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Analysis of the Current Situation on Sustainable Consumption in China

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Analysis of the Current Situation on Sustainable Consumption in China

Beijing • China

Contents

Acronyms

EC	European Commission
UNEP	United Nations Environment Programme
SCP	Sustainable Consumption and Production
SWITCH-Asia RPAC	SWITCH-Asia Regional Policy Advocacy Component
GDP	Gross Domestic Product
POPs	Persistent Organic Pollutants
VOCs	Volatile Organic Compounds
NOx	Oxides of Nitrogen
COD	Chemical Oxygen Demand
CFCs	Chloro-fluoro-carbon
RoHS	Restriction of Hazardous Substances
CEC	China Environmental United Certification Center
CQC	China Quality Certification Center
NDRC	National Development and Reform Commission of China
MEE	Ministry of Ecology and Environment of China

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This report is developed by the China Environmental United Certification Center (CEC), as part of its national activity by SWITCH-Asia RPAC in China in 2019, "Status review on SCP and national policy dialogue on Sustainable Consumption for policy makers and stakeholders in China." As a response to the challenges identified to promote sustainable consumption, SWITCH-Asia II RPAC, in collaboration with CEC, held the National Policy Dialogue on Sustainable Consumption for Policy Makers and Stakeholders in China on 25 April, 2019, with aims to provide a platform for different policy makers and stakeholders to encourage collective efforts towards sustainable consumption. The main findings of the Dialogue have been incorporated into this report.

While developing the report, the CEC author team also supported the Special Policy Study on Green Transition and Sustainable Social Governance under China Council for International Cooperation on Environment and Development (CCICED) in 2019. Therefore, the key contents in this report, in relation to the analysis of China's policies, problems and challenges on sustainable consumption, are consistent with the inputs in the CCICED's report.

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Introduction

In the past decade, China's government has issued policies at both national and sectoral levels to promote sustainable consumption. Such policies have played an important role in paving new ways towards sustainable consumption, while promoting the supply and consumption of green products. There are still challenges, however. Significant gaps remain between theory and practice, along with the need for collective efforts and the lack of public knowledge on sustainable consumption. Policy makers, stakeholders, industry associates and private sectors must focus on creating knowledge and awareness, as well as arriving at a defined scope and capacity of their competency in contributing towards sustainability.

To promote the achievement of SDG 12 on responsible consumption and production, collaborative efforts are needed. Business practices, social activities and innovations related to sustainable consumption are still not widely known among policy makers, and are not well-reflected in the agendas set by the state.

In efforts to advance the progress on sustainable consumption in China, as well as to share common findings with other Asian counterparts, this report will examine policies related to sustainable consumption in China and its current problems and challenges. The report will also identify priorities and propose recommendations to policy makers. The scope of this report focuses on the policies promoting green products, services and the varied consumption patterns in China. Through a top-down hierarchical combing method and comparative analysis method, the report analyzes China's sustainable consumption policies and tools based on eight consumption categories, together with its sustainable consumption policy framework.

The analysis in this report aims to help policy makers and stakeholders who engage in policy research, certification and assessment of green products and sustainable lifestyle, to better understand the current situation and policy framework, including market information based instruments for green products across different sectors, as well as its problems and challenges.

Finally, unexpected pandemic of COVID19 in December 2019 has changed our consumption behavior drastically such as increasing online delivery of food, household and personal items, creating more waste especially from packaging and plastic. This report is timely prepared with recommendations to enhance transformation of consumer products such as healthy and environmentally sound products and how China could boost sustainable consumption using the findings. The proposed policies, tools and practices will promote sustainable lifestyle such as reliable consumer information tools and services and accelerate sustainable consumption and production patterns.

Summary

Sustainable development concerns developments that meet the needs of contemporary people without compromising the ability of future generations. Sustainable consumption concerns satisfying basic human needs, privileging quality of life concerns over material standards of living, minimizing resource use, waste and pollution, as well as taking a life-cycle approach, and acting with concern for future generations.

In 1992, the United Nations Conference on Environment and Development passed the Agenda 21, stating that "All countries should strive to promote sustainable consumption patterns." In 1994, the United Nations Environment Programme (UNEP) held a symposium in Oslo and released the Policy Factors of Sustainable Consumption report, where sustainable consumption was defined 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 resources 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 further generations."

With the establishment of China Environmental Labelling Certification system in 1994, China's agendas and practices on sustainable consumption have been making strides in alignment with the international progress. In recent years, the Chinese government's strong resolve in promoting sustainable consumption have further expanded the principles and scope of sustainable consumption.

Consumption in China has transformed dramatically, and has become the country’s important economic engine. The volume of consumption continues to expand rapidly, along with its growing purchasing power. The nation’s consumption has shifted from the purchase of basic goods to excess consumption of quality products and services, where online platforms have played a major role. However, due to the scale, structure and means of such consumption activities, the pressure imposed on resources and environment in China has been increasing, alongside with its environmental problems. For example, the strong demand for resources and energy is growing steadily; excessive and wasteful consumption and other frivolous consumption patterns have aggravated the resources and environment stress. Studies found that environment loads from consumption are more than those from production, thus further attention on sustainable consumption is urgently needed.

To examine China’s development on sustainable consumption and its challenges, this report is based on consumption data and trends, using the contrastive analysis method, to determine the current impact on resources and consumption patterns. This report examines the current sustainable consumption policy instruments based on eight consumption categories in China, and identifies the key priorities of sustainable consumption. Considering China’s technical and economic challenges, together with the social obstacles that hinder its policy implementation, specific recommendations are proposed to address the sustainable consumption approach. The study finds that: 1) strategic planning of sustainable consumption is insufficient at a national level; 2) China has enacted more than 100 sustainable consumption policies and

regulations that mainly cover national and industry sector levels, but has not yet developed any specific laws and binding policies on sustainable consumption so far; 3) China has adopted information outreach, behavioral orientation and green rating as its three main measures, but still requires the tools for market economy regulatory; 4) all eight major industries in the household consumption have their own means and tools. However, these industries lack the communication and policy collaboration among their sectors, and are met with poor public participation. By analyzing the economic, environmental and social impact, as well as other driving factors, this report identifies the priority areas: environmental labeling and sustainable products, sustainable procurement, sustainable building, food sector and integrated solid waste management, where further in-depth assessment is needed.

Overall, China has announced a series of policies and measures, and has received positive results. National policies on sustainable consumption have been continuously implemented. The China Environmental Labelling system has yielded positive outcome in encouraging sustainable consumption, promoting environment management and reducing pollution emissions from industry sectors. The Chinese government has played a leading and demonstrative role in green procurement and green printing with tangible results. Private sectors have also practiced innovation pilots in the green supply chain.
However, the policies have not sufficiently fulfilled its role in making satisfactory changes on the environmental quality. Challenges still exist in promoting sustainable consumption: 1) the need for systematic planning of consumption and executive-level policy measures; 2) efforts made to promote sustainable consumption are not sufficient, and, as a result, the policies on sustainable consumption has not been a strong driving force; 3) policies and government functions relating to sustainable consumption are dispersed and fragmented, and should be more centralized in the Ministry of Ecology and Environment; 4) environmental labeling certification still lacks proper standards, and does not fully address environmental concerns; 5) industry sectors and public consumers must recognize the need to adopt social contract in order to create a more sustainable future for China.

Therefore, the Chinese government should find solutions in promoting green transformation to consumers as well as the overall public. To tackle this problem, the most urgent task at hand is to determine strategies and define roles and functions of green consumption in order to boost China's sustainable development, as well as addressing the growing needs of a better life. The following policy recommendations are proposed: 1) Speed up the establishment of a sound policy framework on sustainable consumption; 2) Establish a market-based, consumer-based and government-led promotion mechanism; 3) Focus on improving environmental quality as a key to promoting sustainable consumption; 4) Improve market and economic incentives; 5) Establish mechanism for information dissemination and encourage stakeholder participation; 6) Improve sustainable supply chain management through consumer information tools.

1. Concept and Situation of Sustainable Consumption in China

Sustainable consumption is an extension of sustainable development practice in consumption activities that pertains to its society, economy and environment. This chapter examines the concept of sustainable consumption, the current situation of sustainable consumption in China, and the priorities proposed for promoting sustainable consumption in China.

