

# Chapter 17

## Research on Strategies and Major Policies of Ecological Environment Protection and Climate Change Response



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In China's "Five in One" overall layout and "Four Comprehensive" strategic layout during the "13th Five-Year Plan" period, the construction of ecological civilization is an important content. With unprecedented courage and strength, we have promoted the reform of ecological civilization system and mechanism, and made breakthroughs in ecological environment protection and response to climate change. China is expected to enter the ranks of high-income countries in the future, and it needs to realize the ecological environment matching with high-income countries and undertake corresponding international obligations. This period is also a critical period after China has achieved a well-off society in an all-round way, an important strategic period for China to strengthen the foundation of modernization, and a key stage for China to basically achieve the strategic goal of socialist modernization in 2035. The protection of ecological environment and the response to climate change in this period are of key and overall significance to China's social and economic development. The key point of ecological civilization construction is to make great efforts to protect the environment, and the core is high-quality development. By further deepening institutional reform and strengthening institutional construction, we can achieve a comprehensive breakthrough in ecological environment protection and climate change response, build an ecological barrier, and enhance green productivity.

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## 17.1 Achievements and Challenges of Ecological Civilization Construction

Since the 19th National Congress of the Communist Party of China, under the strong leadership of the CPC Central Committee with Comrade Xi Jinping as the core, China has given full play to the superiority of the socialist system and accumulated a solid material foundation for reform and opening-up. On this basis, we have intensified efforts to promote the construction of ecological civilization, solve ecological and environmental problems, resolutely fight a tough battle against pollution, and actively respond to climate change. We have carried out a series of fundamental, pioneering and long-term work and made outstanding achievements. In the future, China's ecological environment protection and response to climate change will be in a new historical period, and facing a new development situation and four outstanding challenges.

### 17.1.1 *Significant Achievements Made in the Construction of Ecological Civilization*

In recent years, the external environmental factors affecting China have increased obviously, the domestic economic development mode has changed, the economic structure has been optimized, and China has entered a critical stage of high-quality development. Under the guidance of Xi Jinping's new idea of socialism with Chinese characteristics in the new era, China has accelerated the construction of top-level design and institutional system of ecological civilization, vigorously promoted pollution control, and continuously improved the quality of ecological environment. China's ecological civilization construction has made remarkable achievements in various aspects.

First, the establishment of Xi Jinping's Thought on Ecological Civilization. Xi's ecological civilization thought is an important part of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, which pointing out the direction for promoting the construction of beautiful China and realizing the modernization of harmonious coexistence between man and nature. "Lucid waters and lush mountains are invaluable assets" has become the consensus of the whole society, and it promotes the comprehensive implement of environmental protection and high-quality development; The ecological civilization concept of respecting nature, adapting to nature and protecting nature is written into the party constitution; Green development, circular development and low-carbon development are integrated into economic, political, cultural and social construction.<sup>1</sup>

Second, the construction of ecological civilization system has been basically completed. On November 12th, 2013, the Third Plenary Session of the 18th CPC

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<sup>1</sup> Peng (2019).

Central Committee adopted *the Decision of the Central Committee of the Communist Party of China on Comprehensively Deepening the Reform of Some Major Issues*, proposing to deepen the reform of ecological civilization system and speed up the establishment of ecological civilization system around building a beautiful China. In the past seven years, China has formulated and implemented dozens of reform programs involving ecological civilization construction and ecological environment protection, which have basically formed a comprehensive institutional system. The institutional system of ecological civilization construction has been built in an all-round way by implementing the strictest ecological environment protection system, comprehensively establishing the system of efficient utilization of resources, improving the system of ecological protection and restoration, and strictly observing the responsibility system of ecological environment protection.

Third, the tough battle against pollution has won a staged victory. We thoroughly implement the new development concept and resolutely win the three major defense wars of blue sky and clear water. We delineate the environmental protection red line, the ecological bottom line and the upper limit of resource utilization to promote ecological restoration and natural restoration. We have comprehensively promoted the construction of ecological civilization in the key areas of environmental protection and ecological construction such as atmosphere, water, soil, ocean, drinking water safety, disaster reduction and prevention, soil and water conservation, sand control, etc. The overall quality of ecological environment has improved, and key progress has been made in the battle against pollution.

Fourth, significant progress has been made in tackling climate change and low-carbon transformation. In recent years, China has been actively implementing the Paris Agreement to promote low-carbon transformation. In 2017, China's carbon dioxide emissions (carbon intensity) per unit of GDP decreased by about 46% compared with 2005, and the goal of reducing carbon intensity by 40%-45% in 2020 was achieved three years ahead of schedule.<sup>2</sup> The proportion of coal in China's primary energy dropped sharply from 64% in 2015 to 57.7% in 2019, with an average annual decline of 1.6% points; the installed capacity and power generation of renewable energy lead the world.

### ***17.1.2 China's Ecological Environment Protection and Response to Climate Change Are Facing a New Situation***

Looking forward to the future, as General Secretary Xi Jinping pointed out at the National Eco-environmental Protection Conference, the construction of ecological civilization is in a critical period. More high-quality ecological products are needed to meet the people's growing needs for beautiful ecological environment, and it is time to be able to solve outstanding problems of ecological environment.

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<sup>2</sup> Zhao (2018).

In the future, the historical trend of “three-phase superposition” (the shift period of economic growth, the painful period of structural adjustment and the digestive period of early stimulus policies) will continue. In 2019, China’s per capita GDP has reached 10,000 USD, and it is expected that the per capita GDP will surpass the threshold of 12,300 USD in the next five years. Judging from the development stages of various countries, most developed countries have basically completed the crucial task of ecological environment protection and pollution control, and the focus has shifted to the challenge of global climate change, while developing countries will face more ecological environment pressure, and have not yet formed a strict goal of dealing with climate change.

