

Jeffrey Sachs

Reith Lectures 2007: Bursting at the Seams

Lecture 2: Survival in the Anthropocene

Recorded at Peking University, Beijing

SUE LAWLEY: Hello and welcome to Beijing for the second in this year's series of Reith Lectures entitled 'Bursting At The Seams'. Today we're in the Room of the Ten Thousand Masses, at the China Centre for Economic Research at Peking University - and yes, the university is still called Peking University. It's the first time the BBC has recorded a Reith Lecture in China, and we couldn't be in a more appropriate place at a more appropriate time. Last week our lecturer Jeffrey Sachs, the international economist, set the scene for his argument, that all the world's great powers can and must co-operate if our planet is not to descend into disease-ridden, poverty-stricken devastation. Nowhere is more important in this process than China, a country of 1.3 billion people, now being transformed into a global power of enormous influence and strength. What China chooses to do, and more importantly how she chooses to do it, will be crucial in the next phase of the world's development.

This recent great leap forward of China's has already come at a price, not least in the damage that's been done to its environment. It's still a one party state without democratic elections, and many in the West believe that it can't play a full part on the world stage until it address matters of individual liberty and human rights. Peking University has a reputation in the People's Republic for revolutionary thinking, and with us in our audience tonight are many of its students, as well as academics, journalists, and businessmen, with whom we'll discuss these issues. But first, will you please welcome this year's BBC Reith lecturer, Jeffrey Sachs.

(APPLAUSE)

JEFFREY SACHS: Good evening everybody, and what a thrill it is to be at Peking University, and to be together with you. And what a thrill it is for me to have the chance to give this unique lecture series, the Reith Lectures, and to take part in a global discussion, a discussion that we must have in the beginning years of our new century, if we are to achieve what we hope to achieve -- shared peace and prosperity around the planet. I think we all sense that we are at very important decision points in the planet, with obvious risks and huge opportunities. As Sue just said, there is no place on the planet of more significance for these choices -- for its own sake as well as for the world's sake -- as China today, a country that calls for superlatives in its role, its dimensions, and the stakes for the world. Here we are in the famous, beautiful, magnificent Hall of the Ten Thousand Masses, as it's called, but to account for China's vastness we would need a hundred thirty thousand such halls of ten thousand people each to accommodate the 1.3 billion people of this country, which makes up one fifth of the world's population and is quickly becoming an absolute epicentre of the global economy as well as many of the challenges that I'll discuss tonight.

China has been at the centre of world history for millennia, and for large stretches of

world history China has been the leading power. Roughly from 500 AD to 1500 AD China was clearly the dominant economic power and the dominant progenitor of fundamental and leading technologies of all sorts, which empowered the world and changed it in magnificently positive ways. And of course we all see and expect China to play that role in the twenty-first century as well. After a long period of difficulty, economic hiatus and internally and externally caused disarray, China clearly is in the ascendancy in this century. It is far and away the most dramatic case of economic growth in the history of the world. Never before have we seen rates of economic progress, and what they signify -- deep improvements of human well-being taking place at not only the pace but obviously the scale that we're seeing now, with each decade bringing a doubling or more of living standards -- in a country of these vast proportions.

So the superlatives of the economy are well known and they cross lips around the world every day, but we're going to talk about another aspect of that challenge this evening, and that's the superlatives of the environmental challenge that China faces. Not only is it the world's most populous country, it is one of the world's most crowded countries, and it is certainly one of the world's most environmentally stressed regions. This is a challenge that has existed throughout China's history, but what has happened in recent decades and what will happen in the decades to come poses qualitatively new challenges that are emblematic of the unique environmental stresses that we all face on the planet together -- some because of the special role that China will play in the future, and some because China is experiencing the same kinds of phenomena as in other parts of the world.