1.1 The concept of Sustainable Consumption

In 1992, the United Nations Conference on Environment and Development passed the Agenda 21 which states that "All countries should strive to promote sustainable consumption patterns." In January 1994, the United Nations Environment Programme released the report of Policy Factors of Sustainable Consumption at the Oslo Symposium, which proposed a working definition of 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 resources 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 further generations." Sustainable consumption is an umbrella term that brings together a number of key issues, such as meeting the needs, enhancing the quality of life, improving resource efficiency, increasing the use of renewable energy sources, minimizing waste, assessing the life cycle perspective and taking into account the equity dimension.

The *10-year Framework of Programme on Sustainable Consumption and Production*, launched at the United Nations Conference on Sustainable Development - Rio+20 in 2012 was highlighted to accelerate worldwide transformation towards sustainability. Sustainable consumption and production should not exceed the carrying capacity of the ecosystem, and should improve the efficiency and sustainability of utilization and production of resources, while reducing degradation, pollution and waste of resources.

China's sustainable consumption was developed in alignment with the global agenda, under the term 'Green Consumption,' an important solution to relieve per capita resource shortage in China and maximize the use of limited resources. According to "the Notice on Guiding Opinions on Promoting Green Consumption" issued by the Chinese government in March 2016, Green Consumption refers to consumer behaviors featured with resource conservation and environmental protection. It also seeks to reduce loss and waste through the use of efficient and environmentally friendly products and services, while reducing resource usage and emissions. This definition stresses the need for saving resources and environmental protection, which reflects the term 'sustainable consumption' defined by the Oslo Symposium.

1.2 Analysis of the current situation of sustainable consumption in China

Sustainable consumption has been practiced in China, along with the relevant international agenda, and have received increased attention by its government. China's growth rate, scale, structure and contributions to the economic growth has come a long way, becoming the country's main economic driving force. The situation of the current consumption structure and consumption patterns in China can be summarized as follows:

1.2.1 The transformation of China's consumption

China's consumption has significantly transformed over the years, as identified in the following observations.

Firstly, China's consumption scale is expanding rapidly. The average annual growth rate of China's gross retail sales of consumer goods in the past 11 years was at 14.55%, while the gross retail sales of consumer goods in 2018 was RMB 38.1 trillion, over four times of that in 2007 (Figure 1.1).

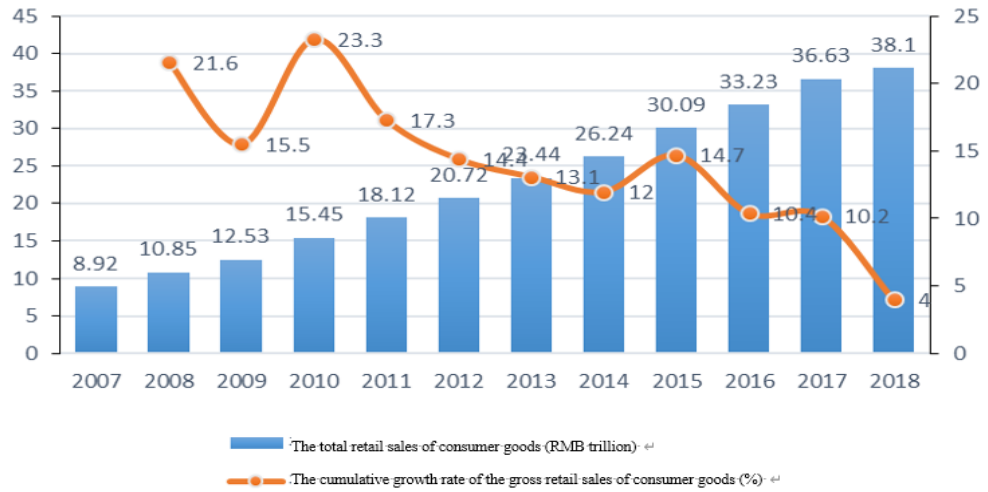


Figure 1.1 China's Gross Retail Sales of Consumer Goods and the Growth Rate (2007-2018)

Source: National Bureau of Statistics 2018

Secondly, China's consumption power has grown continuously. In recent years, the consumption expenditure among urban residents is 3.5 times higher than that of rural residents. It is predicted that the number of the urban population in China will increase to 60% in 2020, therefore the consumption growth in the near future would be much greater. By using the final consumption expenditure per family as the standard, China is only at USD 2,700, which is 13% of the average level (USD 20,000) of Japan, Europe and Singapore. However, the medium and long-term consumption growth potential of China is projected to be much higher (Figure 1.2).

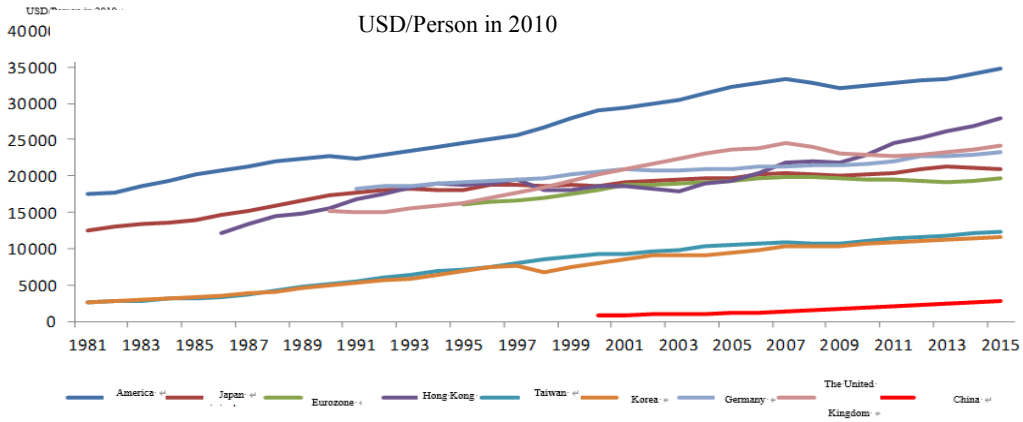


Figure 1.2 International Comparison of the Final Consumption Expenditure per Family

Sources: National New Urbanization Plan (2014-2020) et al.

Thirdly, China's consumption structure has shifted from spending on basic needs to quality goods and services. Among the consumer goods in clothing, food, residence and traveling, the country's basic consumption in clothing and food had significantly decreased from 34.96% and 44.83% in 2001 to 18.10% and 26.14% in 2015, respectively. At the same time, the proportion of consumer goods of residence and traveling had increased from 3.49% and 16.72% in 2001 to 7.40% and 48.35% in 2015, respectively. The result indicates that its consumption pattern has shifted from subsistence-based to consumerism. The national Engel's coefficient had decreased from 31.2% in 2013 to 28.4% in 2018, reaching the wealth standard of 20%-30% as defined by the United Nations. The consumption pattern has transformed to service orientation. The number of per capita service consumption expenditure of transportation, communication, education, culture, entertainment, and health care has seen a significant upward trend.

Fourth, online consumption has become an important consumption mode. In 2018, the online gross retail sales of Chinese consumers broke through RMB 9 trillion, accounting for 23.6% of the gross retail sales of consumer goods. E-commerce, mobile payment and sharing economy led the world trend. Consumer behaviors have transformed to experience-driven, personalized style from the contemporary market of imitated goods, with the emergence of new smart phones, wearable equipment, along with digital families. These modern devices are personalized, customized and diversified, with the support of the "Internet +" and have become the mainstream. The number of mobile e-commerce users in China in 2018 was at 608 million people. It is expected that the number will reach 713 million in 2019, covering more than 50% of the entire nation's population.

Lastly, consumption has become an important engine of growth for China's economic development. Since 2011, consumption has become the main driving force; the contribution rate of the final consumption expenditure of 2018 to the growth of the GDP was 76.2%. Meanwhile, the tertiary industry which represents the consumption development level has realized a rapid growth. Since 2013, the tertiary industry added value in GDP has been more than that of the secondary industry, which is more than 50% since 2015. In September 2018, the Chinese government released the *Several Opinions about Perfecting and Promoting the Consumption Mechanism and Further Stimulating the Residents' Consumption Potential* where specific measures were put forward to further stimulate residents' consumption potential and promote economic development.