China will face the double challenges of ecological environment protection and climate change in the future. To truly enter the ranks of high-income countries, in addition to the per capita GDP reaching the threshold, it is necessary to achieve the ecological environment protection and pollution control objectives that match those of high-income countries, and at the same time have the international competitiveness of low-carbon transformation and coping with climate change. In this sense, the protection of ecological environment and the response to climate change in the next 5–10 years will have a turning point and overall significance for China’s social and economic development.

### ***17.1.3 Outstanding Challenges Faced by Ecological Environment Protection and Coping with Climate Change***

During the “13th Five-Year Plan” period, the quality of ecological environment has generally improved, and the economy has been developing in a green and high-quality way. However, the implementation results of ecological control and pollution prevention objectives are still not stable, and four outstanding challenges will be faced in the future.

First, the slowdown in economic growth affects China’s strategic determination to protect the ecological environment and deal with climate change. At present, both domestic and international countries are facing the pressure of slowing economic growth. Internationally, the world economy slowed down sharply in the last three quarters of 2018, and then remained weak. Especially, the manufacturing industry had fallen to the lowest level since the international financial crisis in 2008. Domestically, China’s economic growth rate dropped from 10.6% in 2010 to 6.1% in 2019.<sup>3</sup> In 2020, the epidemic situation of COVID-19 caused a serious impact on the economy, with a year-on-year decline of 6.8% in the first quarter. In the second quarter, the economic growth turned from negative to positive, increasing by 3.2%, and the economic operation showed a steady recovery trend. In January, 2020, China and the United States reached the first stage of trade agreement, but recently Sino-US relations have

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<sup>3</sup> Wang (2020).

been deteriorating. The rapid changes in the external environment have adversely affected China's economic development. Some provinces in China have taken the initiative to reduce, and some even lowered the target of regional GDP by a large range. Under the background of the superposition of internal and external economic pressures, the phenomenon of relaxing environmental governance and low-carbon transformation may occur in some parts of China in order to maintain growth.

Although the battle against pollution has achieved remarkable results, among the 1,940 surface water sections examined nationwide in 2019, the proportion of IV and below water sources that cannot be used as drinking water sources still exceeds 1/4, and the proportion of inferior V sections reaches 3.4%. Among the 337 cities at the prefecture level and above, 180 cities do not meet the air quality standards.<sup>4</sup> Some places oppose ecological environmental protection with economic and social development, and they have no courage to formulate zero-carbon oriented development strategies and dare not do anything. To varying degrees, there are phenomena of disorderly development, extensive development and scattered development. Problems such as irrational energy structure and low utilization efficiency are still outstanding, and some even exceed the carrying capacity of local environmental resources. This shows that although China's ecological environment is stable and improving, some fundamental problems have not been completely solved. When the GDP of some provinces decreases and the external environment is unfavorable, there is insufficient confidence in adhering to the goal of ecological environment protection and realizing the peak of carbon emissions ahead of time. Therefore, the current results are not stable. If we can't change our thinking in time, the future ecological environment governance and low-carbon transformation process will face the risk of stagnation and retrogression.

Second, the low green productivity is a prominent problem that restricts China's high-quality development. In the process of long-term industrialization and urbanization in China, the constraints of resources and environment have been neglected, and the green productivity level has been slowly improved. In 2019, China's carbon dioxide emissions from fossil energy combustion accounted for about 28% of the total global emissions, ranking first. Although China's GDP ranks second in the world, it accounts for only about 16%. With the increase of labor, energy, resources and environmental costs, processing and manufacturing industries with traditional advantages are facing transformation pressure in international competition. Sino-US trade friction has profoundly changed the global industrial chain, value chain and supply chain order, and put forward new requirements for "environmentally conscious manufacturing".

There is a big difference in ecological environmental protection between urban and rural areas. At present, the investment in urban ecological environment protection is far greater than that in rural areas, and the development of green industries

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<sup>4</sup> Ministry of Ecology and Environment, The Ministry of Ecology and Environment Announces the Quality Status of Surface Water and Ambient Air in China in 2019, January 23, 2020, the website of the Ministry of Ecology and Environment of the People's Republic of China, [http://www.mee.gov.cn/xxgk2018/xxgk15/202001/t20200123\\_760936](http://www.mee.gov.cn/xxgk2018/xxgk15/202001/t20200123_760936).

and production methods in cities is more adequate. On the one hand, the urban population density is higher, the production and living intensity is higher, and the technical level is more advanced; on the other hand, the rural pollution control is not paid enough attention, and the development of green production lags behind. In the construction of environmental infrastructure, the harmless treatment rate of municipal solid waste has reached 94.1%, and it has reached 100% in Shanghai, Jiangsu and Shandong. The national sewage treatment rate is 91.9%, of which the centralized treatment rate of sewage treatment plants is 88.0%. However, only 65.6% of administrative villages in China provide centralized water supply, and only 11.4% of administrative villages treat domestic sewage. Administrative villages with the treatment of domestic garbage are relatively popular, but the proportion is only 62.2%. The lack of green productivity in rural areas not only leads to the ecological environment problems, but also threatens farmers' health and affects rural sustainable development.

There is a gap in ecological environment protection in different river basins. The "Great Protection of the Yangtze River" launched in 2016 has achieved remarkable results, but the ecological environment protection strategy of the Yellow River Basin is still in the top-level design stage. Since the founding of the People's Republic of China, especially since the reform and opening-up, the overall water flow of the Yellow River has been stable, and the water of the Yellow River has become relatively clear. However, the overall situation of ecological fragility in the Yellow River basin is still grim, and some areas in the upper reaches of the Yellow River have degraded ecosystems and low water conservation functions. There is a serious shortage of water resources in the whole basin, the downstream flow is low, and some estuaries are shrinking. Among the 137 water quality sections of the Yellow River tested by the state in 2018, the inferior V-type water accounted for 12.4%, which was significantly higher than the national average of 6.7%. Although the total amount of water resources in the Yellow River is less than 7% of the Yangtze River, and the per capita share of water is only 27% of the national average, but the utilization of water resources is not economical, and the efficiency of agricultural water use is not high. The utilization rate of water resources in Yellow River is as high as 80%, far exceeding the international ecological warning line 40% for the utilization rate of water resources in river basins.<sup>5</sup> The destruction of the environment and the extensive utilization of water resources restrict the sustainable development of the Yellow River Basin, and there is an urgent need to change as soon as possible and vigorously improve green productivity.

