Kong, caught up with Europe. China was the fifth typical mode of catching-up in the history.

What are the reasons China's economy always keep the high growth? If we compare different periods, we find the real reasons. In its preliminary economic development period, that is, in the period of the 1952 to 1978, most economics of the world were driven by the capital, and TFP—that is, total factor productivity—was very low, you can know the exact numbers from the table of my PPT file. In the period of 1978 to 1990, we find that Chinese economic growth was driven by the capital, not by TFP. Then, in the late years, TFP made high contribution to China's economic development, between the three percent to the four percent. But, the period 1995 to 2001, TFP declined from 3 - 4 percent to 0-2 percent.

Second, the effects of the Chinese economic growth. The first one is speed effect. In a given period of time, industrialization of latecomers grows faster than that of leading economies. Second is structural effect, and in a given period of time, the structure indicators change faster in less developed economies than the developed. The third is the opening up-effect. Latecomers move faster than the developed economies in participation of globalization. The fourth is the institutional effect Marketization process improved substantially and the market operates according to market mechanism. And the last one is the technology catch-up effect.

Third, I would like to analyze the cost of China's economic growth. Even China keeps the high growth of the GDP, at the same time there are high costs. One of the costs is the unemployment in urban area. Second is the economic cost of the rural surplus of the labor force. Third is corruption cost. The fourth is the natural cost. The last point is the social cost. I would like to analyze the cost of China's economic growth in the last two decades in the following.

Based on the Okun model, I calculate the real unemployment rate in the urban area, we find that there is existed high economic cost, the figure was between the 5 percent to the 7 percent, in the period of the 1997 to 2000. By calculating the opportunity cost of the rural supply for labor force, we find that it reflected the high cost of the one-country/two-systems. I am not mention about Hong Kong and the mainland, but about the urban and the rural area. This is a record of the institutional cost, at a very high ratio, especially in the period of the preliminary economic period in the reform. The figures tell us that, if we break down one-country/two-systems, the labor supply in urban and rural area would promote from low productivity sectors to high productivity sectors.

Then, I will calculate consumption opportunity costs of the rural surplus labor. It is about between the 2 percent to the 10 percent in the last several years.

Then, the economical cost of the corruption in the transition. I have done similar research in the past, so you could understand this by reviewing one table I made last year. You can see that the corruption cost was at a very high ratio, between the 13 to 16 percent, even 17 percent of the GDP. Based on the table above, I think this cost was between 14.5 and 14.9 percent of GDP in the period of 1999 to 2001. During the period of 1998-2002, there were 1.6 million cases involving 1.5 million persons and 22 billion Yuan RMB.

I would like to shift to another cost called the natural cost of the China's economic growth pattern. I would like to analyze the damage of Natural Disasters, the Loss of Natural Capital, and the Cost of Environmental Damage accordingly. First is the damage of the natural disaster area. Second is loss of the natural capital, based on the GDP accounted by the World Bank. Third is cost of the environmental damage based on the World Bank calculators, such as CO-2 or air pollution and so on. This table reflects the damage of the natural disaster in the period of 1990s. It's a very high ratio, reaching to 3 percent to 5 percent of the GDP. At the beginning of 1970 this cost increased and reached to its peak in the beginning of 1980. Since then, it began to decline. Now the natural capital cost, it was about five to 6 percent of the GDP. This reflects the cost of the environmental damage. Let's now shift to China's water pollution. The figure is higher than that of the U.S., India and Russia, but China GDP is much less than of the U.S. This table shows China's CO2 emissions in total. China is now catching up the U.S. very quickly, and becomes the second, that is, China is a super power of CO2 emission. So we are worried about China in the matter, and we are thinking about how to change from black rise to green rise. And we think it is very important, not only to China, but also to the whole world.

Social cost of China's economic growth is also very high. During the period of 1998-2002, 41,880,000 thousand Lawsuits had been concluded or enforced, and the lawsuit sum concerned reached to 3197.1 billion RMB, as to 7.2% of GDP. The cause of this is very high social cost or transaction costs, or even the institutional costs.

Then, we come to the conclusion to give assessment costs of China economic growth. Yes, the economic cost is very high if compared to America, and this should be the effect of the traditional growth pattern. China has been enjoying the highest economic growth rate of the world in the last 20 years, yet its economic costs might be the heaviest concurrently. This should be the effects of traditional economic growth pattern. We cannot continue to go ahead based on this pattern. To accomplish the goal of the peaceful rise, China should undertake the great transformation; that is the China economic growth pattern. I would like to analyze the following four aspects: Challenges to China's Economic Development, Causes of China's TFP Dropping, Changes of China's Economic Growth Pattern since 1995, and Growth Pattern Transformation from "Black Cat" to "Green Cat." And I think the color it is a very important for China's future.

First, let us review the growth pattern change of the world from Moscow Consensus (1950s to 1970s) to Washington Consensus (1980s to 1990s) and the post-

Washington Consensus or comprehensive development in the 21st Century. In reviewing China's growth patterns, we can see that there were three generation strategies from the historical perspective. In the 1950s, Mao Zedong initiated the drive to "surpass UK and catch up with the U.S."; in the mid-1960s he set the goal of achieving "four modernizations" by the end of the 20th century by implementing policies of "high accumulation, low consumption", giving priority to heavy industry, including defense industry, capital-intensive industries, providing import protection, resulting in increasing conflicts between urban and rural areas. Deng Xiaoping initiated the "three-steps strategy", setting up the goal of quadrupling GDP, trade and investment liberalization, market development and competition. The strategy is still centered around materials, with top priority put on speed. Deng advocated for imbalanced development, letting some regions and some people to get rich first, by concentrating on the development of coastal regions. This resulted in enlarging income gaps between urban and rural people, greater regional disparities, and substantial increase in the income gaps between urban and rural areas. In recent years, Chinese new leadership initiated the New Development Concept. As Premier Wen Jiabao says, China's former economic strategies has resulted in enlarging gaps between urban and rural areas in income, enlarging regional gaps, increasing inequality in family income, mounting pressure of employment and social security, lags in the development of education, health and medicine, culture, intensifying conflicts, low quality of the economic system and lack of competitiveness. We must face up these issues and solve them. So the new leadership has developed the third-generation development strategy known as "People First" Approach.

So now we are faced with five challenges -- like the gap between the rural-urban gap, a large regional gap, and so on. So there needs a new growth pattern, where I mentioned last point. That means how to from the black cat to the green cat. At the beginning of reform, Deng Xiaoping expressed the famous "Cat Theory": A good cat is one who can catch the mouse, no matter black or white. In my view, growth is a measure for development, development is for the people, not for development itself; so I coin a "New Cat Theory": the Color of the Cat is important and critical; and I call for a growth pattern transformation from "Black Cat" to "Green Cat". We need "Green Cat" that is environment friendly, not a development with pollution; We need "Green Rise" of China, not a "Black Rise"; We need to make "Green Contribution" to the world, not "Black Contribution"; We need "Green Cooperation" and "Green Peace", not "Black Conflicts". In conclusion, I would say that the greatest challenge China faces in the 21st Century is not how to speed up economic growth, but to maintain a sustainable and equitable growth to reduce poverty and promote human development by focusing on the purpose of development instead of on development for the sake of development. Green development means that we need cooperation and peacefully green rise, not a black one. That is my very conclusion. Thank you for your attention.

(Applause)

MR. BUSH: Thank you very much, Dr. Hu. You are right on time. We now turn to Jim Burkhard to talk about energy constraints in China's growth. Jim?

MR. BURKHARD: Good afternoon, everyone, and thanks to the Carnegie Endowment for the invitation to speak to you all today. China's rise or re-emergence, if you will, is felt in many ways in the international political arena and, as Dr. Hu just stated also in the international economic arena. One of the most tangible ways that we see this rise of China is in commodity markets, in particular, in the market for internationally traded energy commodities. There is an old Chinese saying that captures the sense of what's happening in China and also the impact globally -- "When riding the tiger, it is difficult to get off," and blistering economic growth in China has pulled international commodities markets onto the back of the tiger.

