



气候变化全球治理丛书
Series on
Global Governance for Climate Change

Global Governance for Climate:

Shaping an International Architecture to Boost Innovation of Human Development Paths

Summary

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Preface

Recently, the CPC Central Committee put forward a clear call to participate in global governance. In October 2015, the Fifth Plenary Session of the 18th Central Committee of the Communist Party of China proposed that “China will take an active part in global economic governance, promote the development of international economic order in the direction of equality, fairness, cooperation and win-win, and expedite the free trade zone strategy; actively undertake international responsibilities and liabilities, take active part in negotiations in response to global climate change, and take active part in the 2030 Agenda for Sustainable Development”.

On October 12th, 2015, President Xi Jinping presided the 27th collective learning of the Political Bureau of the CPC Central Committee, stressing on global governance layout and system problem that, “We participate in global governance for the radical reason that we must realize the striving objective of two century, and realize the Chinese Dream of national revitalization. We must take the opportunity and chance, face the challenges in a good manner, stabilize domestic and international situations, drive the global governance system in a more reasonable and fairer direction, and create more favorable conditions for Chinese development and world peace.”

On June 12th, 2015, Premier Li Keqiang pointed out at National Leading Group for Climate Change, Energy Conservation and Emissions Reduction Meeting that, “Active response to climate change is not only important for China to secure economy, energy resources, ecology, food safety and people’s lives and properties from any loss or damage, and to improve sustainable development, but also an undertaking to take in-depth part in global governance, create human common destiny and drive joint development. As a responsible great nation, China will insist on the principle of joint and separate responsibilities, the principle of fairness and the principle of respective capabilities, and take the international obligations according to its national status, development stage and actual competence, China will continue to improve the ability to mitigate and adapt to climate change and make its own best efforts to promote global green and low-carbon transition and innovation of development path.

The discourses of party and state leaders have a clear judgment on global trend of green low-carbon development, present China’s participation in top-level design of global climate governance, and constitute China’s great contribution to promoting global climate governance, driving China’s green low-carbon transformation, and innovating development concept.

We are in an important historical era. With the globalization progress over the past twenty years, the trend of revolution and development of science and technology and industries in new energy, information technology, new materials and other fields and worldwide green and low-carbon development has become increasingly evident. During this period, we have also experienced seven years’ difficult and slow recovery after the global financial crisis. World economic development is in a profound adjustment period to identify new reorientation and find a new growth engine. The link

between national development and world economy and global environment is increasingly close, making the global governance issues related to the management of global order and global public goods more prominent. Global climate governance, which is widely related to global politics, economy, resources and energy, security and other governance content, has also been a hot topic for heads of states in international politics. As for climate change, at the platform of 2012-2015 Ad Hoc Working Group on the Durban Platform, countries in the world conducted intense negotiations around the results of the 2015 Climate Conference in Paris and actively carried out climate diplomacy at the level of heads of state or government so as to improve their voice and influence in the whole global governance through their impact on global climate governance. Active participation in global climate governance has comprehensive spillover effects on participation in global governance, which is of great significance.

Meanwhile, China's social and economic development has entered a new normal. The whole country has formed a broad consensus, that is, accelerating the transformation of economic development mode, adjusting economic structure, deepening reform and making efforts to overcome the "middle income trap" has become the only way for China to realize the China dream, namely achieving the "two century goals" and achieving the great rejuvenation of the Chinese nation, which is embodied as a more democratic and prosperous country, richer and better life for the people and more healthy and beautiful ecological environment. This is highly consistent with the goals of active response to global climate change. China actively responds to climate change not because someone else wants us to do so, but because we ourselves want to do so. The interests of the Chinese nation are highly consistent with the interests of mankind in dealing with climate change, which is an important starting point for building a community of human interests.

Since the Chinese government announced its goals of response to climate change before 2020 in the Copenhagen UN Climate Change Conference 2009, China has adopted a series of major policies to mitigate and adapt to climate change and it has made noteworthy achievements. In June 2015, the Chinese government submitted the post-2020 INDC documents to the United Nations, showing the strong determination and pragmatic attitude of a responsible big developing country to deal with climate change. In recent years, in the process of multilateral and bilateral cooperation in international climate, especially in a series of international negotiations on climate change, China is playing an increasingly positive role as a global climate governance builder upholding justice, daring to assume responsibilities and actively promoting cooperation. China is devoted to the construction of global climate governance with a positive and confident strategic posture.

Currently, a major event for the construction of global climate governance is to conduct negotiations of the 2015 Paris Agreement at the Durban Platform according to the requirements of Durban resolution of the conference of parties of the 2011 United Nation Framework Convention on Climate Change so as to form an international legal agreement aimed at strengthening the fulfillment of the Convention with the principles of the Convention as guide under the Convention and make the Climate Conference in Paris a landmark climate governance conference. The Convention is the basis for global climate governance in moral, political and legal aspects and the main channel to

carry out international climate cooperation under the current world order and global governance framework. The principle of “common but differentiated responsibilities”, equity and respective capabilities established in the Convention is the fundamental principle that should be followed by developed countries and developing countries to participate in global climate governance. Although the Convention has been concluded for more than two decades and the strategic pattern of the world has undergone profound changes, there is no fundamental change in the historical responsibilities, development stage and respective capabilities of developed countries and developing countries in the world and the disparities in development level even show an expanding trend; there are still two basic camps, namely developed countries and developing countries, when dealing with international political and economic affairs within the United Nations system. From the perspective of the pattern of accumulative emissions, which is the basis of historical responsibility for climate change, developed countries are still major contributors to emissions. Even in 2012, in terms of accumulative emissions of carbon dioxide and other main greenhouse gases related to energy and cement production since the industrial revolution in 1750, the developed countries included in Appendix I of the Convention contributed nearly 70% of global accumulative emissions with less than 20% of the world population. The historical accumulative emissions of the United States and Europe have reached 5 times of China. According to the estimates based on research into relevant scenarios, even by 2030, the accumulative emissions of the United States and Europe will be 2.6 times of China. All these indicate that the basis of the fundamental principle established in the Convention still exists and the principle of the Convention still applies to guiding the negotiations of the Paris Agreement.