Third, China's international environmental governance is facing the challenge of global ecological security pressure. First is the greening of the "the "Belt and Road" Initiative". Although the "the "Belt and Road" Initiative" has won the support of many countries and international organizations, some foreign governments and media have questioned and blamed China on the ecological environment protection and climate change, believing that the low environmental standards adopted by the host country in the "the "Belt and Road" Initiative" have caused pollution transfer; Accusing the

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<sup>5</sup> Xi (2019).

“the “Belt and Road” Initiative” to destroy habitats and endanger the safety of local ecosystems, to result in an increase in carbon emissions from infrastructure construction in countries along the “the “Belt and Road” Initiative”, to damage environment leading to immigration and other problems. Faced with the doubts, misunderstandings and even distortions of the international community, President Xi Jinping has repeatedly stressed that we should vigorously promote the construction of a green “the “Belt and Road” Initiative” and join hands with other countries to implement *the United Nations 2030 Agenda for Sustainable Development*. However, China still lacks the channels, means and effects of implementation.

Second, global environmental risks are increasing. In January 2020, the World Economic Forum released *the Global Risk Report 2020*, pointing out that the five major global risks in the future are all related to ecological environment and climate change: extreme weather events (such as floods and storms); Failure of mitigation and adaptation measures to climate change; Major natural disasters (such as earthquakes, tsunamis, volcanic eruptions, geomagnetic storms, etc.); Significant biodiversity loss and ecosystem collapse; Man-made environmental damage and disasters.<sup>6</sup> The global ecological security pressure is prominent, and there is a long way to go to repair the earth’s ecosystem. The 15th Conference of the Parties to the United Nations Convention on Biological Diversity originally scheduled to be held in October 2020, but due to the epidemic situation, it was postponed to May 17–30, 2021 in Yunnan, China, to set the development goals for the next ten years. As the host country, China should not only contribute to the positive results of the conference, but also set an example and take actions to implement the goals.

The continuous improvement of international environmental standards and the pressure of reducing carbon emissions have brought double pressure to China. The Paris Agreement set the goal of controlling global warming not to exceed 2 C and striving to achieve 1.5 C. According to the Paris Agreement and relevant conference decisions, all parties will inform or update their own contributions in 2020. In mid-December, 2019, the European Commission issued *the European Green Agreement*, which aims to curb climate change, improve resource utilization, restore biodiversity through clean energy and circular economy transformation, and finally realize the promise of “making Europe the first carbon-neutral continent in the world”.<sup>7</sup> Although the Conference of the Parties to the Climate Convention, originally scheduled to be held in Glasgow, England at the end of 2020, has been postponed to the end of 2021, all parties’ attention to improving emission reduction has not changed. Due to the increasing international requirements for emission reduction, China’s carbon emissions accounted for about 28% of the total global emissions in 2019. In addition, some countries adjust or improve the environmental standards of international trade, which has put objective pressure on China’s trade. The United States, Japan and other countries restrict China’s agricultural products export through environmental standards such as green technical standards, product certification system, health inspection and quarantine system, and weaken China’s international market

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<sup>6</sup> World Economic Forum (2020).

<sup>7</sup> Zheng (2020).

competitiveness. In February, 2018, the European Commission adopted the *Product Environmental Footprint Law* to uniformly evaluate green products, which is likely to create new green barriers for all our export products.<sup>8</sup>

Fourthly, biological safety puts forward new requirements for ecological environment protection. With the rapid advancement of urbanization and industrialization, the massive consumption of resources, the continuous popularization of biotechnology and the global climate change, the natural ecological space has been squeezed out, and the ecological environment and biodiversity have been seriously damaged because of the unprecedented speed and degree of human exploitation and utilization of natural resources. The epidemic situation of COVID-19 reminds people that biological safety not only affects the protection and restoration of endangered species and their habitats, but also relates to the strategic security of the country. After the ecological system is destroyed by human activities, viruses and germs carried by wild animals can spread to human beings across species. The indiscreet and nonstandard research and development and application of new technologies such as gene editing in biotechnology also have a serious impact on social economy, human health and national security. How to deal with biological safety scientifically and properly is an important content of ecological civilization construction in the future. SARS in China in 2002 and the major epidemic situation of COVID-19 have fully exposed the problems that need to be addressed and solved urgently, such as weak biosafety defense line, lack of awareness, absence of legal system, ineffective control and emergency anomie, which have sounded the alarm for us to ensure national biosafety and improve modern social governance system.

## 17.2 Major Strategies for Ecological Environment Protection and Climate Change Response

Facing the new situation and new challenges, China's ecological environment protection and climate change response need to balance the domestic green development and international climate governance. In the coming period, the overall strategy of China's ecological environment protection and climate change response is to take Xi Jinping's ecological civilization thought as the guide, and make overall plans to promote the improvement of environmental quality and strengthen climate control from the strategic positioning of "ecological prosperity and civilized prosperity"; Grasp the great protection, build an ecological barrier, enhance green productivity and achieve high-quality development. Therefore, it is necessary to systematically plan a series of strategic layouts of ecological civilization construction and ecological environment protection in the new era.

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<sup>8</sup> Xu et al. (2019).



