



NCSC Working Paper:

New Thinking on China's Mid- and Long-term Strategies to Address Climate Change in the New Era

CHAI Qimin, FU Sha, LI Weiran, SUN Yihe

National Center for Climate Change Strategy and International Cooperation

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The 19th National Congress of the Communist Party of China was held in Beijing from October 18 to October 24, 2017. The report of the 19th National Congress of the Communist Party of China clearly envisions the grand blueprint of China's economy, society, politics, culture and ecological civilization construction by the middle of this century. The report draws a major political conclusion that "socialism with Chinese characteristics has crossed the threshold into a new era", and the report makes a two-stage development plan for the period from 2020 to the middle of this century. New ideas, new thinking and new strategies proposed by the report and the speeches delivered by President Xi Jinping on global climate governance set new requirements for the formulation of China's mid- and long-term strategies to tackle climate change. It also provides a reference for how to better use model and scenario analysis methods to simulate the mid- and long-term strategies in addressing climate change.

I. New ideas, new thinking, and new strategies for the development of China in the new era

China has proposed a new paradigm that featuring 'innovative, coordinated, green, open and sharing' development which is for everyone for the first time. In particular, green development has been raised to an unprecedented level on the policy agenda. The report holds that the principal contradiction facing Chinese society has evolved and is now that between the people's ever-growing needs for a better life and unbalanced and inadequate development. The modernization that China pursues is one that characterized by a



harmonious coexistence between men and nature. In addition to creating more material and cultural wealth to meet people's ever-increasing needs for a better life, providing high-quality ecological public goods to meet people's ever-growing demands for a better environment is needed. It's believed that building an ecological civilization is vital to sustain the Chinese's sustainable development.

In response to contemporary developments and by integrating theory with practice, the Communist Party of China has systematically addressed **Xi Jinping's Thought on Socialism with Chinese Characteristics for a New Era**, including the adoption of a new vision for development, ensuring harmony between men and nature, promoting the building of a community with a shared future for all mankind. The report assumes that China should develop eco-friendly growth model and ways of life. The 'Beautiful China Initiative' must be reinforced in order to create good working and living environments for Chinese people and to play a part in ensuring the global ecological security. As stated in the report, China will pursue an open, innovative, and inclusive development that benefits everyone and cultivate ecosystems based on respect for nature and green development. China will be good friends to the environment, get actively involved in global environmental governance and fulfill its commitments on emissions reduction, cooperate to tackle climate change, and protect our planet for the sake of human survival. China will also continue its efforts to safeguard world peace, contribute to global development, and uphold international order and work with the people of all countries together to build a community with a shared future for mankind, to build an open, inclusive, clean, and beautiful world that enjoys lasting peace, universal security, and common prosperity.

Based on comprehensive analysis of the international and domestic environments, as well as the development conditions of China, the Communist Party of China has proposed a development strategy to build China into a great modern socialist country, where building a beautiful China and ecological civilization have also been placed in prominent position. The connotation of modernization with Chinese characteristics has become more rich. After adopting the policy of reform and opening up, China laid out three strategic goals for



achieving socialist modernization in China. The first two—ensuring that people’s basic needs are already met and that their lives are generally decent—have been accomplished ahead of time. Building on this, the Communist Party of China proposed the two centenary goals that by the time celebrating the Party’s centenary, China will have developed our society into a moderately prosperous one with a stronger economy, greater democracy, more advanced science and education, thriving culture, greater social harmony, and a better quality of life. After this, with another 30 years of work, and by the time China celebrate the centenary of the People’s Republic of China, China will have basically achieved modernization and turned China into a modern socialist country. China have drawn up a two-stage development plan for the period from 2020 to the middle of this century.

