



**China Council for International Cooperation on  
Environment and Development (CCICED)  
Study Report**

**Special Policy Study on Green  
Transition and Sustainable Social  
Governance**

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# **China Council for International Cooperation on Environment and Development**

## **Key Findings and Conclusions**

1. Since China's Reform and Opening-up was initiated 40 years ago, leading to economic and social development, dramatic changes have taken place in both urban and rural residential consumption. This is visible in terms of the volume of consumption and its structure and patterns. Unprecedented features have revealed themselves, including: (1) the volume of consumption continues to expand rapidly, with huge space for further growth of residential consumption; (2) the consumption structure is shifting from being subsistence-based to consumption beyond basic needs (a well-off model), with an increasingly diversified consumption pattern; and (3) consumption has contributed a soaring share to economic growth and become an important engine for economic development. At the same time, consumption activities have posted growing pressures on resources and the environment; consumption demand for resources and energy continues to grow steadfastly; irrationally excessive and wasteful consumption patterns have exacerbated resource and environmental problems; and consumption has become one of the major sources of environmental pollution and greenhouse gas emissions.

2. Consumption has become an obstacle and restrictive factor for China in its efforts to promote its overall green transition. Since 2004, the extent of green transition in China has progressed year by year. The green transition in both the production and consumption sectors has continued to progress upwardly through 2008. However, the trend curve has gradually flattened and shown fluctuations since 2008. In general, the green transition in the production sector has shown continuous improvement, and played a positive supporting role in boosting a comprehensive green transition. On the contrary, the green transition in the consumption sector has exhibited an obvious downward trend since 2008 and the abatement in the consumption sector exceeded the improvements made in the production sector in 2011. It can be said that the improvements in efficiency gained by the green transition in the production sector failed to offset the negative impacts on resources and environment caused by the expansion in the amounts being consumed. Consumption now restrains overall continued progress towards a green transition. Making substantial progress towards a green transition in the consumption field will play a decisive role in the implementation of the overall green transition and in realization of high-quality

development in China.

3. Green consumption can promote the green transition through multiple transmission mechanisms. The greening of consumption will lead and enforce the greening of production. The adoption of green concepts and measures will lead to changes in consumption volume, pattern, structure, quality, and preferences, and these in turn will inevitably be transmitted to the production field. This will affect the allocation of factor resources and lead to improvements in production pattern, adjustments in product structures and promotion of product quality. Green consumption is core to fostering a green lifestyle and can effectively push behavioral changes in the general public. Green consumption activities can convey and communicate green concepts and requirements into all aspects of public life, and guide and motivate the public to actively practice green concepts and requirements. In this way it can contribute to cultivating green lifestyles nationwide, and improve the governance system of the green social transition.

4. Green consumption can become a new driving force for the green transition. The demand for green consumption and a green market in China continues to expand, with constant upgrading in the quality of residential consumption, a growing variety of green consumer goods and services, continuous escalation in the number and size of green consumer groups, and an ever-rising willingness for green consumption. The green transition and upgrading of consumption can lead to innovation efforts in supplying green eco-labelled products and services and those making use of eco-labels; and the supply of green products and services and those with eco-labels can create new green consumption demand. Such benign interactive cycles between green production and consumption and green supply and demand can serve as a new driving force for boosting economic prosperity by facilitating green growth in the economy, adding new employment channels and platforms, and promoting the structural reform on the supply side. They can also serve as the endogenous conditions necessary for improving eco-environmental quality by drastically reducing resource consumption and environmental degradation, and in this way creating a win-win scenario for the environment and economy.

5. Green consumption is conducive to accelerating the modernization of the eco-environmental governance system. The set-up of institutional mechanisms to guide and prioritize the green consumption model can be very beneficial. First, they can expand the eco-environmental governance system from the production field to the consumption field, thus widening the coverage of eco-environment governance and adding new incentives and voluntary leadership in this area. They are conducive to

building an institutional system featuring equal emphasis on both incentives and constraints. Second, as consumption is a basic behavior choice made by the public, green consumption can enable the public to truly participate in the environmental governance process. Consequently, people's green consumption behaviors and their choice of green products and products with eco-labelled products can catalyze enterprises to improve environmental performance and increase green and eco-labelled products and green production supply. This is a practical way to spontaneously involve public participation in eco-environmental protection. Third, a green transition at the consumption end can be transmitted into production processes through the creation of a green supply chain, in which enterprises with leading green performance in the industrial chain can help manage enterprises that are not so green ("green-backward" enterprises). This can help blaze new ways of eco-environmental governance and improve the related system.

6. Such factors as residents' views on consumption, income level, consumption preferences, public policies, supply quality and the price level of green and eco-labelled products are crucial to promoting green consumption. Strengthening consumers' familiarity with green consumption and enhancing environmental awareness and environmental knowledge can effectively improve their ability to recognize the value of green products and services, and indirectly affect their green consumption behavior. Public policies mainly affect consumers' individual cognition of the environment and green consumption, and ultimately affect their attitudes towards green purchasing, green products use and waste disposal. The supply price level of green and eco-labelled products will affect the level and popularity of green consumption. It is also necessary to regulate the green consumer goods market and ensure the quality of products and services, so as to form a virtuous circle between green supply and green consumption. Technological progress has an important impact on residents' green consumption level.

7. By and large, China's green consumption policies pertinent to clothing, food, housing and transportation have achieved positive results, yet there is still room for improving the implementation of some green consumption policies. In terms of policy frameworks and practices, there are a number of green consumption policies but they are fragmented and have not been integrated into a systematic and effective policy framework. Specific observations can be made: (1) There is a lack of systematic planning and top-level design. Most green consumption policies are conceptual, guiding and voluntary in nature, with incomplete categories, limited policy impacts and enforcement efficacy, and insufficient operability. (2) In relation to green consumption policies, the most emphasis is placed on resource and energy

conservation; less attention is given to eco-environmental protection. There are insufficient economic incentives in these policies, leading to limited regulation effectiveness. (3) Government functions and responsibilities related to green consumption are scattered in different agencies. The role of environmental authorities needs to be strengthened. The fragmentation of policies and management is quite prominent. If no systematic design and integration of related policies occurs, the environmental and economic effects of green consumption will be greatly weakened.

8. The timing and conditions are right for incorporating green consumption into the national 14<sup>th</sup> Five-Year Plan. China has a window of opportunity to promote a green transition in consumption, marked by the following features: (1) consumption is undergoing a comprehensive transition and upgrading, leading China from a subsistence-based model of consumption to consumption patterns of a well-off society; (2) residents' consumption patterns are changing significantly and willingness to engage in green consumption is growing; and (3) consumption is playing an ever-growing role in stimulating the economy. It is a critical moment in which new consumption habits and models in society can be formed. China exhibits a strong political will in support of a green consumption transition. Chinese President Xi Jinping articulated the necessity of promoting a green development pattern and green lifestyles in May of 2017. The Chinese government has provided powerful guidance for how to take action for the enhancement of green lifestyle and green consumption. China's activities promoting a green transition of consumption are propelled by an increasingly mature social foundation and good practices. The general public has witnessed a dramatic rise in environmental awareness as well as awareness of the possibilities of participation and the safeguarding of environmental rights. They show an ever-increasing desire for and expectation that they will be able to enjoy a sound-quality life. Together this constitutes the social foundation for pushing forward green consumption. Meanwhile, China has built some effective policy and practices which serve as a foundation for green consumption. There are also many inspiring practices from the international community to take as reference. It is of great importance for China's overall high-quality development and ecological civilization construction that this precious window of opportunity be seized. It is a critical period for giving timely guidance which can accelerate the formation of resource-efficient and environment-friendly consumption patterns and lifestyles.

## Key Policy Recommendations

Based on the national strategy aimed at accelerating the formation of green production and green lifestyles and strengthening the modernization of the eco-environmental governance system, three main policy recommendations are proposed:

**1. Identify the strategic positioning of promoting green consumption.** (1) Attach great importance to, and make full use of, the current historical opportunity to forward the green consumption transition. (2) Turn green consumption into a pillar to support people's growing demand for a better quality life and as a new growth pole to drive high-quality development. (3) Treat green consumption as a key component of, and a means to facilitate transition in the economic and social systems and push forward a green structural reform on the supply side. (4) Turn green consumption into a key instrument to promote eco-civilization development and the modernization of environmental governance system. (5) Put green consumption high on the government's policy agenda for green development.

**2. Attach great importance to green consumption and integrate it into the national 14<sup>th</sup> Five-Year Plan as a key task for green development and ecological civilization construction, and develop a national strategy or action plan dedicated to promoting green consumption.** China currently has a window of opportunity to promote a green consumption transition as people's willingness to change their consumption patterns is significant, and green consumption can play a major role in driving the economy. There has been an impressive rise in people's awareness of environmental protection, public participation and safeguarding environmental rights. There have been continuously growing demands for and expectations that it will be possible to enjoy a good-quality life. All of these factors constitute the social foundations necessary for pushing forward green consumption. Therefore, China's 14<sup>th</sup> Five-Year Plan should call for steps to be taken to achieve green consumption patterns and green lifestyles as these are an important component for promoting green development and ecological civilization construction. It should further clarify corresponding objectives, tasks, as well as appraisal and evaluation indicators. In addition, drawing on related international experiences such as those from Germany and Sweden, China should research and then develop its own specific national strategy or action plan for propelling green consumption and green lifestyles



in order to address the problems associated with currently fragmented and ineffective policies and practices. Systematic arrangements should be made to identify objectives, tasks, institutions, policy mechanism innovations, evaluation methodologies and indicators, etc. so as to enhance the integrity and effectiveness of efforts to boost green consumption.

### **3. Highlight priorities for improving and enhancing innovate institutions, policies and actions for promoting green consumption**

**(1) Efforts should be made to clearly identify key areas for promoting green consumption.** Guided by the goal of improving environmental quality, the key areas pursued to promote green consumption should be those fields that are closely linked with resource and energy conservation and environmental quality improvement goals, including the supply of green products and products identified with eco-labels, waste separation and recycling, development of public transportation facilities, energy-saving and environment-friendly buildings, and related technological innovations.

**(2) The supply of green products and services and products with eco-labelled products should be expanded.** It is recommended to strengthen the certification and standard systems for green and eco-labelled products eco-labelled products and services. Priority should be given to revising the Government Procurement Law to increase the intensity and scope of green public procurement and promote mandatory green public procurement. It is also important to liberalize market access for green and eco-labelled products and services, encourage all types of capital to invest in green industries, and use the “Internet plus” initiative to promote green consumption.

**(3) Intensified efforts are needed to further promote the development of a circular economy.** Specific actions include: promoting the implementation of an extended producer responsibility system; building green supply chains for enterprises and society; and, extending the resource and environmental responsibilities of producers for their products from the production section to the entire life cycle to cover product design, circulation, consumption, recycling, and waste disposal, so as to promote green production and consumption through life cycle management.

**(4) It is proposed to launch a nationwide green consumption and new lifestyle campaign.** Take advantage of the positive image power of stars and celebrities to demonstrate green consumption and make green consumption into a social fashion. At the same time, integrate the concept of green consumption into relevant education and

training activities, include it in the basic requirements and assessment indicators for government activities, and incorporate it into all kinds of thematic publicity and education activities.

**(5) A social governance system and the corresponding mechanisms for green consumption should be established which are to be built, governed, and shared by all.** It is recommended to clarify the role of relevant government departments in promoting green consumption, strengthen the role of consumer associations in promoting green consumption, encourage enterprises to assume more environmental and social responsibilities, and set up the carrot and stick approach to encourage green consumption by the public.

**(6) It is necessary to improve and strengthen market and economic incentive policies to promote green consumption.** With the guidance of regulatory constraints, focus should be placed on establishing an economic incentive and market-driven system from the aspects of price, finances and taxation, credits and loans, government supervision and market credit, so as to guide the supply of green and eco-labelled products and encourage green choices in residential consumption. Incentives can also be oriented toward enabling sustainable lifestyles beyond purchasing choices and enabling green lifestyles.

**(7) It is important to strengthen infrastructure and capacity building for green consumption.** Suggested actions include: establish a sound statistical indicator system for green consumption; set up a nationally unified information platform for green consumption; strengthen capacity building and training on green consumption for governments, social organizations, enterprises and the public; and carry out environmental and social impact assessments in international infrastructure development projects to further the greening of infrastructure development processes.

## Table of Contents

Chapter 1. The Trends of China’s Consumption and Its Impacts on Resources and Environment.....	1
1.1 Definition of Consumption and Green Consumption .....	1
1.2 China’s Consumption Trends and Corresponding Impacts on Resources and Environment.....	4
Chapter 2. Analysis on the Role of Green Consumption in the Promotion of Green Transformation of Socio-Economy in China .....	11
2.1 Consumption has become an obstacle and restrictive factor for China to promote its overall green transition .....	11
2.2 Multiple Transmission Mechanisms for Green Consumption to Drive Green Transition .....	21
2.3 Social and Economic Factors for Promoting Green Consumption.....	27
Chapter 3. Review of Relevant Policies and Practices in Green Consumption of China .....	31
3.1 Legislative Framework for Green Consumption in China.....	31
3.2 Evaluation of Green Consumption Policy in China.....	34
3.3 Challenges for Green Consumption Policies and Practices in China .....	49
Chapter 4. Review of International Experiences and Related Lessons .....	53
4.1 Introduction.....	53
4.2 Sustainable Consumption and Production .....	53
4.3 Creating a National SCP Policy for China.....	58
4.4 Summary .....	64
Chapter 5. Strategic Positioning and Policy Recommendations on Promoting Green Consumption in China .....	65
5.1 Strategic Positioning of Promoting Green Consumption in China.....	65
5.2 Policy Recommendations on Promoting Green Consumption in China.....	69

# **Chapter 1. The Trends of China's Consumption and Its Impacts on Resources and Environment**

## **1.1 Definition of Consumption and Green Consumption**

### **1.1.1 Definition of Consumption**

The expenditure approach for calculating gross domestic product (GDP) is the most internationally applied method to fully reflect final demand. The final consumption expenditure in the expenditure approach is a robust indicator for reflecting consumption demand, including household consumption (resident consumption) and government consumption. As government consumption represents a strong government will, it is generally regarded as an external variable for the economic operation. This chapter primarily focuses on resident consumption. In China's statistical system, resident consumption in the household survey is composed of resident consumption in both urban and rural household surveys, which is estimated from 8 main categories of (1) food, (2) clothing, (3) residence, (4) household facilities, items, and services, (5) health care, (6) transportation and communication, (7) educational, cultural and recreational products and services, and (8) other goods and services. Based on these 8 statistical categories, the researchers of this report unified the statistics standards for resident consumption used in expenditure approach for GDP and the classifications of resident consumption used in Input-Output Table.

### **1.1.2 Definition of Green Consumption**

In 1992, the concept that “all countries should strive to promote sustainable consumption patterns”<sup>1</sup> was first proposed in the *Agenda 21* adopted by the United Nations Conference on Environment and Development. In 1994, the United Nations Environment Programme (UNEP, now known as UN Environment) held a symposium in Oslo and released the report on policy factors for sustainable consumption, which defined sustainable consumption as “the use of services and related products, which respond to basic needs and bring a better quality of life while minimizing the use of natural and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generations”<sup>2</sup>. In 2015, the *2030 Agenda for Sustainable Development* with 17 Sustainable Development Goals (SDGs) at its core was adopted at the United

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<sup>1</sup> <https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>

<sup>2</sup> Norwegian Ministry of Environment, Oslo Symposium, 1994.

Nations Sustainable Development Summit, in which SDG 12 is particularly designed to “ensure sustainable consumption and production patterns” and underpinned by 8 associated targets. Sustainable consumption and production (SCP) is about “promoting resource and energy efficiency, sustainable infrastructure, and providing access to basic services, green and decent jobs and a better quality of life for all”<sup>3</sup>.

With the establishment of the environmental labelling system in 1993 as a symbol, China’s sustainable consumption related concepts and practices have been advancing basically in alignment with the international progress. In March 2016, China issued the “Notice on Guiding Opinions on Promoting Green Consumption”, clarifying that green consumption refers to consumer behaviours featured with resource conservation and environmental protection. The notion is specially characterized by promoting diligence and thrift, reducing loss and wastage, selecting efficient and environment-friendly products and services, as well as reducing resource consumption and pollution emissions in the consumption process. The definition highlights the “green” requirements of resource conservation and environmental protection in consumer behaviour. It is primarily consistent with the internationally-recognized concept of sustainable consumption, but does not explicitly emphasize the issue of inter-generational consumption equity. In 2017, special arrangement for promoting green production and consumption was deployed in the 19<sup>th</sup> National Congress of Communist Party of China (CPC). In general, China’s green consumption can be interpreted from five dimensions: (1) in terms of concept, green consumption encourages sustainability and greening of consumption; (2) in terms of quantity, green consumption stands for the moderation and reduction of consumption; (3) in terms of structure, green consumption embodies the rationality and balance in consumption; (4) in terms of content, the main concern at present stage is focused on main areas in daily life such as food, housing and transportation; and (5) in terms of approach, consumption is expected to spur and lead a whole-process greening from production, circulation to disposal.

### **1.1.3 Definition of Concepts Discussed in This Study**

This research touches upon such concepts and terminology as green transition, green consumption, and green transition of consumption. In order to help readers better understand the research and avoid overlapping in conception, based on the research objectives and contents, the researchers put forward respective scope and

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<sup>3</sup> <https://www.un.org/sustainabledevelopment/sustainable-consumption-production/>

connotations of related concepts and terminology used in this study, detailed as follows.

### **1.1.3.1 Green Transition**

Green transition mainly includes the green transition in economic dimension and that in social dimension. Green economic transition refers to the decoupling of economic growth from resource use and environmental degradation, i.e. the increase of economic output is achieved with the reduction in resource consumption and environmental degradation. Decoupling can be divided into relative decoupling and absolute decoupling. Relative decoupling means that the economic growth rate is faster than the growth rate of resource utilization or environmental degradation; while absolute decoupling means that an increase in economic output is accompanied by a reduction in the absolute use of resources and an improvement in environmental quality.

Green social transition primarily refers to (1) the shift in values of entire society towards a harmonious symbiotic relationship between human and nature, which advocates respect to nature, compliance to natural laws, and protecting nature; (2) the shift in public behaviour patterns towards sustainable production and consumption, which will form moderate, simple and green behaviour and lifestyle; and (3) the shift in social governance structure and system towards a modern social governance system which is green, fair and inclusive and suitable for developing ecological civilization and realizing SGDs.

### **1.1.3.2 Green Consumption**

Green consumption can be defined in both a narrow sense and a general sense. Green consumption in narrow sense refers to the products and services with less resource consumption, lower environmental pollution, and rational price that can meet varied human needs and properly consider the inter-generation equity. It can be calculated in quantitative analysis by the final resident (household) consumption expenditure in national economic accounting, in particular the typical categories of food, housing, goods and transportation. The generalized green consumption is about absolute reductions in the material and energy throughput of total consumption volume and of per capita lifestyles, a shift towards greener production structure and consumption structure, the reduction in energy and resource consumption for per unit of output, as well as minimized impacts of production and daily life on eco-environment. It includes not only the greening of final consumption, but also the greening of

production process, greening of government procurement, as well as new business types, new modes, and new cultures that focus on wellbeing rather than on consumption.

In the following chapters, the forecasts on green consumption and its impacts on eco-environment are estimated based on the narrow of sense green consumption and data of resident consumption expenditure; while the overall policy evaluation and case studies on China's green consumption mainly focus on the generalized green consumption.

### **1.1.3.3 Green Transition of Consumption**

Green transition of consumption is a significant constituent of green economic transition. Green consumption is a relatively static concept to indicate the green level and status of consumption. Green transition of consumption is a relatively dynamic concept to describe the process and changes that consumption transforms in the green direction.

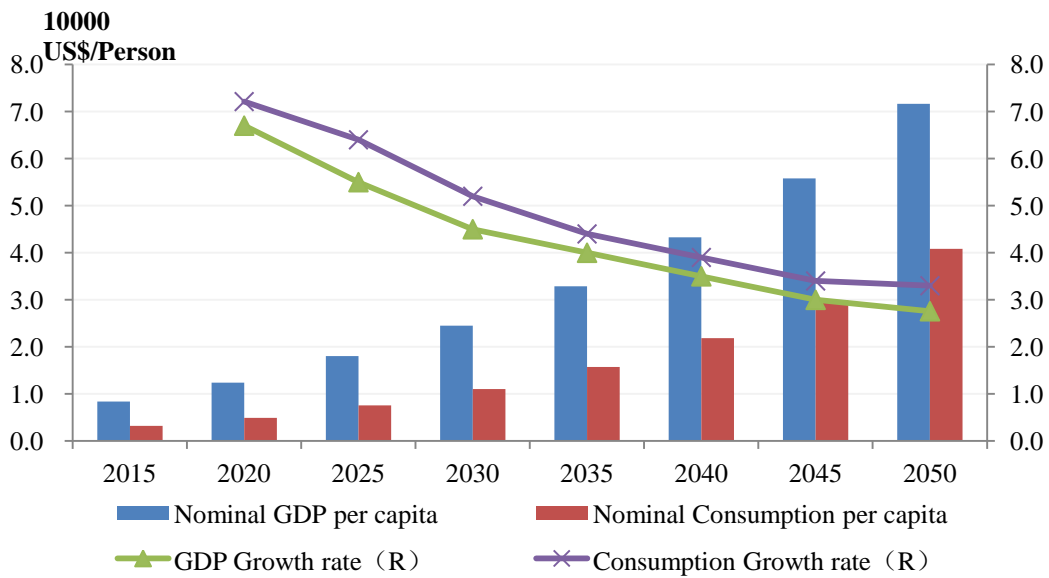
## **1.2 China's Consumption Trends and Corresponding Impacts on Resources and Environment**

Since China's Reform and Opening-up initiated 40 years ago, with the economic and social development, dramatic changes have taken place in both urban and rural resident consumption in terms of consumption volume, structure and patterns. Unprecedented features have revealed themselves. Such changes have further brought profound and long-term impacts on economic growth, social development, and the sustainability of resource and environment.