China is now the largest consumer of cement in the world, it's the largest producer of steel, and when you talk about energy, the impact is even more profound. Coal prices, which have been stagnant for many years have risen to very high levels in 2004, largely due to the pull of demand in China. In the high-profile oil market, China this year surpassed Japan to become the second-largest national oil market in the world. China consumes about 6.2 million barrels of oil a day. The world consumes about 82 million barrels of oil today, so about 8 percent of global oil consumption is in China right now. But what's significant is not the absolute amount that China is consuming right now but rather its share of global growth over the last few years.

Over the last four years, China alone has accounted for about 40 percent of the global growth in oil demand -- a market that consumes 8 percent of the world's oil has accounted for about 40 percent of the growth in global oil demand. And China has led this global surge in demand, even amid the highest level of oil prices in a generation and, indeed, the highest prices of oil ever, at least in nominal terms. If you take inflation into account, oil prices aren't as high as they were compared with the early 1980s. Global oil demand growth, led by China, is going to record the largest annual gain since 1978. So it's truly an exceptional energy market environment, largely -- well -- due to a significant extent by the economic growth that's been occurring in China, especially over the last year.

This is not to blame China for high oil prices. Sometimes when we see something that may not please us, such as the high oil price environment, we try to apportion blame, but China is only one element of the global oil market story. There are many moving pieces in the oil market -- uncertainty in the Middle East and Russia are just two of them. The U.S. also consumes far more oil than China. The U.S. consumes more than three times what China consumes. The U.S. imports a lot more oil than China does, so there's many reasons why oil prices are high -- the exceptional demand growth in China is just one of them.

The flip side of this strong demand growth -- we talk about high prices, the strong demand growth related to the high price environment, but it's also a reflection of the spread of commercial energy to millions of people in places like China who didn't have access to them before. Growth in energy demand is spreading the benefits of mobility and the comfort of electricity to millions of people around the world. So it's good to

keep that in mind when we talk about the rapid demand growth and the high prices that result from that.

The rapidly rising energy demand is creating new challenges for China at home. Urgent action is required to ensure that energy supplies are adequate and to avoid a long-term supply shortfall that could act as a break on economic growth in China. Over the last year the vast majority of China's provinces have, at some time, recorded a period of electricity shortage. China's refining industry is running at very, very high utilization rates. There is a need to expand China's refining capacity. Those are just two examples of the types of bottlenecks that China is experiencing right now.

How Beijing resolves these energy challenges will not only be felt in China but will also reverberate around the world. The sheer weight and growing weight of Chinese consumption on the global stage ensures that whatever happens in China will have a heavy long-term impact on global energy prices, trade, and investment.

The context in which China is going to meet these challenges in the future, though, is very different from the past at both the global level and also at the domestic level in China. Two differences in the global context are going to create a new environment to meet these challenges. One change is related to oil. The key point here is the geographic distribution of oil production is undergoing a fundamental shift. The world oil market is going to increasingly rely on places like Angola, Kazakhstan, Azerbaijan, Russia, and also Canada -- to meet growing oil supply. The Middle East will remain important as well. But there is a shift away from places like the United States; there is a shift away from places like the North Sea and towards these new sources of oil production -- countries that we typically have not associated with rising oil production.

With oil demand growing very rapidly in Asia, and it continues to grow in North America, we are going to see an increase in global oil trade. Regions such as Eurasia-- which is what we call the former Soviet Union -- Africa, and the Middle East will be supplying increasing volumes to places like Asia. Asian oil production is flat to declining. So we're certainly becoming much more dependent on these areas outside the major demand centers to meet demand growth.

A second fundamental shift in the global energy market context is LNG. LNG is liquefied natural gas. LNG is gas that is super-cooled, so it becomes liquefied, and you put it on a tanker so you can ship it across seas to distant markets. The U.S., which is faced with a decline -- rather, North America -- which is faced with a decline in its ability to produce natural gas is going to increasingly rely on imported natural gas to meet its demand growth, and this is also going to happen in other parts of the world and Asia and China as well. What's important about LNG is the scale of what is needed to satisfy what we expect demand growth to be. There's a little phrase to remember that illustrates how large this challenge is -- "40 in 8" What does that mean? To meet anticipated demand growth, over the next eight years the energy industry will have to add as much liquefaction capacity as it did in the previous forty years. So it's a very significant challenge. These changes in the oil and natural gas market are altering the global context

in which China is going to be meeting its energy challenges. Let's take it down a level to the Chinese context. China domestic energy market is also evolving. A decade ago, China was self-sufficient in oil. Now it imports about one-third of its oil needs, and that volume will continue to grow.

Coal -- several years ago, China was the second biggest exporter of coal, but now demand growth in China has outpaced supply growth. So that dynamic within China is also changing. Electricity demand in China is up 10 to 16 percent annually. That's a massive, massive increase in power generation needs.

Fourth -- gas, which is a small part of the overall energy picture in China right now. However, in the next couple of years, right around 2006, the first deliveries of LNG will be going into the Chinese market.

So these fundamental changes globally along with significant changes in the Chinese market are going to alter how China meets its energy challenges in the future. How big is this energy challenge? China is a vast market, but let's try to put a number to it. The International Energy Agency estimates that China will need to invest about \$1.4 trillion -- that's \$1.4 trillion--in the 2001-2020 period to meet the anticipated growth in Chinese energy demand. That's a massive amount of capital by anybody's scale.

So there's \$1.4 trillion -- will it be allocated efficiently? Will it be able to diminish the bottlenecks that China is currently faced with? There are two policy variables that will go a long way towards determining the speed and nature of efficacy of Chinese energy investments, going forward. There's certainly more than two variables. I just want to highlight two of these policy challenges, if you will. Challenge 1 -- in years past, when China was faced with supply bottlenecks, strong guidance from the state was all that was really required to resolve them. But now China's economy is much larger, China's energy industry is much larger, and it's also much more complicated than it was before.

About 90 percent of China's energy sector assets are state-owned, but the state-owned energy firms are much more heterogeneous than they were before. So it's going to be an increasingly difficult challenge for state planners in China to manage this very large investment that's required in the coming two decades. The scale and disparate nature of the companies within China are adding a new layer of complexity.

The second challenge is the lack of market signals in the energy sector in China. Were China's energy prices based mainly on the market, then the location and severity of bottlenecks in the supply system would be immediately obvious through prices. But incrementalism in price reform over the years has resulted in many end-users still not paying market-based prices for the energy that they consume. The market information is muted. There is an overall increase in the quality of economic statistics coming out of China, but we have not seen an equivalent change materialize in the quality, depth, breadth, and immediacy of energy statistics.

These are long-term challenges. There is no easy way to solve the complexities that China faces as it struggles with managing the very large investment that's required. When we talk about price reform, it's easy, from a theoretical standpoint, to say, "Yes, free up prices and you get better market information." But for those Americans in the room here, you know that when gasoline prices rise rapidly it can foster political disputes. So it is tricky, and it will take some time, and perhaps it will be more of a policy of incrementalism. But nonetheless these challenges, again, are long term; they're massive. China has done a good job of meeting the needs in the present, but those challenges and needs are going to be much larger, going forward.

Lastly, I'd like to thank my colleagues, Dan Yergin and Scott Roberts. They are not here today, but I wanted to thank them because a report that they issued a few months ago was the foundation for many of the remarks that I made today.

Thank you for your time and attention.

(Applause.)

MR. BUSH: Thank you very much. We turn now to Harry Harding to talk about the challenge of maintaining political stability.

Professor Harry Harding's talk is coming to be posted.

MR. BUSH: Thank you very much, Harry. Our final speaker is Ashley Tellis of the Carnegie Endowment, who will answer the question -- "Will China's Rise Trigger Regional Counterbalancing?" Ashley.

MR. TELLIS: Thank you, Richard, it's a pleasure to be here this afternoon to share some thoughts on the question before me, which is whether China's rise will trigger regional counterbalancing. Before I get into the substance of my argument itself, let me start off by advancing three preliminary propositions. First, China is not yet at the point where balances to its power are imminent or inevitable. We are essentially talking of a reality that is many years, possibly many decades, into the future, and therefore trying to assess what regional responses to that kind of China will be involves some reliance on theoretical views of how nations operate in the international system. And so there is no way to engage this question without, in some sense, engaging the conceptual baggage that describes how states relate to one another.