1.2.2 China's current consumption pattern has led to serious resource and environment problems

Due to the scale, structure and other problems of the consumption methods, the pressure imposed on resources and the environment in China is mounting, and problems have become increasingly serious. For example, the environmental load is aggravated, leading to ecological problems, while resource exhaustion is intensified, caused by excessive consumption and a large amount of wasteful resources. The following findings are the main contributors of environmental pollution:

First, the rigid demand for energy consumption is increasing. To a large extent, the per capita consumption can reflect the overall purchasing power of a country. In terms of residential consumption, the per capita consumption of electricity, energy and water in 2015 increased by 199.8%, 90.4% and 4.0%, respectively, compared with that in 2004. (Figure 1.3).

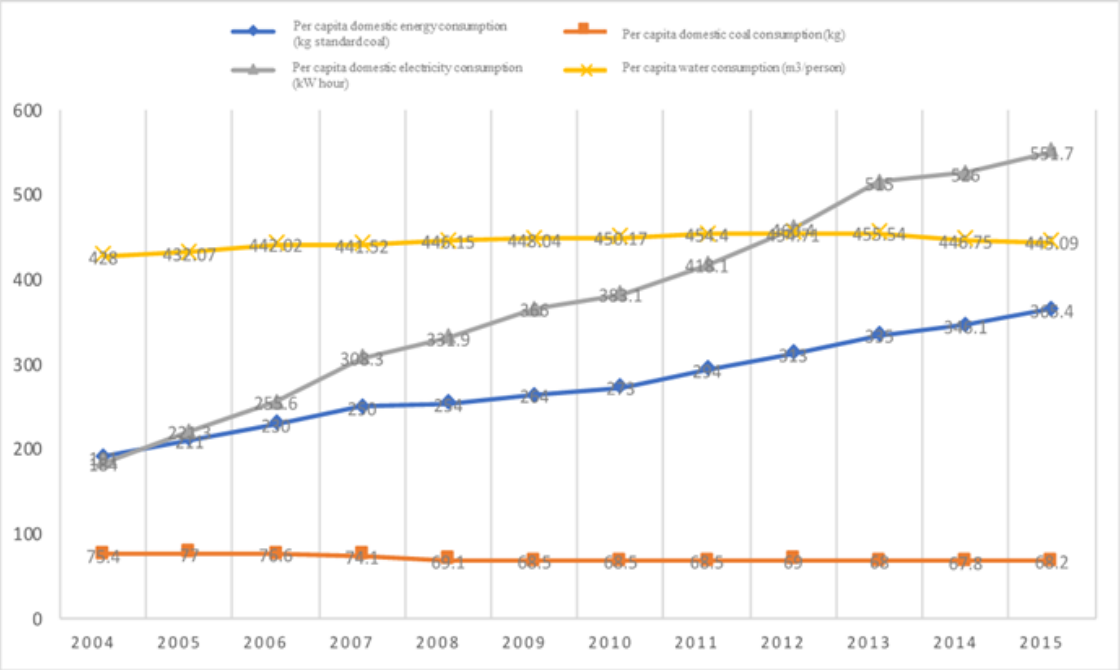


Figure 1.3 Change of per Capita Resource and Energy Consumption of Residents (2004-2015)

Sources: National Energy Administration et al. 2015

Secondly, excessive and wasteful consumption are depleting resources and exacerbating environmental problems. The annual output of packaging products in China is more than 30 million tons, and the overall recovery rate is less than 30%. In 2018, 14.3 billion packaging boxes, 5.7 billion envelopes and more than 5.3 billion plastic woven fabric were used in the parcel shipping industry. To put this in perspective, the packaging tape used in China can be wrapped around the earth circumference for 1,077 times. Moreover, it is estimated that more than 35 billion kilograms of grains are wasted every year in China. Meanwhile, the car inventory was at nearly 210 million in 2017, and since 2013, more than 100 million sets of TV, refrigerators, air conditioners, washing machines and computers have been discarded annually. It is predicted that the total quantity of electronic waste will increase from 1,500 tons in 2020 to 2,840 tons by 2030. In April 2019, there have been 1.59 billion mobile phone users in China, with 200 million sets of mobile phones being discarded away every year.

Thirdly, among the many contributing factors to environment pollution, the adverse effects of consumption on the environment are greater than those of the manufacturers. Through the analysis of the atmospheric fine particulate matters, it is found that mobile emissions from large cities, such as Beijing, Shanghai, Hangzhou, Guangzhou and Shenzhen, have become the main source of environmental pollution. The level of pollution caused by mobile emissions has increased to 52%, with motor vehicles as the main emissions source in cities (Figure 1.4). In 2015, China's emission of urban sewage was 2.68 times than its industrial waste water,

while the ratio of these two outlets in 1997 was only 0.83. By 2018, the domestic sewage emission had increased by 1.83 times. The output of domestic waste in Beijing in 2015 was more than the industrial waste output (Figure 1.5), which became the primary source of urban solid waste.

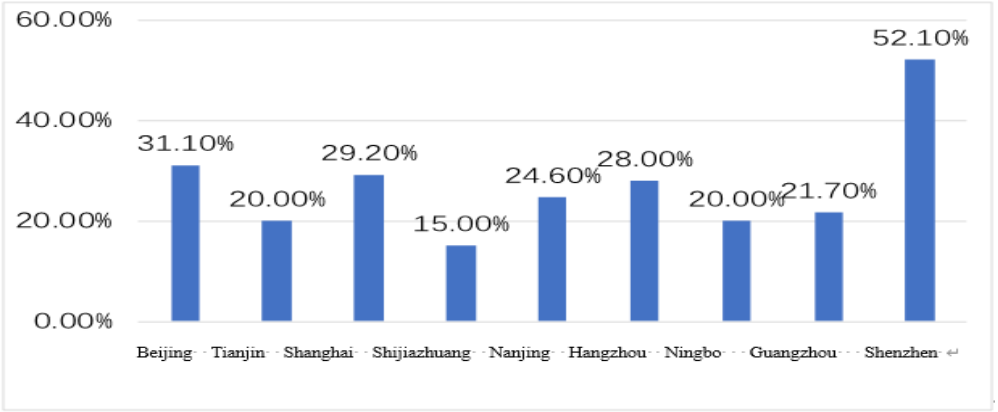


Figure 1.4 Contribution of Local Mobile Emission Sources to Fine Particles in Major Cities
Source: Analysis of Vehicle Contaminants Emission in China 2017

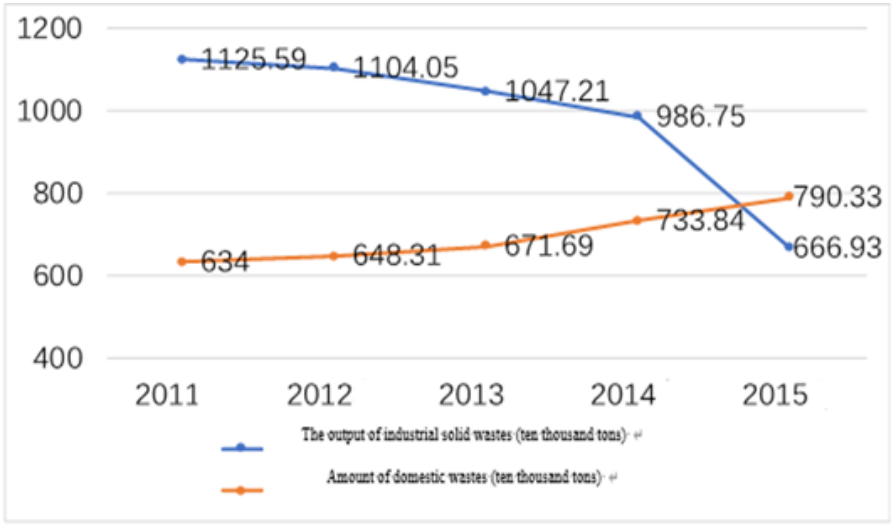


Figure 1.5 Output of Solid Waste and Domestic Waste in Beijing
Source: National Annual Report on the Prevention and Control of Environmental Pollution by Solid Waste in Large and Medium Cities 2016

1.2.3 The consumption increase of green products

Green products refer to products which do no or little harm to human health, achieve high utilization efficiency of energy and resources, and are eco-friendly on the basis of guaranteeing product performance. In China, the overall development of green products and consumption has presented a good momentum, and the sustainable consumption concept has been widely recognized by the public, and the supply of green products has expanded continuously in recent years. At the same time, the sustainable consumption scale has increased consistently, while the green product market has been normalized gradually.

Varieties of sustainable consumption have improved continuously

With the rise of the country's living standards, residents' consumption level has also increased.