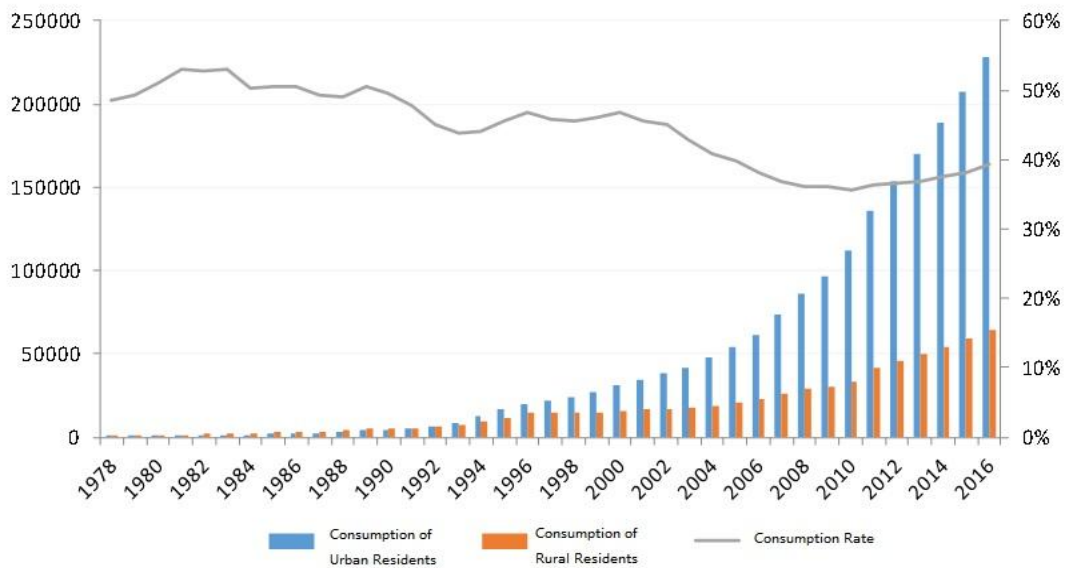
### **1.2.1 Consumption scale continues to expand rapidly, with huge space for growth of resident consumption**

In recent years, consumption in China has maintained steady and rapid growth. The total retail sales of consumer goods in China has increased from 21 trillion CNY in 2012 to 38 trillion CNY in 2018, marking an average annual growth rate of 11%, which is 2.7 percentage points higher than the nominal annual average GDP growth rate in the same period. However, there is still enormous space for consumer spending to grow. By 2017, China's urban and rural consumption ratio has reached 40%, which was still substantially lower than the consumption ratio of 70% in the developed world. In 2017, China's per capita final household consumption expenditure only

reached 2,700 USD, merely accounting for 13% of the average level (20,000 USD) in Japan, Europe, and Singapore. There exists huge potential for mid- and long-term consumption growth. This study predicts that consumption will grow by 7.2% annually from 2015 to 2020, and the total urban and rural resident consumption volume will reach 41.7 trillion CNY (current price, the same below) in 2020. From 2021 to 2035, consumption is projected to grow at an annual average rate of 5.3%, reaching 135 trillion CNY by the end of 2035. From 2036 to 2050, the annual average growth rate for consumption will come to 3.5%, and the scale in 2050 will be close to 340 trillion CNY.



**Figure 1-1 Forecasted Resident Consumption Trend of China in the Future**

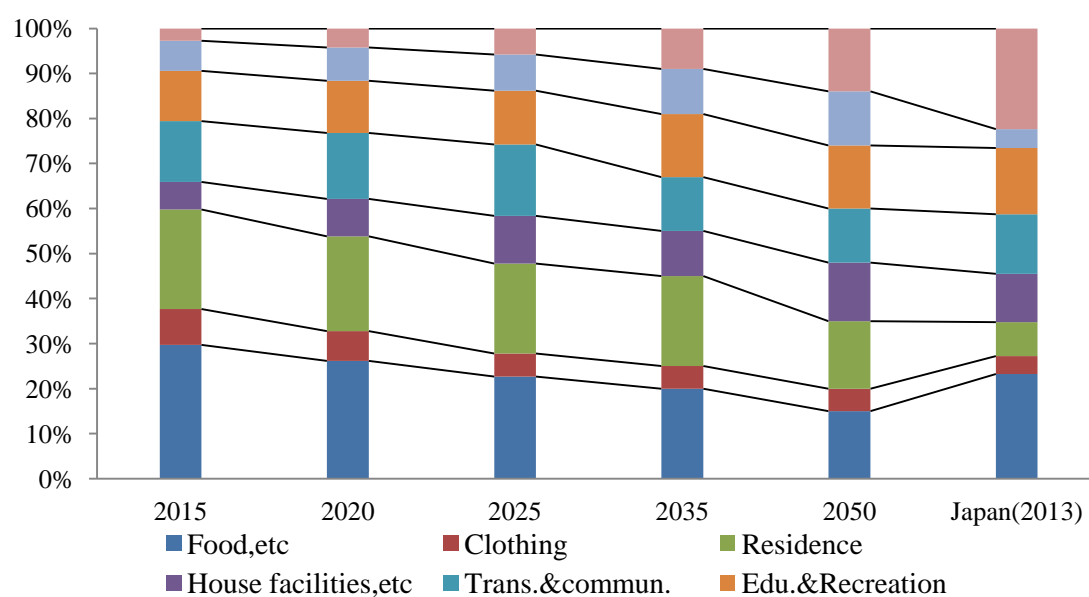


**Figure 1-2 Historic Development of Residents Consumption in China**



## 1.2.2 Consumption structure is shifting from a subsistence-based model to a well-off one, with an increasingly diversified consumption pattern

According to the data released by China's National Bureau of Statistics (NBS), the Engel coefficient of China's household consumption has dropped from 31.2% in 2013 to 28.4% in 2018. It is projected by this study that the Engel coefficient will continue the momentum and decline to 20% by 2035 to reach the well-off line of 20% to 30% set by United Nations (UN). As the demographic structure changes and the urbanization level improves, such favourable factors as employment, income, and social security will jointly contribute to a further shift in consumption model from a material-oriented one to a service-oriented one, and from a subsistence-based one to a well-off one. An increase can be expected in the share of per capita consumer spending on services such as transportation and communication, education, culture and entertainment, as well as health care.



**Figure 1-3 An Outlook of Consumption Structure Change in China by 2050**

At the same time, with the progress of science and technology and the change of life style, consumption pattern will also become increasingly diversified. In particular, with the support of Internet technology, consumption pattern is moving from the traditional off-line retail to the integration of on-line shopping and off-line retail. In 2018, China's online retail sales reached 9 trillion CNY, presenting a year-on-year growth of 23.9% which was significantly higher than the 9% growth rate of total retail sales of consumer goods. China's practices in e-commerce, mobile payment and sharing economy are leading the world. Consumer behaviour is shifting from a

conformity and imitation oriented style to an experience-driven personalized style. New consumption focuses such as smart phones, wearable device and digital homes are booming. Personalized, customized and diversified consumption underpinned by “Internet plus” has gradually become the mainstream.

### **1.2.3 Consumption has contributed a soaring share to economic growth and become an important engine for economic development**

Since 2011, consumption has become the dominant driving force for China’s economic growth. In 2017, final consumption expenditure accounted for 53.6% of GDP, with 3.5 percentage points higher than the 2012 level; and its contribution to economic growth took up to 58.8%, 3.9 percentage points higher than the 2012 level. Meanwhile, the tertiary industry, the indicator of consumption development level, has witnessed rapid growth. Since 2013, the share of its added value in GDP has exceeded the proportion of the secondary industry, and further surpassed 50% after 2015. In 2018, the contribution of final consumption expenditure to economic growth was 76.2%, 43.8 percentage points higher than the contribution of total capital formation. Economic growth has been jointly driven by consumption, investment and export instead of investment and export. By 2050, consumption is expected to attain about 70% of GDP, and per capita consumption will become 40,000 USD, basically reaching the average level of developed countries at that time.

**Table 1-1 Comparison of GDP Volume and Structure in China and U.S. in 2018**

GDP Volume and Structure	China	United States
GDP Volume (trillion USD)	13.6	20.5
Share of Primary Industry (%)	7.2	0.8
Share of Secondary Industry (%)	40.7	18.6
Share of Tertiary Industry (%)	50.1	80.6
Note: The above results are calculated by researchers of this study based on statistical data.		

### **1.2.4 The consumption activities have posted growing pressure on resources and environment and become one of the major sources of environmental pollution and greenhouse gases emissions**

Due to changes in consumption volume, structure and pattern, consumption activities have put mounting pressure on resources and environment, led to prominent problems,

and become a most critical sources of environmental pollution and greenhouse gases (GHGs) emissions. The impacts are reflected in three major aspects.

#### **1.2.4.1 Consumption demand for resources and energy continues to grow rigidly**

China's resident consumption of resources and energy has jumped rapidly. The direct energy consumption by Chinese residents totaled 540 million tons of standard coal equivalent (SCE) in 2016, 3.2 times of the 2000 level (170 tons of SCE). The corresponding annual average growth rate was 7.7% and slightly higher than the annual average growth rate of 7% for total energy consumption. Its share in the total energy consumption also rose from 11.6% to 12.4% over the same time period. Meanwhile, based on the 2015 Input-Output Table newly released by NBS, it is estimated that the comprehensive energy consumption<sup>4</sup> by residents in 2015 was 1.14 billion tons of SCE, taking up to 26.5% of the total energy consumption of the year. It is projected that the comprehensive energy consumption by residents will reach 2.28 billion tons of SCE in 2035, with an increase of 1.1 billion tons of SCE from the 2015 level. The estimated amount marks a rise by 88% and a proportion of more than 40% in total energy consumption. By 2050, the figure will be 3.04 billion tons of SCE, 33% higher than the 2035 level. According to the research of World Wildlife Fund (WWF), China's per capita ecological footprint in 2010 was 2.2 global hectares of productive land. Although this figure was lower than the global average level of 2.6 global hectares, it was more than twice the per capita ecological carrying capacity of China in 2010. About 90% of China's ecological footprint is generated by consumption activities in areas of food, housing, and transportation, bringing enormous pressure on resources and environment.

#### **1.2.4.2 Irrationally excessive and wasteful style of consumption has exacerbated resource and environmental problems**

According to statistics released by the Traffic Management Bureau of the Ministry of Public Security (MPS), China's motor vehicle quantity has reached 327 million in 2018, including 240 million cars, among which 189 million are private cars (private small and micro passenger cars) and 25.7 million cargo vehicles. The number of new energy vehicles was 2.61 million, accounting for only 1.09% of the total vehicle quantity in 2018. Data from State Radio Administration of Ministry of Industry and Information Technology (MIIT) shows that China had 1.57 billion mobile phone users in 2018. According to a report issued by Electrical Appliance Recycling Technology

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<sup>4</sup> The comprehensive energy consumption by residents includes energy directly consumed in daily life and energy consumed in producing various consumer goods.

Center under the China Household Electronic Appliances Research Institute (CHEARI), in 2017, the quantity of discarded TV sets, refrigerators, washing machines, air conditioners, and computers was 120 million units, with 230 million waste mobile phones and 150 million other household waste electronic appliances. The total waste electronic device weighed over 5 million tons. At present, the annual output of packaging products in China stands at 30-odd million tons with only less than 30% having been recovered. Preliminary estimates from the State Post Bureau (SPB) show that, in 2018 the express delivery industry consumed more than 50 billion waybills, 5.3 billion woven bags, 24.5 billion plastic bags, 5.7 billion envelopes, 14.3 boxes, and 43 billion meters of tape. The packing tape used for domestic delivery in the whole year could wrap around the entire Earth 1,077 times. As shown by the primary estimates from WWF and Institute of Geographic Sciences and Natural Resources Research (IGSNRR) of Chinese Academy of Sciences (CAS), food waste from the table in catering industry in Chinese cities alone amounted to 1.7 to 1.8 million tons in 2015, equivalent to the annual food demand of 30 to 50 million people.

#### **1.2.4.3 Consumption has become a major source of environmental pollution**

According to the calculation by this study, in 2015, terminal demand in China's residential consumption has triggered emissions including 11.84 million tons of chemical oxygen demand (COD), 1.28 million tons of ammonia nitrogen, 7.2 million tons of sulfur dioxide (SO<sub>2</sub>), and 5.12 million tons of nitrogen oxides (NO<sub>x</sub>), accounting for 56.1%, 57.8%, 70.2% and 84.5% of corresponding total emissions respectively. It is estimated that by 2035, the emissions of COD, ammonia nitrogen, SO<sub>2</sub> and NO<sub>x</sub> result from China's consumer terminal demand will reach 20.56 million tons, 2.17 million tons, 14.05 million tons and 9.79 million tons respectively, with an respective increase of 74%, 69%, 95% and 91% compared to the 2015 level, accounting for 52%, 54%, 61% and 60% of the corresponding total emissions respectively. The emissions will further rise to 24.97 million tons, 2.61 million tons, 17.22 million tons and 11.57 million tons by 2050, respectively accounting for 60%, 60%, 68% and 68% of the corresponding total output.

In addition, source apportionment of ambient fine particulate matter (PM) shows that emission from mobile sources has become the primary share of PM pollution in megalopolises such as Beijing, Shanghai, Hangzhou, Guangzhou, and Shenzhen. The contribution of mobile source emissions has reached 52% in Shenzhen. Motor vehicles are the leading mobile sources in urban areas. In 2015, the urban domestic sewage discharge was 2.68 times that of industrial wastewater discharge nationwide. While in 1997, the ratio between the two was only 0.83. The domestic sewage

discharge volume witnessed 1.83 times growth over 18 years. The amount of household waste generated in Beijing in 2015 has overtaken that of the industrial waste, registering the largest source of municipal solid waste (MSW) in that year.

## **Chapter 2. Analysis on the Role of Green Consumption in the Promotion of Green Transformation of Socio-Economy in China**

The key to green transition of economy lies in the decoupling of economic growth from resource use and eco-environmental degradation, which is embodied in the greening of production and consumption. The green transition and upgrading of consumption can lead the innovation efforts in supplying green and eco-labelled products and services; and the supply of green and eco-labelled products and services can create new green consumption demand. Such benign interactive cycle of green production and consumption, green supply and demand can serve as a new driving force for boosting economic growth, the endogenous condition for improving eco-environmental quality, and a new growth pole for promoting high-quality development. Meanwhile, the green consumption can lead a new fashion in society, help cultivate ecological and cultural values, and foster new green behavior and lifestyle. It has significant implications to building a sustainable social governance system and promoting green transition of society.

### **2.1 Consumption has become an obstacle and restrictive factor for China to promote its overall green transition**

The degree of green economic transition mainly depends on the status of green transition in the production and consumption sectors. In order to gauge the degree of green economic transition, this study constructed a green transition index and indicator system built on the resources and energy consumption as well as the eco-environment quality changes in the production and life consumption process, so as to reflect the degree of green transition in the production and life consumption sectors.

#### **2.1.1 Establishing an Indicator System for Green Transition**

The green transition index in the production sector is measured by four categories of indicators, including productive energy consumption, industrial water use, construction land, and freight volume. The weight of each category is 6.25%. The eco-environmental quality change index in the production sector consists of five categories of indicators, including the main air pollutant emissions (industrial), the main industrial wastewater pollutant emissions, the industrial solid waste, the rate of air quality improvement to economic growth, as well as the rate of water quality improvement to economic growth. The weight of each category is 5%. There are 3

indicators under the category of the main air pollutant emissions (industrial), with 1.67% weight for each indicator; and 2 indicators under the category of the main industrial wastewater pollutant emissions, with 2.5% weight for each indicator.

The green transition index in the life related area is developed to evaluate the degree of green transition in people's lifestyle, which involves the resources and energy consumption as well as eco-environment quality changes in life consumption process. Among them, the energy and resource consumption index in life are composed of four types of indicators, which are designed to measure the changes in domestic water consumption, domestic energy consumption, residential land use, as well as means of transportation respectively. Each type of the indicator is given the same weight of 6.25%. The eco-environmental quality change index in the life related area is calculated through five categories, including main air pollutant emissions (life), household wastewater, household waste, park green space, and change of transportation means, with 5% weight for each category. The main air pollutant emissions (life) cover 2 indicators, each with a weight of 2.5%.

The relevant indicators under green transition indexes in production and life sectors are divided into positive indicators and negative indicators. In terms of positive indicators, the higher the value, the higher degree of the green transition; while in terms of negative indicators, the higher the value, the lower degree of the green transition.

**Table 2-1 Green Transition Index and Indicator System**

Primary Index	Secondary Indicator	Third Class Indicator	No.	Unit	Index Weight	Indicator Type
Resource and Energy Consumption Index	Production Sector	Energy consumption per unit of GDP (production)	1	kgce / 10,000 CNY	6.25%	Negative
		Industrial water consumption per unit of GDP	2	m <sup>3</sup> / 10,000 CNY	6.25%	Negative
		Construction land area per unit of GDP	3	m <sup>2</sup> / 10,000 CNY	6.25%	Negative
		Freight volume per unit of GDP	4	ton / 10,000 CNY	6.25%	Negative
	Life related area	Daily per capita domestic water consumption	5	l / person	6.25%	Negative
		Per capita domestic energy consumption	6	kgce / person	6.25%	Negative
		Per capita private passenger car	7	unit / 10,000 persons	6.25%	Negative

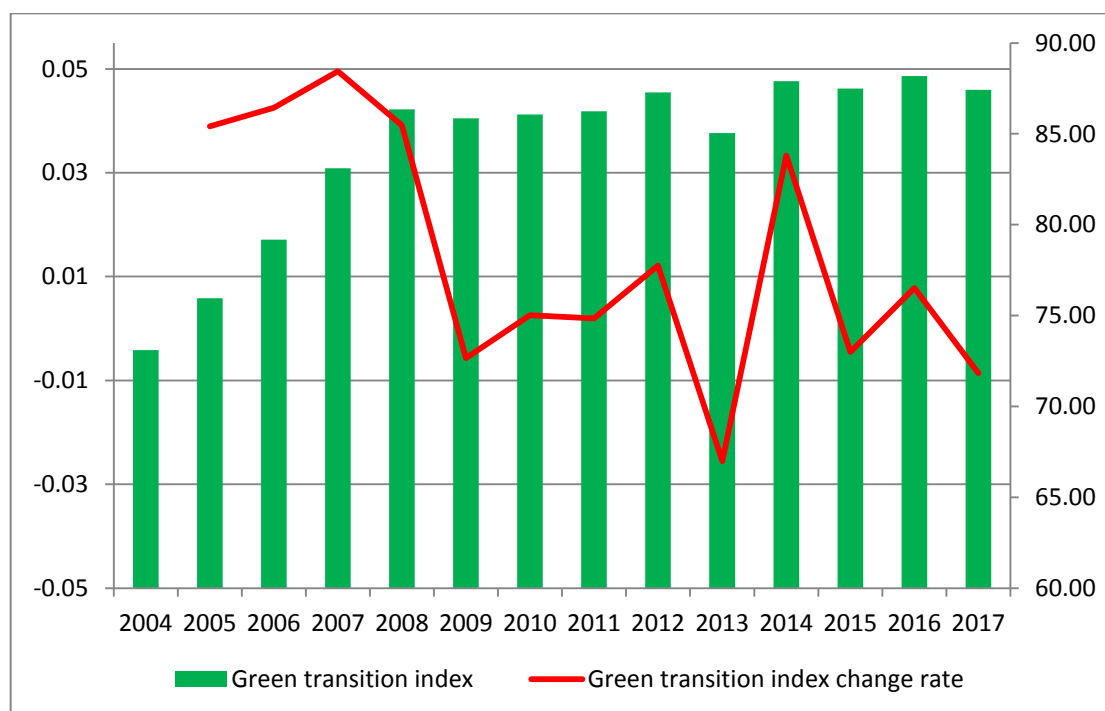
Primary Index	Secondary Indicator	Third Class Indicator	No.	Unit	Index Weight	Indicator Type
		ownership				
		Per capita residential land area	8	m <sup>2</sup> / person	6.25%	Negative
Eco-Environmental Quality Change Index	Production Sector	Air quality improvement rate / GDP growth rate	9	%	5.00%	Positive
		Water quality improvement rate / GDP growth rate	10	%	5.00%	Positive
		CO <sub>2</sub> emission per unit of GDP (production)	11	kg / 10,000 CNY	1.67%	Negative
		SO <sub>2</sub> emission per unit of GDP (industrial)	12	kg / 10,000 CNY	1.67%	Negative
		NO <sub>x</sub> emission per unit of GDP (industrial)	13	kg / 10,000 CNY	1.67%	Negative
		COD emission per unit of GDP (industrial)	14	kg / 10,000 CNY	2.50%	Negative
		Ammonia nitrogen emission per unit of GDP (industrial)	15	kg / 10,000 CNY	2.50%	Negative
		Industrial solid waste generation per unit of GDP	16	ton / 10,000 CNY	5.00%	Negative
	Life related area	Per capita park green space	17	m <sup>2</sup> / person	5.00%	Positive
		Public transport passenger volume per 10,000 persons	18	10,000 person-time / 10,000 persons	5.00%	Positive
		Per capita CO <sub>2</sub> emission (life)	19	kg / person	2.50%	Negative
		Per capita SO <sub>2</sub> emission (life)	20	kg / person	2.50%	Negative
		Per capita domestic wastewater emission	21	kg / person	5.00%	Negative
		Per capita domestic waste collection volume	22	kg / person	5.00%	Negative



## 2.1.2 Results for Green Economic Transition Evaluation

In view of the statistical standards and availability of data for each indicator, this section calculates the green transition index of each year from 2004 to 2017. The results are shown as follows.