The construction of a global climate governance structure must be at the height of responsible for the future of mankind, fully reflect the demand for sustainable development of peoples of countries in different development stages, uphold justice and adhere to fairness. When defining the responsibilities of different countries to mitigate and adapt to climate change, responsibilities should be distinguished according to their historical responsibilities, development stage, respective capabilities and national conditions. Developed countries should take lead to achieve full and absolute quantified emission reduction within scope of the whole economy and provide developing countries with adequate and timely financial, technical and capability building support so as to help developing countries achieve low-carbon transition. With the financial and technical support of developed countries, developing countries should take positive action to address climate change and try to explore a low-carbon transition path suitable for national conditions, ultimately forming a cooperative and win-win global climate governance system through north-south cooperation and south-south cooperation.

As a developing country, in the process of participation in global climate governance, on one hand, China should correctly judge its development stage, capabilities and national conditions, consider sustainable development as the top priority, safeguard their own development interests together with developing countries, take the initiative to undertake responsibilities suitable for its development stage and capabilities and actively carry out south-south cooperation with developing countries; on the other hand, China should take the attitude of responsible for history and mankind,

change its sustainable development responding to the challenges of climate change into opportunities, actively explore innovative development paths, closely link protecting global climate with the transforming development mode, quality upgrading, structural adjustment, deepening reform and other major strategic tasks in solving its own development and maximize win-win of response to climate change and economic and social development.

The joint team of National Center for Climate Change Strategy and International Cooperation led by Professor Zou Ji and “Programme of Energy & Climate Economics (PECE)” of Renmin University of China has actively engaged in research into global climate governance and policy advice in the past few years, many members have been personally involved in the technical support practices for multilateral negotiation process under the United Nations Framework Convention on Climate Change and multilateral and bilateral climate diplomacy, and they have done a lot of meaningful research by integrating theory with practice and made many useful suggestions for government policy decisions. In particular, since 2013, during their exchange and debate with international negotiation circles and think tanks, they have put forward the uniform interpretation and discussion of international climate policy with the conceptual framework of “innovation of human development path” and they have made great progress in reflecting the principle of equity, “common but differentiated responsibilities” and respective capabilities in the formation of climate negotiation positions, grasping the long-term development trends and goals of response to global climate change, accurately locating all major stakeholders of global climate governance, proposing solutions to climate negotiations, implementing and coordinating the strategic thoughts of the domestic and international situations, etc.

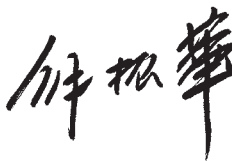
Although the discussion in the book is a little hasty and inadequate due to time constraints, its exploration in systematic discussion of global climate governance is of significance. We hope that more Chinese and foreign experts, scholars and think tanks can conduct long-term, continuous and in-depth research into the issue and provide more adequate intellectual support for the development of global climate governance.

It is particularly worth noting that many people in the author team are recent graduates and new employees, even doctoral students in school. They have received good academic training and have opportunities to personally participate in important practices, they are full of passion and vitality, and have brought hope to the development of China’s climate change think tanks, with which I am very pleased.

That’s all.

Special Representative of China's Climate Change Affairs

XIE Zenhua



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Foreword

Since the adoption of United Nations Framework Convention on Climate Change (UNFCCC) in 1992, China has been taking part in this crucial international process. Over the past twenty years, China has experienced dramatic changes in socioeconomic development, and the world strategic pattern has changed a lot accordingly. As China is becoming the world's second largest economy, it's gaining more and more influence and power in international issues. However, at the same time, the domestic Greenhouse Gases (GHGs) emissions have also risen rapidly with economic growth, which has made China become the country with the annual largest instantaneous emissions in the world. Therefore, whether it is in the aspects of international influence, GHGs annual emissions amount, or efforts and actions to accelerate domestic green low-carbon development transformation, China is playing an unprecedentedly important role in global climate governance based on UNFCCC. Compared to the performance in the 1990s, China is now making more efforts in leading the negotiation process, proposing detailed programmes, acting as a system designer and leader in the process of building global climate governance system. In the 27th collective learning session of the Political Bureau of the Central Committee of the Communist Party of China (CPC), General Secretary Xi Jinping proposed more fair and reasonable global governance. It is also concluded at the Fifth Plenary Session of the 18th Committee of the CPC that China will actively participate in global climate change negotiation and positively bear international responsibility. All these strategic decisions from CPC have laid a solid political foundation for China to be deeply involved in global climate governance and also created the conditions for using global climate governance as a starting point for China to fully participate in global governance.

National Center for Climate Change Strategy and International Cooperation (NCSC) is a government think-tank directly under the management of National Development and Reform Commission (NDRC). One of its important duties is to provide technical support for China in participating in international climate negotiation, which is implemented by the NCSC Department of International Cooperation. Under the guidance of its deputy director Professor Zou Ji, the NCSC Department of International Cooperation is actively working on issues such as multilateral negotiations of climate change, climate change international cooperation and other related bilateral and multilateral processes; conducting negotiation-related key strategic studies for NDRC, Ministry of Foreign Affairs and Ministry of Finance etc.; and providing direct technical support for Chinese delegation in international climate negotiation.

Programme of Energy & Climate Economics (PECE) from Renmin University of China has been focusing on studies on climate change policies for a long time. It has gained a lot of research experiences in global climate regime, low-carbon policies analysis, development of emissions

reduction roadmap and low-carbon technology strategies, etc., with rich outcomes.