Consumption habits have significantly changed from quantity-oriented to quality-oriented, along with the gradual progress in sustainability. The many ways of sustainable consumption have been implemented, ranging from green buildings to energy-saving appliances, water-saving appliances, environmental labeling products, and organic products. Such goods and services have been consumed by thousands of households. Other household devices such as air purifiers, water purification machines, health and wellness products, as well as other environment-friendly products have seen a sharp rise in sales. Likewise, recycling products have been accepted but gradually, while new alternative energy automobiles have become the upward trend, along with travel sharing services.

i. The consumption scale of green products has increased steadily

In recent years, driven by policies and measures to promote sustainable consumption, the supply of green products has made gradual progress, while the market scale expanded continuously. According to a conservative estimate, in 2017, nearly 150 million sets of efficient energy-saving air conditioners, refrigerators, washing machines, flat-panel TVs and water heaters were sold in China, with sales revenue of nearly RMB 500 billion. The output value of organic products was nearly RMB 140 billion, while 777,000 new energy automobiles were sold, and more than 25 million shared bicycles were launched into the market. From 2012 to 2016, the government's procurement scale of environmental labeling products had been up to RMB 685.7 billion. During that period, the government's procurement scale of energy-saving (water-saving) products had reached RMB 746 billion.

ii. Ongoing improvement in policies on consumption of green products

In recent years, the Central Committee of the Communist Party of China and the State Council have released many policy documents, such as the *Overall Proposal for Reform of the Ecological Civilization System*, *Regulations on Management of Recovery of Wasted Electronic and Electrical Products*, *Opinions about Establishment of a Unified System for Standards, Certification and Labelling of Green Products*, *Proposal for Comprehensive Work of Energy Conservation and Emission Reduction during the 13th Five-Year Plan Period*, and departments of the State Council have independently released numerous documents, such as *Guidance on Promoting Sustainable Consumption*, *Action Plan for National Energy Conservation during the 13th Five-Year Plan Period*, *Circular Development Leading Action*, *Action Plan for Promoting the Production and Application of Green Building Materials*, *Planning for Green Development of the Industry (2016-2020)*, *Notice on Implementing the "People-benefit Project with Energy-saving Products," Opinions on Accelerating the Implementation of Green Lifestyle*, *Guidance on Promoting, Encouraging and Normalizing Development of Internet Rental Bicycles*, and *Guidelines for Green Procurement of Enterprises (Trial)*. These publications have played an important role in strengthening the green concept and promoting the supply output and consumption of green products. Currently, China's promotion of green products consumption is taking shape at its early stage. The government is carrying out many systems, such as the certification of energy-saving (water-saving) products, government procurement of energy-saving products and environmental labeling products, energy (water) efficiency labeling, green building material evaluation labeling, environmental protection “leader” with high energy (water) efficiency, favorable income tax for energy-saving enterprises, and

equipment dedicated to water-saving and environmental protection. Efficient and energy-saving products are promoted in certain regions, such as Beijing and Shanghai, through financial subsidies.

1.3 Priorities of sustainable consumption in China

In order to identify the priorities of sustainable consumption in China, it is first necessary to understand sustainable cities. A sustainable city is a city developed in line with the concept of sustainable development. In other words, the city, society, economy and materials shall be developed in a sustainable way. According to its development needs, there is a sustainable supply of natural resources (only the use of resources at the level of sustainable output), with sustainable safety guarantees for environmental hazards that may threaten development considering only acceptable risks (UNCHS/UNEP). The concept of a sustainable city provides direction to establish priorities in order to meet the requirements of sustainable consumption. In general, China's sustainable consumption can be observed as follows:

i. In terms of concept, sustainable consumption encourages the sustainability and green transition of consumption;
ii. In terms of quantity, sustainable consumption embodies the moderateness and reduction of consumption;
iii. In terms of structure, sustainable consumption embodies the rationality and balance of consumption
iv. In terms of content, sustainable consumption gives priority to main aspects of daily life, including food, residency and transportation;
v. In terms of method, sustainable consumption mainly drives production to make the entire process of distribution and disposal sustainable.

Based on the above features, this report considers the following aspects to identify the priorities of sustainable consumption in China:

i. Economy. Production and consumption interact as both cause and effect; they are the two important and indivisible aspects of social and economic activities that depend on and restrict each other. China’s objective in promoting sustainable consumption is to create a transformation through the change in awareness and consumer behaviors, along with the increase of consumption demands for environment-friendly products. Price signals can be sent to the production field to simulate R&D, as well as the application of clean technology and processes for producing environment-friendly products and services. Meanwhile, the improvement of production technology and process, along with the increase of market demand and realization of the economies of scale will help reduce costs, and encourage more sustainable consumption. In short, a virtuous cycle of consumption and production will promote a healthy development of the economy. See Figure 1.6 for the specific process.

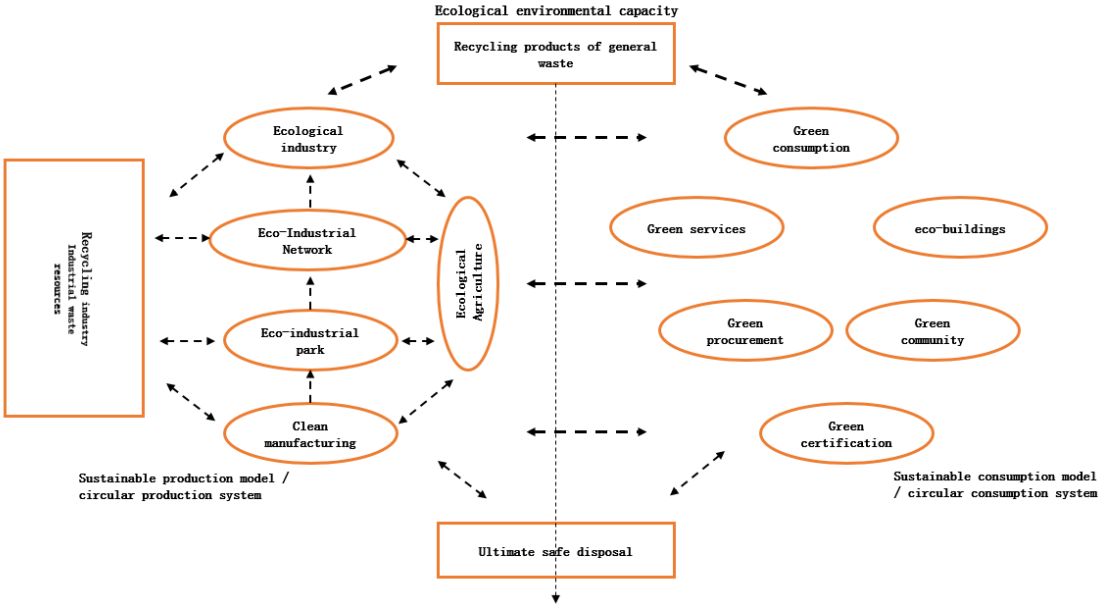


Figure 1.6 Identification of Priorities of Circular Economy

Source: Li. 2007

ii. Environment. Traditional consumption patterns have led to environmental pollution, resource exhaustion and damage of biodiversity and natural landscapes. Therefore, a sustainable consumption pattern needs to be established to relieve the pressure off of resources and environment, and promote the improvement of the economy and the lives of those in poverty-stricken and underdeveloped regions. Sustainable consumption should be implemented alongside with environmental protection. At the same time, it should realize efficient utilization of resources during production and lead to none or result in minimal environmental pollution. Furthermore, no damage will be brought to users or their surrounding environment during the utilization, while no adverse effect shall be caused to the environment where such products are abandoned. Only such enterprise that can meet the said requirements can be listed into the key fields of sustainable consumption and be highly emphasized.

iii. Social effects. There are some social risks potentially caused by sustainable consumption, such as wasteful behavior. Sustainable consumption needs to consider both the quality of life and diversified consumption needs.

China's sustainable consumption involves many sectors and industries. Considering the state of the overall situation, this report will propose to focus on environmental labeling and certifications, sustainable public procurement, sustainable buildings and construction, and comprehensive management of solid waste as the four key priorities of China's sustainable consumption where relevant works should be carried out further.