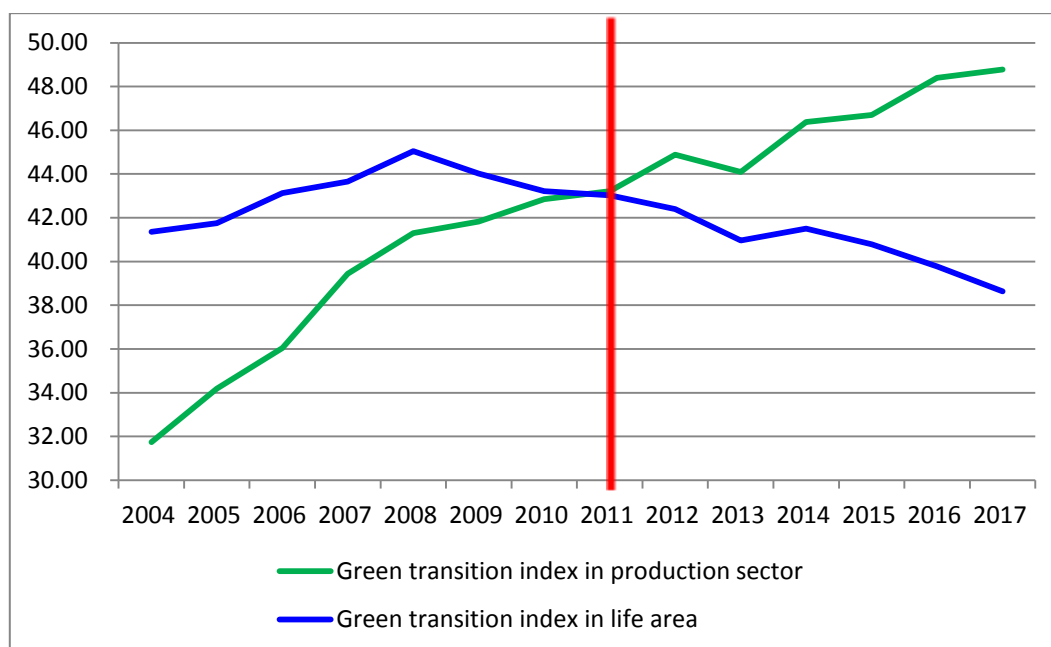
**(1) The level of the green transition has been upgrading year by year, however, the curve of such growth trend has gradually flattened.** From 2004 to 2008, the green transition index increased substantially on a yearly basis. From 2009 to 2012, the growing momentum of green transition index slowed down. In 2013, the green transition index showed a sharp decline, mainly due to the significant decline in air quality that year while other indexes kept the change trend of previous years.



**Table 2-1 Trend of Green Transition Index Change (2004 – 2017)**

**(2) Green transition gains in production sector has played an important supporting role in the overall green transition process.** As revealed by the comparison and analysis of the changing trend of green transition index in the production sector and life related area, there has been a remarkable improvement in production sector since 2004. The index in life related area has shown slight increase only from 2004 to 2008, but kept dropping from 2009 to the present. The index in production sector has been outnumbering that in life related area since 2011. This reflects that the improvement by green transition in production sector plays a vitally

important supporting role to the comprehensive progress of green transition; whereas the setback of green transition in life related area render the current comprehensive green transition impotent. It shows to some extent that in recent years, China has made prominent achievements in environmental governance in production sector, but paid inadequate attention to environmental problems in life related area.

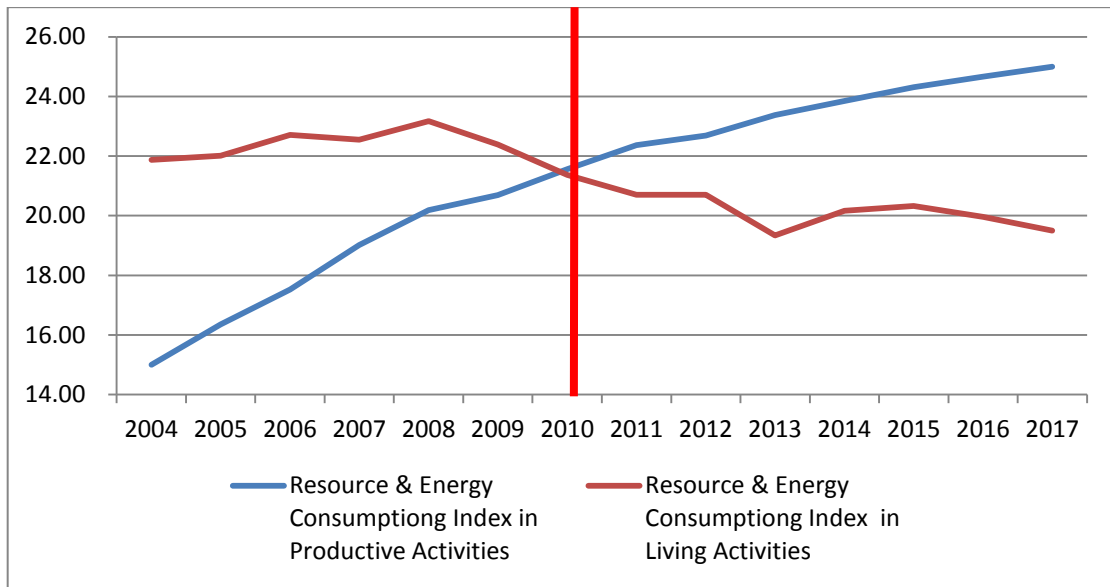


**Figure 2-2 Trend of Green Transition Index Change in Production Sector and Life Related Area (2004 – 2017)**

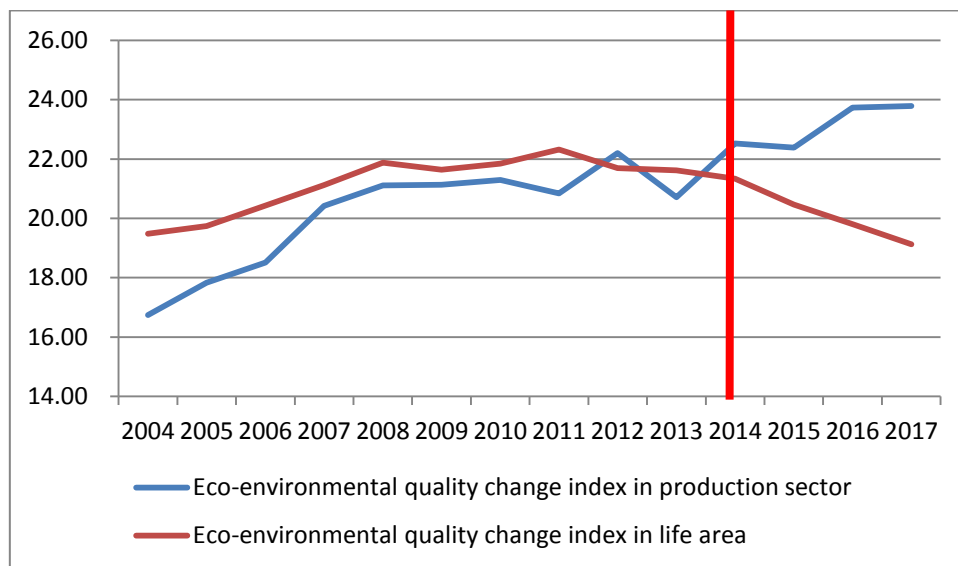
**(3) The growth rate of green transition in the production sector has slowed down, and the green transition in life related area has dropped significantly.** There is huge potential for green transition in life related area. The green transition index in the production sector has been on an upward trend since 2004. Among all the indexes, the index of resource and energy consumption in the production sector has shown a steady upward trend. Since 2010, it has been higher than the index of resource and energy consumption in the life related area, but its growth rate tends to slow down. At the same time, the eco-environmental quality change index in the production sector has an obvious rising trend in fluctuations. Since 2014, it has been exceeding the eco-environmental quality change index in the life related area by a large margin, which indicates that the efficiency of resource and energy use in the production sector has been gradually improving in recent years, and the negative impact of production activities on the eco-environmental quality has also been reducing step by step.

The resource and energy consumption index in life related area has shown a downward trend since 2009. The eco-environmental quality change index in life

related area has demonstrated an obvious downward trend since 2011, and the decline rate has increased since 2014. This shows that the resource and energy consumption in the life related area is gradually increasing, with low use efficiency. At the same time, the negative impact of consumption in life related area on eco-environmental quality is also gradually expanding, which has exceeded that in the production sector.



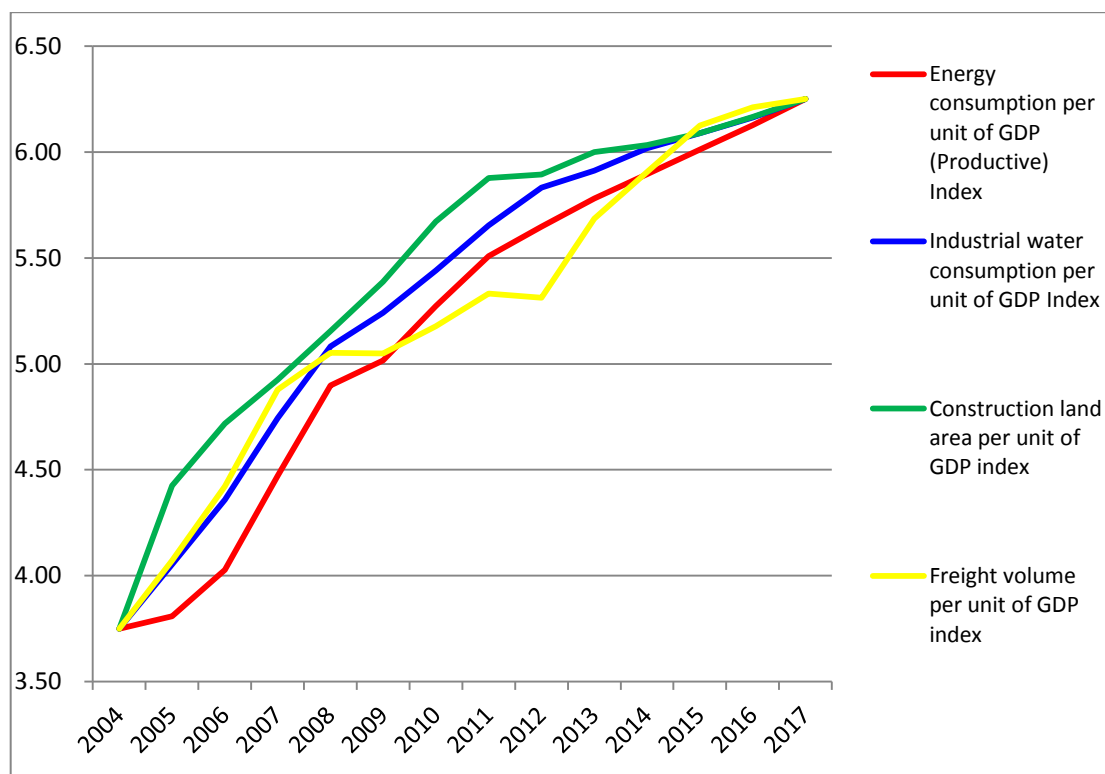
**Figure 2-3 Trend of Resource and Energy Consumption Index Change (2004 – 2017)**



**Figure 2-4 Trend of Eco-environmental Quality Index Change (2004 – 2017)**

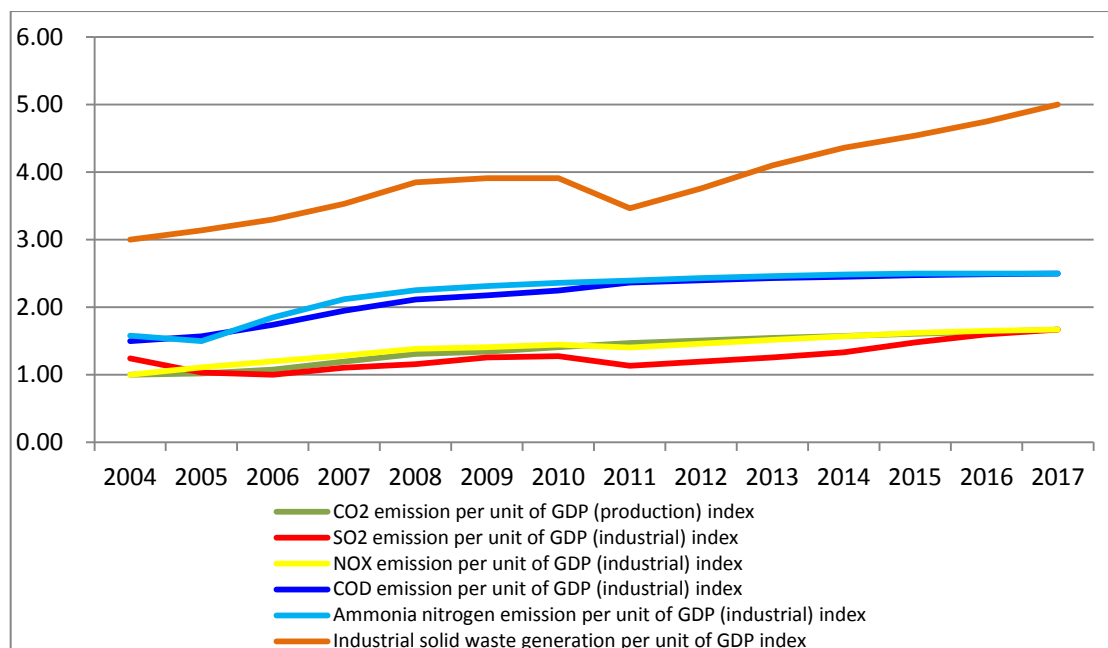
(4) **Significant progress has been made with regard to the green transition in resource and energy consumption in the production sector.** Four indicators are selected to gauge the level of green transition in resource and energy consumption in production sector, including energy consumption per unit of GDP (production) index,

industrial water consumption per unit of GDP index, construction land area per unit of GDP index, and freight volume per unit of GDP index. From 2004 to 2017, the four indexes increased significantly, indicating that in production sector, resource and energy consumption per unit of GDP is shrinking, while use efficiency is witnessing a steady increase. These has been remarkable achievements in the green transition in terms of resource and energy consumption during production activities.



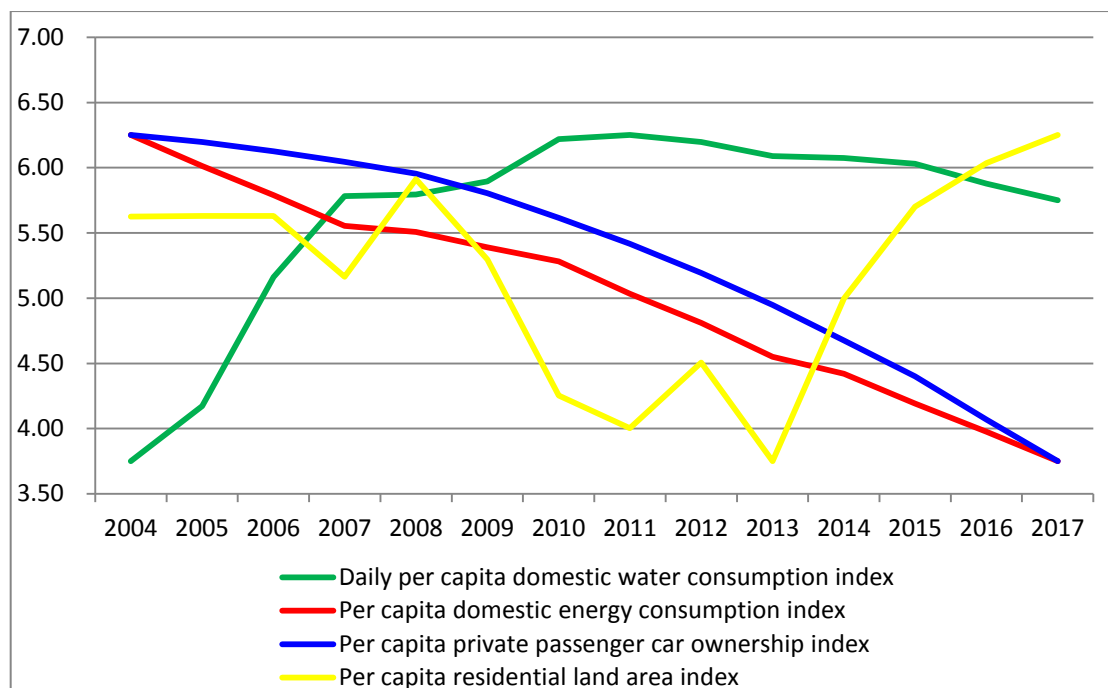
**Figure 2-5 Resource and Energy Consumption Related Indexes in Production Sector (2004 – 2017)**

(5) **The green transition of the eco-environmental quality dimension in production sector has been continuously upgrading.** Since 2004, the emission of pollutants per unit of GDP in the production process, such as major air pollutants, major pollutants in industrial wastewater, and industrial solid waste, has shown a gradually decreasing trend, reflecting that the negative impact of production on eco-environmental quality is weakening. However, the downward trend in major air pollutants emission and industrial wastewater pollutants emission per unit of GDP appears to be moderate. It is only the industrial solid waste generation per unit of GDP that shows great decline. Such results indicate that it is getting difficult to further reduce emissions of air and water pollutants in production sector, while there is still great potential in industrial waste generation control.



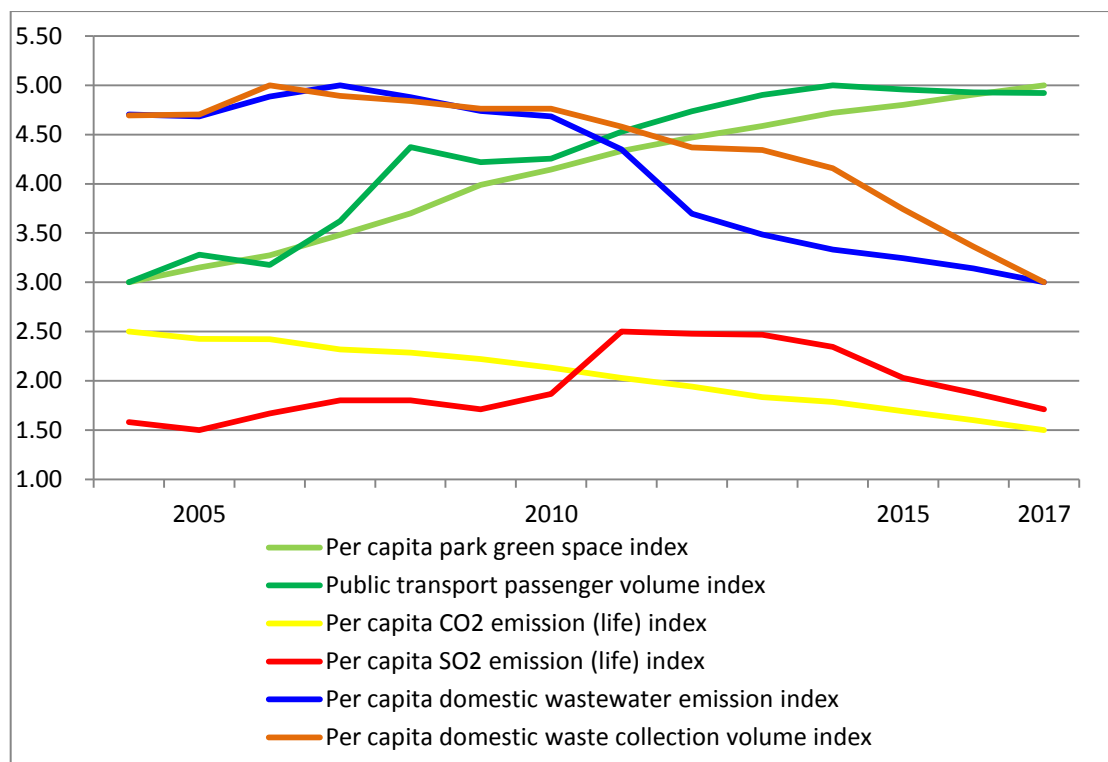
**Figure 2-6 Trend of Eco-environmental Impact Related Indexes Change in Production Sector (2004 – 2017)**

(6) **The per capita consumption of resources and energy in the field of life is constantly rising, and the greening scenario of life style needs to be urgently formed.** Figure 2-7 shows the trend of changes in resource and energy consumption related green transition indexes in life related area between 2004 and 2017. The per capita domestic energy consumption index and per capita private passenger car ownership index has been declining year by year from 2004 to 2017. It shows that with the improvement of living standards, there is constant growth in consumer demand for energy and vehicle ownership in consumption, with a prominent growth momentum. The per capita domestic water consumption index has shown a decreasing trend since 2011, which shows that with the improvement of infrastructure, the coverage of domestic water supply is gradually expanding, and the per capita domestic water consumption is gradually rising. The per capita residential land area index dropped in fluctuation from 2004 to 2013, and then bounced back gradually since 2014, indicating that the per capita residential land area has decreased significantly and the utilization efficiency of residential land increased year by year.