In the first stage, that is from 2020 to 2035, China will build on the ground that created by the moderately prosperous society with a further 15 years of hard work to see that socialist modernization is basically realized. The vision is that by the end of this stage, the following goals will have been met: China’s economic and technological strength has increased significantly. China has become a global leader in innovation. The rights of the people to participate and to develop as equals are adequately protected. The rule of law for the country, the government, and society is basically in place. Institutions in all fields are further improved; the modernization of China’s system and capacity for governance is basically achieved. Social etiquette and civility are significantly enhanced. China’s cultural soft power has grown much stronger; Chinese culture has greater appeal. People are leading more comfortable lives, and the size of the middle-income group has grown considerably. Disparities in urban-rural development, in development between regions, and in living standards are significantly reduced; equitable access to basic public services is basically ensured; and solid progress has been made toward prosperity for everyone. A modern social governance system has basically taken shape, and society is full of vitality, harmonious, and orderly. There is a fundamental improvement in the environment; the goal of building a Beautiful China is basically attained.

In the second stage, which is from 2035 to the middle of this century, China will, on having basically achieved modernization, work hard for a another 15 years and develop China into



a great modern socialist country that is prosperous, strong, democratic, culturally advanced, harmonious, and beautiful. By the end of this stage, the following goals will have been met: New heights are reached in every dimension of material, political, cultural and ethical, social, and ecological advancement. Modernization of China's system and capacity for governance is achieved. China has become a global pioneer in terms of composite national strength and international influence. Common prosperity for everyone is basically achieved. The Chinese people enjoy happier, safer, and healthier lives. The Chinese nation will become a proud and active member of the community of nations.

However, it is worth noting that these achievements do not change the assessment of the present stage of socialism in China. The basic dimension of the Chinese context—that China is still and will long remain in the primary stage of socialism—has not changed. China's international status as the world's largest developing country has not changed.

II. The new characteristics of China's mid- and long-term strategies to address climate change in the new era

In the report that delivered by President Xi Jinping on the 19th National Congress of the CPC), three times "climate change" were mentioned, and four times on "low-carbon", 15 times on "green", 27 times on "environment", 43 times on "ecology", showing an unprecedented attention paid on the relevant policies and strategies regarding green and sustainable development. For the first time, in the review of the past five years' national actions for addressing climate, the report puts forward the assertion "Taking a driving seat in international cooperation to respond to climate change, China has become an important participant, contributor, and then torch-bearer in the global endeavor for the ecological civilization". This is a historic interpretation of China's role in global climate governance. The assertion points out the importance of international cooperation for tackling climate change in the global endeavor for ecological civilization, and clearly defines the role of China in global climate governance. It not only reflects the high recognition of the international cooperation for tackling climate change by the central government, but also responds to the voice of international community which expects China to show its



leadership. Moreover, it points out China's orientation for leading in the global climate governance and the dream of contributing to global ecological security in the new era. New ideas, new thinking, and new strategies developed by China call for new and higher needs for the formulation of the mid- and long-term strategies to address climate change.

First of all, The acceleration of China's modernization process has led to changes in the assumptions of the previous economic and social development. In the two-stage development plan laid out by the 19th National Congress of the Communist Party of China, the period of "basically realizing modernization" was fifteen years earlier than the three strategic goals laid out by the party's 13th National Congress. The policies and actions of various areas and sectors will be accelerated. There will also be new pathways for economic development, energy consumption and carbon emissions.

➤ ***How to understand the basically achieving China's modernization fifteen years ahead of schedule?***

The basically realization of modernization in China could be defined with different indicators, such as achieving a GDP per capita of about 30,000 U.S. dollars, the level of moderately developed countries. According to this measurement method, the average annual GDP growth rate is 6.5% until 2020, the rate is 5% from 2021 to 2035, the price index is 2%, and assuming constant exchange rate. By 2035, the GDP of China will reach 290 trillion yuan, or about 43.6 trillion dollars, and the per capita GDP will reach 206,000 yuan, or about 30,000 dollars.

Secondly, The connotation of China's modernization is more rich, especially the ecological civilization and green development are elevated to an unprecedented level of importance. The layouts of five-sphere integrated plan and the five new visions for development will speed up the construction of ecological civilization and green, low-carbon development, which are the basic content of the socialist modernization. The report puts "fundamental improvement of the environment, the goal of building a Beautiful China will be preliminarily attained" as an important aspect of the first "further 15 years of hard work". Multiple goals of modernization are shown in Table 1.



