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<Keynote Speech>

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"China's Approach to Mitigate Global Warming"

First of all, I would like to thank Canon Institute for Global Studies for inviting me to speak at this forum. I would be very happy to exchange views about the target for the reduction of CO2 emissions.

Climate issue is very important for our country, and also we hope that Japan and China will be able to work together to develop the community in East Asia. And if we think about the community, this issue will be one of the greatest or most important issues that we need to deal with.
In environment, energy, and climate change, we need to cooperate very closely.

Before the Copenhagen conference, the long term target is very sensitive issue. Therefore, we hope that this opportunity will give us a chance to deepen our understanding in an academic viewpoint.
In China, there are several model research groups by which various analyses are done about the possibility of various emissions reductions.
There are positive groups that insist the emissions intensity of GHG (the amount of the emissions of GHG for each GDP) can be considerably decreased in 2030 in China, when thinking from technical respect.
However, the analysis based on the economic model is done in a lot of hypotheses. Today not discussing the conclusion, I would like to discuss the condition of what hypothesis is useful for the setting of the emissions reduction target in the future when things are planned.
Therefore, today I would like to focus it on the problem how China will set a long-term emissions reduction target, and how China ties the long-term target to the present actions.

(Slide2) At present, a long-term reduction target in 2050 is not set in China.
From my personal view, the target to suppress the temperature rise within two degrees is a political selection even if there is a scientific analysis.

If the temperature rise can be suppressed to low, naturally the lower must be the better. On the other hand, we should think about the possibility of achieving the target within two degrees when we set it.
Regarding the reduction target of GHG by 50% in 2050 within two degrees in the entire earth, I think a lot of discussions are still necessary to make it the concrete target. At present, reducing GHG by 50% in 2050 in the entire earth is not the target which China agreed on. There can be different choices for the amount of the reduction in 2050 even if it aims at two degrees, as the analysis of a Japanese person who was speaking ahead.

(Slide3) One of the setting methods for the long-term target is a way that we discuss how to practice it after we set target first. For instance, it is a way that sets the target of 50% reduction in 2050, and will decide how practice of this, and who do it.
Another method is a one of examining how much maximum is decreased if we continue the current efforts.
I think we should tie these two kinds of methods at the view point of the current situation. If a long-term target is not thought, the motivation of a present reduction effort falls. On the other hand, if only the long-term target is set and it is not possible to achieve it, the setting of this target itself also has the problem.

(Slide4) It is important that we see the feasibility of the target from the things which are happening at present. I think the setting of the long-term target in a lot of countries at present is due to the intentions of a chiefly political inducement. I think the full discussion for the problem really how we achieve was not done. When seeing from present trends, there are some cases which are not likely to relate to the long-term reduction target in the future. For instance, the targets which Annex1 countries of large majority are setting in 2020 or 2030 now each other are not corresponding to the reduction target by 80% in 2050. For this case, the long-term targets will not be solemn, and will become ones no one look round.
If this long-term target, 50% reduction in 2050, is executed really solemnly, the problem of the distribution for the emission allowance in each country will occur soon. I do not think China accepts the reduction by 50% in 2050 and makes the action plans for it before the following several issues are solved. The several issues are the possibility of the technologies, the influences on economy, the distribution of the emission allowance, the problem of fairness and various problems relating to the reduction by 50% in 2050.
On the other hand, I think it is of course no problem for the technical analysis of this target as one of the scenario analyses.

(Slide5) From the process of the action and the decision making in China, what measures we are able to take now, and what we can do as the maximum effort have a very important meaning. It is necessary to accomplish a lot of technological progress promptly to reduce GHG greatly. An important revolution should happen to a global market system. As long as these problems do not solve, the fixation of the long-term target is very difficult.

If we see the change that occurred in China through the process of the globalization, I think the difference at the technological level between big economic blocs will contract in less than no time. For instance, I think that the difference between China and the industrialization nations as to the industry, the products, and the energy efficiency have shrunk considerably in past 20 years. In China, a lot of new products are made, and the facilities are under construction. And for them, we have already used technological knowhow of the cutting edge. Therefore, because the country somewhere doesn't do a big committing, the problem of emitting a lot of GHG, by intentionally using late technologies, doesn't exist. The setting of the long-term target in China is very closely connected to how level each country acts.