**Figure 2-7 Trend of Resource and Energy Consumption Related Green Transition Indexes in Life Related Area (2004 – 2017)**

(7) **The emission of pollutants from domestic sources is increasing, and the negative impact of lifestyle on eco-environmental quality is significant.** The eco-environmental quality change index in life related area involves 6 indicators, and the change trend for each indicator from 2004 to 2017 is shown in Figure 2-8. On the one hand, the per capita park green coverage index and public transport passenger volume index have indicated an obvious upward trend since 2004, yet the rising momentum was slowing. It reveals the growth of people’s demand for high-quality living environment as well as the improvement of public infrastructure. On the other hand, distinct decline was observed in major air pollutant (CO<sub>2</sub> and SO<sub>2</sub>) emission indexes in life related area, domestic wastewater emission index, and domestic waste collection volume index. It reflects that the adverse effects of people’s consumption behavior on eco-environmental quality are expanding, and green lifestyle needs to be formed urgently.



**Figure 2-8 Trend of Eco-environmental Impact Related Indexes Change in Life Related Area (2004 – 2017)**

In overall terms, since 2004, the level of green transition in China has been upgrading year by year. Green transition in both production and consumption sectors continued to progress with a climbing trend up to 2008. However, the curve of such trend has gradually flattened and shown fluctuations since 2008. In general, green transition in production sector shows continuous improvement, and plays a positive supporting role in boosting comprehensive green transition. On the contrary, green transition in consumption sector has exhibited obvious downward trend since 2008 and the loss in consumption sector exceeded the improvements gained in production sector in 2011. It can be said that improvement of efficiency gained by green transition in production sector failed to offset the negative impacts on resources and environment caused by consumption scale expansion. The shortcomings of consumption is that it restrains the overall progress of green transition. Substantial progress of green transition in consumption field will play a decisive role for the overall green transition and high-quality development in China.

## **2.2 Multiple Transmission Mechanisms for Green Consumption to Drive Green Transition**

Viewing from the dialectical relationship between consumption and production and that between consumption, resources and environment, consumption plays an essential role in economic development and imposes significant impacts on critical proportional relationships in national economy such as production and consumption. If consumption guidance and supply-side structural reform can enable mutual improvement, economic transition and upgrading will then be spurred, high-quality development accelerated, and modern economic system further developed.

### **2.2.1 Transmission Mechanisms for Green Consumption in Promoting Green Transition**

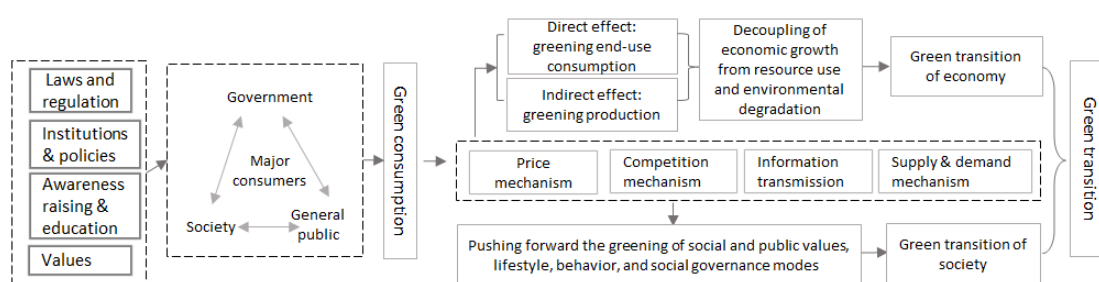
The greening of consumption will lead and enforce the greening of production. The changes in consumption volume, pattern, structure, quality, and preference guided by green concepts and measures will inevitably be transmitted to the production field, which will affect the allocation of factorial resources, the improvement of production pattern, the adjustment of product structure and the improvement of product quality.

Green consumption is the core component to foster the formation of green lifestyle and serves as an effective approach to push behavior changes of the general public. Lifestyle is a concept with extensive connotation, including people's material life such as clothing, food, housing, transportation, labor, recreation and entertainment, and social interaction, as well as spiritual life such as core values, morality and related aspects. Consumption constitutes an important part of lifestyle. Green consumption activities can convey and communicate green concepts and requirements into all aspects of public life, guide and motivate the public to actively practice green concepts and requirements, so as to cultivate a green life nationwide, and improve the governance system of green social transition.

In the field of modernizing eco-environmental governance system, China's current environmental policies are mostly concentrated on the production area, with restriction and supervision as major approaches, government and businesses as key bodies. The set-up of institutional mechanisms to guide and prioritize green consumption model can be very beneficial. First, it can expand eco-environmental governance system from production to consumption field, thus widening the coverage of eco-environment governance and adding new incentives and voluntary leadership into this area, which are conducive to building an institutional system featuring equal emphasis on both incentives and constraints. Second, as consumption is a basic



behavior choice made by the public, green consumption can enable the public to truly participate in the environmental governance process. Consequently, people’s green consumption behaviors and choices of green and eco-labelled products can reversely force enterprises to improve their environmental performances and increase green and eco-labelled products and their green production supplies, which is a practical way to involve spontaneous public participation in eco-environment protection. Third, the green transition at consumption end can be transmitted to production end through the practice of green supply chain, in which the “green-advanced” enterprises in the industrial chain can help manage the “green-backward” enterprises so as to explore new ways of eco-environmental governance and improve the related system.



**Figure 2-9 Mechanisms for Green Consumption to Promote Green Transition**

### **2.2.2 Green consumption gradually becomes a new driving force for green transition**

Green consumption can become a new driving force for green transition. Current green consumption demand and market in China continues to expand, with constant upgrading of resident consumption, a growing variety of green consumer goods and services, continuous escalation in the scale of green consumer groups, and ever-rising willingness for green consumption. The green transition and upgrading of consumption can lead the innovation efforts in supplying green and eco-labelled products and services; and the supply of green and eco-labelled products and services can create new green consumption demand. Such benign interactive cycle of green production and consumption, green supply and demand can serve not only as a new driving force for boosting economic growth by facilitating green growth in economy, adding new employment channels and platforms, and promoting the structural reform on the supply side, but also as the endogenous condition for improving eco-environmental quality by largely reducing resource consumption and environmental degradation, thus realizing a win-win scenario for environment and economy.

### **2.2.2.1 Green consumption demand and market in China keeps expanding, becoming a trend in the process of consumption transition and upgrading**

As shown by the data from China Chain Store & Franchise Association (CCFA), the consumer market for organic food in China is growing at an annual rate of 25%. According to a report issued by JD.com, a Chinese ecommerce giant, in the first half of 2017, the sales volume from green consumption contributed 14% of the total sales volume in JD.com, with a year-on-year growth of 86%. The overall contribution of green household electronic appliances and green home decoration goods reached 79%; while the product penetration of green clothing attained 12%.

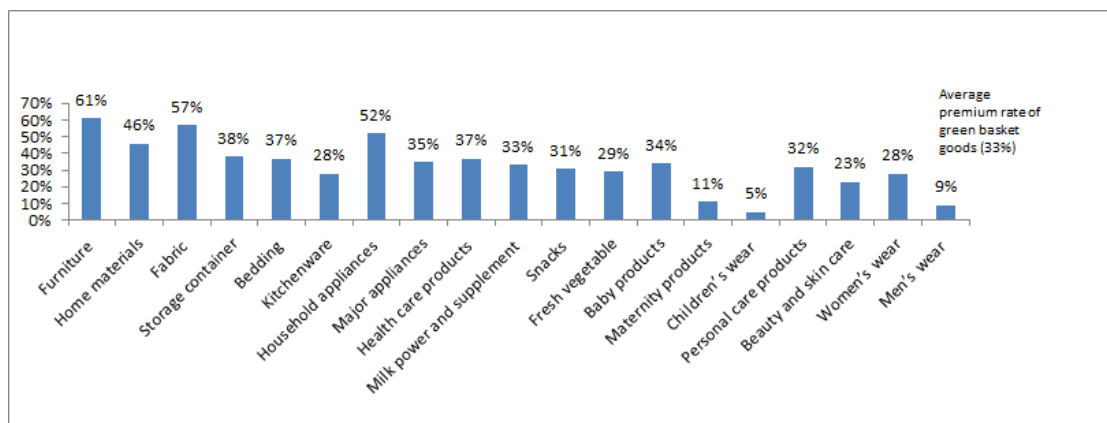
### **2.2.2.2 Resident consumption continues to upgrade, with a growing variety of green consumer goods and services**

In recent years, with the improvement of people's living standards, the content of residents' consumption has changed significantly, with a shift in focus from satisfaction in quantity to the pursuit of quality improvement, and green consumption is rising. The variety of green consumer goods and services is being enriched continuously, such products as energy-saving household appliances, water-saving appliances, products with environmental labels, organic products, green food, and green building materials are widely consumed in households. It is conservatively estimated that in 2017, the sales quantity of 5 categories of high-efficiency and energy-saving products reached nearly 150 million sets within China, with a total value of 500 billion CNY, including high-efficiency and energy-saving air conditioners, refrigerators, washing machines, flat-screen TVs, and water heaters. The output value of organic products amounted to nearly 140 billion CNY. 1,500 green hotels and enterprises were in business. The number of individual green building projects reached 4500. There were 31,946 kinds of products with green food label. More than 777,000 new energy vehicles were sold. More than 25 million shared bikes were put into use. According to the *China's Green Consumer Report 2016* released by Ali Research Institute, in 2015, there were 50 major categories of green basket goods (green basket goods refer to a collection of goods that are "resource-efficient, energy-saving, environment-friendly, healthy, and high quality") in Alibaba online retail platforms, worthy of 200 million CNY. The sales volume of green basket goods accounted for 11.5% of Alibaba's overall online retail volume.

### **2.2.2.3 The scale of green consumer groups is escalating, and the willingness for green consumption is improving**

According to data from Alibaba platform, the number of green consumers in China

reached 65 million in 2015, showing an increase of 14 times in four years. Driven by the impetus of global consumption upgrading, the scope of green and eco-labeled products that attract green consumers' attention has covered all aspects of food, clothing, housing, transport, and daily utensils. Attention is placed not only on organic and green level of food, and on the greening of cosmetics, personal care, and clothing, but also on household related products like household electronic appliances, home decoration and appliances and their impacts on health and environment. The new generation consumers are more in favor of such consumption concepts as LOHAS and environmental sustainability. They are willing to buy high-quality products and at the same time show concerns over the impact of production methods on nature and environment. On the Alibaba retail platform, the proportion of green consumers increased rapidly from 3.8% in 2011 to 16.2% in 2015, with the age group of 23 – 28 witnessing the fastest growth; and the average premium rate (the ratio of green goods prices to non-green and eco-labelled products prices) of green goods was 33%.



**Figure 2-10 Premium Rate for Green Basket Goods (Quoted from Ali Research Institute)**

## **2.2.3 Case Studies on the Effects of Green Consumption on Green Transition: Environmental Labelling and Certification System and Ride-Sharing**

### **2.2.3.1 Environmental Labelling and Certification System**

At present, China has established such labeling systems as the environmental label, the energy conservation label, the green building label and the organic food label. China's environmental labelling system was created in 1993 and green procurement by the government began to be implemented in 2006. These important institutions that promote the provision of green and eco-labelled products and services have played an important leading role in shaping green consumption and production patterns. By the end of 2018, China's environmental labeling and certification covers 101 categories of products, and the output value of environmental label products has reached 4 trillion

CNY. In 2017, the volume of energy-efficient and environment-friendly products purchased by the Chinese government accounted for 91% of similar products. With the continuous growth of the variety and scale of environmental labeled products and certified energy-saving and water-saving products, the dual performance of resource conservation and pollution reduction has gradually emerged. In 2016, products with environmental label and energy-saving and water-saving certification have saved about 19 billion kilowatt-hours of electricity, more than 4.6 million tons of water and reduced more than 12.3 million tons of carbon dioxide emissions. Since 2011, environmental label certification has promoted the development of green printing industry. The annual VOCs emission and energy consumption of the industry have been reduced by 15% respectively. Currently China's 1.3 billion primary and secondary school textbooks have all been produced through green printing. In 2016, electronic office supplies with environmental labels purchased by the Chinese government reduced carbon dioxide emissions by 190,000 tons and saved 230 million CNY in e-waste disposal costs.

**Table 2-2 Environmental Performance of Products with Environmental Labelling and Energy-Saving and Water-saving Certification in 2016**

No.	Category	Pollution Indicator	Environmental Labelling	Energy-saving and Water-saving Product Certification
			Emission/Consumption Reduction in 2016	
1	Air Pollution	VOCs	890,100 tons	/
		CO <sub>2</sub>	5.8 million tons	6.5 million tons
		SO <sub>2</sub>	7,000 tons	14,000 tons
		NO <sub>x</sub>	26,000 tons	14,000 tons
		PM	/	11,000 tons
2	Water Pollution	COD	37,000 tons	/
		Total Phosphorus	77,660 tons	/
3	Solid Waste and Hazardous Waste	Plastic Waste	12,267 tons	/
4	Energy Conservation	Electricity	89.81 billion kWh	100 billion kWh
5	Resource Conservation	Water	44.31 million tons	46.222 billion tons
		Recycled Plastics	30,000 tons	/
		Industrial Residue	21.567 million tons	/
		Pulp	2.53 million tons	/
		Toner/Inkjet Cartridge	28.39 million units	/
Note: The above results are estimated based on the sales of labelled/certified products in 2016.				

### 2.2.3.2 Ride-sharing

As an important form and content of residents' green consumption in the field of transportation, ride-sharing has facilitated the efficient use of automobile resource, greening of public transport modes, popularization of new energy vehicles, and smart operation of urban transportation. According to estimates, the mileage covered by Express and Hitch services of Didi Chuxing (DiDi), the largest shared-trip solution

provider in China totaled 17.75 billion km in 2017, with 1.52 billion passengers being served. DiDi Express and DiDi Hitch can serve an average of 2.34-2.58 passengers per car, more than 1.5 times of the passenger number of private cars. Currently, there are 400,000 new energy vehicles registered in DiDi platform, which is equivalent to 20% of the national total and 12.9% of the global total. DiDi's smart traffic light service covers more than 1,300 traffic lights, reducing congestion time by 10% -20% on average and increasing vehicle speed by 20% -30%. Meanwhile, the environmental performance of shared trips is obvious. In 2017, the emission reduction effect of Didi Chuxing platform was significant. The CO<sub>2</sub> emission was cut by 1.507 million tons, which was equivalent to the yearly emission of 800,000 cars running 10,000 km, and the annual carbon absorption of 21 National Olympic Forest Parks or 2 Saihanba Forest Farms. If calculated with the trade price of carbon trading market in Beijing, the reduction value equally produced an economic benefit of 75 million CNY. The emissions of CO, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> were reduced by 7130.1 tons, 440.0 tons, 40.2 tons and 37.4 tons, respectively. The emission cut of nitrogen oxides (NO<sub>x</sub>) and particulate matter (PM) was equivalent to the corresponding emission of 1.1 million private cars in one year.

## **2.3 Social and Economic Factors for Promoting Green Consumption**

The major influencing factors on the green consumption include: consumption concept, income level, consumption preference, public policies, as well as supply quality and price level of green and eco-labeled products.

### **2.3.1 Consumption Concept**

Consumption behavior is directly controlled and regulated by consumption concept (or consciousness). Consumers' concept for green consumption, environmental awareness and environmental knowledge can effectively improve their recognition of perceived green value of products and services, and indirectly affect their green consumption behavior.

### **2.3.2 Public Policies**

The negative externality of non-green consumption can be offset by the gains from positive externality of green consumption. Public policies mainly affect consumers' individual cognition of environment and green consumption, and ultimately affect their attitudes towards green purchase, green product use and waste disposal. However, the green standard certification system, government green procurement

system and tax incentive mechanism have different functions on green consumption:

- The green standard certification system has two main functions: first, it can lead enterprises to reduce pollutants from the source and help their green high-end products gain more popularity in the market, so as to stimulate the endogenous momentum in enterprises to improve the green process. Second, as an important system, the green standard system addresses the issue of incomplete information in the market economy, reduces the blindness of consumers in purchasing products, and helps consumers to quickly identify and purchase green and eco-labelled products and services.
- The government green procurement system makes use of the demonstration effect of government procurement to guide enterprises to adjust their production structures, improve technology content of their products, enhance their environmental awareness and conduct green production, which can directly promote GDP growth, environmental protection and resource conservation and utilization. It can send price and demand signals to the production sector, and guide leading enterprises, brand enterprises and even medium- and small-sized enterprises (SMEs) to carry out green procurements. The system can at the same time stimulate the research, development and application of clean and energy-saving technologies in production sector and the manufacture of green products and eco-labelled products.
- The functional mechanisms for tax incentive on green consumption are as follows: The taxation on one item will trigger a downward movement of the demand curve, leading to the reduced the equilibrium price and equilibrium quantity. The change of consumption tax burden will alter the price rate among different consumer goods and affect the consumption “cost”. As a result, consumer behavior will be guided to different direction, and the consumption demand structure will be changed. Changes in consumption sector will be transmitted to the production sector to influence the structure of yield rates of different products, so as to lead the change of production structure.
- The green consumption incentive mechanism (mainly in the forms of rewards and subsidies) directly subsidizes consumers who buy or use green consumer goods or services, which can cut consumers’ cost in using green and eco-labelled products. This mechanism can effectively promote energy conservation, emission-reduction, and green and eco-labelled products; push consumption towards green consumption; and guide manufacturers to produce green and eco-labelled products and provide green services through the formation of green consumption behavior,

so as to facilitate a virtuous cycle.

### **2.3.3 Supply of Green and Eco-labelled Products**

The supply price level of green and eco-labelled products will affect the level and popularity of green consumption. It is also necessary to regulate the green consumer goods market and ensure the quality of products and services, so as to form a virtuous circle between green supply and green consumption. The transmission effect of green and eco-labelled products at production end is different from that at consumption end:

- At production end, measures such as marketing, government incentive mechanism and prohibition of use will affect the scale of production and use of green and eco-labelled products. Good marketing can rapidly spur the sales of green and eco-labelled products. Government subsidies and tax deduction and exemption can expand production and consumption of green and eco-labelled products. Government regulations can ban the use of non-green and eco-labelled products made from endangered species.
- At consumption end, the scale of green product consumption will be affected by the novelty-seeking behavior of teenagers, the demonstration effect of celebrities, and the benefit-seeking behavior and bandwagon effect from buyers. The influence of teenagers' novelty-seeking behavior stays at local level, while the demonstration of celebrities will influence the consumption fashion of the society. The imitative and copycat behavior of buyers will affect the production and consumption of green and eco-labeled products, whereas benefit seeking is the dominant reason for consumers to choose green and eco-labelled products.

### **2.3.4 Technological Progress**

Technological progress has an important impact on residents' green consumption level. First of all, technical breakthrough is necessary to translate the potential need into real needs. When a technological breakthrough provides an opportunity for potential social needs to be satisfied, potential needs will turn into real needs. Secondly, technological innovation reduces product prices by influencing the scale of green consumption. It is only when the level of technological innovation can bring the price of green and eco-labelled products and services close to that of ordinary products that large-scale green consumption will be ultimately formed. This will in turn drive the adoption and upgrading of green technologies. Thirdly, technological progress is constantly widening the field of green consumption. Producing new products through technological innovation can lead to new types of green consumption. For example,



the reform of low-carbon technology not only promotes the change of people's consumption consciousness, but also enables the rise of low-carbon consumption related to solar energy and wind energy.

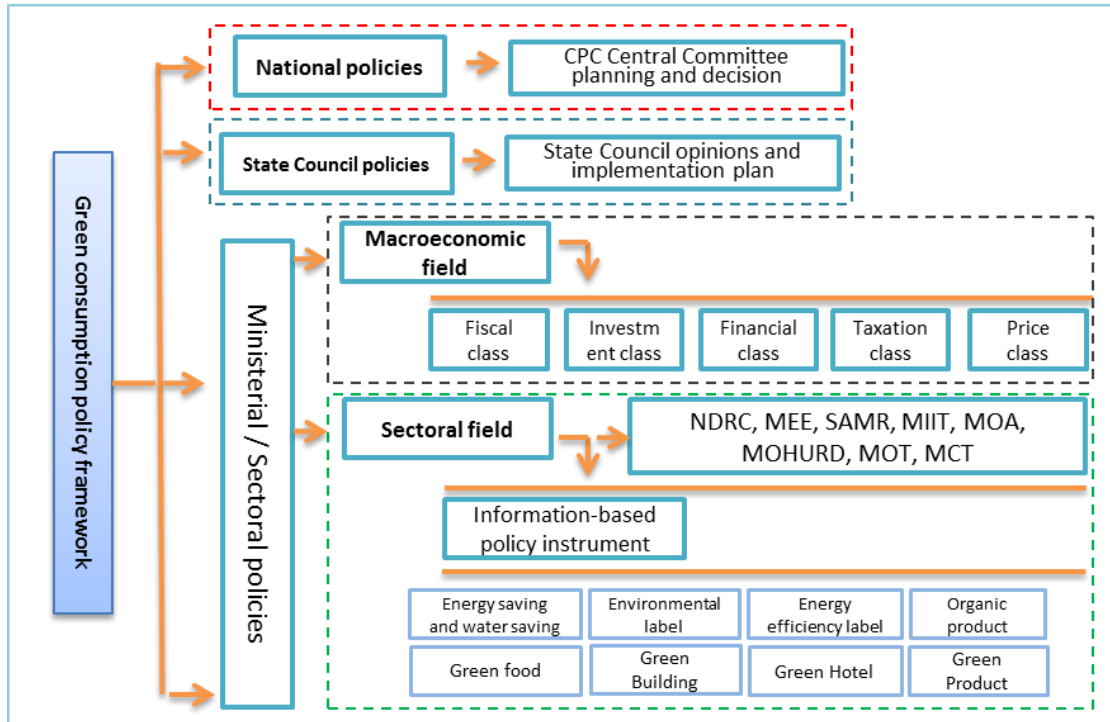
## **Chapter 3. Review of Relevant Policies and Practices in Green Consumption of China**

In recent years, China has attached great importance to green consumption. The Chinese government has issued a total of 101 policies to promote green lifestyle in society, among which 26 policies are issued by the Central Government and the State Council in the forms of notice, opinions and plans, accounting for 26% of the total. The line ministries have released 75 policies in total, which are specific measures and actions to implement national decisions, taking up to 74% of the policy portfolio. Generally speaking, the institutional framework for green consumption in China has been preliminarily shaped.