1.3.1 Environmental labeling and certifications

Labelling and certifications are important market and information tools for sustainable consumption. Reliable environmental and ecological labels can provide consumers with the information behind products and help them make sustainable consumption choices. For example, Environmental Labelling was created in 1993 in China to address the global push on sustainable development, introduced by the United Nations Conference on Environment and Development in 1992. As of now, more than 100 product categories have been developed, such as furniture, automobile, electronics, construction, textile, chemical, etc. The environmental labeling and certifications of green products and services as market tools would play an important role in promoting sustainable consumption and improving environmental quality.

1.3.2 Sustainable public procurement

The green governmental procurement system is an important measure and precedence for China to develop a circular economy and transform towards a sustainable consumption society. As an important part of the public finance system, the government procurement system is also a basic means for China to manage direct expenditure. Green governmental procurement refers to products and services which conform to China's green certification standards, and are given priority by the government procurement, covering the whole life cycle of products and services that range from product design, production, packaging, transportation, and repurposing for recycling.

1.3.3 Sustainable buildings and construction

The building sector is considered the biggest single contributor to world energy consumption and greenhouse gas emissions (A. Allouhi *et al*. 2015). At a global level, the buildings and construction sector accounted for 36% of final energy use and 39% of energy and process-related carbon dioxide (CO^2) emissions in 2018, 11% of which resulted from manufacturing building materials and products such as steel, cement and glass (International Energy Agency 2019). The proportion of energy used by buildings and infrastructure in China is higher than that of the global average (Tsinghua 2020). Urbanization is increasing rapidly in China. The country's urban population has reached 831 million in 2018, with the urbanization rate rising from 37.7% in 2001 to 59.6% in 2018 (Tsinghua 2020). This rapid urbanization has driven the demands of residential buildings and infrastructure construction, making the need for sustainable buildings and construction even more urgent.

1.3.4 Comprehensive management of solid waste

Comprehensive management of solid waste, as one important part of the circular economy, is critical to the transition of sustainable consumption and production in China. The output volume of solid waste in China is increasing year by year. Although the recycling rate has increased under stricter management by the Chinese government, the secondary pollution from recycling remains a big challenge for the government, and a risk to the environment due to insufficient recycling and treatment capacities. In order to accelerate green development, the government must address the urgent need to strengthen environmental management of solid waste and promote environmentally friendly recycling solutions for solid waste, including waste from plastic, food, construction, transportation and emerging sectors, such as logistics. In addition, the priorities of sustainable consumption in China were also proposed to consider the current consumption structure, its features and its changing trends. Resource consumption,

pollution and greenhouse gas emissions are also important factors to consider when determining priority areas and key sectors for sustainable consumption. For example, sustainable consumption in the food sector were highlighted and proposed to be reformed so as to reduce food loss and waste in China due to the high costs of food among urban residents, as seen in the *National High Level Policy Dialogue on Sustainable Consumption for Policy Makers and Stakeholders, held* by SWITCH-Asia RPAC and CEC in Beijing, on 25 April 2019.

2. Sustainable Consumption Policies and Instruments

To protect the environment and resources, sustainable consumption is an important way to relieve the current insufficiency of China's per capita resources and to maximize efficiency of the limited resources. After 40 years of rapid economic growth, significant developments have transformed the society and economy of China. However, there are noteworthy contradictions and problems in the development process, including the constraints of resources, unbalanced development as well as social conflicts in China's economic system and social transformation. In recent years, the economy has seen a rapid development. The Chinese government has made great efforts to carry out policies and practices in promoting sustainable consumption. Likewise, the public has paid keener attention to their surroundings, and are willing to make changes to their consumption behaviors, to some extent, for a better environment.

China has adopted many policies and instruments in many sectors and various aspects. The national government have released numerous documents, such as the *Overall Proposal for Reform of the Ecological Civilization System*, *Regulations on Management of Recovery of Wasted Electronic and Electrical Products, Opinions about Establishment of a Unified System for Standards, Certification and Labelling of Green Products, Proposal for Comprehensive Work of Energy Conservation and Emission Reduction during the 13th Five-Year Plan Period,* which have played an important role in encouraging a greener and healthier way of consumption, while promoting the supply and use of green products. In 2016, China released the *Guidance on Promoting Sustainable Consumption* where it specified that sustainable consumption refers to the consumption behavior characterized by saving resources and protecting the environment.

China is the second largest economic entity in the world, and its consumption patterns have made a significant contribution to sustainable development. This chapter analyzes and summarizes China's current policies and instruments in promoting the consumption of green products, services and lifestyle based on eight resident consumption categories, and outlines the description of sustainable consumption policy framework in China through a top-down hierarchical combing method and a comparative analysis method.

2.1 Analysis methods of sustainable consumption policies

2.1.1 Classification of Sustainable consumption policies and instruments

In China, there are two ways to promote sustainable consumption; through macro-level economic policy, and through incentive and auxiliary instruments. Macro-level economic policies mainly include fiscal management, investment, financing, taxing and pricing, while incentives and auxiliary instruments include information tools, behavior awareness and green

ratings. Most of these instruments are implemented by the relevant ministries and have effectively expanded the scope of sustainable consumption. Based on this classification method, China's management of sustainable consumption policies and instruments can be summarized in the chart below.

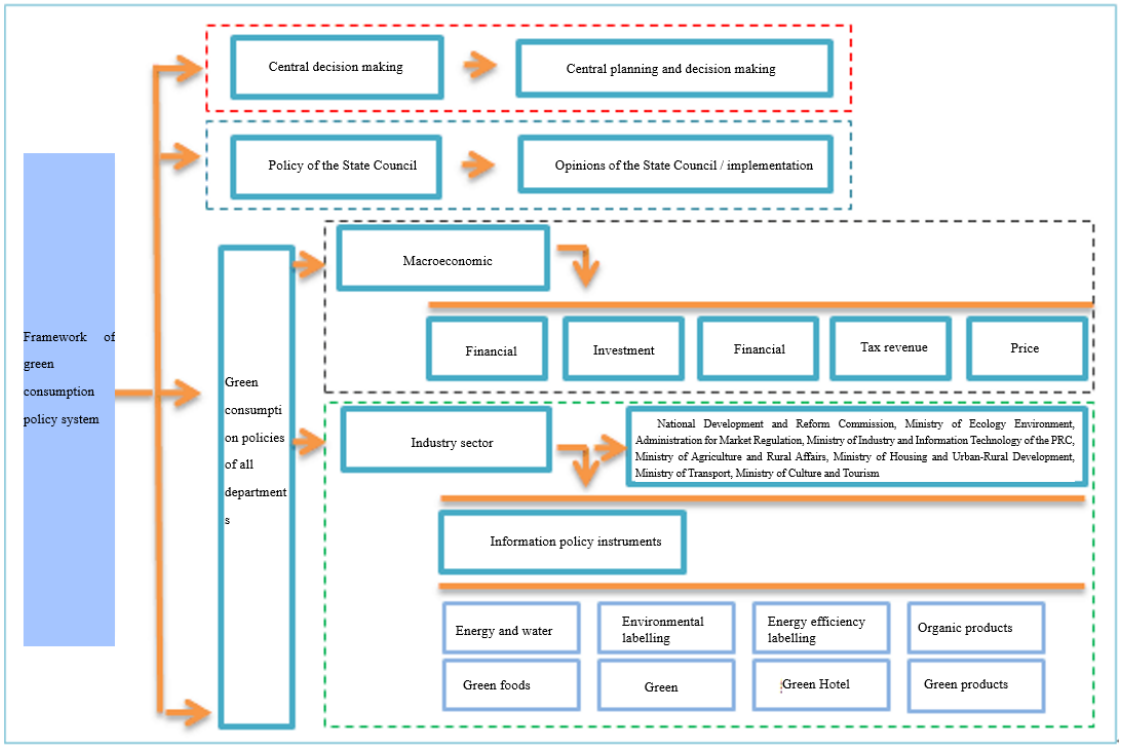


Figure 2.1 Framework on Sustainable Consumption Policies

Source: CEC

2.1.2 Horizontal analysis of sustainable consumption policies and instruments

Horizontal analysis, also called cross-cutting analysis, refers to the "cross-cutting" study of a certain thing or social phenomenon in a certain period. The significance of this analysis is to help policy makers better understand the coverage of existing policies and instruments. Furthermore, this analysis method studies whether there are existing policies or instruments in every consumption sector so that it can offer conclusive solutions. The horizontal analysis will first divide the consumption into eight categories according to the classification method in 2013, *Classification of Residents' Consumption Expenditure* by the National Bureau of Statistics of China. The eight categories are: 1. Food, alcohol and tobacco, 2. Clothing, 3. Residence and housing, 4. Consumer goods and services, 5.Transportation and communication, 6.Education, culture and entertainment, 7. Healthcare, 8.Other supplies and services. This chapter will analyze the distribution of policies and instruments by consumption categories, so as to identify the gap of policies and instruments and further propose policy recommendations.