I called my lecture today 'The Anthropocene' - a term that is spectacularly vivid, a term invented by one of the great scientists of our age, Paul Crutzen, to signify the fact that human beings for the first time have taken hold not only of the economy and of population dynamics, but of the planet's physical systems, Anthropocene meaning human created era of Earth's history. The geologists call our time the holocene --the period of the last thirteen thousand years or so since the last Ice Age -- but Crutzen wisely and perhaps shockingly noted that the last two hundred years are really a unique era, not only in human history but in the Earth's physical history as well. The Anthropocene is the period when human activity has overtaken vast parts of the natural cycles on the planet, and has done so in ways that disrupt those cycles and fundamentally threaten us in the years ahead.

Now considering how we're going to face the dual challenge of continued economic progress, which we dearly hope for in this country and in other parts of the developing world, and continued economic well-being of course and progress, in today's high income world, with the profound and growing environmental dangers that we face, is the subject of our Reith Lecture today.

Let me set the stage. Our era is unique. We've never before experienced anything like the human pressures on the environment as well as the human successes in sustained and broad-based improvements of well-being. Ensuring that we can continue those successes without going right over the cliff will prove to be our generation's greatest challenge. Since the start of the Industrial Revolution, which we could date roughly to the beginning of the nineteenth century - 1800 or so, perhaps a few decades earlier by some historians' accounts, a couple of decades later in most places in the world - the

human impact on the environment has increased approximately one hundredfold. Human population has risen from six or seven hundred million in the middle of the eighteenth century to our 6.6 billion today, roughly a tenfold increase. Per capita economic activity -- that is how much each of us on the planet consumes, produces, draws upon natural resources for our sustenance and well-being -- has also risen by typical statistical account, as hard as it is to compare over the course of two centuries, roughly tenfold as well. With ten times more people, each of whom is engaged in ten times more economic activity, we have two orders of magnitude, or one hundred times, the influence of human activity on the planet. And this is coming at unprecedented cost to physical earth systems. What's absolutely striking, and the puzzle we need to solve, is this basic fact: What we are already doing on the planet in terms of effects on physical systems is unsustainable. We cannot go on doing what we're doing. We have already reached a point of literal unsustainability, in the sense that if we continue on our current path, using resources the way we use them now at the scale we use them now, we will hit very harsh boundaries that will do great damage to human well-being, to the earth, and to vast numbers, literally millions, of other species on the planet. But we have an even harder problem to solve than that one, and that is that we do not want to stop here in terms of consumption or economic activity. The developing countries -- and we're in the most populous of them today -- which together make up five sixths of humanity, rightly and understandably and from my point of view absolutely accountably and responsibly, say they would like their place in the sun as well. If the high income world has achieved certain levels of wealth, comfort, safety and life expectancy, what about the rest of humanity? From my point of view as a development economist, something absolutely wonderful is happening, something that I think we could even dub the Age of Convergence, and that is that the measure of economic development, the methods, the institutions, the processes, the adaptation of advanced technologies, are becoming a worldwide phenomenon. Now tragically not every part of the world is yet part of that phenomenon, and I will have the chance to discuss that in a later lecture, when we talk about the poorest of the poor who are still not part of this dynamism. But the wonderful news is that large parts of the planet are part of this dynamism - China of course is at the very forefront in an unprecedented manner -- catching up in technology, economic activity, and human well-being. Let's not doubt the improvements of living, not only of conventionally measured living standards but of human well-being and life expectancy, in nutrition, in opportunities, in chances to fulfill life's hopes that come along with this economic improvement.

The processes now are made powerful by the strong winds of globalization -- the market forces and the ability of ideas and technology to flow across national boundaries at an unprecedented rate. The world economy is now growing at approximately five per cent per annum, and that is four per cent approximately of per capita income increases, and one per cent per year roughly of global population increase. That means we are on course for a massive increase of economic activity, just what we would like to see in the still poor countries of the world, those who aspire to have the chances that technology and science have brought us. It is fair to say that, given current trends, we have a powerful force of economic convergence in most parts of the world, and if the processes of convergence continue to operate as they have in recent decades, one could expect that perhaps the average per person income on the planet could rise as much as four times between now and mid-century. If the average income as measured by economists, statisticians, taking into account

the purchasing power of income in different parts of the world, is roughly eight thousand dollars per person, one could expect perhaps that that would reach thirty thousand dollars by mid-century, given the powerful and positive forces of economic development.