The second assumption that I need to make up front in my presentation is that China's rise is successful; that China will, indeed, complete the process of economic modernization and the accumulation of comprehensive national power, if the question before me is to have any meaning. If China fails or falters for whatever reason, the question of whether it will precipitate counterbalances becomes irrelevant.

The third point that I think we need to consider when we think of China's rise and the process of counterbalancing is to recognize that China does not need to dominate the

international system in order to precipitate balancing coalitions. A China that is powerful enough to dominate Asia alone suffices to create balancing coalitions because a China that can dominate Asia would be inevitably a China that is a world power.

With these three preliminaries, let me try and answer the question that the organizers of the conference have asked me to address. In fact, I think the question is so interesting that I'm not going to give you one answer, I'm going to give you three answers to the question about counterbalancing. There is a short answer, a long answer, and the real answer. The short answer is very simple -- will China's rise trigger regional counterbalancing? The answer is "yes." The long answer is "yes, possibly"; and the real answer is "yes, possibly, but we can't be entirely sure."

(Laughter.)

I don't say this simply in order to cop out of answering the question but because I want to refer, as I will, in the course of the presentation, to two very important variables that affect the final outcome. First, the role of human agency and the decisions that states make, which are sometimes independent of the pressure of the international structure and, two, the prospects for changes in the deep distribution of power in the international system as we come to the point where China's accumulation of power becomes a salient feature on international politics. Let me start off briefly with a short answer. Why do I believe that the short answer must be a simple yes to the question posed before us?

I make the argument that at the most preliminary level, the growth of Chinese power will inevitably trigger regional counterbalancing because the growth of power of any state in the international system inevitably increases its capacity to harm others. Whether it intends to harm others or not is beside the point. The capacity to harm is what compels other states to adopt prudential responses to defend their own physical security and their political autonomy. Since all countries in the international systems seek to preserve their security and their autonomy, they, by definition, then, seek to immunize themselves from the worst outcomes that accrue from the growth of power to other states. Therefore, by definition, if China rises successfully, we are likely to see, at least at the first level of analysis, some form of balancing. Whether it takes the form of internal balancing, which is states revving up their productive capacities to deal with China in a bilateral sense, or whether it is external balancing, which is states joining with other states in order to checkmate and countermand the growth in Chinese capabilities, represents a further refinement.

But, at least at the first level of analysis, I think there is a simple answer to the question. There will be regional balancing if China grows in power. The problem, however, is that the conceptual framework that I just laid out is incomplete in fundamental ways, and that's what triggers my second response, which was the long answer. The long answer, to remind you, is "Yes, possibly." Why do I introduce the element of contingency in the long answer? The element of contingency derives from the fact that the balancing that most assume to automatically take place in the presence of superior power is riddled with tensions that afflict all potential balances. And let me start

off by describing what I think are the problems of external balancing, and then I'll touch on the problems of internal balancing.

All states certainly want to protect themselves against the depredations of other rising states. But there is a catch. They all seek to do so at least cost to themselves. This is because balancing against superior power is, in the economist's sense, a public good. It's a good, which once produced, is really available to all whether or not they contributed to its production. And as Olson and Zeckhauser reminded us almost 30 years ago, because balancing is a public good, there is an inherent tendency to produce too little of it.

Now, you are faced with a peculiar kind of antinomy. It is individually rational for every state threatened by superior Chinese power to want to balance against it. It is equally individually rational for every state threatened by superior Chinese power to hope that somebody else pays the cost of balancing the Chinese. The end result of this antimony is that balancing, however desirable, may sometimes fail. This is a story with external balancing.

What's the problem with internal balancing? The problem of internal balancing is slightly different. Not all states in the international system are sufficiently well endowed to be able to balance against superior power exclusively through internal means. Usually, the ability to balance against power is a gift, is an attribute, of large and relatively successful states in the system. But even here this is not self-assured, because the assumption of internal balancing always presumes that there is sufficient slack in the productive capacity of the state. If the state is already operating, as it were, up to capacity or at maximum capacity, its ability to rev up its productive resources to deal with the rising power may not exist, with the flexibility that purists sometime assume. So we are faced with the first set of problems associated with internal balances; that is, even states that could balance against superior power may find themselves in positions where they are unable to do so.

There's a second problem -- the second problem is that when states set out to do internal balancing, there is an assumption that they will be able to judge the extent of the rising power's true increase in capabilities. It is the ability to judge the rising state's increasing capabilities that makes the logic of internal balancing sensible to begin with. The only problem here is that judging power capabilities accurately in international politics, especially judging these capabilities accurately *ex ante* is a very difficult proposition. The only test of great power capabilities in an international system that is anarchic, as John Mearsheimer pointed out, is the test of war. And the test of war provides you information about adversary capabilities better *ex post* than *ex ante*. And so we are faced with a dilemma: it is entirely possible that difficulties in power measurement and the inability to judge effectively what the rise of a state may mean may actually prevent states from balancing as effectively as the initial or the preliminary answer to the question provided.

There is, of course, a third element in the story. While states are deciding to balance or not to balance, the rising state is not sitting pretty. It's actively involved in affecting the calculations of all potential balances that confront it. In fact, there are a variety of strategies that are available to rising states which, if they are smart, they can use to exploit the antinomies that I just described to defeat efforts at balancing. One is to mask increases in power capability; two, is to make side payments to some countries in order to preempt the formation of balancing coalitions; and the third is to pursue temporary, accommodative policies overall to prevent counter-coalition formation until certain thresholds of power accumulation are completed. Precisely because rising states historically have used one or more of these combinations of strategies, the international system repeatedly, over its many thousands of years of history, has seen the successful formation of great empires.

The rise of an empire is conclusive evidence that balancing may not always succeed and that balancing, even when intended, may not reach the objectives -- the security objectives -- that were intended by the balancers.

Now, let me give you the last answer in my presentation, which is what I think of as the real answer -- will China's rise precipitate counterbalancing? Yes, possibly, but we can't be entirely sure, and let me answer this by advancing five propositions for your consideration. First, the states that view themselves as China's peers are most likely to view the growth in Chinese power as warranting balancing behaviors. But whether they can successfully undertake internal balancing is an entirely different question altogether. Consider the four major competitors that are likely to pursue this role.

Japan obviously will be affected by the growth in Chinese power but is potentially over-confident of its own capability; increasingly dependent on China for its own economic achievements; and weakening in structural terms in its demography and other social factors. Russia is also affected by the growth of Chinese power; fearful about the long-term implications in the power balances with China but currently dependent on China, especially in the areas of military trade for its own survival; it is also weak -- even weaker than Japan in structural terms. Australia is affected by the growth in Chinese power but more sanguine because it's protected by oceans; again, increasingly dependent on China for its own prosperity. India is affected by the growth in Chinese power, fearful about future capability differences but, in some sense, better off than the other three competitors just identified because, at least as of now, it's relatively independent of China for its own national growth and is growing rapidly. And, of course, there is the United States, which I will speak about in a few moments. The first point, therefore, to reiterate, is that internal balancing requires states that are capable of doing it, and there may not be too many competitors capable of successfully doing it.

Second, many states uncomfortable with Chinese power would become potentially members of an external balancing coalition. That is, they can join together to checkmate the growth in Chinese power over time. But such a coalition is unlikely to generate itself spontaneously. Coordination in the international system is costly. It's hard because each of the players in this potential coalition may have links to China for reasons

of history, geography, economics, and politics and, therefore, if this external balancing is to come about, it's going to depend fundamentally on great powers who are willing to bear the costs of creating such a coalition. That leads me to the United States.

And there will be two big questions that, in a sense, raise uncertainty about the American role. First, what will be the capacity of the United States itself at that point in time when Chinese power becomes troublesome enough to warrant balancing? And, two, how will the exercise of U.S. power in the interim affect the calculations of states who have to choose to ally with the United States at that stage against a rising China?