Most of the authors of this book are young researchers from the NCSC Department of International Cooperation and Renmin University of China. They have the opportunity to become witnesses and performers of China's participation in global climate governance. They have been directly involved in the negotiation of Ad Hoc Working Group on Long-term Cooperative Action (AWG-LCA), Ad Hoc Working Group on Kyoto Protocol (AWG-KP), Ad Hoc Working Group on the Durban Platform for Enhanced Action (AWG-DP) under the Convention and the two Subsidiary Bodies of UNFCCC. They have been playing important roles in the negotiation of specific issues such as Shared Vision, 2013-2015 Review, National Communication, Methodology of the Kyoto Protocol, Multilateral Evaluation, Work-stream 2 of the Durban Platform, as well as long-term goals, mitigation, global stocktake and technology issues of the Paris Agreement. Furthermore, they have participated in formulating domestic strategies, including draft of China's official Intended Nationally Determined Contribution (INDC), analyze and assess the INDCs of China and other Parties, conduct model inter-comparison studies of emissions scenarios of both China and the globe with international organizations and research institutes, provide analytical support for the Chinese government to develop short-term tactics and long-term strategies in the climate negotiation. In addition, they provided technical support for governmental review of the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) Working Group III, carried out interpretation of IPCC AR5, assisted Chinese government in organizing domestic research institutes and experts to participate in the IPCC progress, and provided suggestions on the future work of IPCC to Chinese government.

They have also taken an active part in the bilateral communication and cooperation related to climate change, by providing technical support to bilateral intergovernmental communication between China and US, Europe, France, UK, Germany, Canada, Russia, Japan and South Korea, organizing and hosting dialogue with experts from BASIC countries and Like Minded Developing Countries, and from think tanks such as World Resources Institute, Center for American Progress, Harvard University, Institute for Sustainable Development and International Relations, Stockholm Environment Institute, South Center and so on. They have directly supported the formulation of the historical US-China Joint Statement on Climate Change as experts from think tank.

Furthermore, the NCSC Department of International Cooperation has been carrying out strategy and policy research on climate finance and technology. The related work includes research on climate change strategy of the New Development Bank BRICS (NDB), climate finance issues of G20, participating in the negotiation of Intergovernmental Committee of Experts on Sustainable Development Financing, assisting Chinese government in the negotiation with the board of the Green Climate Fund, conducting climate technology demands assessments in China, serving as the National Designated Entity of the Climate Technology Centre and Network (CTCN), participating in the negotiation of Technology Executive Committee (TEC), coordinating policy assessment of short-

lived climate forces (including HFCs) technologies, etc. They have also been executing comparative studies on national climate change strategies and policies of major developed countries such as EU, Japan, Russia, Australia, as well as major developing countries such as Brazil, South Africa, India, Malaysia, Indonesia and so on. By analyzing the South-South cooperation mechanism of climate change, they have provided policy recommendations for Chinese government to establish the South-South Cooperation Fund on climate change.

Although these tasks are tedious and trivial, main authors of this book have devoted themselves to every detail with greatest enthusiasm and the sense of national pride and historical missions. Meanwhile, they have kept on analyzing, refining and summarizing the key issues like theoretical foundation, historical trend, information, cooperation framework, main governing bodies and the relation with global governance, etc., during their research and practice, with full advantage of information and intellectual resources of NCSC as a national platform. This book consists of these information, knowledge and experience of the authors in participating global climate governance.

This book, starting from the scientific issues of climate change, analyzes the particularity in response to climate change and its challenges to global governance and human development. Based on the review of global industrialization history and the process under the UNFCCC, this book elaborates the conceptual framework of global governance on climate based on innovation of human development paths in the context of sustainable development and equity. This book consists of 9 chapters. Chapter 1, which was accomplished by Wang Ke, Zou Ji, Qi Yue and Chen Ji, introduced the scientific findings regarding climate change and its particularity, as well as the overall requirements of global climate governance and the development constraints faced by various countries. Chapter 2, whose authors including Fu Sha, Cui Xueqin, Liu Junling, Zhang Xiaoli, and Zou Ji, analyzes the differences, changes and drivers based on the environmental Kuznets Curve and the review of emission trajectories of developed countries. Chapter 3, written by Cui Xueqin, Fu Sha and Zou Ji, focuses on the issues of global development and environmental equity, including the ethics basis and connotation of equity and equitable effort-sharing schemes. Chapter 4, finished by Fu Sha and Zou Ji, elaborates the connotation of innovation of human development paths and its application in the international climate regime. Chapter 5, accomplished by Qi Yue, Chen Ji, and Fu Sha, discusses the unique role of the UNFCCC in the course of international cooperation in response to climate change based on the review of its history and existing mechanisms. Chapter 6, completed by Chen Ji, Wang Ke, Liu Junling, Fu Sha and Zou Ji, examines the courses of global sustainable development, international trade, and cooperation on finance as well as their impacts, and further elaborates the spillover effect of climate change issue as a non-traditional security issue. Chapter 7, mainly delivered by Chen Ji and Qi Yue, analyzed the responsibilities, roles and appeals of major economies in the global climate regime, including the U.S., the European Union, and major developing countries. Chapter 8, accomplished mainly by Fu Sha and Zou Ji, focuses on China's role in the global governance on climate change. Finally, our understanding of global governance on climate change

based on the concept of innovation of human development paths and its policy implications is summarized by Zou Ji in Chapter 9.