Population of course, though increasing more slowly in proportional terms than it did in the second half of the twentieth century, is still increasing in absolute terms by an astounding amount of 70 to 80 million people per year. And on the medium forecast of the UN Population Division, that leads to a projection of roughly an increase of another two and a half billion people on the planet by the year 2050. That is a world population increase of roughly fifty per cent, with income on a path, barring various disasters, to increase approximately fourfold. Multiplying one and a half by four suggests that the current trajectory would lead to an increase of world economic activity of six times between now and 2050. That is the goal from the point of view of economic development, but think about the paradox, if we already are on an unsustainable trajectory and yet China, India, and large parts of Asia are successfully barreling ahead with rapid economic development at an unprecedented rate. We are asking our planet to somehow absorb a manyfold increase of economic activity on top of an already existing degree of environmental stress that we've never before seen on the planet.

It is possible that we will not be able to increase sixfold in economic activity with current technologies before the environmental catastrophes would choke off the economic growth. The hardships in water stress, deforestation, hunger, and species extinction, would cause this process to go awry, even before we are able to do more damage to the planet. But that does pose the fundamental question - what will give in the end? Many people think the only thing that can give are living standards in the high income world, whereas others believe that we are bound for a bitter struggle between the rich and the poor in the years ahead. I want to argue that the only viable, peaceful way forward is a change of the way we live that allows for continued improvement of living standards in all parts of the world and for catching up, but that also permits us to square the circle of environmental stress and economic development.

The Anthropocene is felt in so many areas -- habitat destruction, rising greenhouse gases that are changing the climate and threatening us profoundly, water stress, human dominance of the natural nitrogen cycle through heavy use of manmade fertilisers that allow us to feed a world population of 6.5 billion people on its way to 9 billion, new diseases that emerge when human populations and animal populations come into contact in new ways, and of course in the vast over-fishing, over-hunting, over-gathering, and over-exploitation of natural resources in large parts of the planet, leading to population collapses and species extinction.

I want to touch on one of these many aspects, because it is not only of central importance, but helps to illuminate the challenge of squaring the circle of development and environmental sustainability. Climate change, a vast challenge that reflects at the core the fact that modern economic growth since the Industrial Revolution has been built on the use of fossil fuels, which leads to the emission of carbon dioxide and, through the greenhouse effect, the warming of the planet and fundamental changes to the earth's climate. The effect was identified more than a

century ago, in 1896, but it has only come to our attention in recent years, because it is only in the last couple of decades that we have come to understand just how big the human effect is on the growing concentrations of carbon dioxide and a number of other such greenhouse gases, and on our changing climate.

This is a case where what we are doing today is not sustainable, because each year we are raising the carbon concentration in the atmosphere by two or more parts per million of molecules in the atmosphere. When projected over the course of this century, that rate of emission would lead to such a high level of carbon dioxide in the atmosphere that the climate would be changed, we now understand, to the point of dire risk for us and for vast parts of the global eco-system. Species extinction, extreme weather events, massive changes of precipitation, grave risks to food production, disease transmission and the like, would all reach harrowing levels later in this century if we merely continue to do what we're doing now. But here comes the puzzle. With the world economy barrelling ahead, the amount of energy use is also rising dramatically, and so too the use of fossil fuels, which will be in sufficient abundance long enough for us to wreck the climate before we run out. And so if the concentration of carbon dioxide is increasing by roughly two parts per million each year, it could easily be four parts per million in a few decades, with the rate increasing over time. The projections are that by mid-century we might have doubled the pre-industrial concentration of carbon dioxide. By the end of this century, if we continue on a business as usual course with the economic development we so hope for in this country and in the rest of the developing world, perhaps the concentration will have tripled or quadrupled. We know, as we learned once again by the recent scientific consensus of the inter-governmental panel on climate change, which reported in its fourth assessment round beginning in February of this year, that the effects of that kind of increase pose risks to this planet that we simply cannot afford to take.