(Slide6) It is necessary to talk about liability issues for the emissions reduction in order to discuss the long-term target. In China, we recognize that the climate change is a problem of the entire earth, a very solemn problem and an important challenge problem. But, in order to solve the climate change issue, revolutionary changes in each district must be involved. It is not a matter that can be solved by taking some technical measures, raising the energy efficiency, and increasing the low carbon energy supply.

A lot of researches are seeking the way that the market is automatically advanced to the low carbonization due to the carbon-emissions tax and the increase of the energy prices. But from a historical viewpoint, if the carbon emissions reduction is completely promoted by market forces, the prices will become very high levels and they need to continue soaring.

I think it is impossible to generate such a state under a present market mechanism and a present mechanism of the carbon-emissions tax.

Moreover, if we rely on only the mechanism of the market and if we set the carbon-emissions tax and energy prices high, it becomes a big burden for the poorest segment of the populations of large majority. And, the load of the wealthy country is relatively small.

(Slide7) In order to examine a long-term target, at present the researchers in China are calculating the amount of the accumulated emissions, and they are proposing to discuss the frame of the emissions right based on it.

The difference of the amount for the accumulated emissions per capita until 2005 in each country is very great as shown in this graph, and there is a difference of several ten times or more.

(Slide8) At present, the difference of the amount for the emissions per capita is still very great. The amount of the emissions per capita in 2005 differs greatly according to the data of JEEIl.

(Slide9) I think there are some pathways for the convergence even if one long-term goal is set. One might be that the amount of the emissions per capita in developing countries will increase little by little, and the amount of the emissions per capita in the advanced countries will fall by, and will be settled to convergence. (The graph of the left)
Another one is that, due to the delay of the industrial structure and the technology, the amount of the emissions per capita in developing countries will exceed the amount of the emissions per capita in the advanced countries once, then after the peak, they will decrease. (The graph of the right)
In these two patterns, the distribution of the emissions quota is greatly different.

(Slide10) According to the calculation based on the current trends of the emissions by one of the researchers in China, the amount of the accumulated emissions per capita in the Annex1 countries will still be about 2.5 times of the developing countries in 40 years of the future, even when the amount of the emissions per capita in 2050 become the same one in the world.
When we discuss a target setting and the distribution of the emissions quota, I think we should fully consider the problem of this fairness.

(Slide11) How does China set a short term, middle term or a long-term target?
In the model research, it is necessary to consider a lot of elements for the increase of the emissions. Especially, I think that the most important element by which China cannot help continuing to increase the amount of the emissions is the economic growth.
GDP per person of the present China is only 3,300 dollars, and has ten-odd times open with Japan and the United States. The process of the industrialization and the modernization in China has not been completed yet. Thinking from each district like a political necessity, a necessity of employment, an urbanization process, and a feasible pace of economic growth in China, achieving 8% annual rate of the economic growth for another decade or two, and afterward keeping comparatively rapid growth rates until 2050, both are the main recognition of a lot of models or the analysis results.

As the measurement against the financial crisis and the economic recession this time, Chinese government increased the investment, and maintained the economic growth of 8%. I think an important similar policy will be taken in the situation of a similar difficulty in the future. Therefore even in such a case, it is not thought that an increase in the energy consumption vanishes at once.

(Slide12) If we see from the comparison of the numerical data, the energy consumption and the carbon emissions in China cannot help expecting a big increase in the future. For instance, at present the energy consumption per capita in China is only 1.5 tons of coal equivalent, and this figure is about one third of that consumed by Japanese. If it compares it with the United States there is a bigger gap.
While there are only 2.7pcs per every 100 people as to the number of the possession of the private cars in China at the end of 2008, the advanced countries have reached 60% or more. Therefore, in such respect an energy consumption increase in the future will not be avoided. It is forecast that China becomes the world's largest car sales country, and reaches 12 million this year. At the same time, the residential floor space per person has increased by one square meter every year for the past ten years in the housing construction. It seems that such a tendency will continue in the future. Therefore, it is forecast that an increase in the energy consumption in such a field in the future is also very large.