Table 1: Multiple goals of modernization

	Grade II index		Unit	Target value
Economic Modernization	1.1 Per capita GDP		U.S. dollar	≥ 20000
	1.2 GDP proportion of R&D spending		%	≥ 2.5
	1.3 Number of patent authorization per 10 billion yuan of GDP		-	100
	1.4 Synthesis index of scientific and technological progress		%	≥ 70
	1.5 GDP proportion of value added of service sector		%	≥ 55
	1.6 Agricultural mechanization level		Myriawatt / hectare	≥ 3
	1.7 GDP proportion of total volume of foreign trade		%	≥ 60
	1.8 Income per-capita	urban per capita disposable income	Yuan	≥ 60000
		Rural per capita net income	Yuan	≥ 25000
	1.9 Engel's coefficient	Urban Engel's coefficient	%	≤ 30
Rural Engel's coefficient		%	≤ 35	
Social Modernization	2.1 Urbanization ratio		%	≥ 70
	2.2 Basic social security coverage		%	100
	2.3 Income ratio of urban and rural residents		-	$\leq 2:1$
	2.4 Number of civil societies owned per 10 thousand persons		-	12
	2.5 Number of public transportation owned per 10 thousand people in urban areas		-	≥ 15



	2.6 number of community facilities owned per 10 thousand persons	-	≥ 8	
	2.7 per capita living space	Urban per capita living space	M2 ≥ 30	
		Rural per capita living space	M2 ≥ 40	
	2.8 registered urban unemployment rate	%	≤ 4	
Ecological Modernization	3.1 Proportion of days with good air quality	%	≥ 95	
	3.2 Discharge standard-meeting rate of industrial wastewater	%	100	
	3.3 Decontamination rate of urban refuse	%	100	
	3.4 Per Unit GDP Energy Consumption	Tce/ten thousand yuan	≤ 0.5	
	3.5 GDP proportion of Comprehensive Utilization product value for "three wastes"	%	≥ 2	
	3.6 urban green coverage rate	%	≥ 45	
human modernization	4.1 the population proportion of people with Junior college diploma or higher	%	≥ 16	
	4.2 Households proportion of expenditure on recreational activities, education and cultural service	%	≥ 20	
	4.3 Number of TV owned per 100 households	Urban areas	-	≥ 200
		Rural areas	-	≥ 150
	4.4 Number of cellphone owned per 100 urban households	-	≥ 200	
	4.5 Number of Internet broadband households per 1000 persons	-	400	
	4.6 Number of doctors per 1000 Persons	-	≥ 2.6	
4.7 Average life expectancy	Years old	≥ 78		



Thirdly, the China's modernization is more open, and taking new and greater contributions for mankind as the China's abiding mission. The 19th National Congress of the Communist Party of China offered solutions to solve many common challenges facing humankind, to build an open, inclusive, clean, and beautiful world that enjoys everlasting peace, universal security, and also common prosperity. The 19th National Congress of the Communist Party of China also advocated "playing our part in ensuring global ecological security".

According to the characteristics of the new era, the formulation of mid- and long-term strategies to address climate change should focus on the following three aspects:

First of all, China's formulation of mid- and long-term strategies to address climate change needs to be adapted to the Reform of Transition to a High-quality Development. Adjust and incorporate key indicators of economic and social modernization, especially the assumptions of economic growth and inclusion of new indicators including those of per capita . China's mid- and long-term strategies to address climate change must show new features and directions of the profound transformation of economic development after China's peaking in terms of carbon emissions , reflecting the trend of decarbonization in areas such as economic growth, energy systems, and consumer consumption. China should promote a sound economic structure that facilitates green, low-carbon, and circular development, build an energy sector that is clean, low-carbon, safe, and efficient, and encourage simple, moderate, green, and low-carbon ways of life.

Secondly, China's formulation of mid- and long-term strategies to address climate change must be consistent with the Initiative to build a Beautiful China. Adjusting and incorporating key indicators of ecological modernization, combating climate change should not be limited to the single goal of controlling carbon dioxide emissions from energy consumption, and the scope of coverage needs to be further expanded. China's mid- and long-term strategies could become the main approach for coordinating and leading green development, solving serious environmental problems, and strengthening the protection of the ecosystem. It covers more non-carbon dioxide greenhouse gases, industrial processes



emissions, and other sectors including waste disposal, land use, agricultural water resources, coastal zones.