What can we do? Do we have to end economic growth? Do we have to end the hopes of the developing world? Do we need dire cutbacks in living conditions, inevitable in today's rich world? I believe that there is another course, and it's the course we must take. There are at least three ways out of this conundrum. First of course is fuel and energy efficiency, so that we can get more economic output with less direct use of fossil fuels. Second of course is the substitution of non-fossil fuels for fossil fuels, so that per unit of energy the emissions of carbon dioxide can be reduced, whether it's with safely deployed nuclear power, or more economical solar power, or wind, or biomass, there's definitely a role, though perhaps not as dramatic as we might hope, for non-fossil fuels.

There's a third alternative as well, and that is to learn to use our existing fossil fuels safely. And for China and India this is perhaps the single most important hope for these countries and for the planet. One idea on the drawing board which needs to get into demonstration and production in this country as soon as possible - and that means nearly immediately - is the idea of power plants that burn coal to generate electricity, capturing the carbon dioxide that they would otherwise emit, pumping it into pipelines and safely storing it in safe geologic reservoirs in the earth.

The big question for the planet is the unprecedented challenge to move to a sustainable energy system, requiring a great degree of co-operation, foresight, and planning, over a time span of decades. Can we do it? Can we find that level of public

understanding, political consensus, direction and determination? We may fake it with nice speeches, but the climate will change whether we fake it or not. There is no spinning this one. This one is dependent on what we actually do, not what we say we do.

I want to mention one hopeful analogy, and that is how we have successfully as a world avoided what was another desperate risk, and that was the depletion of the ozone layer. That was also discovered by Paul Crutzen, the scientist who brought us the Anthropocene. He and two colleagues, Sherwood Rowland and Mario Molina, discovered, accidentally as it were, that the chemicals that we use for refrigeration and for our aerosols, the chloro-fluorocarbons, or CFCs, posed a grave risk to survival on the planet because of their accidental interactions in the stratosphere that could have destroyed the ozone layer. It was an accidental, brilliant discovery. It took some years for the public to become aware of it. When the scientists said it, the makers of the CFCs said that it was junk science, that they'd heard it before. They went into denial. But then NASA in the United States snapped a picture from one of its remarkable satellites, showing the hole in the ozone layer. In a way it may be the picture that saved the world, because as soon as people saw that hole with their own eyes, they weren't listening to the Chairman of DuPont anymore, they were thinking about their survival and the survival of their children. The public awareness soared, the pressure for action increased. At that point DuPont and other companies' scientists went to work. They determined there was an alternative to the CFCs, there were other safer chemicals that could be refrigerants and aerosols. Then a fourth step took place. The companies whispered in the ears of the politicians, "it's okay, you can reach an international agreement, we can handle this." And quickly, -- from the basic science to the international agreements took about fifteen years -- by 1990 a global framework was in place that called for the phasing out of the chloro-fluorocarbons and has put us on a path of at least relative safety with regard to that risk.

With climate I believe we have the same prospects now. It is a much more difficult issue, a problem that gets to the core of the functioning of the world economy, so it cannot be solved from one day to the next, requiring a basic change of our infrastructure and our energy systems which will take decades to complete, but a process nonetheless that I think is underway in the same way. First came the science, back in 1896, and then the modern science in the last twenty-five years. And as soon as the science came, came the companies with the vested interests claiming junk science, because their instinct is to start lobbying. But you don't lobby against nature. Nature has its principles: it doesn't matter what the boards of these companies say. What matters is the actual physical mechanisms. The science was right, it becomes more and more known.

Now like the ozone crisis, public awareness has been the second step. For a long time climate change was discussed as something for the far future. Now it's understood as something that imperils us today as well. The heatwave in Europe in 2003, claiming more than twenty thousand lives; Hurricane Katrina, a storm of devastating proportions, shocking the American people and the world about what climate can do; the mega-drought in Australia that took place this year, and destroyed a substantial part of Australia's export crop; the massive typhoons being experienced by this country, as well as the warming taking place in large parts of this country, and severe droughts in the interior of China - have all made climate change an immediate issue,

an understandable issue, and one that of course will get worse, no matter what we do right now, for a while, because we are on a trajectory of worsening climate change stresses that is locked in place for the near term.