In addition to the contribution of the main authors, this book cannot be finished without the help of many institutions and colleagues. We would like to express our thankfulness to Mr. Xie Zhenhua in particular, the former vice chairman of National Development and Reform Commission and the present special representative on climate change affairs of China, who has a profound influence on the authors' points of view with his wisdom, mind, courage, numerous specific guidance and far sightedness. We would also give our sincere appreciation to the Climate Change Division of National Development and Reform Commission for providing the research platform and guidance, to Mr. Su Wei, the chief representative of Climate Change Negotiations and his team, for the precious support they generously offered to us. Our special appreciation also goes to the leaders of National Center for Climate Change Strategy and International Cooperation for their support. We would also like to thank the important contributions from Zhang Xiaohua, Hu Xiao, A'Rouna, and Liu Linwei in the previous researches, and the arduous work done by Xu Lili, Chen Yiyi, Zhong Yang, Ma Hongyan, Sun Qian, and colleagues from Programme of Energy & Climate Economics (PECE) of Renmin University of China. China Clean Development Mechanism Fund Grants has provided strong support in writing and publishing of this book. We would also like to express our appreciation to the following projects: Bali Roadmap negotiations progress and prospects study, on the Durban platform major strategic issues and the overall strategy study, BASIC experts mechanism and developing countries think tank exchanges and cooperation platform for technical support for the project, after 2020 "fair, effective, win-win" international cooperation in the enforcement action arrangement design and China's countermeasure research, the bilateral practical cooperation in climate change technology support project, under the Convention 2013-2015 global long-term goals of the technical review support projects.

Due to author's time and capability limitation, there still exist some shortcomings and inevitable errors, and your critical opinions and suggestions are highly appreciated.



on behalf of the authors

Yu Yuan Tan, Beijing
late autumn of 2015.

Summary

1. There has been an urgent need of developing a global climate governance system to manage the remaining global atmospheric carbon capacity, which has become increasingly scarce.

Based on the latest scientific findings, the fifth assessment report of the United Nations Intergovernmental Panel on Climate Change (IPCC), explores the correlation among temperature, greenhouse gas concentrations and historical cumulative emissions. The report states that if we still want to hold the increase in the global average temperature below 2°C above pre-industrial levels by the end of the 21st century, in order to minimize the risks from climate change, ambitious actions should be taken from now on to reduce the instantaneous greenhouse gas (GHG) emissions and then limit the cumulative emissions in the future. Under current proposals, global GHG emission should be reduced by 40-70% in 2050 compared with that in 2010, and zero-emission should be almost achieved by 2100. Obviously, the global atmospheric carbon capacity is becoming limited. Considering the global GHG emissions in 2010, the available quota of GHG emissions can only allow for another 17 to 31 years before 2050.

Although uncertainties exist in scientific assessment, it is clear that there is a top limit for the global GHG emissions according to science. It means that there will be a tight constraint of GHG emissions space for each country, which would have a tremendous and fundamental impact on the socioeconomic development of that country. In this regard, the increasingly scarce global atmospheric carbon capacity can be seen as the public wealth for the global citizens, and there is an urgent need to develop a global climate governance system of assigning and managing this space.

2. The externality of climate change, characterized with large temporal and spatial scales, brings enormous challenges to management for the public wealth of global climate.

Carbon dioxide and other greenhouse gases can remain in the atmosphere for a long time, thus have wide-ranging effects across the globe, whose externalities are transnational and intergenerational, bringing great uncertainty. These make the climate change beyond the spatial and temporal vision of extant normal decision in national and subnational level. In the absence of a super-sovereign governance body above national sovereignty, the formation of a constantly evolving and strengthening global climate governance structure can only be achieved via inter-governmental negotiations and transnational consultative process with sharing national values and development concepts. The process is slow, in conflict with the urgent requirement for addressing climate change, which brings huge challenges to global climate governance system. In addition, in current global political system, the management of externality with large spatial and temporal scales still requires national engagement as a key role, so

the thinking and vision of national decision makers should extend across the globe and time.

3. Global climate governance system is being formed, with intensifying constraints on the greenhouse gas emissions.

In order to control the rights of greenhouse gas emissions and to build up a responsibility system of mitigation and adaptation, the international community in 1992 reached the United Nations Framework Convention on Climate Change (the Convention). As a political and legal foundation of the global climate governance system, the Convention has provided conceptual stipulation on all the key elements of global climate governance system, such as its objectives, key areas for cooperative actions, role and responsibilities of parties, mode mechanism for global cooperation and collaboration, which are endorsed and supported by, over 190 Parties both in terms of politics and international laws.

On the basis of the Convention, under the guidance of the principle of equity, the principle of common but differentiated responsibilities and the principle of respective capabilities, the global climate governance system is in constant improvement with intensifying constraints on greenhouse gas emissions. The Kyoto Protocol signed afterwards as well as all the decisions of the Conference of the Parties, together with the agreement possibly signed in the Paris Conference of 2015, have been all aiming at continuously enhancing the implementation of the Convention at the operational level and in different historical periods.

4. The principle of equity and the principle of common but differentiated responsibilities remain the cornerstone of global climate governance.

Sovereign states are the major entities in global climate governance and their position and responsibility are usually determined by their historical responsibility, development stage, capability and national circumstance. Since WWII and especially the enactment of the Convention, although the composition of global population, energy use and annual emissions between developed and developing world has changed drastically, the huge gap remains in economic growth, development stages and capabilities. Given its smaller share of population, developed world remains a larger greenhouse emitter both in terms of cumulative and per capita emissions. Therefore, insisting on the dichotomy between developing and developed countries as well as the principle of equity, the principle of common but differentiated responsibilities and the principle of respective capabilities of the Convention, is still vital - rather than outdated - in the construction of global climate governance system. The process of the Convention over two decades has also proven that the principle of common but differentiated responsibilities will not hinder the efforts in low-carbon transition in emerging economies, such as China. On the contrary, it has promoted their exploration on innovative low-carbon development pathways in accordance with their own historical responsibilities, development stages, capabilities and national circumstances.