2.2 Analysis of sustainable consumption policies and instruments in China

2.2.1 Summary of China's sustainable consumption policies

At present, China's policy framework for promoting the consumption of green products has been initially outlined. Through a top-down method, a total of 101 policy documents pertaining to green products and eco-labeled products have been issued by the central government, State Council and line ministries. The distribution of these sustainable consumption policies

at all levels is shown in the table below.

Table 2.1 Quantity Distribution of Sustainable Consumption related Policies at All Levels

S/N	Category					Policy quantity
1.	Central Government level		CPC Central Committee Decisions			9
2.			State Council Decisions			17
3.	Ministerial level		Ministerial policies			75
Total						101
Departmental policy	**No.**	**Macroeconomic policies**	**Quantity**	**No.**	**Sectors policies**	**Quantity**
	1.	Fiscal policy	25	1.	National Development and Reform Commission of the People's Republic of China	10
	2.	Tax policies	7	2.	State Administration for Market Regulation	7
	3.	Price policy	5	3.	Ministry of Housing and Urban-Rural Development	6
	4.	Investment policy	2	4.	State Administration of Press, Publication, Radio, Film and Television	3
	5.	Financial policies	1	5.	Ministry of Ecology and Environment	2
	/	/	/	6.	Ministry of Agriculture and Rural Affairs of People's Republic of China	2
	/	/	/	7.	Ministry of Commerce	2
	/	/	/	8.	Ministry of Industry and Information Technology of the PRC	1
	/	/	/	9.	Ministry of Transport	1
	/	/	/	10.	Ministry of Culture and Tourism	1
	Subtotal		40	Subtotal		35

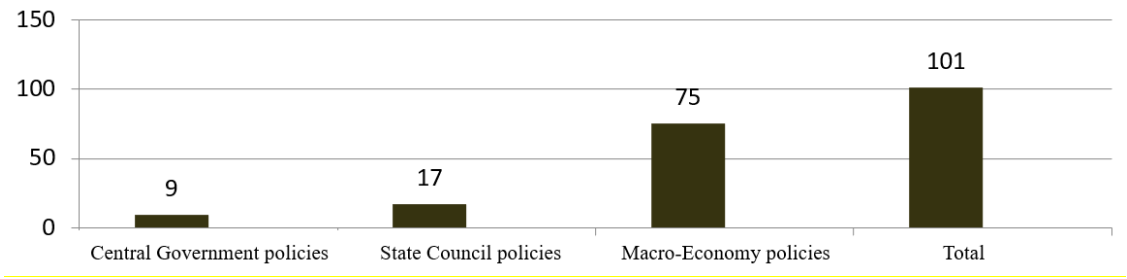


Figure 2.2 Quantity Distribution of Various Policies Related to Sustainable Consumption
Source: CEC

At the national level, the principles of green consumption, such as a lifestyle and eco-labeled products have been integrated into nine central government decisions, including the national strategy and planning and 17 State Council policies related to sustainable consumption (regulations, programs, notices and opinions, etc.). For example, *Several Opinions on*

Improving Consumption Mechanism and Further Motivating Consumption Potential of Residents and *Notice on Implementation Plan for Improving Consumption Mechanism (2018 – 2020) issued by* CPC Central Committee, and *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) have been issued by the State Council.

At a ministerial level, 40 macroeconomic policies related to sustainable consumption including fiscal, investment, finance, taxation and price policies, along with 35 other information-based policies have been issued by relevant ministries that oversee various sectors. The quantity distribution of macro-economy policies is as shown below.

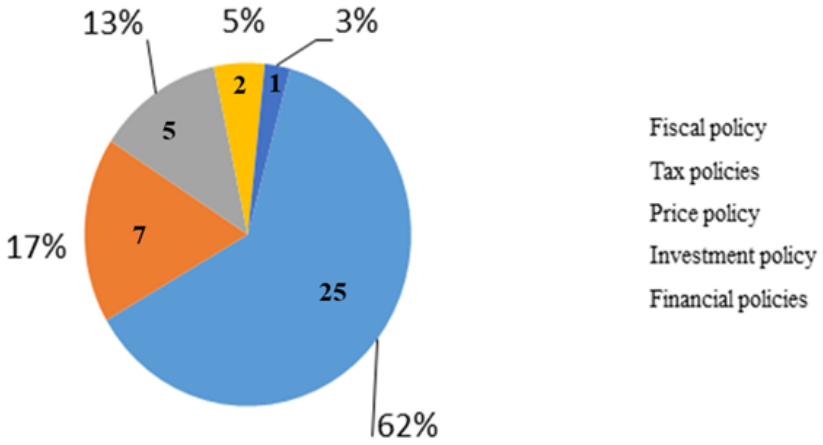


Figure 2.3 Quantity Distribution of Macro-Economic Policies
Source: CEC

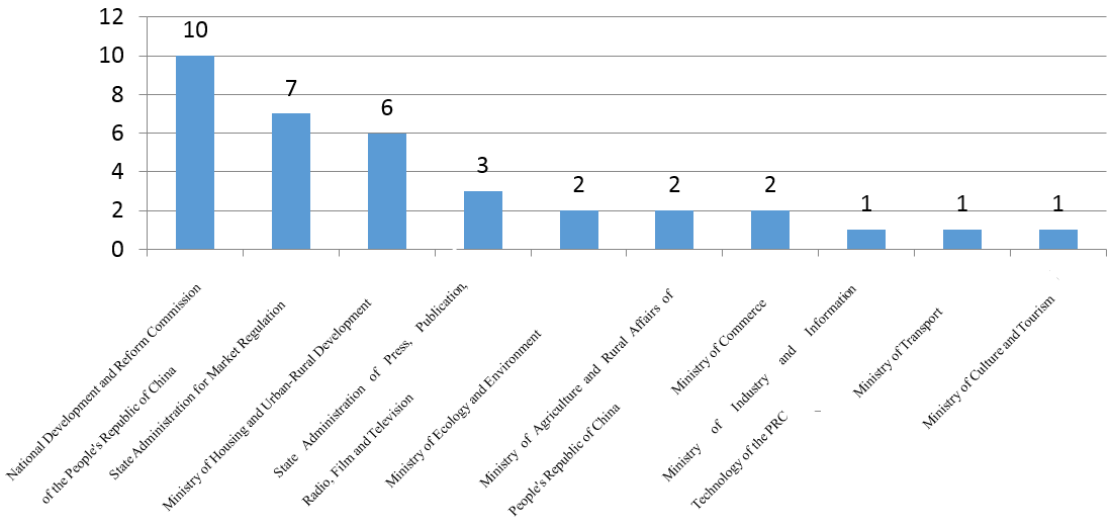


Figure 2.4 Number of Policies Issued by Each Ministry
Source: CEC

2.2.2 Analysis of macro-economic policies related to sustainable consumption

According to the 2013 *Classification of Residents' Consumption Expenditure* issued by National Bureau of Statistics, residents' consumption is divided into eight categories, with 24 subcategories and 80 groups. By applying the comparative analysis methods, the research group compared 75 sustainable consumption policies and instruments with the categories and subcategories of *Classification of Residents' Consumption Expenditure,* issued by National Bureau of Statistics in 2013, and analyzed the distribution and implementation.

2.2.2.1 Comparative analysis of macro-economic policies

The research group compared 40 macro-economic economic policies related to sustainable consumption with the categories and subcategories under the *Classification of Residents' Consumption Expenditure* issued by National Bureau of Statistics in 2013. The analysis is as follows:

i. Comparative analysis of macro-economic policies by consumption categories

The distribution of the eight categories of consumer spending policies is shown in the figure below.