In order to carry out detailed analysis of the status and practice of green consumption policies, this study makes a comparative analysis of 75 green consumption policies released by line ministries and the 8 categories and 24 classifications from the *Classification of Resident Consumption Expenditures* issued by the National Bureau of Statistics (NBS) in 2013 to sort out and analyze the distribution and characteristics of these policies. At the same time, this study analyzes the actual effects of mandatory, regulatory and information-based policies that have been implemented in China, so as to study and identify the challenges faced by green consumption policies and practices in China.

### **3.1 Legislative Framework for Green Consumption in China**

Green consumption related policies at central government level mainly include various plans, opinions and programs on green consumption promotion issued by the CPC Central Committee and the State Council. The green consumption related policies by line ministries can be divided into two categories: one category refers to the economic policies in the macroeconomic field, and the other covers policies of other types, such as the information-based policies.



**Figure 3-1 Framework for Green Consumption Policies Related to People’s Life**

The quantity distribution of green consumption policies at all levels in China is shown in the table below.

**Table 3-1 Quantity of Green Consumption Policies at All Levels**

No.	Category			Number of Policies		
1.	National level	CPC Central Committee/State Council decisions		26		
2.	Ministerial level	Ministerial policies		75		
Total				101		
Ministerial Policies	No.	Economic policies	Quantity	No.	Policies of other types	Quantity
	1.	Fiscal policy	25	1.	National Development and Reform Commission (NDRC)	10
	2.	Taxation policy	7	2.	State Administration for Market Regulation (SAMR)	7
	3.	Price policy	5	3.	Ministry of Housing and Urban-Rural Development (MOHURD)	6
	4.	Investment policy	2	4.	State Administration of Press, Publication, Radio, Film and Television (SAPPRFT)	3
	5.	Financial policy	1	5.	Ministry of Ecology and Environment (MEE)	2
	/	/	/	6.	Ministry of Agriculture and Rural Affairs (MOA)	2
	/	/	/	7.	Ministry of Commerce (MOFCOM)	2
	/	/	/	8.	Ministry of Industry and Information Technology (MIIT)	1
	/	/	/	9.	Ministry of Transport (MOT)	1
	/	/	/	10.	Ministry of Culture and Tourism (MCT)	1
	<b>Sub-total</b>		<b>40</b>	<b>Sub-total</b>		<b>35</b>

Such green consumption related concepts as green lifestyle and green and eco-labelled products appear in different national policy documents. Relevant documents issued by the CPC Central Committee include “Several Opinions on Improving Consumption Mechanism and Further Motivating Consumption Potential of Residents”, “Notice on Implementation Plan for Improving Consumption Mechanism (2018 – 2020)”, and so on. The State Council also issued relevant documents, such as the “Guiding Opinions on Fully Exerting the Leading Role of New Consumption Model and Accelerating the Cultivation of New Supply and Impetus” (Guo Fa [2015] No. 66).

Line ministries have issued various policies to promote green consumption, which can be divided into two major categories. One category is economic policies, including aspects of fiscal, taxation, price, investment, and finance policy. The other category is information-based policies, such as certification, assessment, and technical specifications. Among them, there are 40 economic policies, accounting for 53%; while the rest 35 are policies of other types, taking up to 47% of the total.

## 3.2 Evaluation of Green Consumption Policy in China

### 3.2.1 A Comparative Analysis of Green Consumption Policies and Consumer Spending Areas

#### 3.2.1.1 Economic Policies

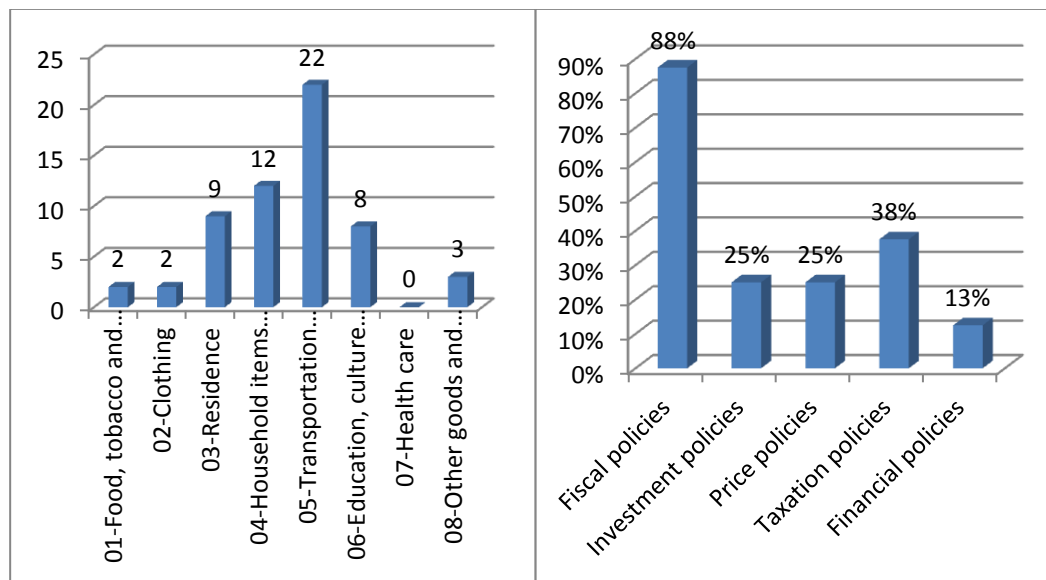
This study makes a comparative analysis of 40 economic policies on green consumption released by line ministries and eight categories<sup>5</sup> of household consumption in China.

**Table 3-2 Summary Table of Macroeconomic Policy Pairs (General Categories)**

<b>Eight Categories of Household Consumption Expenditure</b>	<b>Number of Policies (Unit)</b>	<b>Fiscal</b>	<b>Investment</b>	<b>Price</b>	<b>Taxation</b>	<b>Financial</b>
01- Food, tobacco and alcohol	2	2 (100%)	-	-	-	-
02- Clothing	2	2 (100%)	-	-	-	-
03- Residence	9	4 (44%)	1	4	-	-
04- Household items and services	12	11 (92%)	-	-	1	-
05- Transportation and communication	22	14 (67%)	1	1	6	-

<sup>5</sup> The *Classification of Resident Consumption Expenditures* issued by the National Bureau of Statistics (NBS) in 2013 divides household consumption expenditures into 8 general categories, 24 classifications and 80 types. The 8 general categories are: (1) food, tobacco and alcohol, (2) clothing, (3) residence, (4) household items and services, (5) transportation and communication, (6) education, culture and entertainment, (7) health care, and (8) other goods and services.

06- Education, culture and entertainment	8	7 (88%)	-	-	1	-
07- Health care	0	- (0%)	-	-	-	-
08- Other goods and services	3	2 (67%)	-	-	-	1
E.g.: 01 Food, tobacco and alcohol, Ratio of fiscal policy quantity = Number of fiscal policy (2) / Total policy quantity (2) *100%=100%						



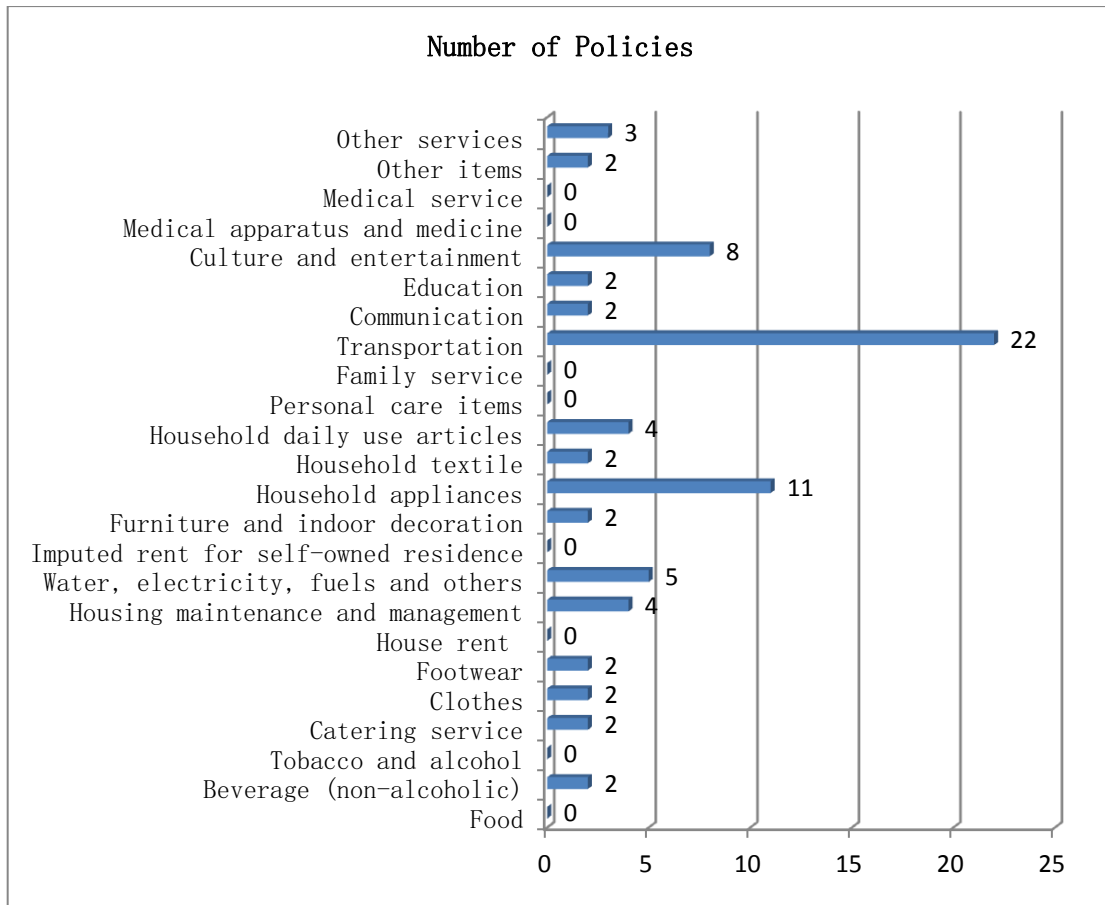
**Figure 3-2 The Distribution of Macroeconomic Policies in the Eight General Categories of Household Consumption Expenditures**

The distribution of green consumption policies in household consumption general categories has the following features: **(1) Economic policies are concentrated in the “Transportation and Communication” category and “Household Items and Services” category, with a respective share of 38% and 21% in the total policies.** The categories of “Food, Tobacco and Alcohol”, “Clothing”, “Residence”, “Education, Culture and Entertainment”, and “Other Goods and Services” account for 3%, 3%, 15%, 14% and 5% respectively in the total policy portfolio. There is no sustainability related policy issued in the 7<sup>th</sup> category of health care. **(2) Within economic policies, fiscal policies (including subsidies, preferential measures, and procurement, etc.) have the highest coverage rate in seven general categories (health care excluded), reaching 88%.** In comparison, the coverage rates of taxation, investment, price, and financial policies are 38%, 25%, 25% and 13% respectively.

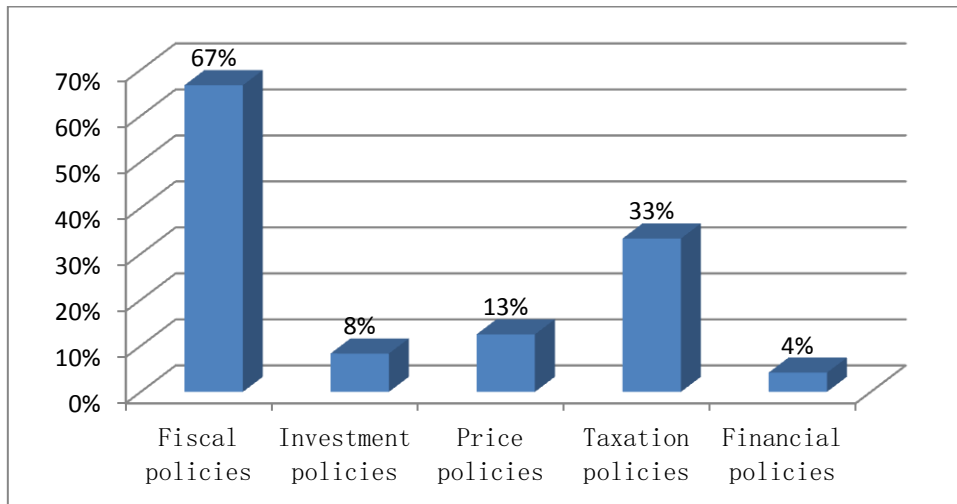
An analysis is made to further compare the 40 macro-level green consumption policies and 24 classifications <sup>6</sup> of household consumption. The results are illustrated

<sup>6</sup> The 24 classifications include: (1) food, (2) beverage, (3) tobacco and alcohol, (4) catering service, (5) clothes, (6) footwear, (7) housing maintenance and management, (8) water, electricity, fuels and others, (9) imputed rent for self-owned residence, (10) house rent, (11) furniture and indoor decoration, (12) household appliances, (13)

in Figure 3-3 and Figure 3-4.



**Figure 3-3 Quantity of Green Consumption Policies in the 24 Classifications**



**Figure 3-4 Distribution of Economic Policies in 24 Classifications**

As shown by the above Figure 3-3 and Figure 3-4, the distribution of green

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household textile, (14) household daily use articles, (15) personal care items, (16) family service, (17) transportation, (18) communication, (19) education, (20) culture and entertainment, (21) medical apparatus and medicine, (22) medical service, (23) other items, and (24) other services.

consumption economic policies in household consumption classifications has the following features. **(1) Economic policies are mainly distributed in** classifications of “Transportation”, “Household Appliances”, and “Culture and Entertainment”, which account for 38%, 19%, and 14% of the total number of the policies respectively. The rest 29% of the policy portfolio are policies pertinent to “Beverage”, “Catering Service”, “Clothes”, “Footwear”, “Housing Maintenance and Management”, “Water, Electricity, Fuels and Others”, “Furniture and Indoor Decoration”, “Household Textile”, “Household Daily Use Articles”, “Communication”, “Education”, “Other items”, and “Other Services”. In addition, there is zero economic policy in 8 classifications (including “Food”, “Tobacco and Alcohol”, “House Rent”, “Imputed Rent for Self-owned Residence”, “Personal Care Items”, “Family Service”, “Medical Apparatus and Medicine”, and “Medical Service”). **(2) Among all the economic policies, fiscal policies (including subsidies, preferential measures, and procurement, etc.) have the largest corresponding proportion in 24 classifications,** with 100% share in 10 classifications. There are 4 price policies in the classification of “Water, Electricity, Fuels and Others”, accounting for 80% of total policies in this class. There are 6 taxation policies in the class of “0501 Transportation”, taking up to 43% of the total policies in the class. **(3) The coverage rate of different policies varies greatly.** Fiscal policies cover 16 of the 24 classifications, attaining the highest coverage rate (67%). Taxation policies are found in 8 classifications, with a coverage rate of 33%. Price policies are used in 3 classifications, with a coverage rate of 13%. Investment policies are put in place in 2 classifications, with a coverage rate of 8%. Financial policies are applied in only one class, with a coverage rate of 4%.

In general, China’s current economic policies place major emphasis on transportation, household appliances, and culture and entertainment, among which fiscal policies contribute to a relatively large proportion.

### **3.2.1.2 Other Policies**

Among the 75 ministerial policies, 40 are economic policies, while the remaining 35 policies are focusing on green product/service certification and assessment.

Based on thorough consideration of pertinence, representation, credibility in the government, standardization, data availability, consumer cognition, as well as the implementation status, this study finally selects the following certification and assessment policies to make comparative analysis with the household consumption expenditure categories, including energy-saving and water-saving product certification, environmental labelling and certification, green building certification, green building materials assessment, green food, organic products, and green hotel.



**Table 3-3 A Summary of Implementation Status of Market-oriented Mechanisms in  
Green Consumption Related Fields**

No.	Certification / Assessment Type	Starting Year	Competent Authorities	Number of Standards (Item)	Household Consumption Expenditure Classification Pairing	Benefits of Market-oriented Policy Instruments
1	Energy-saving and water-saving product certification	1999	Certification and Accreditation Administration (CNCA)	160	<ul style="list-style-type: none"> <li>➤ 3 categories</li> <li>➤ 5 classifications</li> <li>➤ 9 types</li> </ul>	<ul style="list-style-type: none"> <li>√ Saving energy</li> <li>√ Saving water</li> <li>√ Saving materials</li> <li>√ Reducing CO<sub>2</sub> emission</li> </ul>
2	Environmental labelling and certification	1993	Ministry of Ecology and Environment (MEE)	101	<ul style="list-style-type: none"> <li>➤ 7 categories</li> <li>➤ 15 classifications</li> <li>➤ 30 types</li> </ul>	<ul style="list-style-type: none"> <li>√ Saving energy</li> <li>√ Saving water</li> <li>√ Saving materials</li> <li>√ Reducing CO<sub>2</sub> emission</li> <li>√ Reducing pollutant discharge</li> </ul>
3	Green building assessment	2007	Ministry of Housing and Urban-Rural Development (MOHURD)	10	<ul style="list-style-type: none"> <li>➤ 3 categories</li> <li>➤ 6 classifications</li> <li>➤ 11 types</li> </ul>	<ul style="list-style-type: none"> <li>√ Saving energy</li> <li>√ Saving water</li> <li>√ Saving materials</li> <li>√ Reducing CO<sub>2</sub> emission</li> <li>√ Reducing pollutant discharge</li> </ul>
4	Green building materials assessment	2014	Ministry of Housing and Urban-Rural Development (MOHURD), Ministry of Industry and Information Technology (MIIT)	8	<ul style="list-style-type: none"> <li>➤ 2 categories</li> <li>➤ 2 classifications</li> <li>➤ 3 types</li> </ul>	<ul style="list-style-type: none"> <li>√ Saving materials</li> <li>√ Reducing pollutant discharge</li> </ul>
5	Green food labelling and certification	1991	Ministry of Agriculture and Rural Affairs (MOA)	126	<ul style="list-style-type: none"> <li>➤ 1 category</li> <li>➤ 3 classifications</li> <li>➤ 15 types</li> </ul>	<ul style="list-style-type: none"> <li>√ Reducing pollutant discharge</li> </ul>
6	Organic product certification	1995	Certification and Accreditation Administration (CNCA)	127	<ul style="list-style-type: none"> <li>➤ 4 categories</li> <li>➤ 6 classifications</li> <li>➤ 17 types</li> </ul>	<ul style="list-style-type: none"> <li>√ Reducing CO<sub>2</sub> emission</li> <li>√ Reducing pollutant discharge</li> </ul>
7	Green hotel assessment	2008	Ministry of Commerce (MOFCOM)	2	<ul style="list-style-type: none"> <li>➤ 4 categories</li> <li>➤ 4 classifications</li> <li>➤ 20 types</li> </ul>	<ul style="list-style-type: none"> <li>√ Saving energy</li> <li>√ Saving water</li> <li>√ Reducing CO<sub>2</sub> emission</li> <li>√ Reducing pollutant discharge</li> </ul>

As shown in the above table, compared with other certification and assessment types with strong “special attribute”, environmental labelling and certification covers the widest range, involving 7 categories, 15 classifications and 30 types of household consumption expenditures respectively, showing the highest coverage. Viewing from the launching year, China’s green food labelling and certification was the earliest, which was initiated in 1991. With regard to the number of published evaluation standards, the number of energy-saving and water-saving products have the largest quantity of standards. In terms of environmental performance, environment-labelled products can generate the synergetic effects of resource conservation, pollutant emission and GHGs emission reductions, and achieve better environmental performance than other certification tools.

### **3.2.2 Effects of Implementing Green Consumption Policies in China**

At present, China has not yet carried out any top-level design nor developed any national strategy or action plans for boosting green consumption. The promotion of green consumption is still dominated by policies issued by various line ministries and administrations. To better analyze the actual effects of China’s green consumption policies, this study divides the green consumption policies into mandatory policy, regulatory policy, and information-based policy according to the management means used by each policy.