Equity, effectiveness and multiple wins are the three basic criteria to evaluate whether global

climate governance system is successful or not. As the fundamental principle of global climate governance, equity should be reflected on the basis of assessing four key elements of each country, namely historical responsibilities, development stages, capabilities and national circumstances. Since the Industrial Revolution, developed countries have emitted over 70% of cumulative CO₂ in to the atmosphere. The cumulative emissions of the US and Europe are four times larger than that of China. Undoubtedly, developed countries should take the major historical responsibility for global climate change at present and a long time in the future. Developed countries' well-constructed infrastructure, abundant materials, strong competitiveness, and dominant position in global governance at present are formed on the basis of consuming a large part of global common carbon resources in the past. Moreover, through investment, trade, spread of values, knowledge and technology in the ongoing globalization process, developed countries have imposed their carbon intensive development pattern and outsourced carbon emissions to developing countries.

For developing countries, expanding employment, reducing poverty, constructing infrastructure, improving social security system and enlarging middle-income class remain the top priorities of socioeconomic development. Their industrialization and urbanization will still be the major concerns of economic development in the foreseeable future, while facing unprecedented constraint of carbon emissions. Their modernization through the traditional carbon intensive development pathway set by developed countries hence will fundamentally conflict with this carbon constraint.

Developed and developing countries have common but differentiated responsibilities in addressing climate change since they have divergent historical responsibilities, development stages, capabilities and national circumstances. On one hand, developed countries shall speed up domestic de-carbonization and achieve deep emissions reduction in order to leave more space of carbon emission for the developing countries in transformation; on the other hand, they shall provide financial, technological and capacity building support to enable low-carbon transformation of developing countries. Developing countries need to change their view on development that should be in line with achieving low-carbon transformation. This transformation can be made by promoting optimal allocation of productive elements as well as advanced technologies and low-carbon energies, improving well-designed infrastructure and appropriate layout of production capacities while ensuring the continuous increase of human development index.

Hence, common but differentiated responsibilities is the operationalization of climate equity in global climate governance, and the fundamental criterion to determine the adaptation and mitigation targets, corresponding responsibilities/rights to provide/receive financial and technology transfer support and the requirement for transparency of different Parties under the Convention. Without a fair foundation, the recognition to the legitimacy and the motion to take part in the global climate governance of developing countries will be severely eroded. As a result, the political mutual trust of multilateral cooperation will be undermined, and effective climate change strategies and policies will be hard to be formulated. Hence, to what extent is the essential principle of common but differentiated responsibilities being reflected in the agreement, will be a significant symbol to judge whether the

2015 Paris Conference is successful or not, and a sign to check in which direction of global climate governance is going in the future.

5. Controlling global GHG emissions and Breaking the Deadlock in the global climate governance through Innovation of Development Path.

An empirical examination on historical carbon dioxide emission tracks of major developed and developing countries since the industrial revolution would reveal that CO₂ emissions from fossil fuel combustion and cement production in major developed countries have already peaked after their industrialization and urbanization, yet with different peaking characteristics. The United States, Canada and Australia reach the peak with CO₂ emission per capita as high as about 20 tons; while that of European Union and Japan is around 10 tons. This shows that in the historical practices, there are two kinds of emissions trajectories with quite different peaking level (“the U.S, Canada, Australia” and “European and Japan” mode), and it is possible to achieve similar per capita income level with much less per capita CO₂ emissions.

In examining the correlation between CO₂ emission per capita and GDP per capita of an economy that has reached emission peak since the industrial revolution, one can find that no economy by far can avoid the Kuznets Curve phenomenon, meaning that energy consumption related carbon dioxide emissions per capita “first rises and then goes down” as level of development, or more precisely GDP per capita, increases, although with different characteristics in different countries. As a whole, developed countries peaked when its GDP per capita was around USD 20,000-25,000 (in 2010), indicating that an economy relies more on technology and service and less on fossil fuels consumption as it undergoes industrialization and urbanization. Most developing countries are still situated in the left half of the Kuznets Curve with greater possibility of increasing their emissions and their share of global emissions. In terms of historical cumulative emissions and emissions per capita, developing countries are still far lower than developed countries. However, developing countries can’t follow the traditional development paths set by developed countries because of the national and global resources and emission budget constraints. Their choice among different development paths, namely the U.S.-Canada-Australia mode, EU-Japan mode and low-carbon innovative development path that is fundamentally different from that of developed countries, will exert great influence not only on the sustainable development of their own but also on global efforts in addressing climate change.

The essence of changing the emissions trajectory is to steer the development path. The connotation of development path is very rich, which is generally associated with a number of questions, such as what is the engine of economic growth, whether economic growth is made by higher elements efficiency or higher elements input, whether the income is mainly derived from investment or from consumption and net exports; and also some key variables, inter alia, population, income level, urbanization rate, share of carbon intensive energy or low (zero)-carbon energy in total primary energy, and energy intensity per unit of GDP which is affected by industrial products structure and technological progress. All of these will be reflected in the development of industrial

sectors and infrastructure construction. With the increase of income level, the share of service industry in the economy will increase, while the domestic market for energy intensive or carbon intensive manufactory industry will become saturated, and the share will decrease. Technological advancement within manufactory industry, together with the extension of industrial chain, the change in product structure and the upgrading in value added, will result in the decrease of energy consumption and emission intensity.

It is necessary for developing countries to skip the conventional development model led by developed countries and initiate an innovative development path that is characterized by low-carbon as well as earlier and lower emissions peak. The concept of innovation of development path is not an empty academic concept but is distilled from the reflections upon the industrialization history of developed countries. Developing countries are able to peak earlier and lower by influencing the emission trajectory and innovating development paths with proper policies and institutional arrangements. Lowering the energy intensity per unit of GDP and decarbonization of energy structure will be key measures.