The good news is that the scientists and the engineers are now scurrying. Technological alternatives are being developed. Carbon capture and sequestration is beginning to be put into place in demonstration projects. So too are alternative non-fossil fuel energy sources, and so too remarkable breakthroughs in energy efficiency, such as hybrid and plug-in hybrid automobiles, which promise us vast efficiency gains, more distance per unit of fuel.

The good news is that those technological breakthroughs are similarly leading the companies to whisper in the ears of the politicians - "it's okay, we can handle this." And that's the best news of all. Companies around the world are now in the lead of their politicians. In fact they're telling the politicians we have to act, we want a framework, we need an incentive mechanism, we need a price structure so that we can move ahead with sustainable energy. I believe we're going to get there. Global negotiations on a truly global framework open in December of this year, in Bali, Indonesia. We've agreed in principle on a Framework Convention on Climate Change, that we must stabilise greenhouse gases. We took an early small step in the so-called Kyoto Protocol, but this only involved a very small set of commitments for a limited part of the world - mainly Europe, because the United States did not even join. Now in December we must have the US and China, and India, and the European Union, and other parts of the world, all coming together and saying we must do this for ourselves and for the future. Nature has spoken more loudly than vested interests. This is not a matter of vested interests, it is a matter of common interest. These steps, from the science to the public awareness, to the technological alternatives, to the international agreements, are the very steps that we will need for all aspects of the Anthropocene. This will be the mark of our new era - science-based global policy-making based on worldwide public awareness. That's going to be true for saving the rain forests, for saving our oceans from over-fishing, for managing water stress, and for choosing population alternatives that are sound for the planet and sound for individuals as well. We don't have to accept the population trends, because people would choose fertility reduction voluntarily in large parts of the developing world, if the alternatives were made available to them. We can do this, and we will learn that the costs of action are tiny, compared with the risks of inaction. Climate change can be solved, according to the best current estimates, for less than one per cent of world income each year, and perhaps well under that, where the potential costs are a devastating multiple of several per cent of world income if we continue on the business as usual trajectory.

I want to end where I started the first lecture, with my favourite speech by President John F. Kennedy. He talked about the challenge of peace. That is our biggest challenge on the planet. And peace is also threatened by environmental risk. But he also told us in that speech that we have chances. He said, and I repeat because I think it is our common thread: "Our problems are man-made, therefore they can be solved by man. And man can be as big as he wants. No problem of human destiny is beyond human beings. Man's reason and spirit have often solved the seemingly unsolvable, and we believe they can do it again."⁴ That is the spirit of the Anthropocene.

Thank you very much.

(APPLAUSE)

SUE LAWLEY: Jeffrey Sachs, thank you very much indeed. I'm now going to take questions from people here in the Hall of the Ten Thousand Masses of Peking University, and I'd like to invite, to put her question first of all, Yu Yang Jie, who's a third year economics student here at Peking University. Let's have your question if we may?

YU YANG JIE: Thank you Professor Sachs. My question is about, to what extent should we protect the environment, because when there is a conflict between environmental protection and economic development, it's unwise and also impossible to totally stop the economic development for the sake of environmental protection. So my question is, how should we find the optimal balance between the two?

JEFFREY SACHS: The choice that sometimes puts economics versus the environment is largely mistaken in that the environment is part of the economic wellbeing, it's not in contrast to the economic wellbeing. Now let me say that choices that we actually face on how to use land, how to fish, how to use our energy resources, are less dire and less painful than we think, if we look closely at our real opportunities, especially with technology. I talked about the new kinds of sustainable energy systems that we can adopt at relatively low cost, but let me talk about another issue - massive over-fishing of the oceans, leading to a destruction of the fisheries. China is the pioneer now at a global scale of an alternative agriculture, so massive fish farming - and China farms perhaps eighty to ninety per cent of all of the world's fish now - that's a technology, farming the fish rather than depleting the oceans, that gives us hope.