Third proposition for your consideration -- not all states that are faced with the prospect of rising Chinese power will balance. Some will bandwagon, and so that has to be factored into the debit side of the equation.

Fourth, the Chinese themselves are conscious of the need for arresting counterbalances and are working in this respect, as we speak, in a variety of ways -- theories of peaceful ascendancy, the use of economic leverage, the promotion of good neighbor policies, the possible provision of public goods over time, and, finally, exploiting regional dissatisfaction with the United States.

Fifth, and the last proposition -- and I'll end on this note -- managing the balance against China is going to be a tricky proposition particularly because we are locked, in a biblical sense, "between the times." We can anticipate a Chinese threat, but the China threat is not yet here. Therefore, balancing may be necessary and desirable but many countries, including those that may be potentially targeted by China, will seek to avoid it for as long as possible.

And so when you look at the responses of states that could be potentially members of this balancing coalition, you are likely to see, if all works out, a sequence of three steps. First, engagement. Everyone will engage China in the hope of weaning China away from its more obvious revisionist goals. If that fails, states are likely to shift to hedging, where they buy various forms of insurance, through either internal or external balancing. And, finally, only if hedging is insufficient are they likely to move into strategies of containment. However, these are not foreordained because the whole problem facing strategies "between the times" is that they run the risk of changing both the balancers and the potential balances in unanticipated ways.

What's my bottom line? My bottom line is that China's rise, if successfully sustained, is likely to precipitate regional counterbalancing, but whether such balancing will be successful is not certain at all ex ante. Thank you.

(Applause.)

MR. BUSH: Thank you very much. I think you'll agree that we have had four incredibly rich presentations. Unfortunately, we don't have a lot of time to follow up and ask questions. I'd like to ask Minxin Pei exactly how much time do we have?

MR. PEI: Twenty-five minutes.

MR. BUSH: Thanks. That's not very much time. To use that time efficiently, let me ask for your help. If you have a question, stand up so the mike can come to you. Please identify the speaker or speakers to whom you wish to address the question, and please make your question very brief. These are all smart people. They don't need a paragraph to understand what your question is -- a sentence will do fine. So who would like to ask the first question?

Q From German Embassy. I have a question for Ashley Tellis. What role do you think could regional security arrangements play in -- well -- this balance-of-power game you described? Thank you.

MR. TELLIS: I think the reason security arrangements are useful devices in the interim because they are shaping devices. What they do is, they provide a matrix, which allows the rising power to, in a sense, redefine its goals if it chooses to. I am not convinced, though, that in the final analysis that there are adequate substitutes for balancing, because as states continue to rise and make growth trajectories, regional security arrangements by themselves will not be sufficient to constrain that rise. So their effectiveness is more likely to be seen on the margins than in terms of being deeply containing of the new great power. What usually happens to regional security arrangements, as you have -- particularly sharp rises in power -- is that they either atrophy because they are insufficient to the end for which they started, or they mutate into institutional arrangements that simply reflect the new rising powers' interests.

MR. BUSH: Okay, Martin Wolf, and then we'll go over here to Mr. Chung.

Q There will be two sentences -- one a comment and one a question. The comment is I'm delighted to see that international security models are even more simplistic and reductive than those of economists. (Laughter.) The question is to Hu Angang. What is a "green cat" model of development for China going to look like?

DR. HU ANGANG: As you know, the two decade the China initial -- reform the initial by Deng Xiaoping based on the Deng's, they called, the cat theory. As you know, now perhaps in the end of this year, the China GDP will be nearly 10 times that of the 1978. They have a lot of the mouse, but they're very like the black cat. I mentioned some of the figures. China were like the super power of the polluter in the world, so we need to form a traditional model we call the "black cat," okay, to the green cat. That means we want to, how do you say? Get off the traditional model. It's the first point.

Second point, they cannot follow our America and others from the western country model. They call it a high consumption, high consumption of energy, high pollution per capita. I mean it's per capita pollution. Okay? We need to balance between the population and the natural. As you know, now China faces a very serious problem. Ten years ago, we gave some analysis for the China-based fund. The population burden

is number one limitation factor for our country's sustainable development. But now I find that the population burden, step-by-step, shift to the recurrent of human capital, human resources. But environmental problem, energy problem, especially, as I mentioned, oil and gas supply is number one. This is the number one limitation factor for China.

So like we are thinking our model of development. It is that we need to the new way, new cat, I mean, new cat, a big difference from old cat series by the Deng Xiaoping. Okay, thank you.

MR. BUSH: Thank you. Mr. Chan, right over here.

Q What do you think China's diplomacy has to do to come to quiet the international reaction recently with Japan, which United States on common issue with Singapore, with Korea, on historical territory issue? So that will -- what is China's diplomacy has to do to improve not only China has deserved the right to withdraw its territory from Taiwan but has to think about the consequences? Thank you.

MR. TELLIS: It's a hard question to answer, but I think there are at least three elements to what a Chinese strategy to prevent being checkmated by countries around its periphery would include. The first would be the pursuit of good neighborly policies, because you want to give least offense to the degree possible. The second is you want to exploit regional dissatisfactions with the United States because for any coalition to succeed, the U.S. will need partners, and if these partners fear the U.S. more than they fear China, obviously, that coalition is not going to have great longevity. And the third, over the longer term, is that the Chinese must be more active providers of public goods. That is, they have to be able to show the regional system that they are more reliable and less threatening hegemony compared to any other alternatives.

Now, there is no guarantee that even if you had a great strategy that emphasized all these three elements that you are going to be able to prevent the right of these coalitions. There is no guarantee. But it has been done before, it has been done successfully, at least for a while, and therefore, if you are a smart rising state, these are certainly some of the things that you are going to pursue.

MR. BUSH: Jessica Mathews, and then we'll go back there.

Q Harry, I wanted to ask you about two possible sources of political instability you didn't directly mention. One is the possibility that nationalist sentiments will get out of hand -- out of a growing sense of expectation, a growing sense of what to do to China that government could no longer really be able to balance against that, and the other is Minxin's argument that he has made for some years about the inherent instability of a growing discrepancy between economic reform on one hand and on political stagnation on the other and how big a source of tension you see that to be.

MR. HARDING: Right, let me take the second question first. It obviously is a big source of tension but don't forget that I wasn't trying to predict whether there would be unrest or turmoil. I was trying to predict whether this would stop China from rising,

and I think that the level of unrest would have to be far, far greater than what we've seen to have any major impact on a long-term way, a secular way, on China's growth rates. As I said, there could be some reduction in growth, especially if the international community began to respond. But I'm not -- I'm really focusing, not on the issue of China's stability, but on the issue of China's growth and how much of an upside that is.

In terms of foreign policy, I guess that it comes down to whether you think this is fundamentally important. If China did become more democratic, would that begin to relieve the concerns that China's neighbors have about the implications of its rise. John Mearsheimer would say it probably won't, and I think he would say it shouldn't, because it doesn't make that much difference. Liberals would say it will make a fundamental difference. One thing that could happen that I think would make a difference is that a fundamental change of course in China could make management of the Taiwan issue more likely. That would, therefore, remove a major trigger that many of us who think that a U.S.-China competition is contingent, not pre-ordained, and the biggest contingency is Taiwan. So that if you did have a chain of events inside China that made it various ways, easier to manage that issue in a constructive way, then you are removing or limiting a major negative contingency, and that's an opportunity.

MR. BUSH: The gentleman back by the wall and then Paul over here.

Q Thank you. Paul Baskin with Bloomberg News. I'd like to ask each of you, if you could, the degree to which -- if it's happening already -- if it's not happening already, the degree to which you think it might happen, and that is China's foreign policy being driven by its need and growing need for oil. Last week China opposed the U.S. on the sanctions against Sudan. That may or may not have been related to China's oil interest in Sudan. The Chinese foreign minister visited the Middle East recently. So as many of you can comment on that as possible, please, thank you.

MR. BUSH: Okay. Why don't we start here and just go down the row. Hu Angang?