In general, the innovation of development paths starts with the belief that countries in different development stages need to take positive actions and explore options of development path innovation that suits their own development stage. This conceptual framework focuses on drivers that can influence the development of emission trajectories and paths and aims at breaking the deadlock in negotiations regarding global climate governance from a more substantial, practical and concrete aspect. Overall, this conceptual framework has constructive policy implications as it focuses on substantial actions and measures and identifies respective directions and emphases of actions of developed and developing countries under the general framework of sustainable development in consideration of innovation and transition of development paths.

The concept of innovation of development path can further help confirm that it is reasonable and necessary to insist on differentiation between developed and developing countries. Apart from cumulative emissions, developed countries are also responsible for the creation, domination, dissemination and reinforcement of the traditional carbon intensive development path. Most developing countries are in a disadvantageous position in global supply chain with high-energy consumption, high emission and low value-added. Although the emissions from developed countries are decreasing after completion of industrialization, they are still responsible for the emission increase trends and path dependency of developing countries in the context of globalization. Therefore, to change the future development path of developing countries is the problem of global system adjustment, which developed countries bear unshakable responsibility.

6. The UNFCCC is the main channel for global climate governance and the moral, political and legal basis of global climate governance.

The existing grouping between developed countries and developing countries does not only reflect political and economic reality of the current world, but also is the ongoing practice of setting up

negotiating groups under the United Nations process for decades, which has profound historical and realistic origins and will last long. For a long period of time, the goal, the principles and the provisions of the UNFCCC will still be applicable. The objective of the UNFCCC reflects the idea of supporting sustainable development by protecting atmospheric environment. The UNFCCC introduced the principle of equity, the principle of common but differentiated responsibilities of developed countries and developing countries on mitigating and adapting climate change and the principle of respective capabilities. According to these principles and provisions, the common responsibility of all Parties includes, but not limited to, formulating national strategies and plans in response to climate change and submitting national GHG inventory and national communication. As for the differentiated responsibility, developed country Parties shall take lead to mitigate climate change by committing and implementing economy-wide absolute emission reduction targets and providing financial, technological and capacity building supports to developing country Parties, while the actions taken by developing country Parties shall be dependent on the availability of support from developed country Parties. Mitigation and adaptation have equal importance in response to climate change.

7. Setting up an appropriate goal for global climate governance and balancing the ‘bottom-up’ and ‘top-down’ approach.

The goal of the global climate governance should be a set of targets. The long-term global target should be to politically recognize the urgency and importance of combating climate change, guide the direction of global, regional and national low-carbon development, define the responsibilities of countries and the targets for various mechanisms and policies, and send clear signals to policy makers and investors. However, the simulated results with uncertainties should not be directly used as the quantitative basis for achieving the global targets as this may trigger the risks of ‘number-game’ and ‘blame-game’, increasing difficulties in the multilateral negotiation. In order to motivate all parties to keep the low-carbon development right on track, while practically promoting the transformation into low-carbon, the goal of global governance on climate should be based on the consensus of global low-carbon development and innovation of human development paths; it should include the economy-wide absolute emission reduction targets by developed countries and various relative targets by developing countries, such as the reduction of carbon emission intensity, the increase of non-fossil fuel consumption and the increase of forest carbon sink; and it should closely follow-up and report back the developments in technology and markets to accelerate the updating of the targets by stakeholders.

The debate on ‘top-down’ versus ‘bottom-up’ has been in the UNFCCC process for more than 20 years. After the US refusal to ratify the Kyoto Protocol, US domestic politics had underscored the influences in the multilateral process. The ‘top-down’ approach faced with tremendous trouble in the absence of supra-national sovereignty. In the new round of climate negotiation, as a symbol of ‘bottom-up’ approach, the ‘Intended Nationally Determined Contribution’ was proposed and accepted by Parties in Warsaw Climate Change Conference of 2013. However, the debate regarding

the stock-take or review process and its implications is still a key issue in negotiation and can hardly be determined until the last minute of Paris. Additionally, the legal forces of different contents and arrangements of the new agreement are also key issues to be addressed in global climate governance. It is also crucial to balance the ‘national determined contributions’ with the arrangements of ‘global stock-take’ and transparency, which aims at further enhancing the ambition. The global climate governance has to guarantee the environmental integrity and encourage the widest participation including the US and developing countries by combining the ‘top-down’ and ‘bottom-up’ approaches properly.

8. Dealing with the dialectical relationship between big power influence and extensive engagement is key to global climate governance, and the rights and interests of developing countries need to be respected and protected.

Decision making under the UNFCCC is based on consensus, which is the fundamental rule used by the United Nation bodies to deal with multilateral international affairs. It ensures equal right of Parties regardless of their size and economic development level, concerns of various stakeholders being heard and democracy with extensive engagement and transparency to enhance political mutual trust. In the process of the international climate progress, big powers have played a leading role and thus are of higher influence. To ensure the equity and effectiveness of the international climate progress, it is core to properly deal with the dialectical relationship between big power influence and extensive engagement. For historical reasons, developed countries are significantly well positioned in the rule-making process, which thereby raises a question as how to respect and protect the rights and interests of developing countries - particularly the least developed countries in Asia, Africa, Latin-America and the vulnerable small island developing countries. To enhance the capabilities of developing countries participating in the global climate governance, it is necessary to ensure proper institutional arrangement in place to meet the demands in finance, technology and capacity building of developing countries.

9. Global climate governance is a crucial component of global governance, which matters to the construction of human common destiny and global public wealth as well as global governance on politics, economy and security.