SUE LAWLEY: Right there let's... Yes?

MAN: My question is that how can you make Chinese to understand this issue, ... millions and millions of people they are just see their hope to become rich or have the opportunity to change their material life.

JEFFREY SACHS: The point is that the costs of this are not to say to the Chinese people "you will not achieve economic development," or to the American people for that matter, "your income levels will be deeply undermined." The point is if we mobilise our science and technology well, if we prove and demonstrate and diffuse carbon capture and sequestration or other technologies, we'll find that we can wisely choose a course out of this. If we simply are too afraid, too neglectful, radically greedy, or simple-mindedly shortsighted, then the dangers will mount well, well beyond the cost that we would pay with clear action. That's what needs to be explained.

SUE LAWLEY: Let me bring in James Kynge, who's a British writer who's lived and worked in the Far East for the past twenty-five years. He's published a book about the rise of China and currently heads the business operations here of Pearson, the international media company. James Kynge, your question please?

JAMES KYNGE: Jeffrey, in your speech you've painted a picture, a really horrific picture of a global environmental meltdown, and you've said that one of the keys in arresting this is public advocacy - in other words giving people their voice, so that those people can keep government and the big companies honest. But as you well know, China is not big in giving people their voice. This is a topdown government. At the central level there's a very keen understanding of the environmental issues, but often at local level governments are corrupt and they're in bed with the big polluting companies. So what would you say? Is it possible, is it remotely possible that China will ever allow enough pluralism, enough public advocacy, and enough democracy, to solve the environmental problems that you outline?

JEFFREY SACHS: It is not only remotely possible, I think it's very likely in fact. These environmental challenges are not hidden from view, they're felt in the daily lives of people living on the Yangtze, and the massive pollution that has been seen, the heavy air pollution in the cities of China, and now a whole world that is going to be saying to China, very soon, perhaps within the next three or four years, you, the People's Republic, are the number one emitter of carbon dioxide in the whole world, so whatever you think, you're affecting the whole world's climate. What's going to be interesting is that as China overtakes the United States as the largest emitter, the US is going to start complaining bitterly - what are you doing to our climate? And so what's going to happen is that the whole world more and more will understand that this is dire. We're seeing a change within just the last three or four years of public awareness, not because of theory, not because of lectures, but because of what is being felt in daily lives. I've had excellent discussions with the Chinese leadership over the last year on these issues. They are fully aware of this. And I believe that this is going to be the realisation in this country, in India, even in the United States. We're finding in US politics a change in the last year that is remarkable - Katrina, and the other forces of nature - Vice President Al Gore has brought that...

SUE LAWLEY: And disaster, and disaster.

JEFFREY SACHS: ...brought that about.

SUE LAWLEY: And ... James Kyngé...

JEFFREY SACHS: Once you get Oscars for climate change, you've got to know that we're on our way!

(LAUGHTER)

SUE LAWLEY: James Kyngé, what chance do you think there is of China volunteering in beating the US to solving its carbon emissions?

JAMES KYNGE: I agree that the central government certainly has a big handle on this, they realise the big problems. But what I've seen time and time again is that local governments do not obey the central government, and they are corrupt, and they're not thinking about the planet, they're thinking about their own short-term profits. And I don't see any, really any progress in that regard.

SUE LAWLEY: Any other, really on this subject if I could - I mean I'd really like

some people who live here and who would like to speak on this subject. Yes, here we are.

WOMAN: Okay. I'd just like, regarding James, what he just mentioned a moment ago - I have a friend, he's a reporter from CCTV. One day they went to a county in ... because the miner ... You know the mining thing, the coals - they want to shut down those small mining illegal mine, mines...

SUE LAWLEY: Pits? Mines?

WOMAN: Mines. But this is the first day the central government sent to close it, but the second month they opened it because the whole county's income is depending on the mines. If they close there is no economy for that county, that's the problem.