DR. HU ANGANG: Yeah, last month the foreign -- reformed foreign under Rand Corporation discussion about the same topic. I agreed with the senior economic (unintelligible). Yes. This is very like the, how to say?, universal (unintelligible). That means they encourage China domestic investor to the outside of China, to invest the energy, to promote the total world niche. This is a good benefit, very like from the China side, very like to cooperate with international, even America and Japan, to keep, maintain the relative, or [stabilize] the price and make the diversity of the energy supply. This my answer.

MR. BUSH: Jim?

MR. BURKHARD: As oil companies go to where oil is, and Chinese companies are -- they opt -- Chinese oil companies operate like oil companies anywhere in the world, since they're effectively owned by the state, they have more of a government inflection to them than many other companies, but China's efforts to -- for its companies

to acquire assets outside of China doesn't strike me as being materially different from what other oil companies do around the world.

MR. BUSH: Harry?

MR. HARDING: I think that obviously energy is going to be a more important consideration for China, but I think it depends on the overall strategy China adopts to take the two extremes, and then I'll argue it will be the middle. One extreme is to get energy the old-fashioned way -- you go out with military force, and you take it. You establish colonies, you establish -- you seize territories. You seize oil fields. That would be extremely disruptive, obviously, to say the least, to the international order. I don't think China is going to do it. At the other extreme would be to simply act relatively passively putting your faith in the market basically to say, "Well, there are energy markets out there, and we know how to play them, and we're a fairly big player, but basically we're going to put our faith in the existing markets, and that will take care of us." I don't think China is going to do that other extreme, either. I think it's going to be somewhere in the middle, where it will be, in a sense, market friendly but with active government involvement, possibly, simply through the state firms.

That would mean, for example, that China will try very hard to maintain good political relations with major oil suppliers. It will try very hard to shape decisions about which way pipelines run. It will be very concerned about the security of sea lines of communication but whether it thinks it has to maintain that security by self-help or by cooperative partnerships with other countries remains to be seen, and so forth and so on. So I think the Chinese probably have already made that fundamental decision, but within that the question is going to be the extent to which they think that this is going to involve competition with other major buyers or whether these things can still be handled essentially cooperatively.

MR. BUSH: Ashley?

MR. TELLIS: I concur with Harry's remarks.

Q Just a quick question for any of the panelists -- one of the debates in China 100 years ago, which had kind of a revival in the 1980s, and this is related, I guess, to Neil's point about stagnation, was that there was something allegedly or supposedly inherent in Chinese culture that was an obstacle to modernization and development. I'm wondering -- is there any element to that debate that's resonant or that's relevant to the debate on China's peaceful rise today?

MR. BUSH: Does anybody want to take a shot at that?

MR. HARDING: I'll give you -- I will cite -- I'm not clever enough to answer the question myself, but let me cite the work of a young scholar of Chinese origin named Guan Hun Ying (ph) who got her Ph.D. from Princeton, and on whose dissertation I sat and basically what she argued -- she tried to deal with the paradox as to why there was so

much, you know, business activity, including foreign direct investment, in China when the rule of law was so weak. And her answer was that basically Guanxi substituted for the rule of law; that what you're looking for is something that provides predictability and that personal relationships and connections provided that. If she is right, then you might argue that Chinese culture provides an alternative to the rule of law that will prevent the rule of law from emerging as rapidly, or will enable it to get away without the rule of law for a relatively long period of time -- there's one possibility. But I'm really straining here, because we've seen basically Confucianism being the worst thing that China had, and now it's this wonderful kind of life, the Protestant ethic, of people who are willing to work hard and in this worldly way to get ahead and to bring glory to themselves and to their families. These cultural arguments are often very, very difficult to make because they're so indeterminate.

MR. BUSH: One final question -- Steve Schleit here.

Q You have all described some evidence that shows that the Chinese leadership today is aware of potential threats to China's peaceful rise in each of your topic areas. Let's assume that the leadership of China 10 or 15 years from now is pretty much like the leadership of China today -- perhaps technocratic, bureaucratic -- but one party authoritarian.

What do you think, in each of your areas -- domestic, economic development, domestic politics, energy, regional balancing -- what would be the most dangerous blind spot that you think they might have -- the thing that you think is most likely for them to deal with poorly in the years ahead?

MR. BUSH: Again, we'll start with Hu Angang and go down. Do you understand the question?

DR. HU ANGANG: Yeah, I try to answer. I think that it's kind of difficult question. I call a China model like a Lenin model, not only for the top leader, but also even for the farmer. Okay? Now, that taken from the traditional economic to the -- as part -- even as part. But now I think the new leader very has strong capacity of the money. If a compare it to (unintelligible) time.

Two years ago I participated in a project, research on image in the environmental, even the forest are sad for reform. The (unintelligible) ministry listened to the expert idea, but now, as I know, at least full time to listen to. So that means (unintelligible) -- they call the mechanism making decisions. Not higher-up making decisions. I mean, it's likened to the different way, or even encourage different scholar debate. So I believe in the next decade, there will be peaceful over-protection, even the stable from the China growth. I don't worry about it. I believe in, okay.

I want to mention last part, okay? If China successful rising with peaceful, there'll be contribution of the world development. If China fails the rising, there will be

disaster for the world. So they need to the international cooperation, need with a peaceful moment for the China peaceful rising and the (unintelligible) -- rising.

MR. BUSH: Jim -- leadership blind spots in the future on energy policy?

MR. BURKHARD: One thought -- this isn't the most dramatic, but it could be important is the international energy crisis remained very high, say, the permanent upward shift in international energy prices, and there's a reluctance on the part of Chinese regulators to increase domestic prices in line with international prices that could lead to effective subsidies taking place, and if those subsidies were to endure for many, many years, that could lead to energy bottlenecks, perhaps, as long term. Again, there aren't massive subsidies right now, but there could be if these international commodity prices have permanently shifted upward. That's a big if, a big if.

MR. BUSH: Harry?

MR. HARDING: These two might be blind spots that their predecessors had that these people now realize. One would be that they allowed HIV-AIDS to get out of control and that it's assumed Africa-like proportions in China; that is, not just a public health problem but a demographic and economic drain. And, secondly, that in -- what was it, 2020 -- they looked back, and they wish that their predecessors had been willing to see the need for and to accept the risks of political reform. But now, in 2020, they realize that they have inherited the risks and the costs and basically they are confronted with a self-fulfilled prophecy -- that political reform was necessary but now it will be extremely difficult to deal with that point.

MR. BUSH: Ashley?

MR. TELLIS: From a regional balancing perspective, the issue that is likely to galvanize the balance is one that could occur anytime between now and the year 2020, and that's Taiwan. China tends to look at the Taiwan question through the prism of national unification. The region tends to look at Taiwan through the prism of the balance of power. And so if Taiwan provokes even a limited war between the United States and China, irrespective of the outcome of that engagement, it's going to lead to a polarization of the region, because the U.S. will compel countries to take sides, it's going to lead both in China and in the United States to increased investments in defense capabilities to deal with the issue, over time. And there will be constituencies in both countries that will use a showdown over Taiwan as a middle to reflect their worst fears about the intentions of the other. And so if you get a Taiwan crisis, which leads to a shooting war, and American forces are committed, American forces lose lives, we lose equipment, even if we defeat the Chinese, this is going to be a real moment of transition for the region. The region will never quite be the same after that.

MR. BUSH: Okay. Thank you very much, thank you for your questions, thank you for the panelists.

(Applause)

(End Panel III.)

(Begin keynote speech.)

JESSICA MATHEWS (president, Carnegie Endowment): Can I have your attention? Thank you.

I hope that you have enjoyed your dinner, because while you have a treat in store for -- we have a treat in store for you now. I don't really think you're going to enjoy it. But we are -- we are extremely honored and very, very lucky tonight to have with us some -- we've talked an awful lot today about the possibilities of conflict and the implicit risk of war and of loss of life. And when one thinks back over the agony that we have been through, and are going through now, about the loss of a thousand American lives in Iraq, and 20,000 or 30,000 Iraqi lives in Iraq, it is sobering to think that tonight we are going to hear from somebody who has probably saved -- I don't know, David -- maybe hundreds of thousands of lives through his work over 20 years of research on HIV/AIDS.