Strengthening global climate governance can help maintain global climate public wealth and realize human common interests and facilitate the construction of human common destiny. The core of this governance should be multiple-win cooperation. It is concerning the overall strategic target of human sustainable development as well as global governance on politics, economy, security and many other important aspects. Climate change has been identified as one of the 17 sustainable development goals put forward by the United Nations Sustainable Development Summit in September 2015. Climate change, with its nature of comprehensiveness, spans across the major areas on global governance: for politics, it is particularly relevant to leading power, extent of voice and global

influence; for economics, it is relevant to the trend and landscape of global economy, international trade and investment as well as financial standard and competitiveness; for the issue of security, it is also becoming an increasingly important part of Non-Traditional Security with regards to the tremendous losses caused by the negative impact of climate change.

10. Both developed and developing countries should explore their own innovation of development path and find the balance between competition and cooperation among each other, considering their different historical responsibilities, developmental stages, national capacities and circumstances.

Global climate governance has become a new boundary of international relations. Its influence can be as great as redefining every country's long-term competitiveness and thus changing the landscape of international competition. Its historical evolution and the need of innovative reform have been reflecting the dynamism of global political power. All countries in global climate governance have taken actions to different extents. They are trying to maintain and promote their international competence and profile, in order to take the lead in global climate governance. Developed countries (groups), such as US and EU, are competing for the leadership in governance patterns, elements, development pace, agenda setting, rules making, moral and legal basis, and other important decisions in global climate governance.

Since developed countries lead the way to the post-industrial age, their energy structures were generally optimized, and their industry structures were adjusted by globalization. Carbon intensive industries have been mostly moved to developing countries, while developed countries remain at the top of the industrial chain and maintain their technology edges. As a result, developed countries achieved continuous decrease of carbon intensity. Also, stable population and steady income growth enable developed countries to achieve significant GHG emissions reduction. Developed countries play a key role in leading the global low-carbon development.

However, developed countries with 20% of world's population still account for nearly 70% of world's cumulative emissions. It is estimated that developed countries' cumulative emission will remain larger than developing countries by 2030. The emissions per capita of USA, Canada, Australia, remain 15-20 tons per person, still far more than the world average. A large gap still exists between developed countries' aggregate efforts of emissions reduction and what is required by the IPCC fourth assessment report, namely reducing 25%-40% emissions by 2020 compared with the 1990 level.

Financial and technical supports from developed countries to developing countries are still at a slow pace, far from the requirements for addressing climate change. Developed countries' efforts still fall short of the expectations of developing countries and also cannot meet the requirements for dealing with global climate change. During the negotiations on global climate governance arrangement after 2020, some major developed countries make efforts to deviate from the principle of the Convention and tend to rewrite the rules of governance blatantly.

With their rise over two decades, emerging developing countries continue enhancing actions

to addressing climate change. They have achieved strategic constantly and brought the issue of dealing with climate change into their socioeconomic development strategy, under the guidance of the principles and provisions of the Convention. Besides, according to the Cancun Decisions and the Paris Agreement in process, emerging developing countries set relative emissions targets and national climate change adaptation strategies based on respective national abilities and conditions. Although these efforts help developing countries to explore the new low-carbon development path, and also get marked achievements, lots of tough challenges still remains.

All in all, although developed and developing countries have different historical responsibilities, developmental stages, country capacities and national conditions, they have formed the strategic consensus of the low-carbon development path, international cooperation needs and some major issues. In the process of further development of the global climate governance, the consensus on achieving an innovative development pathways needs to be further condensed, and based on the different abilities and conditions, more targeted strategy of path innovation, goals, actions and policies, measures and supporting system of developed and developing countries in different development stages need to be recognized

11. China's current development stage and its new global strategic positioning determine that innovation of development path is China's inherent requirement.

After more than thirty years of rapid development since the opening-up, China as the biggest developing country, which is undergoing rapid industrialization and urbanization and towards a higher stage of development, has achieved great achievements. China's total economic output now ranks the second of the world and its GDP per capita has increased to around USD7,800. China has almost accomplished its task of poverty alleviation and is now entering into a new stage to fully establishment of a well-off society by 2020.

From the perspective of growth economics□the inputs of elements like labor, capital, energy, land, water, mineral products and environmental capacity have made a major contribution to the rapid economic growth over three decades. Upgrading economic development to “new normal” condition means that China's traditional development mode relied on the quantity of input of elements has come to an end. In the economic take-off stage, by over consuming natural resources and environmental capacity to complete the primitive capital accumulation, this process has result in enormous social and environmental consequences. As the coal based energy endowment becomes a new comparative disadvantage under increasingly tight global carbon constraints, if China failed in transiting to new economic development mode driven by innovation and promoting technology and industrial revaluation characterized by low-carbon timely, China is very likely to fall into "middle income trap" restricted by resources and environment, which will seriously affect the realization of the two century goals. On the other hand, with the increase of the stock of social wealth and income level, it is possible to shift to a new development stage under which the economic growth mainly relies on the

efficiency of inputs, thus alleviating the social consequences caused by overdraft of natural resources.

China's foremost strategic priorities in the next decades continue to focus on increasing incomes, moving towards more advantageous development stage, and generally raising the standard of living. Meanwhile, China's traditional input-heavy growth model is no longer sustainable and making China faces the risks falling into the "middle-income trap."

In the context of comprehensive deepening reform and promoting the construction of ecological civilization, exploration and development of an innovative development path has become a prioritized theoretical and practical mission for China. Low-carbon development as an efficient and intensive economic development model, to foster and promote new economic growth point and model so as to improve the quality and effectiveness of economic growth by the application of new technologies and regulations that match new resources and environmental constraints, will become a powerful driving force to promote China's economic restructuring and development.