### ***17.2.1 Further Understand the Theory of “Gold and Silver Mountain” in the New Era and Focus on Improving Green Productivity***

Under the new situation of slowing economic growth and uncertain international environment, we should keep the strategy of green development unshakable and strive to turn the concept of green development into practical actions. We must fully realize that ecological environment protection is not to restrict development, but to expand development opportunities and improve development quality. According to Xi Jinping’s thought of ecological civilization, “protecting the environment means protecting productive forces, and improving the environment means developing productive forces”. To improve the green competitiveness and green productivity, we need to make greater efforts to promote the green transformation, improve the construction of ecological civilization system, speed up the establishment of a green technology innovation system with enterprises as the main body, market-oriented and deep integration of production and research, speed up the construction of a green production system, develop green finance, and straighten out the relationship between the government and the market in ecological environment protection and low-carbon transformation and development.

### ***17.2.2 Thoroughly Implement the Concept of Harmonious Coexistence Between Man and Nature, Enhance the Awareness and Ability of Preventing Ecological Environmental Risks, and Ensure Ecological Security***

In 2020, Australian fire, locust plague in East Africa, COVID-19 epidemic and other natural disasters and biological “black swan” incidents occurred frequently, which constantly sounded the alarm for mankind. Man and nature are the community of life, and modernization is to realize the harmonious coexistence of man and nature, so man must respect, conform to and protect nature. Under the development paradigm of industrial civilization, the solution to environmental problems often depends on the end treatment project. However, due to the diversity and complexity of the natural ecological environment, it is difficult to fundamentally solve the problems only by means of engineering technology, which may also lead to many new problems. We should take the initiative to change the single environmental governance mode dominated by engineering technology, conform to nature, attach importance to “nature-based solutions”, systematically consider and make overall arrangements for the protection, utilization and restoration of ecosystems, especially in the fields related to biodiversity protection, mitigation and adaptation to climate change and sustainable development, and realize the harmonious coexistence between man and nature in the development.

In the long run, the natural ecosystem and human activity system constitute a complex giant system, and the ecological environment is the natural foundation for human survival and sustainable economic and social development. It is particularly important to ensure ecological security and maintain the integrity, stability and functionality of the ecosystem itself. In the world, climate emergency and biodiversity crisis have become a strategic problem,<sup>9</sup> which attracted great attention from the international community. To protect China's ecological security, first of all, we should strengthen the awareness of preventing ecological environmental risks; Secondly, it is necessary to seriously study the development trend of ecological and environmental risks such as glacier melting, snow line retreat, sea level rise, habitat degradation of endangered species and extreme weather events on the Qinghai-Tibet Plateau, and improve the ability to prevent and resolve risks; Finally, ecological security should ensure biological security and protect human health and life. The international biosecurity situation is changing from a moderate and controllable state to a relatively severe state. Biological threats have changed from occasional risks to persistent threats, the source of threats has changed from single to diversified, the boundary of threats has changed from being limited to a few regions to multi-regions or even globalization, and the scope of sudden biological events has expanded from public health to national security and strategic interests. Biological safety is not only the protection of endangered species, but also the protection and respect of human beings.

### ***17.2.3 Achieve High-Quality Economic Development, Improve the Quality of Air and Soil Environment, and Achieve the Peak of Carbon Emissions***

Economic development needs energy to provide power, and fossil energy combustion is the main source of air pollutants and carbon dioxide emissions. The zero-carbon strategy, such as renewable energy, new zero-carbon technologies and pure electric vehicles, is not only the new kinetic energy to promote high-quality economic development, but also the driving force to comprehensively improve environmental quality and achieve zero-carbon transformation. China's commitment to achieve the peak of carbon emissions by 2030 and the requirements of domestic pollution control and high-quality development mean that we should strive to achieve the peak of carbon emissions around 2025. We should take the Paris Agreement's net zero emission after 2050 as a long-term goal, realize low-carbon transformation, promote development and control pollution.

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<sup>9</sup> "Climate emergency" refers to the situation that requires urgent action to reduce or stop climate change and avoid potential environmental damage. In November, 2019, the European Parliament passed a resolution by an overwhelming vote, declaring the European Union to enter a "climate emergency". Europe was the first continent in the world to declare a climate emergency.

In practice, we should also consider the characteristics of different regions, and study and formulate differentiated targets for improving environmental quality and energy conservation and emission reduction. Because water, soil and air pollution are interrelated, after tackling pollution prevention and improving overall energy efficiency, we have turned to comprehensively improving environmental quality and carbon emissions.

#### ***17.2.4 The Advantages of Ecological Civilization System and Improvement of the Ability and Level of Ecological Environment Management***

The harmonious coexistence between man and nature is the core of ecological civilization system, and the basic socialist economic system is the foundation of ecological civilization system. Harmony between man and nature requires coexistence, sharing and common prosperity between man and other members of the life community. The investment, management and operation of environmental protection and low-carbon development should fully implement the new development concept, give full play to the decisive role of the market in resource allocation, and better play the role of the government.

Socialist democracy and the rule of law are the fundamental guarantee of the ecological civilization governance system. In the process of protecting the ecological environment and coping with climate change, it is necessary to protect the legitimate rights and interests of enterprises, safeguard the environmental rights and interests of citizens, and strengthen the concept of the rule of law. Laws must be observed, violators must be prosecuted, and law enforcement must be strict. It is necessary to build an ecological barrier with the thinking and mode of rule of law to ensure high-quality development. The governance of modern ecological civilization requires multi-party co-governance and clarification of the rights and responsibilities of all subjects. Party leaders, government-led, enterprise subjects, social organizations and the public should participate together, face the problems directly, standardize their behaviors and work together to govern. In the modern ecological civilization governance system, the public is both the service object and the main body of responsibility, which raises interest appeal of the public and assumes the responsibility of environmental governance, improves the channels of participation, and shows the vitality and level of modern governance.