SUE LAWLEY: I see that. Well look, let me just bring in now a questioner here on the front row, because it's on this subject, Jeff, if I may. He's Ma Jun, who's head of a research organisation here in China called the Institute of Public and Environmental Affairs. Ma Jun, your question?

Ma Jun: Hi. I'm glad that you mentioned in today's world of globalisation we need more co-operation on the global environmental governance. We are running a national water pollution database, and recently when we prepared our list of, you know when we collect a list of water polluters and we came across a file, I mean sixty, seventy multinational companies, from Japan, from US, from Europe. And they were caught by the local agencies who are violating the basic discharge standards. And this raised question, raised concern over a global transfer of pollution in today's you know more kind of globalised manufacturing. But some in the Western countries argue that if the local companies are polluting, then the multinationals should not be blamed for doing the same in this country, and I want to hear your comments on that.

JEFFREY SACHS: I think all of these points are correct, and also need to be understood in a dynamic process. This is a, no doubt a fight for a new way of doing things in this country and in the world. Many of the examples that have been given could have been examples in any of our countries. Market forces by themselves are often quite powerful and quite shortsighted, because markets don't include the social damages that go along with these polluting or resource-depleting activities adequately, and therefore we need a collective action that countervails the market. I am not arguing that from one day to the next we're going to have a change that is going to solve these problems, indeed I said many times just on the climate change issue, this will actually take decades.

SUE LAWLEY: This is a question about double standards, this is a question about multinationals doing their dirty work here, or devious Western entrepreneurs bringing their toxic waste here, whether it's old computers or whatever...

JEFFREY SACHS: No no no it's what I say that...

SUE LAWLEY: If, if the West, if the West is doing that here, what chance is there of getting the kind of co-operation from here, from China, with the West, to achieve what you're, what you're advocating?

JEFFREY SACHS: I agree, it's... I don't call it double standards, it's just we have poor environmental performance all over the world. There's not any place in the world that is truly environmentally sustainable now because the whole...

SUE LAWLEY: Sure it's got to stop, but how is it going to stop?

JEFFREY SACHS: ...because the whole, because the whole world climate is being changed. But we are also in a process of tremendous global recognition and rise of understanding of this, just in a short period of time. I will predict that by 2010 we have a post-Kyoto agreement reached, one that does include all countries - China, the United States, the European Union and others - that agree to targets that are serious about heading off this kind of environmental catastrophe.

SUE LAWLEY: In three years' time China and the US will all agree to it?

(LAUGHTER)

JEFFREY SACHS: That's what I said. I'll say it again - I believe that by 2010 we will have a post-Kyoto global agreement.

SUE LAWLEY: And what leads you to believe that? What evidence do you have? What have you heard? You know, how do you know that?

JEFFREY SACHS: Yeah, I, I don't know it, I'm predicting it, and I'm... (LAUGHTER) And I'm, and I'm predicting it on the basis of the argumentation that I made, which is that these issues go from the science to the public awareness, to the technological options, to the agreements, and I think we're in that phase right now actually.

SUE LAWLEY: What's different about right now?

JEFFREY SACHS: Not only am I saying things are changing, I'm actually putting a date on it as well. I believe that by 2010 we will have an agreement. I believe, to be more specific, that every major presidential candidate in the United States for example, in the 2008 election, will have a strong climate change plan. So we'll see that in real time, whether I'm right or merely dreaming.

SUE LAWLEY: Okay.

JEFFREY SACHS: The reason I believe that this is happening is that the scientific consensus is sound because the major oil companies are actually running advertisements every day in the global press about the dangers of climate change now. Something has changed for the better, and that's the point I'm making.

SUE LAWLEY: I'm going to bring in Charles Hutzler now, who's the Bureau Chief here for Associated Press. Charles, your question please?

CHARLES HUTZLER: I'd like to re-focus the question a little bit, and maybe go off target slightly. The Beijing Olympics are approaching, and as that time draws near

there's even greater attention going to be placed on China. Can a government that routinely suppresses dissent, and whose values seem to be so at odds with the other major powers, really gain the respect and find a way to work with other governments to achieve the solutions that you're talking about?