(Slide13) Especially, in the process of the globalization, according to the movement of the market in the world, the consumption model in China is inducing the consumption of the luxury. Although naturally there are a lot of people who do not reach the level of the luxury, China set the target which pursuit the volume consumption and the luxurious consumption as a social direction of the inducement. Therefore, China is a very big market all over the world for the consumption of a lot of luxuries. For instance, about the area per household of the apartment house, in order to construct the low carbon society, China government is proposing 90 square meters as a standard. However, the developers want to make a wider apartment house from the business point of view. Such a battle is also very intense.

(Slide14) Ahead, I have explained the possibility for an increase of the energy consumption in China. However, on the other hand, Chinese government is taking a lot of positive measures, and they strongly hope to build the low carbonization industry. Therefore, China will actually call for a big structure change in the future, and I think that there is a big possibility to change the current development model. At the point of the growth engine, the economy in China will be

mainly developed by the domestic demand in the future, and the economic growth will not be due to the present export and investment.
If it becomes such a situation, the expansion of the heavy industries which consume a lot of energy could be maturated soon. And as a result, it seems that the increase speed of the energy consumption will fall considerably compared before.

(Slide15) China takes quite a lot of measures based on a policy. China is trying to promote green economy. For instance, China has already set a resource conserving society and an environmental friendly society as a basic national policy. And the policy of the energy development which gives a priority to the energy conservation was enacted. China is positively supporting the low carbon energy supply, and making an effort to the adjustment for the energy structure further. At the same time, a lot of preparations are done for the technology in the future.

(Slide16) For instance, as for the policy of the energy conservation first, China set the concrete target on 5 years plan (2006-2010) that the energy consumption intensity for each GDP (the amount of the GHG emissions for each GDP) is lowered by 20%. And this is very ambitious index target. This index means the reduction in the energy consumption intensity reaches roughly 4.4% during year. Ahead, the researcher in UK advocated the reduction in 3% from 2 in the year for the carbon emissions. Though present China is in a high economic growth period, when it enters into a low growth term, this 4.4% remarkably leads to the emissions reduction. China has already constructed the system to set appropriate reduction targets of the energy consumption intensity for all 5 years' plans in the future.

(Slide17) To achieve this numerical target, China abandoned a lot of obsolete production facilities in past several years that consumed the large quantity of the energy. As for the figures, they are surprised. For instance, from 2006 to June 2009, China abandoned more than 7,000 small-scale power generators. The abandoned power generation capacity becomes as much as 54 million kW, and this figure corresponds to more than 60% of the total power generation in UK.
And from 2006 to 2008, during the 3 year period, more than 60 million tons of obsolete iron blast furnaces were abolished, and also 50 million tons of old steelmaking capacity was removed. The cement furnaces of 170 million tons were abolished, furthermore, 10 million tons of small and obsolete oil refinery capacity was removed. The technological change of the energy efficiency improvement is rapidly advanced like this. The conservation of the energy of about roughly 200 million Toc was achieved by these measures.

(Slide18) Also looking at consumption, we are introducing a green economy promotion measures. For instance, as for the building standard, the standard by which the energy consumption efficiency was improved by 50% was enacted in the whole country. In addition, the improvement of 65% is the standard in the big city like Beijing. In a word, the present architectural energy consumption is corresponded to past 35%. And the implementation rate of the standard is also very high. At the level of design, 100% of the goal has been implemented and at the level of construction, about 80% of achievement is realized.
Next, The traffic transportation policy is composed by three parts.
First, China maintains firmly a railway priority policy for a big traffic system, and the high-speed railway systems are developed. As a result, the long-distance transportation by road vehicles is prevented, and the traffic systematization of the high speed by Airlines is evaded. The future, because it will be possible to go from Beijing to the cities in the surrounding in three-five hours, and it will be possible to go in eight hours even in the furthest city, the advantage that takes an airplane is lost.
Second, the policy of the public traffic priority is taken in the city.
Third, the whole severe encouragement measures are taken for the fuel cost standard of the car.

(Slide19) Of course, in order to construct such a series of the system, changing the entire system is needed. Therefore, we did an important effort about the enactment for relating laws, policies and regulations. China revised the energy conservation law again in recent years, and is revising the renewable energy law. With these, fully maintained policy and regulations system that promote the energy conservation first and the development of the low carbon energy were constructed.