### ***17.2.5 Focus on the Implementation of the “Green Mountain Defense War” in Rural Areas, and Realize the Overall Improvement of Urban and Rural Ecological Environment Quality***

For a long time, the focus of China’s environmental protection has been on the prevention and control of industrial point source pollution and urban domestic sewage and garbage pollution, with relatively little attention paid to rural eco-environmental protection and insufficient investment. At present, some places in rural areas are surrounded by garbage and sewage, the ecological environment is worrying, the pollution of agricultural products is frequent, and the food safety problem is serious. Rural residents’ weak awareness of ecological environmental protection, serious shortage of rural environmental protection infrastructure, backward technical level, lack of environmental governance mechanism, and non-point source pollution of agricultural production and domestic pollution are all serious challenges faced by rural environmental governance.<sup>10</sup> While realizing the overall improvement of ecological environment governance and continuing to improve urban environment governance, we must strengthen the rural ecological environment governance from a strategic height, and do a good job in the rural “green hills and blue waters defense war”. Wide rural areas, large-scale agriculture, large number of farmers, energy conservation and low carbon to prevent climate risks are the strategic support and key points to win the “Green Mountain Defense War” in rural areas. Under the background of the integration of urban and rural development, we should strengthen the protection and management of rural ecological environment, comprehensively upgrade the green hills and blue waters ecosystem in rural areas, and improve the ecological function and quality of green products and services.

### ***17.2.6 Sixth, Comprehensively Promote Lifestyle Changes, Advocate and Upgrade Green Consumption***

In order to realize the transformation of green development, we must not only transform the mode of production, but also change the lifestyle, advocate and upgrade green consumption. Over the past 40 years of reform and opening-up, the scale of China’s consumer market has continued to expand, and the consumption structure has been continuously transformed and upgraded, from seeking only survival and food and clothing to housing, transportation, education, environmental protection and comfort.<sup>11</sup> With the continuous growth of consumer demand, consumption habits such as excessive consumption, extravagance and waste, and even hunting and eating wild animals are very common. Green consumption requires consumer

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<sup>10</sup> Dong (2019a).

<sup>11</sup> Yang et al. 2019.

products and services to meet the conditions of resource conservation, environmental friendliness, ecological and climate safety, etc. It not only requires green and low-carbon recycling of agricultural products, industrial products and service products in the traditional sense, but also requires more high-quality ecological products such as fresh air, clean water and comfortable environment. With the increasing awareness of green consumption in China, the future development space and potential of green consumption are huge. The COVID-19 epidemic crisis is a profound lesson, which can promote the green consumption lifestyle and guide the quality, efficiency and power changes of economic development.

### ***17.2.7 Promote the Construction of Ecological Civilization in the River Basins, Regional Cooperative Protection, and Realize High-Quality Development and Green Prosperity***

River basin is the cradle and center of human civilization. Only the Yangtze River and Yellow River basins in China carry about 70% of the population and more than 70% of the GDP. River basin is the most important strategic water source, treasure house of biodiversity and ecological security barrier area in China. The high-quality development of economic and social environment in river basin will determine the process and sustainability of high-quality development in China. Emphasizing the harmonious coexistence between man and nature and attaching importance to the solution based on nature objectively requires upgrading, integrating and strengthening the ecological civilization construction strategy of the river basin.

The upper, middle and lower reaches of the great river have great differences in topography, resource endowment and economic and social development level, resulting in prominent structural contradictions in some regions.<sup>12</sup> For example, China's Yangtze River and Yellow River Basin, where the upstream ecology is fragile and the development level is relatively backward, is also the ecological security barrier of the whole basin and even the whole country. The development of the middle and lower reaches needs the upstream high-quality ecological products and services. Therefore, it needs the unified management of the whole basin for the great protection. High-quality development must also be coordinated by the whole basin. Only through multi-party co-construction and win-win can we achieve green prosperity.

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<sup>12</sup> Ma (2018b).

### ***17.2.8 Hold High the Banner of Global Sustainable Development, and Enhance Our Ability and Level to Participate in and Lead Global Environmental Governance***

The COVID-19 epidemic is not only a great test for the public health systems of various countries, but also promotes the reform of the global governance system and mechanism and strengthens the Community of Shared Future for Mankind concept. China has more space on the big stage of global environmental governance, and it must also undertake more international obligations.

First, improve the relevant mechanisms for implementing the United Nations 2030 Agenda for Sustainable Development. China will build a well-off society in an all-round way in 2020, and take the lead in achieving the United Nations goal of eradicating absolute poverty ten years ahead of schedule among developing countries. The vision of people-oriented, prosperity, environment, and peaceful and win-win cooperation in the *2030 Agenda for Sustainable Development* is highly consistent with Xi Jinping's ecological civilization thought, and it is necessary to improve the relevant mechanisms for implementing the *2030 Agenda* at the strategic level. Internally, we should establish a mechanism conducive to the participation of industry, local governments and non-governmental organizations, and create new economic growth points and employment opportunities in realizing the agenda. Externally, actively carry out international cooperation and assistance under the principle of "doing what we can and mutual benefit", and make China's contribution to the realization of this agenda for other developing countries,<sup>13</sup> and enhance the international discourse power of ecological civilization.

Secondly, promote the overall docking between the green development of "the Belt and Road" Initiative" and the United Nations 2030 Agenda for Sustainable Development. In the overall docking, the green development of "the Belt and Road" Initiative" is the link, and the green "the Belt and Road" Initiative" focuses on sustainable development and the future<sup>14</sup>; the goal of sustainable development in 2030 is a global political consensus with the connotation of ecological civilization construction. All-round connection between the two is conducive to gather the forces of all parties and realizing the mutual promotion of the green development and sustainable development goals of "the Belt and Road" Initiative". This comprehensive docking is embodied in three aspects: conceptual docking and political consensus; Domain docking and comprehensively evaluate the impact of the construction of "the Belt and Road" Initiative" on the target, and promote synergy; Policy docking should strengthen communication and exchange with countries along the "the Belt and Road" Initiative" on green development, including cooperative research and exchange training in the fields of ecological environment protection

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<sup>13</sup> Sun (2016).

<sup>14</sup> Lan et al. (2020).

and climate change response, and promote the coordination of relevant policies in all aspects of project construction and operation.