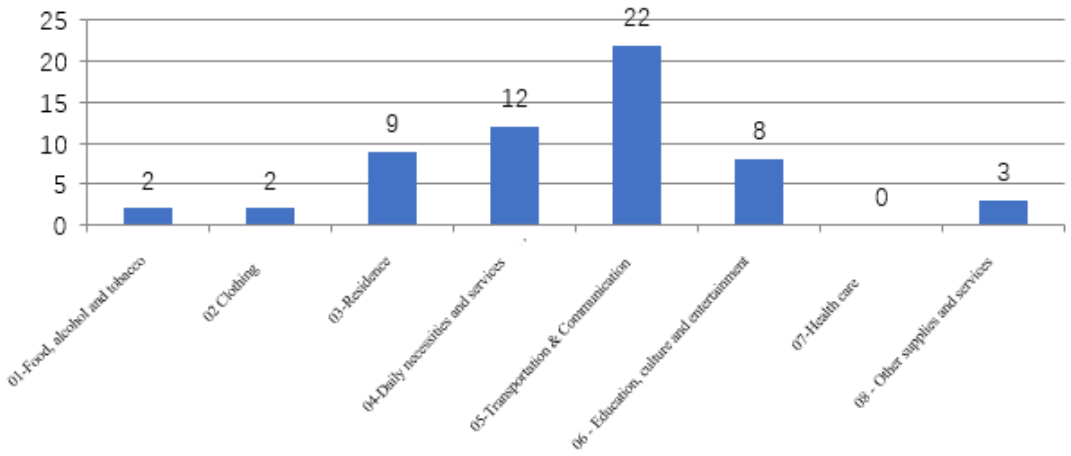


Figure 2.5 Number of Sustainable Consumption Policies in the Eight Categories
Sources: National Bureau of Statistics 2013; CEC

From the above figure, the number of policies in transportation and communication is the largest at 22 policies, followed by household goods and services at 12 policies. However, there is no sustainable consumption policy for the health care category. The distribution of fiscal, investment, price, tax and financial policies in the eight categories of consumer spending is shown in the table below.

Table 2.2 Comparative Summary Sheet of Macro-economic Policies (large categories)

Eight categories of consumption expenditure	Number of policies (item)	Fiscal	Investment	Price	Tax revenue	Finance
01-Food, alcohol and tobacco	2	2（100%）	/	/	/	/
02-Clothing	2	2（100%）	/	/	/	/
03-Residence	9	4（44%）	1	4	/	/
04-Daily necessities and services	**12**	11（92%）	/	/	1	/
05-Transportation and Communication	**22**	14（67%）	1	1	6	/
06 - Education, culture and entertainment	8	7（88%）	/	/	1	/
07-Health care	0	/（0%）	/	/	/	/
08 - Other supplies and services	3	2（67%）	/	/	/	1
For example: 01 food research, proportion of fiscal policies number = fiscal policies number (2) / total policies number(2) * 100% = 100% Source: National Bureau of Statistics 2013						

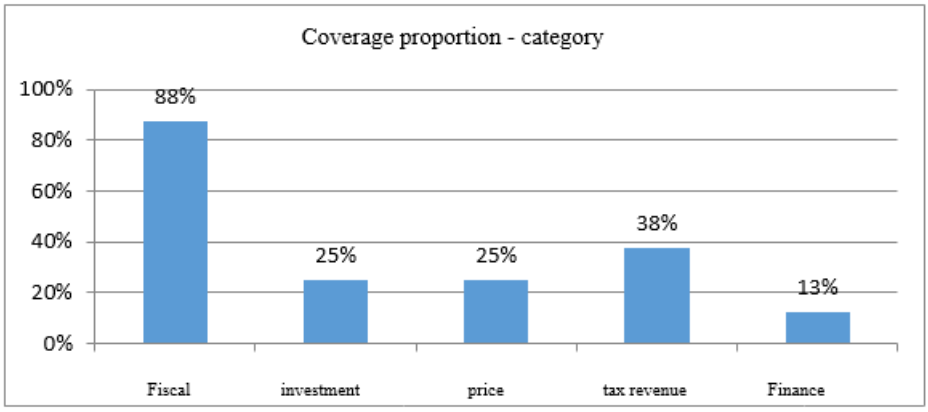


Figure 2.6 Coverage Rate of Macroeconomic Policies in Eight Categories of Consumer Spending[1]
Source: National Bureau of Statistics 2013; CEC

In conclusion, the comparative analysis of macro policies and consumption expenditure is as follows:

In the Classification of Residents' Consumption Expenditure, the number of macroeconomic sustainable consumption policies in transportation and communication is the largest at 22 policies, followed by daily necessities at 12 policies. There is no policy for the category of health care.

Fiscal macroeconomic policies dominate the distribution list. Among macroeconomic policies, fiscal policies (including subsidies, preferences, procurement, etc.) account for the highest in number of total corresponding policies in the seven categories (excluding health care), accounting for 100%, 100%, 44%, 92%, 67%, 88%, and 67%, respectively. There are four price policies in the residence category, accounting for 44% of the total number of policies in this category. There are six tax policies in transportation and communication, accounting for 29% of the total number of policies in this category. There is only one financial policy in the eighth category of other supplies and services, accounting for 33% of the total policies in this category.

The coverage rate of policies varies greatly. Among macroeconomic policies, fiscal policies cover seven of the eight, with the highest coverage rate (88%), while tax policies cover three categories at 38% coverage rate. Investment and price policies cover two categories, with a coverage rate of 25%, and financial policies that cover only one category at 13% coverage rate.

ii. Comparative analysis of subcategory policies and consumer spending

According to the 2013 *Classification of Residents' Consumption Expenditure* issued by National Bureau of Statistics, residents' consumption is divided into eight categories, 24 subcategories and 80 groups. The 24 subcategories are shown in the following table.

Table 2.3 Summary Sheet of Subcategories in the Classification of Residents' Consumption Expenditure

S/N	Large category of residents' consumption classification	Code of subcategories	Subcategories of residents' consumption classification
1	Food, alcohol and tobacco	0101	Food
		0102	Beverages (non-alcoholic)
		0103	Tobacco and alcohol

[1] For example: Financial policies cover 7 categories, with a coverage ratio=7/8*100%≈88%

		0104	Catering service
2	Clothing	0201	Clothing
		0202	Shoes
3	Residence	0301	Rent of rental house
		0302	Housing maintenance, repair and management
		0303	Water, electricity, fuel and others
		0304	Converted rent for self-owned housing
4	Daily necessities and services	0401	Furniture and interior decoration
		0402	Household appliances
		0403	Household textile
		0404	Household sundries
		0405	Personal care products
		0406	Domestic service
5	Transportation and communication	0501	Transportation
		0502	Communication
6	Education, culture and entertainment	0601	Education
		0602	Culture and entertainment
7	Health care	0701	Medical devices and drugs
		0702	Medical service
8	Other supplies and services	0801	Other supplies
		0802	Other services

Source: National Bureau of Statistics 2013

From the results in the Annex, the distribution number of subcategory policies in residents' consumption expenditure is shown in the figure below.