Last by not least, China’s formulation of mid- and long-term strategies to address climate change needs to be in line with the Mission to build a Community with a Shared Future for Mankind To adjust and incorporate the external influences of the green “Belt and Road Initiative” and South-South cooperation on climate change, these international cooperation actions will likely offer a new option for other countries and nations who want to speed up their development while protecting environment. China’s formulation of mid- and long-term strategies to address climate change should reflect more good practices of China's sustainable development. In addition, the strategies should demonstrate the green and low-carbon transition of China’s economy and society, which promote the global technology and industrial revolution and bring about global economic, social and environmental synergies. These strategies are beneficial to the transformation of developing countries and offer Chinese wisdom and a Chinese approach to solving the climate change problems facing mankind.



NCSC 工作论文：

新时代中国应对气候变化中长期战略的新思考

柴麒敏、傅莎、李巍然、孙一赫

国家应对气候变化战略研究和国际合作中心

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中国共产党第十九次全国代表大会于2017年10月18日至10月24日在北京召开，大会报告描绘了中国到2050年的经济、社会、政治、文化、生态文明建设的宏伟蓝图，提出了“中国发展进入了新时代”这一重大论断，并对2020-2050年分两个阶段实现中华民族伟大复兴的中国梦进行了具体部署。报告提出的新理念、新思想、新战略及习近平主席有关全球气候治理的系列讲话对中国应对气候变化中长期战略的制订提出了新的要求，对如何更好地运用模型和情景分析方法模拟中国和全球应对气候变化中长期战略提供了参考。

一、新时代中国发展的新理念、新思想、新战略

中国首先提出了创新、协调、绿色、开放、共享的新发展理念，特别是绿色发展提升到了前所未有的政策高度。十九大报告认为，新时代中国社会主要矛盾已经转化为人民日益增长的美好生活需要和不平衡不充分的发展之间的矛盾。中国要建设的现代化是人



与自然和谐共生的现代化，既要创造更多物质财富和精神财富以满足人民日益增长的美好生活需要，也要提供更多优质生态产品以满足人民日益增长的优美生态环境需要。报告认为，建设生态文明是中华民族永续发展的千年大计，必须树立和践行绿水青山就是金山银山的理念，坚持节约资源和保护环境的基本国策，像对待生命一样对待生态环境。

中国结合理论和实践、统筹国内国际进一步系统提出了习近平新时代中国特色社会主义思想和基本方略，其中特别包括坚持新发展理念、坚持人与自然和谐共生、坚持推动构建人类命运共同体等社会主义生态文明观。报告认为，中国要形成绿色发展方式和生活方式，坚定走生产发展、生活富裕、生态良好的文明发展道路，建设美丽中国，为人民创造良好生产生活环境，坚持环境友好，积极参与全球环境治理，落实减排承诺，合作应对气候变化，构筑尊崇自然、绿色发展的生态体系，保护好人类赖以生存的地球家园，为全球生态安全作出贡献。中国始终做世界和平的建设者、全球发展的贡献者、国际秩序的维护者，与各国人民同心协力，构建人类命运共同体，建设持久和平、普遍安全、共同繁荣、开放包容、清洁美丽的世界。

中国综合分析国际国内形势和自身发展条件，提出了到本世纪中叶实现现代化的发展战略，其中将美丽中国、生态文明也摆在了



突出位置，中国特色现代化的涵义更为丰富。改革开放之后，中国提出了到 2050 年现代化建设“三步走”的战略目标。解决人民温饱问题、人民生活总体上达到小康水平这两个目标已提前实现。在这个基础上，中国提出了“两个一百年”奋斗目标，到建党一百年时建成经济更加发展、民主更加健全、科教更加进步、文化更加繁荣、社会更加和谐、人民生活更加殷实的小康社会，然后再奋斗三十年，到新中国成立一百年时，基本实现现代化，把我国建成社会主义现代化国家。从 2020 年到本世纪中叶将分两个阶段来安排：