Thirdly, to actively fulfill the obligations of the Paris Agreement, we should play a leading role in international climate governance. Climate change is the most serious challenge facing mankind. Because of the emission of greenhouse gases, the mitigation of climate change must be achieved through international cooperation.<sup>15</sup> In the Paris Agreement, China's independent contribution goal is to reach the peak of carbon emissions by 2030. Although China's total energy consumption increased during the 13th Five-Year Plan period, it did not break through the peak of coal consumption in 2013. At present, China's installed capacity and power generation of wind power generation, photovoltaic power generation and hydropower generation are leading the world, and forest carbon sinks (carbon reserves in forests) are constantly increasing. Compared with many countries' goal of achieving zero carbon emissions in 2050, China's goal of achieving the peak of carbon emissions around 2025 is active and not radical. China should take international climate governance as the focus of international environmental governance, strengthen international cooperation, enhance China's ability and level to participate in international governance, and actively promote the construction of a more fair and reasonable international governance system.

Finally, actively promote the process of global biodiversity conservation and fulfill relevant obligations. China was originally scheduled to host the 15th Conference of the Parties to the United Nations Convention on Biological Diversity in Kunming, Yunnan Province in September 2020, because the epidemic was postponed to May 2021, which demonstrated China's determination to promote the global biodiversity protection process, completely ban illegal wildlife trade, get rid of the bad habit of eating wild animals excessively, and effectively protect people's lives, health and safety. China should lead countries to formulate biodiversity conservation goals and action plans for 2030 under the framework of the United Nations, and put forward medium-and long-term goals and actions for biodiversity conservation.

### **17.3 Policy Suggestions for Promoting Ecological Environment Protection and Responding to Climate Change**

The report of the 19th National Congress of the Communist Party of China established the goal of ecological civilization construction in the new era and the overall goal of the medium-and long-term ecological environment protection and climate change strategy, which is to lay a solid foundation for the basic realization of socialist modernization in 2035, realize the overall and fundamental improvement of China's ecological environment, fully reach the advanced level of global ecological protection environment quality, and effectively prevent climate risks. China strives to achieve the

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<sup>15</sup> Gao (2016).

peak of carbon emissions in 2025, and make contributions to leading global climate governance. In order to implement the overall strategy and achieve the overall goal, it is necessary to build and fully start the necessary policy support system and promote the concrete implementation of the pillar strategy.

### ***17.3.1 An Economic Policy System to Strengthen Ecological Environmental Protection***

In order to adapt to the construction of ecological civilization in the new era, it is necessary to perfect the financial system reform of ecological environment, deepen the innovation of environmental and economic policies, explore and establish the policy mechanism to realize the transformation of “Golden and Silver Mountain”, and establish a diversified and market-oriented ecological compensation system.

First, improve the financial policy of ecological environment and give full play to the incentive and guiding role of financial resources. Further promote the reform of the financial system and mechanism of ecological environment that matches the central and local financial rights and administrative rights; Establish a mechanism for the allocation of financial funds according to the performance of ecological environment quality improvement, and increase financial payments to areas where the improvement of ecological environment quality in water, atmosphere, soil, ecological functional areas and the restoration and protection of ecosystems have achieved remarkable results<sup>16</sup>; Guide financial funds to promote the structural adjustment of green development; We will gradually adjust the subsidy policy from focusing on production to focusing on consumption, and guide green consumption.

Second, explore the mechanism, conditions and paths to realize the value of ecological products. Green hills and blue waters are the necessary material basis for the survival and development of human society, the source of economic value and the fundamental material guarantee. To realize the transformation from “Green hills and blue waters” to “golden mountains and silver mountains”, we need not only a good ecological environment foundation, but also the mutual cooperation among material capital, human capital and social capital. We should respect the laws of economy, ecology and social development. We should not only give play to the decisive role of the market mechanism in the process of resource allocation, but also give better play to the role of the government to ensure the supply of high-quality ecological products so that the people can enjoy a good environment.

Third, establish a diversified and market-oriented ecological compensation mechanism. For national nature reserves, financial resources should be invested to protect the ecology, and a comprehensive ecological compensation policy system of ecological protection cost, development opportunity cost and ecological service value should be established to implement ecological protection. For the construction of ecological compensation mechanism of upstream and downstream river basins

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<sup>16</sup> Dong et al. (2020b).



across administrative regions, it is necessary to explore the withdrawal mechanism of central financial funds and encourage the ecological compensation mechanism between upstream and downstream river basins and between different main functional areas; Construct the ecological compensation fund of the Yangtze River Economic Belt, and form a sustainable investment and financing mechanism of ecological compensation led by the government, with the participation of enterprises and all sectors of society, market-oriented operation; Promote market-oriented and diversified ecological compensation; Promote ecological property rights transactions such as emission rights, energy use rights, carbon emission rights, water rights and forest rights; Improve the ecological environment accounting and ecological compensation technology, and establish the price formation mechanism of ecological products.

### ***17.3.2 Upgrade the Policy of Stimulating Green Consumption and Guide the Green Transformation of Economy and Society***

Consumption has always been the “ballast stone” of China’s economy, and stimulating consumption is one of the key points to restore the post-epidemic economy. Both at home and abroad we should regard stimulating green consumption as the core of economic recovery. China needs to strengthen the standardization system of green products and services, focus on the classification and disposal of household garbage, and gradually establish a citizen ecological credit system.

First, strengthen the construction of green product and service standard system. Establish a unified catalogue, classification, field evaluation, standard setting and unified identification of green products. Determine the green attributes of green products, such as environmental protection, energy saving, water saving, recycling, low carbon, regeneration and organic. Regularly update the national catalogue of green products and services, the leading indicators of green products and services and related technical standards. Strict market access, strengthen the implementation, acceptance and support of the identification and certification system of green product, so that consumers can use green products and services with confidence.