And I think everybody here is also aware that this is an issue that changes the course of events on a vast scale now in Africa, and could as well in Asia, depending on how it's handled. And so, of all the issues that we will deal with over these two days, this one surely ranks potentially in importance among the very most important.

David Ho is the founding scientific director and CEO of the Aaron Diamond AIDS Research Center in New York City, which is a world-renowned biomedical research center and leading source of insight and advance into this disease. He's also the Irene Diamond Professor at the Rockefeller University. He is the -- his work has included seminal discoveries about the pace and means of reproduction of the HIV virus in the human body. And the article which he published in Nature Magazine, which is the leading molecular biological journal really in the world, in 1995, is the most-cited article in the journal's history. It's hard for me -- I actually originally was a molecular biologist, many years ago, and it's hard to describe to non-scientists what that means. To write the most cited article in Nature Magazine is kind of climb Mount Everest, get the Nobel Peace Prize, and a few other things rolled into one.

But Dr. Ho has -- is now working closely with the Chinese government on its management of this challenge and is going to give us tonight a unique perspective on the dimensions of the AIDS challenge in China and of what's being done to meet it. We are really grateful for his meeting with us here.

I think there are few -- as I said, there are very, very few subjects that can even come close to meeting this one in its potential importance for China's future. And so we really look forward to learning from you tonight, David. And thank you very much for being with us. (Applause.)

DR. HO: Thank you very much, Jessica.

It's a real honor to be with all of you tonight. As a physician-scientist, I never thought I would be speaking at a function for the Carnegie Endowment. (Laughter.) But here I am, thanks to Minxin, who asked me to do this, and I accepted immediately because I think the story of HIV/AIDS in China is a very important one to China's future.

If I could have the slide on, please.

So this evening, as quickly as possible, I'd like to give you an idea what's going on with this epidemic inside China. But I think to set the stage, I have to tell this audience about the enormity of this pandemic in the world.

Cumulatively, HIV has already infected 70 million people throughout the world. Approximately 25 million have already died. That leaves us with about 45 million living with a lethal infection, if untreated.

From this graphic you could see, approximately two out of three cases reside in sub-Saharan Africa. And also, in the Americas, there are well over 2 million infections; in Western Europe, half a million. And you see from here, in Asia and South Asia, there are approximately 8 million infections. But this virus continues to spread at an alarming rate. Today another 14,000 people will become newly infected by HIV. And so we add to the total about 5 million per year, and this is really frightening.

The devastation of this epidemic on sub-Saharan Africa, I think, is known to everyone here. But on this slide here, depicting the progression from 1986 to 2001 in the prevalence of HIV infection in the adult population, you could see by the darker shades of red that there are now well over a dozen countries in sub-Saharan Africa with a prevalence of 10 percent or more. And in particular, in southern Africa, there are four nations where at least one in four adults carry this virus. So the impact is really devastating in the region.

I won't have time to go into it in any detail because I'm here to tell you more about the epidemic in China, but I need to tell you that AIDS has become the number one cause of death in Africa. And in fact, if you look here at these five African nations -- Botswana, Zimbabwe, Zambia, Uganda and Malawi -- you could see what has happened to life span or longevity. Ever since the 1990s, life span has been dropping rather dramatically, and now in some countries, this is as low as 40. And, in fact, there are a few projections that suggest a few countries could drop as low as 38 because of one disease.

As I said earlier, this virus also has spread throughout Asia, as this slide would indicate. And I will tell you that just recently India has surpassed South Africa as the country with the most HIV infections. Of course, with a large population, the prevalence is still relatively low.

All of us have heard a great deal about Thailand. For a small country, it has one million infections. And this country here in the gray is not well defined, but we know that Myanmar has a huge problem. So does Cambodia. And China I will come to in a minute.

The news about HIV is not all gloom and doom. This is just a diagram of the virus, the causative agent of AIDS. It is a virus that's been studied extensively since 1983. We now know more about this microbe than we do for viruses that have been known for decades.

In addition, the knowledge that's been gained has led to the creation and approval of at least 20 anti-viral drugs against HIV. It's really quite impressive. And the use of the drugs since the mid-1990s in combination -- and that's the article Jessica referred to -- has dramatically lowered AIDS-associated deaths in the U.S. and in Western Europe and in other developed nations.

In fact, the U.S. figures could be shown here, and concentrate just on the blue circles. And you can see, since '95, '96 the death rate has dropped precipitously and continues to drop today, albeit at a slower rate. And, of course, this has been hailed as a great success, and the developing nations are now seeking similar treatment. But we must look at this success in the proper context. So, bear in mind, this blue curve, now, and look at it on this slide, which has the same drop shown at the bottom here. And the blue denotes the AIDS death rate in the U.S. But that now pales by comparison when one looks at the red, depicting the death rate in Africa. It's as if our advances did nothing to impact on the African epidemic or the global epidemic.

And the reasons are obvious to everyone. The treatment cost for an American patient are about \$12,000 per person per year. And that, in the context of the African reality, tells us why African patients are not being treated. There are so many infections, the per capita income is in the order of \$500 per year, and the health expenditure is in the order of \$5 per person per year.

So there's a huge gap which must be narrowed. We know that for the developing countries, the drug prices have been coming down. And today it's probably feasible to acquire the drugs to treat for something like three, four, five hundred dollars, substantially lower than the American rate. However, that is still beyond the means of the African patients, or other patients in other regions.

So now, as you know from the international community, particularly the U.N. under its global fund to support HIV, TB and malaria, is trying to close this gap. As somebody who contributed to the knowledge that led to this decline, I am certainly most frustrated by the situation shown in the red. Thus, about four or five years ago our team turned our attention to the development of vaccines. And I'm telling you about this because it leads me to China.

We wanted to make vaccines so that we could really impact on the global epidemic by curtailing the spread of this virus in developing countries, particularly in Africa. So, to make a long story short, a team within our institute constructed these vaccines, and the technical aspects I will not describe. We made these vaccines starting about four years ago. The top two are now in human testing, and the bottom one is about to be launched with a submission to the FDA.

We treat this as a race of some sort. Of course, it's a race against the virus. But this is obviously a long process, and I consider it a marathon. And in fact, as you begin to run this race, you almost have to decide how you would finish it, just like a marathoner would. And in that process of saying, well, it's not enough to think about short term -- that is, how you would construct the vaccine, how you would test it in the lab, how you would test it in animals, and not even how you would test it in phase one human trials. But you almost have to say, "If we're successful, where are we going to end up and do our ultimate test to prove whether the vaccine is effective or not?"

And the answer to us was China was a logical selection because China has a long history in vaccine work. It is a developing country with a large number of infections, yet it is a developing country with greater resources than most. And because of those types of considerations, we went to China long before these vaccines were constructed to engage the local collaborators in our research agenda. And we took our vaccine strategy to the province of Yunnan because, as this map indicates, it's in the southwest corner here, in close proximity to the golden triangle.

And I think everyone here knows that Myanmar and Laos are great producers of heroin. And because China was beginning to open up by the late 1980s, heroin entered China through a rather porous border in the southwest, and of course HIV followed very quickly and started to spread. And again, following the tracks of heroin, HIV moved east to Guangxi Province, north to Sichuan Province, and to the northwest autonomous region of Xinjiang.

That's one epidemic that's propelled by drug use, but there's also a second epidemic shown in this golden color here, centered on the province of Henan. And I think if you read The New York Times, The Washington Post, you have read many, many articles that covered this particular epidemic, which was propelled by a rather unsanitary blood-selling practice where even donors of blood, the poor farmers who were selling blood, got infected.

So, in fact, three years ago the organization UNAIDS call HIV/AIDS China's titanic peril. It had done an analysis of what was going on and thought China was on the brink of an explosive epidemic.