第一个阶段，从 2020 年到 2035 年，在全面建成小康社会的基础上，再奋斗 15 年，基本实现社会主义现代化。到那时，我国经济实力、科技实力将大幅跃升，跻身创新型国家前列；人民平等参与、平等发展权利得到充分保障，法治国家、法治政府、法治社会基本建成，各方面制度更加完善，国家治理体系和治理能力现代化基本实现；社会文明程度达到新的高度，国家文化软实力显著增强，中华文化影响更加广泛深入；人民生活更为宽裕，中等收入群体比例明显提高，城乡区域发展差距和居民生活水平差距显著缩小，基本公共服务均等化基本实现，全体人民共同富裕迈出坚实步伐；现代社会治理格局基本形成，社会充满活力又和谐有序；生态环境根本好转，美丽中国目标基本实现。



第二个阶段，从 2035 年到本世纪中叶，在基本实现现代化的基础上，再奋斗 15 年，把我国建成富强民主文明和谐美丽的社会主义现代化强国。到那时，我国物质文明、政治文明、精神文明、社会文明、生态文明将全面提升，实现国家治理体系和治理能力现代化，成为综合国力和国际影响力领先的国家，全体人民共同富裕基本实现，我国人民将享有更加幸福安康的生活，中华民族将以更加昂扬的姿态屹立于世界民族之林。

中国以巨大的政治勇气和强烈的责任担当，提出一系列新理念新思想新战略，出台一系列重大方针政策，推出一系列重大举措，推进一系列重大工作，解决了许多长期想解决而没有解决的难题，办成了许多过去想办而没有办成的大事，推动国家事业发生历史性变革，对中国和全球发展具有重大而深远的影响。但这并没有改变我们对中国所处历史阶段的判断，中国仍处于并将长期处于社会主义初级阶段的基本国情没有变，中国是世界最大发展中国家的国际地位没有变。

二、新时代中国应对气候变化中长期战略新特征

十九大报告 3 次提到“气候变化”、4 次提到“低碳”、15 次提到“绿色”、27 次提到“环境”、43 次提到“生态”，对相关的政策、战略前所未有的重视。对气候在过去五年工作的回顾中首次提出了“引导应对气候变化国际合作，成为全球生态文明建设的重



要参与者、贡献者、引领者”的论断，这是对中国参与全球气候治理作用的历史性认识。这一重大论断既指出了应对气候变化国际合作在全球生态文明建设中的主要地位，也明确了中国在全球气候治理中的国家定位，不仅体现了中央和国家对气候变化国际合作工作的高度肯定，也回应了国际社会期待中国展现领导力的舆论声音，更为在新时代开启中国引领全球气候治理新征程、树立为全球生态安全作贡献的新使命、推动构建人类命运共同体的新梦想指明了方向。中国提出的一系列新理念、新思想和新战略对推动应对气候变化中长期战略的制订提出了新的更高的要求。

一是社会主义现代化进程加速，使得此前的经济社会发展假设发生了变化。党的十九大提出的两个“再奋斗十五年”的阶段安排中，“基本实现现代化”的时间比党的十三大提出的“三步走”发展战略足足提前了十五年，各领域各部门的政策和行动都将面临加速的情况，经济发展、能源消费和碳排放也将有新的轨迹。

➤ **如何理解基本实现社会主义现代化的目标提前了 15 年？**

基本实现现代化可以有很多定义，比如达到中等发达国家水平人均国内生产总值约 3 万美元。以此来测算，按照到 2020 年国内生产总值年均增长 6.5%，从 2021 年到 2035 年 GDP 年均增长 5%、价格指数 2%、假定汇率不变测算，到 2035 年我国现价国内生产总值将达到 290 万亿元、约合 43.6 万亿美元，人均国内生产总值将达 20.6 万元、约合 3 万美元。

二是社会主义现代化内涵更丰富，将生态文明和绿色发展提到了新的高度。“五位一体”的总体布局和“五大发展理念”的提出



将加快推进生态文明建设和绿色低碳发展作为社会主义现代化建设的基本内容，党的十九大将“生态环境根本好转，美丽中国目标基本实现”作为第一个“再奋斗十五年”的重要方面，意义更为深远。现代化多元目标如表 1 所示。