**Table 3-4 Major Policy Instruments for Green Consumption in China**

<b>Types of Green Consumption Policy</b>	<b>Major Policy Instruments</b>	<b>Policy Areas</b>
National strategy	None	--
National action plan	None	--
Mandatory policy	Financial aids or subsidies	<ul style="list-style-type: none"> <li>- Efficient lighting products, efficient energy-saving products</li> <li>- Energy-saving and new energy vehicles, energy-efficient and environment-friendly vehicles</li> <li>- “Old for new service” for remanufactured products, recycling of discarded and old goods</li> <li>- Discarding and upgrading old cars</li> <li>- “Old for new service” for cars, “Old for new service” for household electronic appliances</li> <li>- “Old for new service” for furniture, tax reduction for low-pollution and low-emission cars</li> </ul>
	/	<ul style="list-style-type: none"> <li>- Subsidized loan for upgrading refined oil product quality</li> <li>- Solid wood floor, disposal wooden chopsticks</li> <li>- Organic fertilizer product</li> <li>- Reclaimed oil product from waste mineral oil</li> </ul>
	Price differentiation and tiered pricing	Tiered pricing for electricity, tiered pricing for water, tiered pricing for gas
	Waste disposal fund	Recovery and disposal of waste electronic products
Regulatory policy	Standards	<ul style="list-style-type: none"> <li>- Green product standards</li> <li>- Standards for China environmental labelled products</li> </ul>
	Orders and bans	<ul style="list-style-type: none"> <li>- Government green procurement of environmental labelled products</li> <li>- Government green procurement of energy-saving products</li> <li>- Green printing of textbooks for primary and secondary schools</li> <li>- Green printing of receipts and tickets</li> <li>- Recycling of discarded cars, ban on free plastic bags, prohibition on excessive food packaging</li> <li>- Prohibition on excessive cosmetics packaging</li> <li>- Waste separation</li> </ul>
Information-based policy	<ul style="list-style-type: none"> <li>- China environmental labelled products, energy-saving products, water-saving products, energy efficiency label</li> <li>- Water efficiency label, green and eco-labelled products, organic food, green food, organic products</li> <li>- Pollution-free agricultural products, green hotels, green buildings</li> </ul>	

### 3.2.2.1 Mandatory Policies

This study analyzes and summarizes the implementation effects of mandatory green consumption policies in China, including the promotion of efficient lighting products, promotion of efficient household electronic appliances, promotion of high efficiency desk-top computers, promotion of energy efficient electric generators, promotion of energy-saving and new energy vehicles, gasoline quality upgrading, recycling and remanufacturing of waste electrical and electronic products, recycling of discarded and old vehicles.

Multiple benefits have been achieved through implementing such mandatory green consumption policies. Objectively, policy implementation has improved the market share of energy-efficient products in a short period of time, promoted the adjustment of industrial structure, stimulated the consumption demand, and generated a sound demonstration effect for boosting green product consumption in the society. The result of such policy output also channels multiple benefits to the target groups and enables them to enjoy “lowered price, savings in energy and expenditure, and improved life quality”. For instance, the policy on upgrading gasoline quality pushes forward the upgrading of product quality of China’s entire fuel oil industry; whereas, policies on recycling and remanufacturing of waste electrical and electronic products as well as used and old vehicles have made substantial contributions to the development of recycling industries for waste electrical and electronic products and old automobiles, and generated huge environmental benefits by greatly reducing pollution discharges.

However, certain problems emerged during the policy implementation process, which make the policy results deviate from the design objectives. Such problems include, for instance, the pollution caused by discarded energy-saving lamps; the subsidy fraud under promotion of efficient household electronic appliances and promotion of new energy vehicles; the timing issue for promotion of high efficiency and energy-saving desk-top computers; the subsidy time for energy efficient electric generators; as well as the problem caused by the excessively rapid decline of subsidies for energy-saving and new energy vehicles.

**Table 3-5 Analysis of Implementation Effects of Mandatory Policies**

Policies		Policy Documents	Policy Effects	Existing Problems
1	Promotion of efficient lighting products	“Interim Measures for Management of Financial Subsidy Fund for Promoting Efficient Lighting Products” (Cai	By 2013, China had adopted 780 million energy-saving lamps and other high-efficiency lighting products, saving 32 billion kilowatt-hours of electricity and reducing 32 million	The recycling of energy-saving lamps is faced with “three neglect” (by the market, by the producer, and by the competent authority). The discarded

		Jian [2007] No. 1027)  Implementing period: 2007 – 2013	tons of carbon dioxide annually.	energy-saving lamps are generally treated as ordinary waste, and the mercury contained in these products directly enters the food chain in nature, threatening public health.
2	Promotion of efficient household electronic appliances	“Energy-saving Products for the Benefit of the People” Program  Implementing period: 2009 – 2013	In 2017, the sales quantity of 5 categories of high-efficiency and energy-saving products reached nearly 150 million sets within China, with a total value of 500 billion CNY, including high-efficiency air conditioners, refrigerators, washing machines, flat-screen TVs, and water heaters. The annual power conservation is 10 billion kWh, equivalent to emission reduction of 6.5 million tons of CO <sub>2</sub> , 14,000 tons of SO <sub>2</sub> , 14,000 tons of NO <sub>x</sub> , and 11,000 tons of PM, The co-benefit of carbon emission reduction and pollution cut is prominent.	The relevant in-process and post-supervision was not in place, leading to the subsidy fraud in the implementation of the subsidy policy for the promotion of efficient and energy-saving household appliances.
3	Promotion of high efficiency desk-top computers	“Energy-saving Products for the Benefit of the People” Program  Implementing period: 2012 – 2013	The policy penetration degree was not enough. The computer promotion subsidy policy received little attention and the effect was not obvious.	Desk-top computer had very small market share, with limited range of brand and model; while the lap-top computer was not covered by the policy. The dealers had to pay the energy-saving subsidies to the customers in advance, which was complicated in operation. In addition, the amount of subsidy was low and the benefit limited. Therefore the sellers were not interested in the subsidies.
4	Promotion of energy efficient electric generators	“Energy-saving Products for the Benefit of the People” Program  Implementing period: 2010 – 2017	By 2017, the market share of energy efficient electric generators was 10%, and the promotion effect of efficient electronic generators was not significant.	The price of energy efficient electric generator is generally high. Its price is usually 20% higher than that of ordinary generator and some price gap even exceeds 50%. The effect of subsidy was not obvious. The subsidy was not given timely.

				The policy was launched in 2010. However, it was until 2017 that the promotion subsidy was liquidated.
5	Subsidies for energy-saving and new energy vehicles	<p>“Notice on Launching Pilot Operation of Promoting Energy-saving and New Energy Vehicles”</p> <p>Implementing period: 2010</p>	<p>In 2017, the production and sales of new energy vehicles in China reached 794,000 and 777,000 respectively, with the corresponding year-on-year rise of 53.8% and 53.3%. The figures were 45 times and 44 times of the respective levels in 2013. It took only three years for China to become the world’s largest new energy vehicle producer and seller, with its share in global market soaring from less than 10% to 44.39%.</p>	<p>In the initial stage of promotion, the subsidy level was too high and thus unsustainable. However, in the subsequent subsidy reduction policy, the subsidy cut was too abrupt and excessively fast. In 2017, the subsidy amount of main models was reduced by 40% – 50% (the central and local subsidies combined) compared with that before subsidy reduction. The industrial development orientation in the subsidy policy was insufficient. The setting of subsidy threshold and admittance standard failed to give clear and strict industrial development orientation. There existed subsidy fraud and arbitrage.</p>
6	Gasoline quality upgrading	<p>“Notice on the Opinions on the Price Policy for Gasoline Quality Upgrading by National Development and Reform Commission” (DR Price [2013] No. 1845)</p> <p>Implementing period: 2013 – 2017</p>	<p>In view of the process from National I Standard to National IV Standard, each standard improvement will lead to a pollutant emission cut of 30% – 50% per car. Compared with the National IV Standard, the National V Standard further cuts the sulfur content from 50 ppm to no more than 10 ppm. According to the estimates by the Standardization Administration, the implementation of National V Standard for gasoline alone will significantly reduce the pollutant emissions of vehicle. It is estimated that the annual reduction of NO<sub>x</sub> for in-use vehicles will be about 300,000 tons; and the 5-year cumulative reduction of NO<sub>x</sub> for new cars will be about 90,000 tons.</p>	
7	Recycling	“On Implementing the	The “old for new service” and	Disassembly enterprises rely

	and remanufacturing of waste electrical and electronic products	Promotion Plan for ‘Old for New Service’ for Household Electronic Appliances” (Shang Shangmao Fa [2010] No. 190)  Implementing period: 2010 – 2011	subsidies for household electronic appliances have brought excellent environmental benefits and given birth to a number of terminal sales enterprises trading in “old for new” and disassembly enterprises for old home appliances. The policy has greatly promoted the development of home appliance recycling industry. By the end of 2017, 109 disassembly and disposal enterprises of waste electrical and electronic products in 29 provinces (autonomous regions and municipalities) had been included in the list of enterprises subsidized by the fund for the disposal of waste electrical and electronic products.	heavily on fund subsidies to generate income, with poor self-sustaining mechanisms. As the issuance of subsidies takes a long time, disassembly enterprises generally face greater financial pressure. The subsidy fund cannot make ends meet, and the system needs to be improved. The main reason for the fund insufficiency is that the standard for producer payment is significantly lower than the subsidy standard.
8	Recycling and remanufacturing of discarded and old vehicles	“Interim Measures for the Management of Subsidy Funds for Discarding and Renewing Old Automobiles”  Implementing period: 2004	The trade-in policy has not only boosted automobile consumption, but also accelerated the process of phasing out high-emission and high-pollution “yellow label” cars and old cars. It has played a positive role in guiding car owners to discard and update their vehicles in a timely manner, preventing scrapped vehicles from flowing into society, reducing road traffic safety risks, and protecting people’s lives and property.  In 2017, a total of 1.741 million scrapped motor vehicles were recovered by 689 recycling enterprises in China, with a year-on-year cut of 3.2%. Among them, 1.472 million were automobiles, which had a year-on-year decrease of 7.6%.	Although China’s scrapped car recycling and dismantling industry has been developing rapidly in recent years, China’s recycling and dismantling enterprises still suffer from low level of capacity, compared with developed countries. Most of the enterprises adopt extensive scrap and recovery method, commonly with backward management mode, technical means and simple facilities. Due to low recycling level, it is difficult to improve the recovery rate of parts in scrapped cars. As a result, parts that could be recycled become waste parts, thus increasing the environmental burden.

### 3.2.2.2 Regulatory Policies

This study assesses the effects of such policy practices as government procurement of energy-saving products, government procurement of environmental labelled products, as well as green printing. As shown by the assessment results, government procurement of energy-saving products and environmental labelled products and

green printing are the most successful policies in practice. No additional financial input is required from the government for policy execution. The implementation merely depends on the regulations issued by the government and targets at the government and the industries. These policies have driven the upgrading and transition of the entire industry, with the help of positive guidance and demonstration from government green consumption. Excellent environmental benefits and social benefits have been achieved.

**Table 3-6 Analysis of Implementation Effects of Regulatory Policies**

	<b>Policies</b>	<b>Policy Documents</b>	<b>Policy Effects</b>	<b>Existing Problems</b>
1	Government procurement of energy-saving products	“Opinions on Implementing Government Procurement of Energy-saving Products”  Implementing time: 2004	By 2018, the 24 <sup>th</sup> List of Energy-saving Products for Government Procurement has been published (issued on August 10, 2018). According to the 24 <sup>th</sup> List, the certified energy-saving and water-saving products for government mandatory procurement and priority procurement total to 26 categories, including 51 types of energy-saving products and 8 types of water-saving products. Among them, 23 types of energy-saving products (office equipment, lighting products, etc.) and 4 types of water-saving products (toilet, etc.) are for government mandatory procurement. The government procurement system has effectively promoted the transition of consumption towards efficient and energy-saving products and pushed forward the energy conservation efforts of public institutions.	There is limited variety of energy-saving products for mandatory procurement.
2	Government procurement of environmental labeled products	“Opinions on Implementing Government Procurement of Environmental Labelled Products”  Implementing time: 2006	As of 2018, a total of 22 issues of List of Environmental Labelled Products for Government Procurement have been released. The content expanded from 14 categories of products in the 1 <sup>st</sup> issue to 69 categories of products in the 22 <sup>nd</sup> issue, including office equipment and consumables, passenger cars, household appliances, furniture and building materials, etc. The number of selected enterprises and products have increased from 81 enterprises and 856 product models in the 1 <sup>st</sup> issue to 3,077 enterprises and 392,586 product models in the 22 <sup>nd</sup> issue. According to statistics	Such products are listed as products for priority procurement. There is limited coercive power for mandatory procurement.



			from the Ministry of Finance (MOF), the volume of government procurement of environmental labelled products in China reached 171.13 billion CNY in 2017, accounting for 90.8% of the total similar products by government procurement.	
3	Green printing	<p>“Announcement on Implementing Green Printing”</p> <p>Implementing time: 2011</p>	<p>Since 2016, all of the 1.3 billion textbooks of fall semester for primary and secondary schools in China have been produced through green printing. Some children’s reading materials in localities such as Beijing, Shanghai and Shaanxi province are also published using green printing. According to estimates based on sampling statistics, at present, the use of environment-friendly ink has accounted for 25% of the total ink use nationwide, increasing by 5% compared with the level of previous year. In the field of offset printing, more than 30% of the enterprises have installed dust collection device, which has improved the working conditions of nearly 55% of the employees in the printing industry. Around 60% of the bills and tickets have been made by green printing, which has effectively improved the health of the bill printing personnel and users. The implementation of green printing has benefited the workers in the entire printing industrial chain as well as the general public.</p>	<p>At present, there are only 4 product standards / specifications issued for green printing. The types of standards are relatively few.</p>

### 3.2.2.3 Information-based Policies

This study evaluates the policy implementation effects of China’s energy-saving and water-saving product certification, environmental labelling and certification, green building certification, green building materials assessment, green food, organic product and green hotel. The evaluation results show that the green product/service certification and assessment has furnished a large number of green and eco-labelled products for the market, and built a consumption scenario for Chinese consumers to practice green consumption.

Secondly, green product/service certification and assessment has produced promising environmental performance. With the continuous expansion of green product variety

and scale, environmental performance of the green product/service certification and assessment has been showing gradually.

**Table 3-7 Analysis of Implementation Effects of Information-based Policies in China**

Policies	Policy Documents	Policy Effects	Existing Problems	
1	Energy-saving and water-saving product certification	<p>Management Measures for Energy-saving Products Certification in China</p> <p>Implementing time: 1999</p>	<p>By the end of 2017, 4,812 enterprises had obtained 104,816 certificates for energy-saving and water-saving products with a “saving” label, showing respective year-on-year increase of 15.8% and 16.1%. In 2016, the certified energy conservation products saved 565,432,600 kWh of electricity, equivalent to 17,811,100 tons of standard coal. The certified water-saving products conserved 46.222 billion tons of water in 2016.</p>	<p>A number of domestic institutions can carry out similar certification. Their technical specifications are different and the assessment results have poor comparability. The existence of varied certification labels affects the authority and effectiveness of the certification. There exists vicious competition.</p>
2	Environmental labelling and certification	<p>Management Measures for Environmental Labelling and Certification in China</p> <p>Implementing time: 1993</p>	<p>By the end of 2018, there have been 3,418 enterprises with valid environmental labels. More than 400,000 models of products have been certified, and a green market with an output value of 4 trillion CNY formed. It is estimated that in 2016 China environmental labelled products saved 24.74 billion kWh of electricity and 44.31 million tons of water; reduced emissions of 5.79 million tons of CO<sub>2</sub>, 890,000 tons of VOC, 36.65 million tons of COD, and 80,000 tons of total phosphorus; reduced the generation of 12,300 tons of plastic waste and 21.56 million tons of industrial residue; reduced use of pulp by 2.53 million tons; and improved 30,000 tons of recycled plastics.</p>	<p>At present, there are only a small number of standards types for environmental labels in China, which are limited to products that are in close contact with consumers. In the production process, there is relatively large consumption of resources and energy, and there is a lack of relevant standards for those products and services with serious pollution.</p>
3	Green hotel	<p>Notice on Further Promoting the Development of Green Hotel</p> <p>Implementing time: 2008</p>	<p>As of 2018, the number of certified green hotel exceeded 1,500, with more than 2,300 green hotel reviewers.</p>	<p>Although the industrial standards for green hotel has been issued, and the accreditation criteria for green hotels been elaborated and quantified for scoring, there is no legal-binding power in the real implementing progress, because the standards are only industrial</p>

				regulations. Even if the hotel violates the regulations, it will receive no legal punishment. The effect of the policy is limited.
4	Organic product	<p>Management Measures for Organic Food Labelling</p> <p>Implementing time: 1995</p>	<p>As of 2017, a total of 18,330 organic product certificates have been issued in China, and 11,835 enterprises have been accredited. In 2017, China's organic products were still dominated by primary commodity, with plant products accounting for the largest proportion, followed by processed products. The largest number of certificates reached 11,814, accounting for 63.3% of the total organic certificates. The number of certificates for processed products was 4,928, accounting for 26.4%. 951 certificates were given to livestock and poultry products, accounting for 5.1% of the total number of certificates. There were relatively few certificates for aquatic products and wild collection products, with 541 for aquatic products and 441 for the other, accounting for 2.9% and 2.4% respectively.</p>	<p>There is emphasis on certification process, but lacks inadequate supervision and management after certification. In current organic product certification industry, there are such phenomena as trading of labels, illegal printing or use of organic product labels, etc. which brings ill market effect.</p>
5	Green food	<p>Management Measures for Green Food Labelling</p> <p>Implementing time: 1993</p>	<p>By 2018, a total of 31,946 products from 13,860 enterprises have obtained the green food label (including the expired green food label).</p>	<p>The publicity efforts for green food labelling are not enough, and there are insufficient efforts to publicize green food's role in protecting eco-environment. However, the shares of those products that are most concerned by consumers or have large market demand in the total certified goods are relatively small. Such products include livestock, poultry, meat products and aquatic products.</p>
6	Green building	<p>Management Measures for Green Building Assessment</p> <p>Implementing time:</p>	<p>By 2016, 387 projects passed the green building assessment, among which 51 projects were given operation labels, accounting for 13.18%; and 336 projects obtained design labels, accounting for 86.82%.</p>	<p>The current management system for green building assessment mainly stipulates relevant procedures such as application, filing, publicity, and announcement. First, there is a lack</p>

		2007		of effective supervision mechanism for the project quality assessed by evaluation institutions at all levels, so it is difficult to guarantee the assessment quality. Second, the supervision of the implementation of labeled projects needs to be strengthened. It is quite common that the actual building fails to follow the original design. Third, there lacks restriction on whether the project with design label can apply for operation label. Thus it is difficult for the labelling to fully play its due role.
7	Green building materials	Management Measures for Green Building Material Assessment  Implementing time: 2014	As of 2018, a total of 924 products were recognized as green building materials in China. Among them, 163 products were masonry materials, accounting for 17.64%; 86 thermal insulation products, accounting for 9.31%; 428 ready-mixed concrete products, accounting for 46.32%; 8 glass products for building energy conservation, accounting for 0.87%; and 98 ceramic products, accounting for 10.61%. There were 25 sanitary ceramic products, accounting for 2.71%; and 115 pre-mixed mortar products, accounting for 12.45%. In all categories of assessment labels, the proportion of three-star label products was 67.10%, and that of two-star and one-star products accounted for 31.39% and 1.52%, respectively.	At present, the level of recognition and acceptance of green building materials is not high in China. There are inadequate inputs in basic research and development as well as standard development for green building materials.

### 3.3 Challenges for Green Consumption Policies and Practices in China

Green consumption in China is facing two major problems. On the one hand, the supply of green consumer products is insufficient. In terms of green food, energy-saving product, green building, public transportation or environmental labelled product, the provision scale is relatively small and far from serving as the mainstream of consumer goods in areas of food, clothing, housing and transportation. Thus the corresponding scale effect of resource and environment benefits brought by

sustainable consumption choices is finite. On the other hand, people's willingness to choose green goods is growing rapidly, but with more attention paid to the impact of consumption on their own health, so the status quo of certain consumer behaviors is hardly being gratifying. According to an analysis by the Ali Research Institute, the proportion of sustainable consumers on Alibaba retail platform had jumped from 3.8% in 2011 to 16.2% in 2015, with the age group of 23 – 28 taking the lead; and the average premium of green commodities reached 33% (the ratio of green commodity prices to non-green commodity prices). A public survey on China's environmental labeling shows that 90% of the respondents are aware of the "China Environmental Labelling", and 78.4% of the respondents are willing to pay equal or even higher price for products certified by "China Environmental Labelling". However, the dilemma of waste sorting problems, and the current issues of waste separation, and the current situation of excessive consumption and waste indicate big challenges in greening consumption behaviors and lifestyle in China.

On the whole, out of mandatory policy, regulatory policy or information-based policy, no matter which policy approach has been chosen, positive results have been achieved in China's green consumption policies on clothing, food, housing and transportation. However, there is still room for improvement in the implementation process of certain green consumption policies. From the perspective of policy framework and practice, China's green consumption policy system still faces the following challenges.

First, there is a lack of systematic planning and top-level policy design. Relevant documents and regulations at national level have outlined the concept, principles, and requirements of green consumption. However, most of the current specific policies are regulatory documents such as management measures, notices, guiding opinions which are issued by governmental departments. They cover incomplete categories, with relatively low level of administrative power and limited effectiveness. A sound legislative framework is waiting to be formed, which is underpinned by laws and regulations, policies, standards, technical specifications, supervision mechanisms, and accountability system. The green consumption related government responsibilities and functions are scattered in different departments; the role of eco-environmental protection authorities in promoting green transition of consumption needs to be effectively improved; and the fragmentation of policies and management is quite prominent.

Second, the promotion efforts for green consumption are insufficient. At present, China's green consumption policies focus on daily supplies, services and transportation, with narrow policy scope, and lack of policy norms, support and

guidance in service areas for green consumption, including *inter alia* eco-tourism, environmental services, green design, and clothing. In the field of green and eco-labelled products, there are plenty of policies on resource and energy conservation which have yielded sound effects; whereas the policies relating to environmental protection are few and corresponding effects are weak. The present policies are limited to subsidies on energy-saving products. Good market and energy conservation effects have been achieved by the financial subsidies on high efficiency and energy saving products such as air conditioners, refrigerators, flat-screen TVs, washing machines and electric generators. However, the subsidies for green products which can cut environmental pollution are not adequate. Given the lack of financial support, consumption choices are completely depending on consumers' own environmental awareness. Thus, there is insufficient impetus for green consumption which only has limited regulatory effects.