Second, comprehensively consider garbage classification and disposal. The construction of a “waste-free city” will be an important way for the sustainable development of cities in the future. In the policy design and implementation, it is necessary not only to reduce garbage at the source, but also to realize garbage recycling and reuse at the end. The source of domestic garbage is residents’ consumption, so residents are also the responsible subject and source of building a waste-free society. Deepen the classified disposal of garbage, try to turn it into reusable resources, build a “waste-free city” and a “waste-free village” in an all-round way, and realize a “waste-free society”. Through legislation, community guidance and improving social cognition, we can create a good “waste-free” social atmosphere.

For the disposal of garbage in different places, it is necessary to pay the garbage disposal fee according to the regulations, and also pay the ecological compensation fee to the garbage disposal place according to certain standards.

Third, gradually establish a national ecological credit system. Citizens' green, ecological and environment-friendly behavior patterns and responsibility are the basic contents of citizens' literacy and national social credit. With the help of intelligent technology, garbage sorting, water-saving and low-carbon life will be incorporated into the Internet residents' personal credit information system, and residents will be encouraged to form a green, ecological and environment-friendly lifestyle. By establishing and improving the ecological credit level of individual citizens, the harmonious coexistence between man and nature in the whole society will be realized.

### ***17.3.3 Clarify the Zero Carbon-Oriented Policy and Lead the Global Climate Governance***

After the United States withdrew from the Paris Agreement, China and the European Union became the backbone of global emission reduction targets. The EU has clearly put forward the goal of zero carbon emission of greenhouse gases by 2050, which brings pressure and motivation for China to lead global climate governance.

First, define the long-term low-emission development strategy of greenhouse gases as soon as possible. China's industrialization and urbanization will still increase its carbon emissions, but it is expected to reach the peak of carbon emissions around 2025. We should make clear to face the development strategy of low emission by 2050 and the goal of zero carbon emission. Focusing on land, energy, industry, construction, transportation and other fields and cities, we will establish a total carbon emission management system from "intensity target-led" to "peak target-led", implement deep emission reduction, and achieve the peak target as soon as possible. Vigorously promote the utilization of renewable energy, give full play to the carbon fixation function of forests and ecosystems, and support and encourage the construction of zero-carbon villages and towns and carbon-neutral cities in a batch of zero-carbon energy-rich areas.

Second, increase investment in climate risk prevention and improve the response level. China is one of the sensitive areas of climate change and is significantly affected by climate. The overall impact of climate change on China will do more harm than good, which may trigger serious energy security, economic security and biological security problems. In the medium and long-term planning, we should set up demonstration projects for disaster prevention and mitigation, popularize climate risk prevention technology, establish risk early warning mechanism for extreme climate change, bring climate change factors into the agenda of social and economic policy decision-making, and improve the climate change risk management system.

Third, actively establish a new pattern for managing international climate change. China's ecological civilization construction and low-carbon transformation are not

only positive contributions to the governance of global climate change, but it also has guiding significance in concept and technology. Give full play to existing advantages and actively participate in the construction of global climate governance system; Implement the independent contribution target of the Paris Agreement, demonstrate low-carbon development achievements, and consolidate international influence through climate cooperation among developing countries. Actively interact with the international community and explore a new leadership pattern with Chinese characteristics that is open, inclusive, equal and mutually beneficial.<sup>17</sup> We should show China's positive actions and responsibilities in dealing with climate change, form practical plans, extensively participate in governance, and achieve mutually beneficial and win-win results in climate governance, so as to jointly safeguard global ecological security.

Forth, implement the “nature-based solution” to protect ecology. Implement the “nature-based solution” for the protection, development and restoration of the land, and prepare the *Special Plan for Biodiversity Protection* for important nature reserves such as Sanjiangyuan National Park, Giant Panda National Park and Northeast Tiger and Leopard National Park; In view of the important ecological wet areas such as Dongtan Wetland in Chongming, Zoige Wetland in Sichuan and Yellow River Delta, the *Special Plan for Wetland Protection and Restoration* and the *Special Plan for Biodiversity Protection* are compiled to strengthen the restoration of wetland ecosystem; Strengthen the application of “nature-based solutions” in the construction of human settlements, promote the construction of sponge cities and green infrastructure, strengthen the integration of artificial environment and natural environment, explore the natural ecological endowments of cities such as climate, topography, water and soil vegetation, and build landscape garden cities and park cities to make cities more natural.

#### **17.3.4 Strengthen the Policy Support of “Green Mountain Defense War” in Rural Areas**

To implement the strategy of rural revitalization, we must do a good job in protecting rural ecological environment. The protection of rural ecological environment is arduous and complicated task, which requires the joint efforts of the government, enterprises, individuals and social organizations. It is necessary to speed up the construction of the rural ecological environment protection system and strengthen the policy support for the “green hills and blue waters defending war” in rural areas.

First, integration of urban and rural management system. Under the background of the integration of urban and rural development, we should formulate policies related to the integration strategy of urban and rural ecological environment protection and governance. The policy design of integration of urban and rural areas does not require urban and rural areas to adopt the same governance mechanism and means, but to

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<sup>17</sup> Zhuang et al. (2018b).

promote urban and rural ecological environment protection and governance under the background of urban–rural integration and development.

Second, integration of urban and rural public services. Equalization of urban and rural public services is an important development goal and policy guidance direction in China. The outstanding problem faced by rural ecological environment protection and governance is the lack of funds. The policy focus of ecological protection and climate change response should be tilted to rural areas, so as to realize the balance of resource input and improve the level of rural ecological environment services.

Third, differentiation of prevention and control measures. Because of the wide area of rural ecological environment protection, scattered pollution and difficult supervision in China, it is impossible to completely replicate the centralized industrialization scheme of cities, and differentiated prevention and control measures should be adopted. In areas with concentrated population and high density, especially in rural areas on the outskirts of the city, it is appropriate to adopt urban centralized governance mode, while in areas with small population and low density, it is appropriate to adopt distributed and decentralized prevention and control mode.