表 1 我国基本实现现代化指标体系

二级指标		单位	目标值	
一 经济现代化	1.1 人均地区生产总值	美元	≥20000	
	1.2 R&D 经费支出占 GDP 比重	%	≥2.5	
	1.3 百亿元 GDP 发明专利授权量	件	100	
	1.4 科技进步综合水平指数	%	≥70	
	1.5 服务业增加值占 GDP 比重	%	≥55	
	1.6 农业机械化水平	万瓦/公顷	≥3	
	1.7 进出口总额占 GDP 的比重	%	≥60	
	1.8 人均收入	城镇居民人均可支配收入	元	≥60000
		农村居民人均纯收入	元	≥25000
1.9 恩格尔系数	城镇恩格尔系数	%	≤30	
	农村恩格尔系数	%	≤35	
二 社会现代化	2.1 城市化水平	%	≥70	
	2.2 城乡基本养老保险覆盖率	%	100	
	2.3 城乡居民收入比		≤2:1	
	2.4 万人拥有社会组织数	个	12	
	2.5 城市每万人拥有公共交通工具	标台	≥15	
	2.6 万人社区服务设施数	个	≥8	
	2.7 人均居住面积	城镇居民人均居住建筑面积	M ²	≥30
		农村居民人均居住建筑面积	M ²	≥40
2.8 城镇登记失业率	%	≤4		
三 生态现代化	3.1 空气质量良好以上天数比重	%	≥95	
	3.2 工业废水达标排放率	%	100	
	3.3 生活垃圾无害化处理率	%	100	
	3.4 单位 GDP 能耗	吨标准煤/万元	≤0.5	
	3.5 三废综合利用产品产值占 GDP 的比例	%	≥2	
	3.6 城镇绿化覆盖率	%	≥45	
四 人的现代化	4.1 大专以上人口占总人口的比重	%	≥16	
	4.2 居民文教娱乐服务支出占家庭消费支出比重	%	≥20	
	4.3 百户家庭拥有电视机数	城镇	台	≥200
		农村	台	≥150
	4.4 城镇居民家庭拥有移动电话量	部/百户	≥200	
	4.5 千人互联网宽带用户拥有量	户	400	
	4.6 千人拥有医生数	人	≥2.6	
4.7 平均预期寿命	岁	≥78		



三是社会主义现代化更加开放，把为人类作出新的更大的贡献作为自己的使命。党的十九大提出了“构建人类命运共同体，建设持久和平、普遍安全、共同繁荣、开放包容、清洁美丽的世界”作为解决人类面临的诸多共同挑战的“中国方案”，并主张“为全球生态安全作出贡献”。

因此，围绕上述新时代特征，应对气候变化中长期战略的制订应该着重考虑以下方面。

一是中国应对气候变化中长期战略的制订需要与经济高质量发展水平相适应。调整和纳入新的经济和社会现代化的各类指标，特别是经济增速、各类人均指标的假设。中国应对气候变化中长期战略应呈现我国碳排放达峰之后的经济发展深度转型的新特征和新方向，反映经济增长、能源系统和生活消费等领域的深度脱碳趋势，建立健全绿色低碳循环发展的经济体系，构建清洁低碳、安全高效的能源体系，倡导绿色低碳的生活方式。

二是中国应对气候变化中长期战略的制订需要与美丽中国建设目标相一致。调整和纳入新的生态现代化的各类指标，应对气候变化不该只局限在控制能源消费二氧化碳的排放单一任务上，覆盖的范围需要更为拓展。中国应对气候变化中长期战略应充分发挥协同效应，成为统筹和引领绿色发展、解决突出环境问题、加大生态系统保护力度的主要途径，涵盖更多非二氧化碳的温室气体种类以及



工业过程、废弃物处理、土地利用、农业和水资源、海岸带等行业部门或领域。

第三，中国应对气候变化中长期战略的制订需要与人类命运共同体定位相符合。调整和纳入绿色“一带一路”、气候变化南南合作等中国倡议的外部影响，这些国际合作行动将有可能给世界上那些既希望加快发展又希望积极保护气候和环境的国家提供新选择。中国应对气候变化中长期战略应尽可能反映中国可持续发展的优良实践，展现中国经济社会的绿色低碳转型推动全球技术和产业革命并带来全球经济、社会和环境协同效应的情景，为发展中国家提供转型借鉴，为解决人类应对气候变化问题贡献中国智慧和方案。