And that is -- that report is pretty much based on the data collected by the Chinese officials and plotted here. You could see the absolute numbers on the y-axis are actually pretty small, so this is because only a small number of people were being sampled. But you could also see that the epidemic on the x-axis began in 1985, initially in the large

cities where people had contact with foreign travelers. By late 1989 there's that blip; that's when the virus first entered injection drug users in the southwest. And then didn't really -- did not take off until the early 1990s, and that's when the blood-selling practice occurred in Henan. And you could see the rate of rise is frightening; it's some 30, 40 percent per year. And it is that rate of rise that led UNAIDS and other international agencies to predict that China could have 10 (million) to 20 million cases by the end of this decade. Currently, the best estimate is somewhere between 840,000 and a million.

So, there are these two epidemics, and you have to bear in mind very much different from the U.S. and from Europe, the epidemic is largely a rural one. And perhaps it is because of this feature that it never, until recently, made it into the minds of the Chinese leaders. It was always in the very fringe population within China. But we have to bear in mind the provinces at highest risk contain a total population of 650 million people.

So at this juncture I'm going to switch off this PowerPoint and basically show you a video that our group, together with PBS, put together on HIV/AIDS in China. Of course it's focused toward the second half on some of our recent activities, which I'll come back to tell you about right after this very short, 10-minute video.

(Video is shown.)

DR. HO: First is a strategy that we call "Help China Help Itself." And this is primarily through advocacy and training. You could say that the event at Qinghua University last November, involving President Clinton, is our first advocacy effort.

The training -- of course we've been doing biomedical training for some years. But now, particularly through our colleagues at Qinghua University, we're trying to make sure that this training goes way beyond just the health professionals. In fact, there are leadership training courses, training for the community members, and quite importantly, training for the media, because we believe the media has a big role to play in China. And until recently, the stories written about this problem have not been substantive; they're more or less sensationalistic.

Also, the other thing we could do, because of the experience we had in treatment and prevention programs here in the U.S. and elsewhere, we could go in and lead the way by setting up integrated treatment and prevention programs in areas where there is most need, specifically in Henan and Yunnan.

The third point is that it is known from a lot of work in the field that there are certain populations which must be monitored carefully. These we call the "bridging populations" because they could help to disseminate the virus from the high-risk pockets into the general population. And we know those are the injection drug-users, because those people will also have sex and could spread the virus. A very important population is the commercial sex worker, particularly the female sex worker. And those who travel to China in recent years will know how prominent sex work is now in urban or rural areas. And then, we have to bear in mind why the southern African epidemic is so

severe, it's because of the migrant workers, the workers that worked in diamond and gold mines. But we also know that China has at least 120 million floating population.

So, in terms of advocacy, I already in the video showed this particular event. And essentially within a few weeks, Premier Wen went to one of the hospitals in Beijing to visit with HIV patients, and said a lot of things that are actually spot on in terms of AIDS policy. It was the first time in the history of this epidemic in China.

To me, even more importantly, Madame Wu Yi, the vice premier, then went to Henan province and spent three, four days with the villagers to get a full appreciation of how their lives are being affected. And I would say ever since then, the policies have been gradually shifting in the right direction.

I think the Clinton visit had an impact. The work of many, many organizations had an impact on China. But the biggest impact, in my mind, is actually the SARS epidemic. It was a loud wake-up call for China. It -- China then took a hard look at other diseases, in particular infectious diseases. And HIV stood out, and SARS paled by comparison. And it's pretty clear that HIV will kill more people in two hours than SARS did all of last year.

And so the Chinese leader(s) really turned their attention to this issue and to the issue of a broken-down health care infrastructure. And in meetings with Vice Premier Wu, she certainly says flat out that my highest priorities are to make sure HIV doesn't blow up in my country, and also I need to help fix the health care infrastructure.

So in fact China is beginning to provide free HIV testing to the population. You may have read that they want to make available anti-viral therapy at no cost to the patients. And in fact, methadone programs are starting in the southern provinces for injection drug users. And believe it or not, even needle and syringe exchange programs are now starting -- in some ways, more progressive than the U.S.

Our next advocacy event is really to make a series of public service announcements to impact on the Chinese population. It's been estimated that nine out of 10 infected Chinese would not know their infection status. That is bad for the continuing spread of the virus, and that must change.

And also, with respect to the general population, one out of two Chinese adult(s) knows nothing about this disease, which I would argue is the plague of the millennium. And that, of course, is unacceptable.

So recently we elicited these two prominent individuals, sport stars [Yao Ming and Magic Johnson] from the NBA today and NBA of yesterday, one Chinese, one American, one uninfected and one infected and doing very well, to get together. In fact, this shooting took place in June, and the editing has just finished. And the NBA will tour China in October, playing games -- two games in Shanghai and Beijing.

And the public service announcement will air with very simple messages, because we believe these two individuals will grab the attention of the viewing public. And we could then deliver efficiently messages about awareness, prevention and, very importantly, non-discrimination, because stigma and discrimination are really getting in the way of implementing many of the programs.

We're also within these four shaded provinces -- here, Henan, Hubei, Yunnan and Xinjiang -- are in the process of scaling up treatment for the patients there. And this -- actually, the treatment program is funded through a donation that was given to Bill Clinton's foundation. And so that's starting.

And then we're adding on top of those treatment efforts prevention activities, such as those that would prevent the transmission of HIV from infected mothers to their offsprings, and also just general education in the provinces, so the awareness levels could go up.

So we hope that this growing consortium would be a(n) instrument to avert a major catastrophe in China.

So I will end here by saying that for me it's been quite gratifying to have come from Taiwan when I was young, train in the U.S., and pretty much, you know, hid in the laboratory and did my research for some 20 years before going out and seeing what the epidemic is really doing in the world. And now it's very, very gratifying to be able to take the knowledge and expertise that I have acquired and to apply it to the land of my heritage.

So let me end -- I think I don't want to go on and on. I think I've given you an impression of what this epidemic is doing in China, and I'd be very happy to take some comments or questions. Thank you very much. (Applause.)

Q I read in the Chinese official press a week ago that the government conducted the most extensive survey in Hunan province and came up with this number, which I'm sure you will find interesting. It said the grand total of people infected with the virus in Hunan province is 25,000. Can you comment on this? (Light laughter.)

DR. HO: You could -- I track all of these reports and there are lots of conflicting reports. Twenty-five thousand for Hunan is clearly wrong. They have already said in, again, official reports that at least one out of eight farmers who engage in the blood-selling practice is infected.

Now then, the question is what's the size of that population? And Hunan, I think many of you know -- you're all China experts -- is the most populous province. The population in 1997 was 92 million. It's probably a little over 100 million today. And we know 80, 90 percent of them are rural farmers, and we know that at least a few percentage of them engage in this practice. So you work out the math. It's a lot larger than 25,000.

Another way to look at it is how many of -- how many counties are there that are severely affected in Hunan along -- not to count the adjacent provinces. And the figure is about 50. Fifty counties are severely affected. And then you could say, well, what is the approximate size of the infected population per country? It's probably in the thousands, or in some, tens of thousands. So you multiply the number. That's why some experts actually argue that there are a million infections in Hunan alone, in order to have the huge orphan problem that was depicted in the video.

But the bottom line is nobody knows for sure, and we've been going there speaking to the leadership and saying how about letting us come in and do an extensive survey? And while the central government is in agreement, the provincial government is quite reluctant. But just by having outside groups pushing and pushing, maybe surprisingly, now there's a large-scale surveillance effort in Hunan. They just recently finished 250,000 tests in the rural population. Those results have not been revealed yet. So we have to wait and see.

Over here in the center.

Q I have two questions. The first is how far, in your view, has the virus crossed over into the general population in China already?

And the second question is: As you pointed out, often countries are completely unable to afford, or deliver even if they could afford, the complex treatment methods we're using in the West. Is China in a position now, or is it likely to be in the foreseeable future, in which it is able to either afford or deliver the relevant treatments?

DR. HO: In terms of the second question, the -- China I think will take several years to gear up to treat properly. I would say today, despite the huge patient load, there are not more than two dozen physicians in China that I would trust to care for me if I were HIV infected in terms of how to use these drugs. Because the drugs have not been available until fairly recently, there's simply lack of experience. So the biggest problem is human resources, and that's why many groups are in there trying to train as many health care workers as quickly as possible.