Third, green consumption is not firmly linked with the goal of improving environmental quality. On the one hand, with regard to the information tool products, various certification systems fail to properly consider China's present priorities and major tasks in environmental protection, in particular the tough battle against pollution control and prevention. Thus, they have weak objectives on environmental quality improvement, and the expected policy effects of product certification are not yet fully reached. On the other hand, the insufficient national level driving force for green consumption has resulted in inadequate role of the macro environment in leading green consumption.

Fourth, the endogenous motivation of green consumption from both enterprises and the public are highly needed. Enterprises and the public differ greatly in their cognition of the maturity of the green consumption market. It is still in the initial phase to foster the green consumption concept for the whole society, and the industries lack momentum for green consumption. Viewing from the provision perspective, there is inadequate supply of green consumer products. In terms of green food, energy-saving product, green building, or environmental labelled product, the provision scale is relatively small and far from meeting the mainstream needs in areas of food, clothing, housing and transportation. In addition, the enterprises have limited willingness to develop and produce green and eco-labelled products, and both of their innovation capacity and core competitiveness are not strong. Some enterprises intentionally speculate the "green" concept. It still lacks sufficient and effective supply of green and eco-labelled products. From the perspective of demand, people's willingness to choose green consumer goods is growing rapidly, but with more attention paid to the impact of consumption on their own health. In addition, the cost

of green and eco-labelled products is relatively high, and sometimes the green and eco-labelled products are well advertised but not well sold. The market demand still needs to be further explored.

## Chapter 4. Review of International Experiences and Related Lessons

### 4.1 Introduction

This chapter summarises how sustainable consumption and production (SCP) has evolved in the past, and gives an overview of SCP in the international arena, explains national approaches to sustainable consumption, highlighting the cases of Sweden and Germany, and suggests elements of a national SCP policy for China.

### 4.2 Sustainable Consumption and Production

The strategy to control the impacts of economic development has evolved from addressing end-of-pipe issues to taking on a broader systemic lens (such as norms and values that inform the economic system). Key early concepts included local pollution control at point of impact and technical (eco-) efficiency by industry. Now greater attention is given to sufficiency<sup>7</sup>, adopting a system-wide approach and addressing drivers of endless economic growth and consumerism.

- At the time of the 1972 UN Conference on the Human Environment (Stockholm), the effects of industrialisation, such as air and water pollution, poor waste management, and the consequences on cities and communities were perceived as isolated, site-specific issues and addressed through reactive policies<sup>8</sup>.
- By the 1980s, a more preventative approach embracing cleaner production in order to reduce the pollution from factories and manufacturing processes emerged. Policies aimed to increase efficiency of natural resource use, minimize waste generation and reduce pollution impacts and health risks from production using the precautionary principle and other tools<sup>9</sup>.
- Later, efficiency and the greening of material cycles and supply chains gained more attention as did developing technological solutions. The term “unsustainable patterns of production and consumption” was used for the first

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<sup>7</sup> O'Neill, D. W., Fanning, A. L., Lamb, W. F. & Steinberger, J. K. A good life for all within planetary boundaries. *Nat. Sustain.* **1**, 88–95 (2018).

<sup>8</sup> Akenji, L., Bengtsson, M. & Schroeder, P. Sustainable Consumption and Production in Asia — Aligning Human Development and Environmental Protection in International Development Cooperation. in *Sustainable Asia: Supporting the Transition to Sustainable Consumption and Production in Asian Developing Countries* (eds. Schroeder, P., Anggraeni, K., Sartori, S. & Weber, U.) 17–43 (World Scientific Publishing, 2017).

<sup>9</sup> UNEP. *Global outlook on sustainable consumption and production policies: Taking action together*. UNEP (UNEP, 2012).



time by UN member states<sup>10</sup>. Excessive consumption and related waste problems came into the discussion. Connections to poverty reduction and addressing inequality of access and decision-making power over natural resources were also clearly raised.

Government leadership can aim to shift society towards more sustainable consumption patterns; realize fundamental changes in values, norms, and principles; and, foster structural changes to reduce the energy and material throughputs of our economies so that we can live within the capacities of the Earth's life support systems.

#### **4.2.1 International Developments towards SCP**

Several international frameworks address sustainable consumption and/or behaviour change. For example, Agenda 21<sup>11</sup> calls for *development of “new concepts of wealth and prosperity which allow higher standards of living through changed lifestyles and are less dependent on the Earth’s finite resources and more in harmony with the Earth’s carrying capacity.”* The 2015 Paris Agreement<sup>12</sup> on climate change recognises the need for sustainable lifestyles, sustainable livelihoods, and resilient communities. The Sustainable Development Goals<sup>13</sup> include targets and goals, notably with SDG 12 being focused on SCP. The people-centred nature of the SDGs makes its success or failure a matter of how human behaviour is altered as a response to unsustainability risks.

The 10-Year Framework of Programmes for Sustainable Consumption and Production (10YFP) (2012)<sup>14</sup> developed numerous mechanisms for delivering on the framework: consumer information, sustainable lifestyles and education, sustainable public procurement, sustainable buildings and construction, sustainable tourism, and sustainable food systems. Rather than addressing individual stages in the production-consumption system and the supply chain, the programmes take a system-wide approach (e.g. food systems), addresses drivers (e.g. lifestyles), and bring together major stakeholders (e.g. governments, and businesses).

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<sup>10</sup> UN. Agenda 21. *United Nations Conference on Environment & Development* (1992). doi:10.1007/s11671-008-9208-3.

<sup>11</sup> UN. Agenda 21. *United Nations Conference on Environment & Development* (1992). doi:10.1007/s11671-008-9208-3.

<sup>12</sup> UNFCCC. Paris Agreement. *21st Conference of the Parties 3* (2015). doi:FCCC/CP/2015/L.9

<sup>13</sup> UNGA. Transforming Our World: The 2030 Agenda for Sustainable Development. 1–5 (2015). doi:10.1007/s13398-014-0173-7.2

<sup>14</sup> United Nations. A 10-year framework of programmes on sustainable consumption and production patterns. (2012).

European states in June 2016 endorsed a voluntary *Pan-European Strategic Framework for Greening the Economy* to align their green economy strategies with the sustainable development goals. Three of nine focus areas directly relate to consumption: a shift in consumer behaviours towards sustainable consumption patterns; promotion of green and fair trade; and creation of more green and decent jobs, while developing human capital. Similarly, the Asia Pacific Roadmap on Sustainable Consumption and Production 2017-2018 addresses sustainable lifestyles and education.

## **4.2.2 National Government Approaches to Sustainable Consumption and Production**

Sustainable consumption, which requires dematerialization and changing current predominant production-consumption systems, poses several challenges to the traditional endless-growth economic paradigm<sup>15</sup>. Sweden and Germany have developed national strategies dedicated to sustainable consumption and behaviour. They co-lead two 10YFP Programmes – Sweden co-leading with Japan on Sustainable Lifestyles and Education<sup>16</sup>, and Germany with Indonesia and Consumers International on Consumer Information<sup>17</sup>.

### **4.2.2.1 Sweden**

The Swedish national Strategy for Sustainable Consumption<sup>18</sup> was introduced in 2016. It focuses on the consumer-citizen. Strong roles are assigned to and cooperation is expected from municipalities, the business sector and civil society. Policy measures are presented under seven focus areas: increasing knowledge and deepening cooperation; encouraging sustainable ways of consuming; streamlining resource use; improving information on companies' sustainability efforts; phasing out harmful chemicals; improving security for all consumers; and addressing the sectors of food, transport and housing. Responsibility for the strategy is placed within the government's Ministry of Finance and not the Ministry of the Environment and Energy (as is often the case with sustainability policies). Sustainable consumption is thus not being treated as an environmental, but as a system-wide issue. The Ministry of Finance also has more resources for implementation, and stronger authority over

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<sup>15</sup> Jackson, T. *Prosperity Without Growth: Economics for a Finite Planet*. **14**, (Earthscan, 2009).

<sup>16</sup> <http://www.oneplanetnetwork.org/sustainable-lifestyles-and-education>

<sup>17</sup> <http://www.oneplanetnetwork.org/consumer-information-scp>

<sup>18</sup> <https://www.government.se/4a9932/globalassets/government/dokument/finansdepartementet/pdf/publikationer-in-fomtrl-rapporter/en-strategy-for-sustainable-consumption--tillganglighetsanpassadx.pdf>

other agencies that are supposed to engage in enforcement of compliance.

✧ *SCP Policy Example: Sustainable Waste Management in Sweden*

Sweden's Strategy for Sustainable Consumption calls for "streamlining resource use". Sweden is one of the most advanced countries in waste treatment and its waste recycling rate has reached 99%.<sup>19</sup> As a member of the European Union, Sweden's waste disposal follows the EU's Waste Framework Directive. The waste hierarchy priority in Sweden is as follows: (1) waste prevention; (2) reuse; (3) material recycling and biological treatment; (4) other recycling, e.g. energy recovery; (5) disposal, e.g. to landfill.<sup>20</sup>

The Swedish government has issued multiple pieces of legislation on waste disposal and supervision mechanisms, including: the *Waste Ordinance* which detailed rules for classification of Swedish life garbage collector and processing; the national *Environmental Code*, which stipulates the general principles, basic concepts, and responsibilities of government regarding MSW management; the Swedish EPA ban on the landfill of combustible household waste; and subsequent ban on landfill of organic household waste, such as kitchen waste; the 2012-2017 household garbage disposal plan and the 2014-2017 household garbage reduction plan. It also has an extended producer responsibility system by which the law requires manufacturers of packaging, tires, paper, batteries, electronics and cars to recycle and dispose of their products.

These laws and regulations form a rigid behavioral constraint, forcing enterprises and the public to fulfill their due environmental responsibilities and obligations. Tax policy is an important instrument. The EPB issued a domestic waste landfill tax of 250 kroner/tons in 2000 and subsequently increased the level to 435 kroner/tons in 2006. Since the tax was introduced, landfills in Sweden have fallen sharply, from 22% of municipal solid waste in 2001 to just 1% in 2010 at which point the tax was ended.

In 2011, the Swedish government began supporting enterprises in environmental protection science and technology, focusing on three main tasks: (1) promoting the export of Swedish environmental protection science and technology and promoting the domestic economic growth of Sweden; (2) promoting the R&D and innovation of environmental technology enterprises; and, (3) creating conditions for the market-oriented application of environmental technology. The total fiscal expenditure of this strategy was 400 million SEK, with 100 million SEK invested annually from 2011 to 2014. According to the national Statistics Sweden and the Swedish

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<sup>19</sup> <https://sweden.se/quick-facts/recycling-sweden/>

<sup>20</sup> Avfall Sverige (the Swedish Waste Management and Recycling association), *Waste Management 2018*, URL: [https://www.avfallsverige.se/fileadmin/user\\_upload/Publikationer/Avfallshantering\\_2018\\_EN.pdf](https://www.avfallsverige.se/fileadmin/user_upload/Publikationer/Avfallshantering_2018_EN.pdf)

Environmental Technology Council, 40,000 people work in the industry, creating an output value of 120 billion SEK.

#### 4.2.2.2 Germany

The German National Programme for Sustainable Consumption was introduced in 2016 and outlines relevant action in six implementation areas: food consumption, housing and households, mobility, clothing, work and office, and free time and tourism<sup>21</sup>. It is based on five key ideas: (1) making sustainable consumption a feasible option for consumers; (2) taking sustainable consumption out of the niche into the mainstream; (3) ensuring all sections of the population participate in sustainable consumption; (4) looking at products and services from a lifecycle perspective; and (5) shifting the focus from products to systems and from consumers to users.

The German National Programme was developed under the shared leadership of three federal ministries (Environment, Nature Conservation and Nuclear Safety; Food and Agriculture; and Justice and Consumer Protection), and is coordinated across all ministries on the basis that SCP is a cross-cutting issue requiring cross-departmental networking and implementation<sup>22</sup>. The programme is “a way for Germany to drive the necessary structural change towards sustainability in the economy and society”.<sup>23</sup>

##### ✧ *SCP Policy Example: Eco-labelling in Germany*

Over the years, Germany and China have cooperated on eco-labelling work and continue to do so, e.g. within the context of work on this SPS. Germany’s position as co-lead on the 10YFP Consumer Information Programme reflects its position as a longstanding leader in the field: its Blue Angel eco-label was the first in the world, introduced more than 40 years ago by the German Federal Government, and identifies products and services which are particularly environmentally friendly.<sup>24</sup>

In line with its leadership in this area, Germany has come up with a Sustainability Standards Comparison Tool (SSCT) to benchmark voluntary sustainability standards. One manifestation of this is Siegelklarheit ([www.siegelklarheit.de](http://www.siegelklarheit.de)), a website (and accompanying mobile application) for consumers to compare criteria across the 129

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<sup>21</sup>[https://www.bmu.de/fileadmin/Daten\\_BMU/Download\\_PDF/Produkte\\_und\\_Umwelt/nat\\_programm\\_konsum\\_bf.pdf](https://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Produkte_und_Umwelt/nat_programm_konsum_bf.pdf)

<sup>22</sup> Helen Czioska & Dr. Laura Spengler, “National Programme on Sustainable Consumption & Competence Centre for Sustainable Consumption: Societal change through a sustainable lifestyle”, Presentation by the Competence Centre for Sustainable Consumption, 23 March 2019.

<sup>23</sup> Programme document, at page 5.

<sup>24</sup>[http://www.oneplanetnetwork.org/sites/default/files/181017\\_uba18002\\_40jahreblauerengel\\_publication\\_en\\_web.pdf](http://www.oneplanetnetwork.org/sites/default/files/181017_uba18002_40jahreblauerengel_publication_en_web.pdf)

standards currently listed on the website. At present, there are 96 types of environmental labelled products across sectors in China.<sup>25</sup> As awareness on sustainable consumption increases among consumers, public procurers and practitioners, an online system such as the SSCT in Germany could thus be of interest in China as well.

### 4.3 Creating a National SCP Policy for China

In today's consumption-oriented societies, achieving sustainable consumption remains a far-off goal. Much needs to be done to stem the growing global waste crisis which is polluting land and ocean and doing damage to human health and the environment. The Chinese government is in a strong position to take measures for the benefit of the greater good and to avoid the tragedy of the commons by promoting sustainable behaviour. While western economies have emphasised individualism and fostered more individualistic social structures, China tends to take an approach of collectivism (shared responsibility). In theory, collectivism is more in keeping with sustainable consumption approaches, emphasising community building and trust, and shared prosperity, shared economy and a tendency for acceptance of solutions that are seen as fair to everyone.

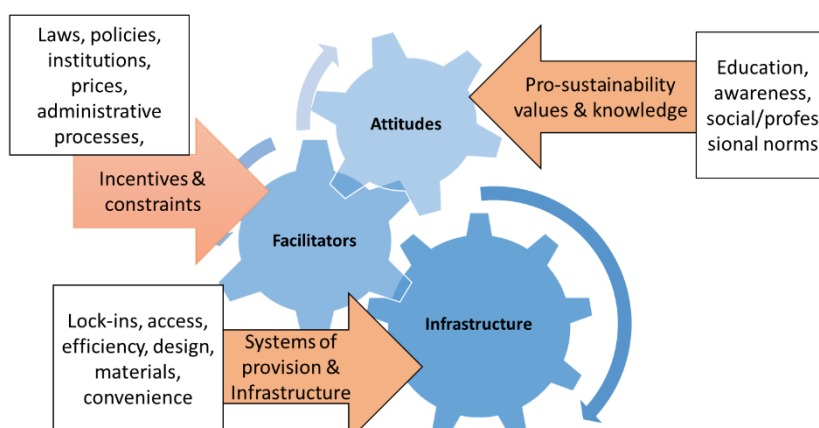


Figure 4-1 Key Elements of Policy Design to Enable Sustainable Consumption

#### 4.3.1 A Three-prong Strategy for Sustainable Consumption Policy

Determinants of consumption and lifestyles can be used as a framework to support design of policy and other interventions: engendering pro-sustainability *attitudes* in consumers, businesses and institutions, and government; establishing *facilitators* of access to sustainable options and constraints on unsustainable ones; and developing the appropriate *infrastructure* and product options for sustainable living<sup>26</sup>. Interventions using the attitude-facilitator-infrastructure framework would address:

<sup>25</sup> [http://en.mepcec.com/yinxing\\_xgl.html](http://en.mepcec.com/yinxing_xgl.html)

<sup>26</sup> Akenji, L. Consumer scapegoatism and limits to green consumerism. *J. Clean. Prod.* **63**, 13–23 (2014).

the attitude and knowledge-behaviour gap, behaviour restrained by lock-in to prevailing systems and infrastructure, and macro-level social and physical factors that determine behaviour patterns<sup>27</sup>.

**Attitudes** can refer to both individual orientation and collective social values towards sustainability. This is about the attitudes of all stakeholders involved in the production-consumption system, as well as those influencing or being influenced by it: consumers, entrepreneurs, policy makers, legal practitioners, farmers, community leaders, politicians, and teachers. All actors need to recognize the importance of sustainable consumption and be aligned in making it happen. By implication, all institutions responsible for these factors would need to be engaged in engendering sustainable living<sup>28</sup>.

**Facilitators** are elements that translate knowledge or intentions into action – they make it easy to find and choose the sustainable products and services. Government laws and policies are facilitators. The most widely recognised facilitators are institutional elements<sup>29</sup>, the various soft and often intangible aspects directing choices and behaviour and that together define the operating system of a society. Examples of such facilitators include laws and regulations, administrative procedures, culture and norms, and markets. This is one area where government can play a decisive role – also making sure to have implementation mechanisms, proper indicators and monitoring systems in place.

**Infrastructure** influences greatly possibilities for sustainability. Part of the importance of infrastructure such as for transportation and housing is how it creates lock-ins – making people using them behave in certain predetermined ways for as long as they exist. Infrastructure for sustainable consumption should remove the lock-ins to unsustainable behavior patterns<sup>30</sup>. Design of systems of provision and default settings should reflect sustainability concerns<sup>31</sup>. The configuration of infrastructure for everyday living should encourage overall low ecological impact. An example is a combination of passive housing (built with sustainable material and with low-energy consumption), set in an urban planning zone that is in close proximity to

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<sup>27</sup> Akenji, L. & Chen, H. A Framework For Shaping Sustainable Lifestyles: Determinants and Strategies. (2016).

<sup>28</sup> Fine, B. *The World of Consumption: The Material and Cultural Revisited*. (Routledge, 2006).

<sup>29</sup> North, D. C. Institutions. *J. Econ. Perspect.* **5**, 97–112 (1991); Hall, P. A. *Governing the Economy*. (Polity Press, 1986).

<sup>30</sup> Sahakian, M. D. & Steinberger, J. K. Energy Reduction Through a Deeper Understanding of Household Consumption: Staying Cool in Metro Manila. *J. Ind. Ecol.* **15**, 31–48 (2011).

<sup>31</sup> UNEP. *Sustainable, Resource Efficient Cities – Making it Happen! United Nations Environment Programme* (2012).

work (reducing commuting costs)<sup>32</sup>, and where local crafts and community supported agriculture is practiced. Footprint analyses point to four key domains of everyday living where consumption has over 75% impact on the environment: food, transport, housing, and manufactured goods. Along with these are cross cutting themes such as work and leisure. Focusing on these, and using the Attitudes-Facilitators-Infrastructure framework could see substantial reductions in environmental impacts due to policy implementation.

**Table 4-1 Tool for Mapping Comprehensive Sustainable Consumption Policy for Key Lifestyle Domains**

	Attitudes	Facilitators	Infrastructure
Nutrition - food systems			
Mobility - Transportation			
Housing – construction and living spaces			
Stuff - Manufactured goods			

### 4.3.2 Implications for China

It is important to clarify the main objectives of sustainable consumption policy and to develop policy packages that directly address the Chinese context. A ten point plan for a sustainable future could include:

#### **A) Embed sustainable consumption and production in a national (sustainable) development strategy and in sectoral policies**

The government can prioritize sustainable consumption by integrating it into its broader planning and operations, in national vision documents, national (sustainable) development strategies, national green growth or green economy strategies, and national SDGs implementation plans. Incorporating sustainable consumption as part of the national development framework has the advantage that consumer behaviour is not addressed in isolation from the broader development trajectory. Since lifestyles and consumption touch on a variety of soft (e.g. education, health) and hard issues (e.g. industry, infrastructure), a wide, coherent and concerted approach is needed<sup>33</sup>. New forms of institutions can also be put in place for the promotion of sustainability. In 2007, the Hungarian Parliament created a special Ombudsman for Future Generations. This position has the responsibility of speaking up in parliamentary debates when state policies would lead to overconsumption and thus endanger prospects for the society of tomorrow<sup>34</sup>. The United Kingdom has argued for similar

<sup>32</sup> Wiedenhofer, D., Lenzen, M. & Steinberger, J. K. Energy requirements of consumption: Urban form, climatic and socio-economic factors, rebounds and their policy implications. *Energy Policy* **63**, 696–707 (2013).

<sup>33</sup> Akenji, L. & Chen, H. A Framework For Shaping Sustainable Lifestyles: Determinants and Strategies. (2016).

<sup>34</sup> <http://environmentalrightsdatabase.org/hungarys-ombudsman-for-future-generations/>

foresight<sup>35</sup>. Sustainable consumption also can be embedded in sectoral policies; examples include promotion of sustainability into energy and resource sectors, transportation, health, and housing.