China needs to explore an innovative low-carbon development path which is better than the traditional ones of developed countries, and to upgrade its growth to a "new normal" condition: low-carbon development as a key driving force to improve elements productivity and achieve transition, and to achieve the innovation of development path by increasing energy efficiency, transforming energy mix, upgrading industrial structure, optimizing income structure and improving human resources. Innovation of development path and implementation of low-carbon strategy shall be understood as a way to achieve China's two century goals and to establish China's comparative advantages in global low-carbon trends and low-carbon technology revolution.

12. China's innovative development pathway is of considerable importance to the global green and low-carbon transformation.

Having experienced 30 years of rapid growth and 20 years of intensifying globalization, China now plays a pivotal role in the world economy. Therefore, in analyzing China's new development phase and the economic transition, one has to consider China's position in the world economy as a whole. China's innovative development path is of great importance for global transition towards green and low-carbon economic development.

Since the industrial revolution, the global cumulative greenhouse gas emissions pattern is still the same as it is contributed predominantly by developed countries. While the annual instantaneous emissions pattern has remarkably changed and will eventually alter the cumulative emissions pattern over the long term. China's rapid growth of total carbon emissions and emissions per capita has been increasingly noticeable. Although there is still disparity between China and the US/ EU in cumulative greenhouse gas emission, with the high GDP, considerable energy consumption, fast economy development and further acceleration of the China's industrialization and urbanization, it is inevitable that China's CO₂ emission growth will continue and eventually raise the international share of historical cumulative emissions. For this reason, the future carbon emission in China is critical to the global emission pattern and pathways. China's achievement of managing and controlling emissions

through innovative development pathway will be essential for the world to achieve carbon emissions cut goals.

Along with the economic transition to a cleaner, more efficient and low-carbon development, there will be an enormous domestic market created in China for clean energy technology, products and services. On top of that, there will be large-scale demands for developed countries on regulations, technologies, standards and advanced management experiences. China, with the world's leading manufacturing capacity and high-quality production capacity, with the enormous domestic market and relative abundance of capital, can strengthen the collaborations with the US, EU and other countries throughout the low-carbon technology industry chains by means of bilateral and multilateral cooperation activities. Parties in the cooperation can optimize the global industrial layout and the specialized division of labor, enhance the R&D ability in low-carbon technology development and the innovation capacity for developing business models. Meanwhile, the cooperation can accelerate the cost reduction of low-carbon technology application, and help expand the market shares of low-carbon technologies and products worldwide. All of these outcomes will further help lower the carbon emissions, while advancing social prosperity and employment to achieve a re-balanced global economy. Moreover, the low-cost and low-carbon solutions will promote the renovation of infrastructure facilities in developed countries, reducing the difficulties for these countries to achieve a low-carbon transition.

As the world's largest developing country, China can provide other developing countries with referential demonstrations of its innovative development pathway and experience-sharing on its low-carbon sustainable development. By offering supports via the channel of South-South Cooperation, China can help these countries avoid the dependence on and Lock-in Effects of conventional high-carbon pathways, while stepping toward a "low-pollution, low-emission" but highly efficient & innovative development path. By self-transitioning, China will leverage low-carbon transition activities on a global scale, and will make significant contributions to the reshaping of a new global development path.

13. China's participation in global climate governance should aim to realizing the transition from a participant to a builder of the system while insisting on its positioning as a developing country.

Within today's world economy, energy and climate change system, China's basic position is a developing country with a unique status. Even though China has become the largest carbon emitter and the second-largest economy in the world, its main development indicators and the ongoing bifurcation of rural and urban economic structures demonstrate that China is still a developing country. This implies significant differences between China and developed countries in terms of their respective stages of development, development needs, historical responsibilities, and overall capacity. In addition, China also faces specific national circumstances like coal based energy resources endowment, vast landmass, limited stock of resources per capita in terms of both quantity and quality,

etc. China needs to fully consider its developing stage, capacity and national circumstances while participating in global climate governance.

Climate change has become an important issue concerning international morality, global responsibility, national image and national development rights. China, as a developing country responsible for the entire world, on one hand shall respect historical facts, adhere to its positioning as a developing country and the principle of “common but differentiated responsibilities”, require developed countries to fulfill their responsibilities in line with the principles and provisions of the Convention, e.g. to take lead and set example in mitigation, and to provide adequate technical, financial supports to developing countries, etc.; on the other hand, China shall be fully aware of changes in its development stage and situations it faces in the new period, recognizing that addressing climate change and innovating development path are something we need to do rather than something asked to do. In China’s efforts to move its economy towards a more advanced stage, active participation in global climate governance is the internal requirements in respect of adjusting structure, overcoming middle-income trap, complying with the global trends of low-carbon development and technological revolution, and improving international low-carbon competence.

Based on its national circumstances and objective positioning, China should participate in the international climate process in an active and pragmatic way within the framework of sustainable development and based on the principles of Convention, play a constructive role as a responsible great country, undertake international responsibility to tackle climate change, which shall reflect its development stage, overall capacity, positioning and national circumstances, and transform its role from a participant to a builder to achieve strategic turn from "homeopathy" to "proactivity", ensuring an equitable, effective and win-win global climate regime.

In general, China should consider the following objectives in a comprehensive way in its participation in global climate governance:

- (1) To guarantee reasonable essential emission space before peaking for China’s smooth completion of industrialization, urbanization, and development path transition;
- (2) To strive for an “equitable, effective and multiple win” international climate regime and support actions to address climate change, so as to minimize the negative impacts of climate change;
- (3) To minimize domestic economic dependence on GHG emissions and energy consumption and cultivate long-term competitiveness in green and low-carbon development by pursuing lower and earlier peaking of emissions;
- (4) To transform from a participant in the global international regime into a builder and leader, and use this as one of the platforms to improve China’s position, leadership and voice in setting and implementing rules of global governance;
- (5) To establish a positive image of China as a responsible nation with fairness and justice.

The report is available at <http://www.ncsc.org.cn>