But I also see that in certain places there's a very rapid build up of the necessary clinics and laboratories to respond, and that part is impressive to me. So it's certainly not the same track that the African nations follow. So I think China could gear up much faster and probably have a different course, but that still will take a few years to get there.

As to the spread of the virus into the general population, if you look at the province like Yunnan, it's an epidemic due to drug use. But then you ask, well, what about female sex workers? It's 2 percent. Of course, that's not considered the general population, but the general population will lag behind that by sometime -- by a few years.

It's really concerning to me that -- and this is not talked about so much. People think that drug use is restricted to Yunnan and Guangxi and Xinjiang, those provinces,

but it's actually extremely prevalent now. And so Guangdong is a big concern to me, the major urban areas. So if it gets into those populations, it will get into the general population. And as I said earlier, the sex-worker population is just growing every day. And if you look at raids of -- you know, China essentially eradicated Syphilis and many other sexually transmitted diseases until it opened up again, and now the Syphilis rate of infection is so high and it's just continuing to go up with a steep trajectory. So HIV, it's only a matter of time.

But it is important that China does more surveys in the general population to find out. Most people would say it's not in the general population at any great prevalence at this point, and I would agree with that, but the picture scares me a little.

Q One capacity that China clearly does have is an ability to get a message across to the population. With that in mind, your comments about how few Chinese adults are aware of AIDS or have any kind of grasp of the issue is really quite startling, especially given your comments about the impact of the Clinton visit and then Wen Jiabao's, you know, visit to the clinic and Wu Yi and so forth. Do you anticipate at some time fairly soon the highest levels of the Chinese government taking this seriously enough to mobilize their own communications apparatus fully to educate their own population? And if not, what do you see as the obstacles to achieving that?

DR. HO: I think you're absolutely right. I think what we're trying to do is push the effort along a little bit. And, see, the Wen Jiabao visit was December 1, 2003, so it's still fairly recent. And in China, it takes a while to get going.

But I already know that for the last five, six years, there's been one actor in China who's been the AIDS spokesperson. They recently engaged a whole cadre of them to come out and speak. So I could see the machine working behind the scenes, and I suspect it will pick up quite a bit as we go forward. And certainly these public service announcements that we helped engineer have to be approved, and they greeted these with a great deal of enthusiasm. And I think any decision coming from the very top of the central government, I would predict it would be in the right direction. But what worries me would be at the provincial level, at the local level, and the mindset, I would say is quite different.

Q You started your talk about your vaccine work. And then, when you moved to China, you focused more on prevention. And I was wondering if you could answer a couple of questions. One, there's a lot of debate about the likelihood of a vaccine being produced. I'd love to hear your opinion on that. And then, how do you see the role of vaccines in China, possibly, and anti-retrovirals and the issues around intellectual property? And then, finally, China's capacity, with its great science abilities, to produce some of the -- either the anti-retrovirals or the vaccines that they might need to fight this epidemic.

DR. HO: Okay, well first of all, I want to say I'm not a China expert. I think China experts are sitting down there.

In terms of the vaccine, it's clear that the strategies that we have employed, as well as the strategies of a number of other groups, have been shown in monkey experiments to be partially protective. So we don't expect a home run here, but we expect to come up with something that will protect and will slow down the epidemic. However, all of these vaccines are still in early stages. So if you think through the testing process of phase one, two and three, and how long each one would take, and then the full implementation that need to be done thereafter, it's many years. Okay? So it's safe to say that this next five years we're not going to have anything that's effective, but there will be many in the testing process. And of course, we wouldn't be engaged in this if we thought it was zero chance of succeeding. We at least feel that there's a reasonable shot at it.

In terms of drugs, I already talked about anti-retroviral therapy. But the IP issues, intellectual property issues are interesting. China has -- the pharmaceutical companies have geared up and made four generic drugs. So it's not violating any patents. And so far, unlike India and South Africa and several other -- and Brazil, it chose to respect intellectual property in this area. And so -- and perhaps Wu Yi had something to do with it because she is certainly a proponent of that in China.

So, it, in fact, made interesting deals with -- recently, a month or two ago, with GlaxoSmithKline to import a very essential component of cocktail therapy that was lacking in China. So it's something that pleases me, because I would say the Chinese patients, up till very recently, were getting inferior therapy compared to those in Brazil or in Africa, where, you know, the pilot programs used better drugs than the Chinese patients were getting.

Now, I can't even keep track of your questions, much less answer them. (Laughter.) But maybe we'll move on to another questioner.

Jessica?

Q Can you explain to us what it was about SARS that made its impact so completely out of proportion to its actual risk? And whether it's had a lasting -- a kind of a permanent effect that's broader maybe even than HIV on the public health infrastructure?

DR. HO: Well, SARS was dramatic. I went to China three or four times between February and May of last year, specifically for SARS, because I guess if you're a virologist working there with a relationship, they call on you. And so I went to Hong Kong and Beijing multiple times. But SARS was dramatic. It was new. It emerged in November 2002, but quietly spread in Guangdong until one case that went to three hospitals and transmitted to, I think, 60 people in Guangdong. And then from there, to Hong Kong. And it was so new, so dramatic, it just caught the attention.

Of course, initially it was not taken very seriously. The reports were filed by the Guangdong CDC to the Central CDC in China in Beijing. But the report got there over the Chinese New Year -- (brief audio break) -- back home started the Singapore epidemic, the Toronto epidemic, the Vietnam epidemic, and so on. It just shocked the

world and shocked Hong Kong and China, specifically. And initially, China did not -- was not very transparent about it, but a mid-course correction occurred in April when the minister was fired and the Beijing mayor was replaced, and we came in and took a much more transparent and bold approach. And actually, you could say there was a single-minded determination in the country to shut this thing down. And, of course, it spread beyond the cities, and it spread to Shanxi province, for example. And a lot of outside experts thought, well, it's going to be disastrous. China wouldn't -- once it hits the rural poor, you're not going to be able to control this. But they did, by that summer. And that was very, very impressive to me. But it came at a high cost: lots of lives, lots of money, and, you know, many cities paralyzed for many months.

It's still high in the minds of the Chinese leadership. They still talk about SARS as if it's going to come back tomorrow. But like I said earlier, SARS was also a very, very good opportunity for them to look at health in general, and I guess that's a blessing in disguise.

I don't know where SARS is going to go. We know there's a reservoir in animals, and it's likely to come back, but it may not come back in the same form, because last year, I think, the virus that ultimately emerged went through a Darwinian selection process and what emerged was a very aggressive strain. We had a small outbreak in Guangdong again related to a restaurant that served civet cats. But all those cases are mild and not transmissible from person to person.

So it could be that most of the natural, what we call zoonotic infections -- that is animal-to-human transmission -- would result in mild infections. But if you let human-human transmission to go on a little bit, as it did in early 2003, you could, through a Darwinian selection, pick out something that's more aggressive. And that, I think, is the more frightening scenario. But I think the authorities in China and Hong Kong would not permit that to go on now.

Q Can you share with us your knowledge of any measures the Chinese government has taken to increase the medical personnel to treat AIDS patients and the disease in general, and also how the Chinese government has planned to shoulder the financial burdens of AIDS prevention and treatment among a sector of the population that the government probably -- you know, the least desirable sector of the population, especially when you think about the government doesn't even fork out enough money to pay for rural education.

DR. HO: Unfortunately, I'm not privy to such information. I would say that I've read reports, I've heard people talk about training a huge number of physicians to deal with HIV/AIDS, something like 30,000. Now, that's -- not of these are the MDs that we would think of. But in one way or another, they're all health care workers. So it's a huge number being trained; how I don't know.

In terms of the financial support for this effort, that's all rather mysterious to me. I do know that, for example, during the SARS outbreak some sum, like five billion, six

billion dollars were put into the Health Ministry, primarily the CDC, of China to deal with that epidemic and to upgrade many of the health infrastructures. But I just don't know enough about the subject to answer your question adequately.

MS. MATHEWS: I hope everybody will join me in thanking you for -- we've had a lot today that's opened our eyes to a lot of things that we don't normally spend time on, and I think this certainly is the most important. We are very, very grateful for you for joining us. (Applause.)

[END OF SESSION.]