(Slide20) The reason why the target setting is difficult is that anyone never know the actual effect in the future no matter how it makes an effort.
It will not be easy to achieve the 20% decreased target, but in the past few years, we have been able to overcome significant difficulties, but yet we must admit that things are not easy. In such a situation, the government has to consider the feasibility of the target. If the target that we put out is too high and it cannot be achieved, the government will lose face, the approach desire might decline. Therefore, whether these 20% reductions can be maintained to a mid/long term in the future has to be related to the current situation if we can achieve 20% reduction in these five years, and how achieve it.
In a word, the enactment of the long-term goal in China is greatly depended on whether a present target can be achieved.

(Slide21) Moreover, though a very good low carbon development target in a lot of respects is enumerated, the economic inertia is very large and both the development and the use speed for a new technology have not far caught up with the low carbon development method that we planned.
Even when it is possible to use it early by the model analysis, a lot of new technologies might hit a huge trouble in the market. Though a lot of technologies are promoted in the policy up to the present time, I think that it is an important problem for every country in the world to take a lot of shares in the markets.

(Slide22) Besides the control on the demand side, China is seriously doing various preparations on the supply side now.
First, China is grandly promoting nuclear power generation.
At present, China has the most nuclear plants under construction in the world, and as for the quantity of the nuclear power supply, there is a possibility of becoming a No.1 country in the world in the future.
There is a presumption that China has 200 million kilo watts in 2030, in a word construct 200 nuclear plants, moreover this tendency continues until 2050 and the number of plants doubles to 2030.
At the same time, regarding the natural gas and hydro-power, the major breakthroughs are accomplished very much. The wind power generation is developed considerably rapidly, too. The equipments which have the wind power generation capacity of 100 million kilowatts or 150 million kilowatts are scheduled to be constructed by 2020 according to a new plan at present. Probably China will become the biggest wind power generation country in the world before 2015.

(Slide23) On the other hand, as for renewable energy, we are faced with significant difficulty. The first one is high cost, and the second one is how build it in the grid in the case of the large-scale application. In order for China to achieve the low carbon society by 2050, it is necessary for the sunlight power generation and the wind power generation to become one billion-kilowatt scales each. However, how such large-scale wind power generation is used, and How the grid is supported, both problems have not been solved yet.

(Slide24) Therefore, the medium target should be considered based on a certain technological possibility.

(Slide25) Then, what will be the certain one in the future? What is China's trying surely to do?
As President Hu Jintao says, the first point is that China will constantly and remarkably reduce the economic carbon intensity. How much reduction is going to be is that it can be said only that it makes our best effort as much as possible on the base of our conservation of energy, consumption reduction, and by making a low carbon society.
The second one is that the increase speed of the energy consumption is to decelerate more greatly than the past. By a relatively low speed of the energy consumption increase, China makes an effort to support the economic growth.
The third one is that the weight of the low carbon energy other than coal is gradually increased. If the low carbon technology is breakthrough, China greatly converts it into the energy structure which is mainly based on the low carbon energy.
The forth one is that, this is my individual view, if the amount of the carbon emissions per capita in the advanced countries are greatly reduced due to the advancement of the technology in the world, we will control the level of the carbon emissions per capita in China that doesn't exceed the advanced country level.
The fifth one is that we would like to peak out GHG emissions as soon as possible. Though the achievement before 2050 can be clearly said, the achievement at 2040 or earlier time has a lot of uncertain elements as of now.

(Slide26) Then, what are the uncertain elements in China?
The first one is that the point is when China can reach the peak. Therefore, even if China is requested to commit it soon, because the research is not enough, it is not possible to commit it.
The second one is the fixation of the numerical value for the peak. This should wait for the situation of the development for the technology and the economy.
The third point is that, though we are expecting of renewable energy very much at present, it is a point to have to overcome an important, technical problems. Especially, it is necessary to solve problems of a cost reduction, the grid incorporation, and the use in distributed locations. And, if these problems are not solved, the generation of renewable energy on a large scale is difficult.
The forth point is that China’s advancement is going to depend on the advancement in the world very much.
I think if the advanced countries surely and early cause the actions, China can set the target more positively.

Thank you very much for your attention.