### **B) Shift from a Linear to a Circular Economy Logic.**

Government agencies, large organizations, companies and schools can facilitate shifts towards sustainable consumption through their production. In a linear economy raw materials are used to make a product, and after its use waste (e.g. packaging) is thrown away. In a re-use economy it is based on recycling and the reuse of materials. To ensure that, in the future there are enough raw materials for food, shelter, heating and other necessities, our economies must become circular, that is, they must prevent waste by making products and materials more efficiently, reusing them, or if new raw materials are needed, obtaining them sustainably. In a circular economy, manufacturers design products to be reusable. For example, electrical devices are designed for easier repair. Products and raw materials are reused. The use of one-way plastic cups, utensils, plates, etc. in restaurants and fast food shops is ended. In their place, regular cutlery, plates and cups are used. At a minimum, sustainably produced containers (e.g. made of recycled paper) and utensils (e.g. made of scrap wood) are expected. The transformation from supply chain to a value cycle means that the business case is focused on the long-term horizon. The quality of the business case is not measured on short-term profit but on long-term sustainability and innovation (The Trillion Dollar Shift, Marga Hoek, 2018).

### **C) Mandate Producer Responsibility and the Greening of Supply Chains**

To some extent large multi-nationals require sustainable production and consumption in their supply chains, dramatic shifts in material use and waste flows, value creation can be realized. Chinese multi-nationals have a reach beyond national borders through their supply chains and this results in a large global ecological footprint. Sustainably produced products, and products with high recycled material content, should be incentivized. Companies can be required to issue sustainable production and consumption reports that can be monitored by independent agencies. They can be required to show how they plan to make improvements to the sustainability of their products and services and be held to account for meeting those targets. Companies could be required to reduce the waste associated with their products by a given percentage that increases with time. In Germany, companies must pay for the recycling of the waste that enters the waste stream from their products. This was a powerful incentive for companies to reduce unnecessary packaging and to make greater use of recycled materials in packaging. Incentives could be offered to enhance

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<sup>35</sup> <http://www.if.org.uk/2011/08/16/a-parliamentary-ombudsman-for-future-generations/>



the use of recycled materials in product manufacturing. Labeling of products for their sustainability could become a requirement. Japan and the EU use a Top Runner Model for company products related to their energy efficiency. A similar model for top sustainability could be considered.

#### **D) Create a Database of Traded Resources**

There is currently no database of the world's traded resources. As one of the world's largest importers and exporters Chinese consumption has a large global impact. Developing a consumption-based environmental impact database could assist in tracking the flow of the ecological footprint of Chinese consumption. An environmentally-extended multi-regional input-output analysis could be used to identify the global environmental impacts of Chinese consumption.

#### **E) Incentivize Sustainable Investment**

The greening of bank investments and financing could play a crucial role in promoting sustainability. Green investments can be rewarded with tax breaks. Banks can be encouraged to add sustainability requirements linked to the SDGs in their lending policies and this could be made mandatory for government-generated/backed loans. Pension funds can add sustainability requirements into their investment schemes.

#### **F) Foster Sustainable Lifestyle Campaigns**

The government can foster sustainable lifestyle campaigns that engage citizens on sustainable well-being and living<sup>36</sup> by introducing the arts in depicting how sustainable lifestyles could be visualized and sensed; providing toolkits and guides to enable citizens, government, business and other sectors to take strategic action on sustainable lifestyles<sup>37</sup>; engaging citizens in collective groups such as sports clubs, faith groups, schools, and workplaces to enable sustainable lifestyles<sup>38</sup>; incentivizing green consumerism at the individual and organizational level (tax polluting behaviour; encourage recycling and reuse); having communities cooperate for waste free living and best performance on recycling; and, changing the logic of the eco-label (where the burden of proof is on the green producers) and developing an “un-eco” label for unsustainable products where the burden of proof is put on the unsustainable producer.

#### **G) Develop a Sustainability Indicator focused on Well-Being**

Agenda 21 called for “new systems of national accounts and other indicators of

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<sup>36</sup><http://www.oneplanetnetwork.org/resource/fostering-and-communicating-sustainable-lifestyles-principles-and-merging-practices-full>

<sup>37</sup> <http://www.oneplanetnetwork.org/resource/sustainable-lifestyles-options-and-opportunities>

<sup>38</sup> <http://www.oneplanetnetwork.org/resource/sustainable-lifestyles-options-and-opportunities-workplace>

sustainable development”, including “new concepts of wealth and prosperity which allow higher standards of living through changed lifestyles and are less dependent on the Earth's finite resources and more in harmony with the Earth's carrying capacity”<sup>39</sup>. Examples of relevant initiatives include: Sustainable Development Indicators (UK); Gross National Happiness (Bhutan); The Commission on the Measurement of Economic Performance and Social Progress (the “Stiglitz Committee”) (France); Happiness Indicators (Japan). The opportunity exists to tie these efforts to culturally aligned values of harmonious and happy living in China. These include: Human Development Index<sup>40</sup> (UNDP); Better Life Index<sup>41</sup> (OECD); Happy Planet Index<sup>42</sup> (New Economic Foundation); Ecological Footprint<sup>43</sup> (Footprint Network); Genuine Progress Indicator<sup>44</sup> (Redefining Progress). There is a double dividend which can be obtained from sustainable consumption: reducing excessive materialism is environmentally sustainable, and makes people happier<sup>45</sup>. The shift to sustainable consumption can also be directed to address inequality and advance more just societies and economies.

#### **H) Protect and Reward Traditional Sustainability Knowledge and Practices**

Draw on traditional knowledge to promote home-grown sustainability and to protect sustainable traditional crafts and practices and communities with alternative sustainable and non-consumerist ways of living. Encourage community forestry management, rural farmers’ lifestyles, and mandating minimum periods to ensure (long) product warranties’ reparability and reserving percentage trading space in shopping centres for “used goods”, repair and trade-by-barter shops. Institute citizen capacity development centres for Do-It-Yourself and life skills (e.g. sewing, gardening, financial literacy).

#### **I) Address Inequality**

Inequality is not only a source of unsustainable consumption and cause for dependence and harm to ecosystems, it also leads to social and political tensions. Reducing inequality reduces some of the social tension that drives consumerism. This could include: 1.) developing progressive charging systems: e.g. progressive taxation, including income, property, and luxury goods taxes; allowing free/subsidized minimum for basic services and implementing progressive charges on basic utilities

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<sup>39</sup> UN. Agenda 21. *United Nations Conference on Environment & Development* (1992).

doi:10.1007/s11671-008-9208-3

<sup>40</sup> Human Development Index: <http://hdr.undp.org/en/content/human-development-index-hdi>

<sup>41</sup> Better Life Index: <http://www.oecdbetterlifeindex.org/>

<sup>42</sup> Happy Planet Index: <http://happyplanetindex.org/>

<sup>43</sup> Ecological Footprint: <https://www.footprintnetwork.org/our-work/ecological-footprint/>

<sup>44</sup> Genuine Progress Indicator: [http://www.rprogress.org/sustainability\\_indicators/genuine\\_progress\\_indicator.htm](http://www.rprogress.org/sustainability_indicators/genuine_progress_indicator.htm)

<sup>45</sup> Jackson, T. Live better by consuming less? Is there a ‘double dividend’ in sustainable consumption? *J. Ind. Ecol.* **9**, 19–36 (2005).

(e.g. water, energy); 2.) Providing free and/or subsidised goods and services for low-income groups- such as health centres, education, public parks. Finland is now experimenting with mandatory basic income for all citizens<sup>46</sup> combined with redirecting attention from consumerism towards more creative activities that increase wellbeing and contribute to society. 3.) Protecting micro, small and medium size enterprises (MSMEs), which employ the majority of people, protect traditional crafts, and provide meaning beyond the economic; limiting licences for major corporations that infringe on MSMEs; developing recognition systems and licenses for local farmers and crafts; and giving mandatory priorities to local-produce markets in urban locations.

#### **J) Partner with Societal Organizations**

Societal actors can help promote change. The rise of consumer organisations in Europe and North America signals public concern about the market prioritizing profits over consumer well being. Test Achats in France, Which UK! In the UK, Consumentenbond in the Netherlands, Stiftung Warentest in Germany are examples of transitional consumer organisations that have shifted concern from product price, quality, and respect for consumer rights, to broadened mandates that include responsible/sustainable consumption.

## **4.4 Summary**

A sustainable consumption society can be defined as one which values natural resources, respects the labor and inputs that go into the development of products, shuns the notion of waste, and aims at lifestyles that at their core are socially meaningful, rather than defined by levels of consumption. Through a combination of goal setting, incentive structures and legislative measures, on the one hand, and educational and value-oriented change on the other, China can do much to shift away from the “purchase, use, discard” mentality that has prevailed in most industrialized societies in the past decades and that has become more visible in China of late. As in many other environmental areas, China can become a sustainability pioneer that by taking the lead can awaken the interest and respect of other nations dealing with their own mounting waste and pollution problems associated with excessive consumption.

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<sup>46</sup> <https://www.theguardian.com/world/2017/jan/03/finland-trials-basic-income-for-unemployed>

## **Chapter 5. Strategic Positioning and Policy Recommendations on Promoting Green Consumption in China**

### **5.1 Strategic Positioning of Promoting Green Consumption in China**

At present, China is shifting from high-speed growth to high-quality development, in which consumption serves as the main driving force for economic growth and key momentum for high-quality development. As previously mentioned, due to changes in consumption volume, structure and patterns, consumption activities have imposed rising pressure on resources and environment, and thus led to a series of problems. Judged from China's overall progress and status of the green transition, the problem of imbalance and dis-coordination looms large. In the entire economic and social system, the green transition of economy is developing faster and better, while the green transition in social dimension is relatively lagging behind. Within the economic sector, stronger measures have been put into place in the production sector to boost green transition; while measures in the consumption sector are comparatively weak. Therefore, how to boost green transition in social dimension especially in daily life has become a critical issue that deserves prompt attention and immediate actions from the Chinese government. To solve the problem, the most urgent task at this stage is to clarify the strategic positioning and role of the green transition of consumption in promoting green development and the modernization of the governance system.

#### **5.1.1. Attaching great importance to and making full use of the current historical opportunity for boosting the green transition of consumption**

China is now embraced by a window of opportunity for promoting the green transition of consumption, which is marked with following features: (1) consumption is undergoing comprehensive transition and upgrading from a subsistence-based model to a well-off one; (2) residents' consumption patterns and willingness are changing significantly; and (3) consumption is playing an ever-enhancing role in stimulating economy. It is a critical period to form new consumption habits and models in the society. Consumption reflects final needs and serves not only as the ultimate purpose and driving force of production, but also as the direct embodiment of people's need for a better life. It is of great importance for China's overall high-quality development and ecological civilization construction to seize this precious window of opportunity and critical period to give timely guidance and accelerate the formation of resource-efficient and environment-friendly consumption patterns and lifestyle.

At present, China has a strong political will to propel green transition of consumption. Chinese President Xi Jinping particularly articulated the necessity of promoting green development pattern and green lifestyle in May of 2017. The 19<sup>th</sup> CPC National Congress spelt out the requirements to advance green development; accelerate the establishment of legal system and policy guidance over green production and consumption; set up and consolidate the green, low-carbon and circular economic system; initiate simple, moderate, green and low-carbon lifestyle; fight against extravagance, wasting and irrational consumption; practice building of conservation-oriented governmental agencies, green households, green schools, green communities, and green way of commuting; as well as form the spatial layout, industrial structure, production mode and lifestyle in favor of resource conservation and environmental protection. All of these have provided powerful action guidance for the enhancement of green lifestyle and green consumption.

China's current action in promoting green transition of consumption has an increasingly mature social foundation and good practice basis. At present, the general public has witnessed an outstanding rise in the environmental awareness as well as the awareness for participation and safeguarding environmental rights, and an ever-increasing request and expectation for enjoying a sound-quality life, all of which constitute the social foundation for pushing forward green consumption. Meanwhile, China has built some effective policy and practice foundation for green consumption. There are also plenty of inspiring practices from the international community to take reference.

### **5.1.2. Taking green consumption as a pillar to support people's growing need for a better life and as a new growth pole to drive high-quality development**

At this stage, consumption is undergoing continuous transition and upgrading in China, and reflects people's ever growing need for a better life. There are observations of constant growth in public's willingness for green consumption, ever-climbing premium rate of green and eco-labelled products in the consumer market, and increasing green behaviors in online consumption. Green consumption constitutes a crucial part of people's growing need for a better life. In this connection, vigorously promoting green consumption with focus on and adaptation to the change of major social conflict at the current stage and in the future can strongly underpin the efforts to meet people's ever-growing need and pursuit for a better life. At the same time, the green transition and upgrading of consumption can lead the innovation efforts in supplying green and eco-labelled products and services; and the supply of green and eco-labelled products and services can create new green consumption demand. Such

benign interactive cycle of green production and consumption, green supply and demand can serve as a new driving force for boosting economic growth, the endogenous condition for improving eco-environmental quality, and a new growth pole for promoting high-quality development. Given that insufficient supply of green and eco-labelled products and services stands out as one of the short-boards for the current scenario of green consumption, it is necessary to follow the general trend of upgrading green consumption and meet people's diversified green consumption demands at differentiated levels, with special focus on such consumption links as food, clothing, housing, daily utensil, commuting and recreation. Efforts are needed to build a more mature and specifically-classified green consumer market; step up certification, marketing and promotion of green, environment-friendly and energy-saving products and technologies; enhance the social coverage of green and eco-labelled products and services; and substantially improve the effective supply of green and eco-labelled products and services, so as to truly provide support and impetus to meet people's growing need for a better life and to promote high-quality development.

### **5.1.3. Taking green consumption as a key component and a means to facilitate transition in an economic and social system and push forward the structural reform on the supply side**

First of all, green consumption should be regarded as the basic content of green economic transition and a key driving force for propelling supply-side structural reform. The green transition of economy comprises of the greening of both production and consumption, in which greening of consumption will lead and enforce the greening of production. The changes in consumption scale, pattern, structure, quality, and preference guided by green concepts and measures will inevitably be transmitted to the production field, which will affect the allocation of factor resources, improvement of production pattern, adjustment of product structure and the improvement of product quality, thus promoting supply-side structural reform.

Secondly, green consumption should be treated as a crucial component and a means for green social transition. Green consumption is the core component to foster the formation of green lifestyle and serves as an effective approach to push real actions of the general public. Lifestyle is a concept with extensive connotation, including people's material life such as clothing, food, housing, transportation, labor, recreation and entertainment, and social interaction, as well as spiritual life such as core values, morality and related aspects. Consumption constitutes an important part of lifestyle. Green consumption activities can convey and communicate green concepts and requirements into all aspects of public life, guide and motivate the public to actively

practice green concepts and requirements, so as to cultivate a green life nationwide, and improve the governance system of green social transition.

#### **5.1.4. Taking green consumption as a key instrument to promote eco-civilization development and the modernization of environmental governance system**

Green consumption is an integral part of green development and ecological civilization construction. There is a view upholding that consumption can have the transmission effect from upstream to downstream. Reducing consumption can cut resources and energy input at exponential rate and curb pollution discharge that would otherwise be tens of times the volume. Consumption has an elastic effect, and the increase of consumption tends to offset the effect of increasing production energy efficiency, resource conservation and pollution reduction. Thus, reasonable, moderate, resource-efficient, and environment-friendly ways of consumption will play a significant role in reducing pollution discharge, improving environmental quality, and even the overall cause of ecological civilization construction.

In the field of modernizing eco-environmental governance system, China's current environmental policies are mostly concentrated in the production area, with restriction and supervision as major approaches, government and businesses as main parties. The set-up of institutional mechanisms to guide and prioritize green consumption model can be very beneficial. First, it can expand eco-environmental governance system from production field to consumption field, thus widening the coverage of eco-environment governance and adding new incentives and voluntary leadership in this area, which are conducive to building an institutional system featuring equal emphasis on both incentives and constraints. Second, as consumption is a basic behavior choice made by the public, green consumption can enable the public to truly participate in the environmental governance process. Consequently, their green consumption behavior and choice of green and eco-labelled products can reversely force enterprises to improve their environmental performance and increase green and eco-labelled products and green production supply, which is a practical way to involve spontaneous public participation in eco-environment protection. Third, the green transition at consumption end can be transmitted to production end through the practice of green supply chain, in which the "green-advanced" enterprises in the industrial chain can help manage the "green-backward" enterprises so as to blaze new ways of eco-environmental governance and improve the related system.

#### **5.1.5. Putting green consumption high on the government's policy agenda for green development**

On the basis of accurately identifying the strategic positioning and role of the green consumption in promoting green development, meeting people's growing need for a better life, and improving eco-environmental governance system, the Chinese government should incorporate promoting green consumption into its daily agenda, so as to convert its strong political will into systematically strategic plan, specific and effective policy measures, and social practice of the general public for comprehensively pushing forward the green transition and upgrading of consumption based on its scattered theory and practice.

## **5.2 Policy Recommendations on Promoting Green Consumption in China**

Judged from China's overall progress and status of the green transition, the issue of imbalance and dis-coordination looms large. The green transition of economy is developing faster and better, while the green transition in social dimension is relatively lagging behind. **The outstanding problems in resource and eco-environment brought by consumption have become a critical constraint to ecological civilization construction.** The consumption-induced depletion of and pressure on resource and environment continues to grow. The excessive and wasteful style of consumption has exacerbated resource and environmental problems; and certain pollution load in consumption field even exceeds that in production sector. It is thus necessary to make full use of the current historical opportunity for boosting green transition of consumption; take green consumption as a pillar to support people's growing need for a better life, as a new growth pole to drive high-quality development, and as a key component and a means to facilitate transition in the economic and social system and push forward the structural reform on the supply side; and put green consumption high on the government's policy agenda for green development. Specific recommendations are detailed below.

### **5.2.1. Integrate green consumption into the national 14<sup>th</sup> Five-Year Plan as a key task for green development and ecological civilization construction, and develop a national strategy or action plan dedicated to promoting green consumption**

China currently has a window of opportunity to promote green consumption transition, people's willingness to change their consumption patterns is significant, and green consumption can play a major role in driving the economy. There has been an impressive rise in people's awareness of environmental protection, public participation and safeguarding environmental rights, there have been continuously growing demands for, and expectations that it will be possible to enjoy as a good-quality life. All of these factors constitute the social foundations necessary for



pushing forward green consumption.

Therefore, China's 14<sup>th</sup> Five-Year Plan should call for steps to be taken to achieve green consumption patterns and green lifestyles as these are important components for promoting green development and ecological civilization construction. It should further clarify corresponding objectives, tasks, as well as appraisal and evaluation indicators. In addition, drawing on related international experiences such as those from Germany and Sweden, China should research and then develop its own specific national strategy or action plan for propelling green consumption and green lifestyles in order to address the problems associated with currently fragmented and ineffective policies and practices. Systematic arrangements should be made to identify objectives, tasks, institutions, policy mechanism innovations, evaluation methodologies and indicators, etc, so as to enhance the integrity and effectiveness of efforts to boost green consumption.

### **5.2.2. Highlight priorities for improving and enhancing innovative institutions, policies and actions for promoting green consumption**

First, efforts should be made to clearly identify key areas for promoting green consumption. Guided by the goal of improving environmental quality, the key areas pursued to promote green consumption should be directed to those fields that are closely linked with resource and energy conservation and environmental quality improvement goals, including the supply of green products and products identified with eco-labels waste separation and recycling, development of public transportation facilities, energy-saving and environment-friendly buildings, and related technological innovation.

Second, the supply of green products and services and eco-labelled products should be expanded. It is recommended to strengthen the certification and standard systems for green and eco-labelled products and services. Priority should be given to revising the Government Procurement Law to increase the intensity and scope of green public procurement and promote mandatory green public procurement. It is also important to liberalize market access for green and eco-labelled products and services, encourage all types of capital to invest in green industries, and use the "Internet plus" initiative to promote green consumption.

Third, intensified efforts are needed to further promote the development of a circular economy. Specific actions include: promoting the implementation of an extended producer responsibility system; building green supply chains for enterprises and society; and, extending the resource and environmental responsibilities of producers

for their products from the production section to the entire life cycle to cover product design, circulation, consumption, recycling, and waste disposal, so as to promote green production and consumption through life cycle management.

Fourth, it is proposed to launch a nationwide green consumption and new lifestyle campaign. Take advantage of the positive image power of stars and celebrities to demonstrated green consumption and make green consumption into a social fashion. At the same time, integrate the concept of green consumption into relevant education and training activities, include it in the basic requirements and assessment indicators for government activities, and incorporate it into all kinds of thematic publicity and education activities.

Fifth, a social governance system and the corresponding mechanisms for green consumption should be established which are to be built, governed, and shared by all. It is recommended to clarify the role of relevant government departments in promoting green consumption, strengthen the role of consumer associations in promoting green consumption, encourage enterprises to assume more environmental and social responsibilities, and set up the carrot and stick approach to encourage green consumption by the public. Sixth, it is necessary to improve and strengthen market and economic incentive policies to promote green consumption. With the guidance of regulatory constraints, focus should be placed on establishing an economic incentive and market-driven system from the aspects of price, finances and taxation, credits and loans, supervision and market credit, so as to guide the supply of green and eco-labelled products and encourage green choices in residential consumption. Incentives can also be oriented toward enabling sustainable lifestyles beyond purchasing choices and enabling green lifestyles.

Seventh, it is important to strengthen infrastructure and capacity building for green consumption. Suggested actions include: establish a sound statistical indicator system for green consumption; set up a nationally unified information platform for green consumption; strengthen capacity building and training on green consumption for governments, social organizations, enterprises and the public; and carry out environmental and social impact assessments in international infrastructure development projects to further the greening of infrastructure development processes.

Each and every one of the above recommendations should be further concretized in follow-up studies to make them operable.