JEFFREY SACHS: I think so. China is changing, it inevitably will change, so we can't look at this as a snapshot, we have to look at it as the drama of life that it is, for one fifth of the world. China's politics will change, China's governance will change, over time. But we are talking about a form of statecraft here which has lasted more than two thousand years, and has had its remarkable successes in many ways of keeping internal peace for very very long stretches, for hundreds of years, while Europe was destroying itself in unprecedented proportions. The success of Chinese statecraft is extraordinary. There will be a decentralisation of power, there will be a change in the way things have been done from a centralised state over two thousand years, but it's a little bit like the climate change issue as well - this is not a year to year event, this is something that will come in the course of decades in this country.

SUE LAWLEY: We're coming towards the close now. I'm going to bring in here Jonathan Watts, who's the Guardian correspondent here in South-East Asia. Jonathan, your question please?

JONATHAN WATTS: Thank you. I came back today from Linfen, which has for the past five years been declared as the most polluted city on the whole planet. And it was particularly horrible, but the message was contradictory. There was, on one side the local government said that they were going to close down a hundred and sixty of a hundred and eighty-nine iron foundries, which says, as you've said, that there is more environmental awareness here. On the other side lots of local people said we don't believe the government, we don't trust the media. The people I spoke to said we could get in trouble if we speak to you, and others said we don't want this environment but we can't change it, we have no way of affecting government policy. So my question is this. Economically China's transformation has been incredibly exciting, but politically, as has been said today, this is still a one party dictatorship. What do you think is the role of public accountability in improving the environment? And if I could just be a devil's advocate - in some ways wouldn't it be better if we had a green dictatorship to solve the world's problems rather than a green democracy?

JEFFREY SACHS: Well I think that public accountability is extremely important, but the problem that you cite of these foundries is not a problem of one political system, it's a problem of local economy, that is true in the United States or China, or many other places, where you have a local economy depending on a, probably a defunct technology at this point, that has built up a set of jobs in an environmentally unsustainable manner. And that is a tough challenge anywhere. So one needs a set of instruments and institutions to provide either alternatives to help retrofit factories, to provide compensation for environmental adjustment, and so forth, and a lot of those institutions don't exist in this country because the challenges are only being faced right now for the first time.

SUE LAWLEY: But the implicit question was how important is democracy, or some advent of democracy here in China?

JONATHAN WATTS: Absolutely. I think, I agree with most of what you've said but I think you kind of dodged that question, as so many foreigners, foreign leaders and foreign businessmen coming to China now do, is not want to talk about human rights and democracy because they've got other things on their plate. There are an awful lot of people doing work in environmental issues, and NGOs who, maybe they wouldn't call it democracy but I think they would like more tools to be able to influence government policy, and the tools in the West were often a free media and votes, and those things they, we still don't have in China.

SUE LAWLEY: So Jeff, how important is greater democracy to China's development, in your view?

JEFFREY SACHS: I think that China will become more democratic over time, and I think that China will become, as I say, more decentralised over time as well. This is the nature of the developments taking place, and they're already apparent in this country. If one has any sense of change that's taking place, this is already happening, and it's happening to the good. And I really don't believe that outsiders coming and making simple claims really helps the process. I do believe that China's politics are for the Chinese people, and I believe that these changes will come, they will be in China's interest, they will be in the world's interest, but the way that the world should best handle this is to help China to achieve its goals and define global common points of meeting on global challenges like climate, like global security, because these are the ways that we can build trust, build understanding and build a framework where change can take place in a peaceful and useful way.

SUE LAWLEY: Thank you very much indeed. Thank you to our lecturer.

(APPLAUSE) And thank you, too, to you, our audience, and our thanks of course to our hosts here at Peking University. Next week we go home with Jeffrey Sachs to Columbia University in New York, where he's Director of the Earth Institute. There he'll be continuing his analysis of how we manage a world which is bursting at the seams, as he discusses what he's termed the dethronement of the North Atlantic. That's next week. For now, from China, goodbye.

(APPLAUSE)