Forth, zero-carbon villages and towns construction pilot. Compared with cities, rural areas have low population density, vast space and abundant wind energy, solar energy and biomass energy resources. Under the condition that the cost of wind power and photovoltaic power generation is equal to the coal electricity price, zero-carbon energy will be developed by using residential roofs or water areas and barren slopes, and pure electric vehicles will be popularized. Zero-carbon villages and towns will be built in different natural conditions on a pilot basis, which will explore and accumulate experience for reaching peak value of carbon emissions in the recent year and the future development of net zero-carbon in China.

Fifth, popularization of supervision work. Most villages lack full-time environmental supervisors, so it is difficult to protect rural ecological environment and realize low carbon emission. Strengthen rural residents' awareness of ecological environment, provide institutional guarantee for rural residents' extensive participation in ecological environment protection and governance, and ensure that rural residents become participants, contributors, supervisors and managers of the "Green Hills and Blue Waters Defending War" in rural areas.

### ***17.3.5 Regional Policies for Ecological Environment Protection in the Key Functional Areas***

Regional environmental governance should aim at maintaining environmental functions, ensuring public health, and improving the quality of ecological environment, build an environmental policy support system in the main functional areas, give full play to the guiding role of ecological environmental policies, coordinate the integrated governance of mountains, rivers, forests, paddy fields, lakes, and grasslands, fight the battle against blue sky, clear water, pure land, and green hills, and strive to

promote high-quality economic development and high-level protection of ecological environment.

First, highlight and deepen the linkage mechanism of pollution prevention and control in key areas. The prevention and control of pollution in key areas requires strict control of the total coal consumption, establishment of a long-term mechanism for ecological compensation of water resources across river basins, formulation and implementation of unified environmental protection standards, sewage charging policies and energy consumption policies, and formulation of medium-and long-term plans for joint prevention and control of pollution, so as to ensure that the ecological environment of key areas will be fundamentally improved by 2025; we should promote the reform of the ecological environment management system, and build a forecast and early warning platform for atmospheric environment quality, a water quality monitoring and early warning platform, an ecological protection monitoring platform, and an ecological environment big data platform in key areas.

Second, strengthen the modern ecological environment management system in key areas. The ecological environment control work in the key areas should shift from total pollutant control to emission reduction for the improvement of ecological environment quality; determine the main responsibility of environmental governance, and shift from focusing on supervising enterprises to supervising party committees, governments and relevant departments, with equal emphasis on “supervising government” and “supervising enterprises”; shift from the system of environmental impact assessment to the system of environmental impact assessment and pollutant discharge permit.

Third, the nature reserves are mainly constructed as national parks. National parks and other nature reserves, important wetlands, important drinking water source protection areas, natural heritage sites and other protected areas should clarify the relationship between ownership of natural resources and administrative management authority, and carry out functional reorganization, optimization and combination, and coordinated and unified management according to the requirements of unified management of landscape, forest, field, lake and grass systems; grasp the relationship between farmers and herdsmen getting rid of poverty and getting rich and the ecological construction of national parks, establish the public welfare post mechanism for ecological management and protection, and promote the harmonious development between man and nature.

Fourth, systematically promote the ecological protection and green development of the Yangtze River Economic Belt and the Yellow River Basin. According to the strategic requirements of ecological civilization construction in the river basin, it is necessary to break the traditional concept of delimiting the scope and sticking to one side and implement overall planning and systematic management of water resources protection, water pollution prevention and control, and water ecological restoration in whole river basin. Through innovation and reform and opening-up, relying on key areas such as the Yangtze River Delta urban agglomeration, the middle reaches of the Yangtze River urban agglomeration, Chengdu-Chongqing Shuangcheng Economic Circle, etc., we will improve the productivity of ecological products in the basin and solve the relationship between development and protection. Make overall plans for

land development, water resources utilization, environmental improvement, industrial layout, urban development and new rural construction in the Yellow River Basin, strengthen coordination, and comprehensively plan the blueprint for the green development of the Yellow River Basin to promote the high-quality development of the Yellow River Basin.

Fifth, deepen the overall planning of land and sea and international cooperation on ecological environment of river basins in international rivers. Relying on the great rivers, we should strengthen the overall planning of land and sea, and strengthen the synergistic effect of ecological environment protection and climate change response policies. We should deepen the opening to the east, accelerate the opening to the west, and expand the opening along the border. Strengthen cooperation with international parties in ecological environment protection, water resources development and utilization, biodiversity protection of international rivers such as Nujiang River, Lancang River, Yarlung Zangbo River, Irtysh River and Heilongjiang River, and better promote the construction of green “the ‘Belt and Road’ Initiative”.

### ***17.3.6 Improve the Rule of Law Policy System and Improve the Efficiency of Ecological Civilization Governance***

Dealing with climate change and protecting ecological environment concerns every member of the whole society. Actively promote the implementation of environmental information disclosure, public participation and other systems, actively guide the public to participate in decision-making, and actively play the role of social supervision. Improve the prevention and control policy system and improve the governance efficiency.

First, strictly abide by the three red lines of ecological protection, the bottom line of environmental quality and the upper limit of resource utilization, establish an evaluation, monitoring and early warning mechanism for regional ecological environment, and implement a strict system of compensation for ecological environmental damage and lifelong accountability for ecological environmental damage. Promote the construction of regulatory system and capacity guarantee system, and promote the implementation of regulatory reform.

Second, the implementation of ecological environment protection and actions to deal with climate change, giving full play to the functions and roles of the government, enterprises, social organizations and the public, and strictly regulating the rule of law in information sharing, action coordination and rights protection. Improve the “storm-style” law enforcement, better legalize and normalize, and strengthen the authority of the rule of law in ecological environment.

Third, the indicators of resource consumption, environmental damage, ecological benefits, energy conservation and emission reduction, zero carbon emissions and other indicators that reflect the status of ecological civilization construction should be incorporated into the evaluation system of economic and social development, and

economic, market and legal means should be comprehensively applied to comprehensively improve the governance capacity and level of protecting the ecological environment and coping with climate change.

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