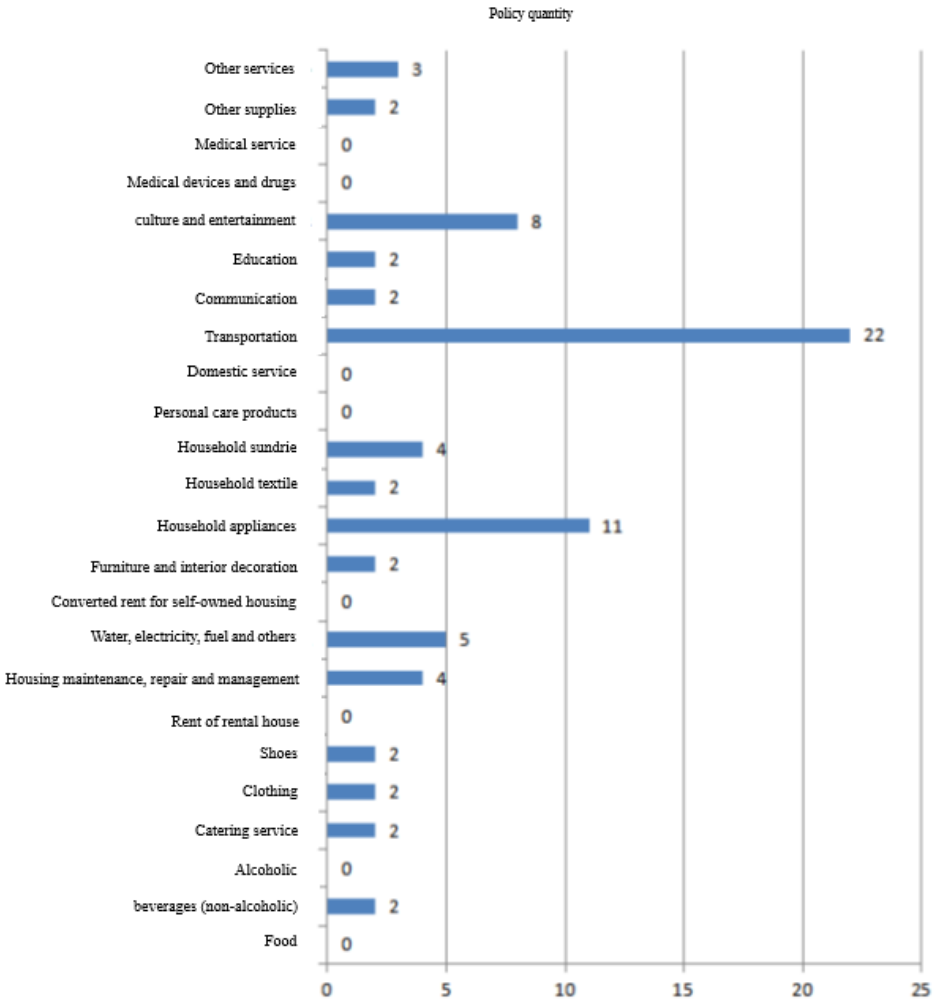


Figure 2.7 Number of Sustainable Consumption Policies in the Twenty-four Subcategories
Sources: National Bureau of Statistics 2013; CEC

As shown in Figure 2.7, among the 24 subcategories, 0501 transportation policies have the largest number at 22 items, while policies for 0402 household appliances and 0602 culture and entertainment also have a relatively large number of 11 and 8 items, respectively. No macro-economic policy has been issued for eight subcategories, namely, 0101 food, 0103 tobacco and alcohol, 0301 rent of rental housing, 0304 rent as conversion value of self-owned housing, 0405 personal care supplies, 0406 domestic service, 0701 medical devices and drugs and 0702 medical services. The distribution of fiscal, investment, price, tax and financial policies in the 24 subcategories of consumer spending is shown in Figure 2.8.

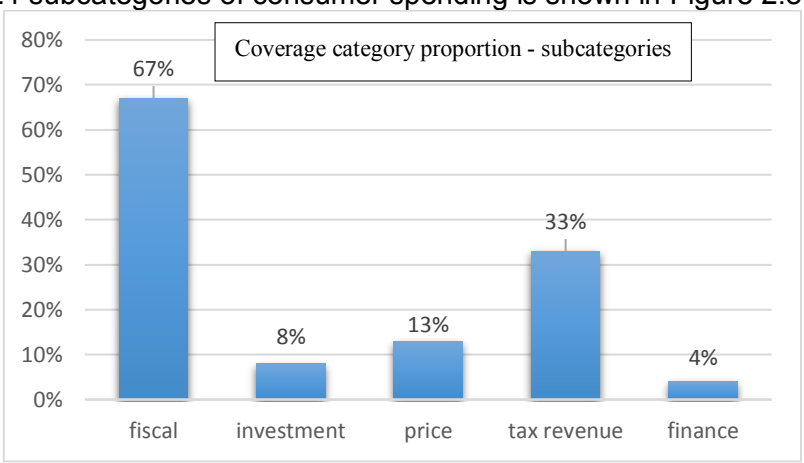


Figure 2.8 Coverage Rate of Macroeconomic Policies in Twenty-four Subcategories of Consumer Spending
Sources: National Bureau of Statistics 2013; CEC

In conclusion, the comparative analysis conclusion of macro policies subcategories and consumption expenditure is as follows:

Macro policies are unevenly distributed among the subcategories. In the *Classification of Residents' Consumption Expenditure*, the number of macro-economic sustainable consumption policies for 0501 transportation and 0402 household appliances is the largest, at 22 and 11 items, respectively. In addition, the number of macroeconomic policies for eight subcategories is at 0.

Fiscal policies account for a big proportion in the 24 subcategories. Among macroeconomic policies, fiscal policies (including subsidies, preferences and procurement) account for the highest number of corresponding policies in the 24 subcategories. There are 10 subcategories, accounting for 100%. There are four price policies in "0303 water, electricity, fuel and others" subcategories, accounting for 80% of the total number of policies in this category, and six tax policies in "0501 transportation" medium class, accounting for 43% of the total in this category.

The coverage rate of policies varies greatly. Among macroeconomic policies, fiscal policies cover 16 of the 24 subcategories, which is the highest coverage rate at 67%. Tax policies fall into eight subcategories, covering 33%, while price policies fall into three subcategories, covering 13%. Investment policies fall into two subcategories, covering 8%, and financial policies fall into only one subcategory, covering 4%.

2.2.4.2 Comparative analysis of industry sector instruments

The study group compared 35 sustainable consumption policy instruments of industry sectors with the categories and subcategories distributed under the *Classification of Residents' Consumption Expenditure* issued by National Bureau of Statistics in 2013. The summary is shown in the table below.

Table 2.4 Analytical Sheet of Industry Sector Policy Category

S/N	Name of policy	Issuing department	Residents' consumption expenditure categories	Residents' consumption expenditure subcategories
1.	*Administrative Measures for Certification of Energy Saving Products in China*	National Development and Reform Commission (NDRC)	03 - Residence 04 - Daily necessities and services 05 - Transportation and communication 06 - Education, culture and entertainment	0402 - Household appliances 0404 - Household sundries 0501 - Transportation 0602 - Culture and entertainment
2.	*Measures for the Administration of Energy Efficiency Labels* NDRC and AQSIQ, Order No. 17	NDRC, AQSIQ	04 - Daily necessities and services; furniture and interior decoration 06 - Education, culture and entertainment	0402 - Household appliances 0404 - Household sundries 0602 - Culture and entertainment

3.	*Measures for the Administration of Energy Efficiency Labels* NDRC and AQSIQ, Order No. 35	NDRC, AQSIQ	04 - Daily necessities and services; furniture and interior decoration 06 - Education, culture and entertainment	0402 - Household appliances 0404 - Household sundries 0602 - Culture and entertainment
4.	*Management Measures for Water Efficiency Labels* NDRC, Ministry of Water Resources and AQSIQ, Order No. 6	NDRC, Ministry of Water Resources and AQSIQ	04 - Daily necessities and services	0402 - Household and interior decoration
5.	*Notice on Printing and Distributing the Action Plan for National Energy Conservation during the 13th Five-Year Plan Period* FGHZ [2016] No. 2705	NDRC, the Publicity Department of the Central Committee of Communist Party of China, Ministry of Industry and Information Technology of the PRC, Ministry of Finance, Ministry of Housing and Urban-Rural Development (MOHURD), Ministry of Transport, The People's Bank of China, SASAC, State Taxation Administration, AQSIQ, National Bureau of Statistics, National Government Offices Administration, National Energy Administration	/	/
6.	*Notice about Guidance on Promoting Sustainable Consumption* FGHZ [2016] No. 353	NDRC, the Publicity Department of the Central Committee of Communist Party of China, Ministry of Science and Technology, Ministry of Finance, Former Ministry of Environmental Protection, MOHURD, Ministry of Commerce, General Administration of Quality Supervision, Inspection and Quarantine, National Tourism Administration and National Government Offices Administration	/	/
7.	*Notice of NDRC on Printing and Distributing China's Response Plan To Climate* Change(2014-2020) FGQH [2014] No. 2347	NDRC	/	/

8.	*Notice on Printing and Distributing "Circular Development Leading Action"*	NDRC, Ministry of Science and Technology, Ministry of Industry and Information Technology, Ministry of Finance, Ministry of Land and Resources, the Former Ministry of Ecology and Environment, MOHURD, Ministry of Water Resources, Ministry of Agriculture, Ministry of Commerce, SASAC, State Taxation Administration, National Bureau of Statistics, The State Forestry Administration of the People's Republic of China (PRC)	/	/
9.	*Notice on Printing and Distributing the Action Plan of Promoting Consumption Driven Transformation and Upgrading* FGZH [2016] No. 832	24 ministries and commissions including NDRC	/	/
10.	*Notice of the Ministry of Transport on Printing and Distributing the Implementation Plan for Promoting the Construction of Transportation Ecological Civilization* JGHF [2017] No. 45	Ministry of Transport	05 - Transportation and Communication	0501 - Transportation
11.	*Announcement on the Implementation of Green Printing* GAPP No. 2, 2011	State Administration of Press, Publication, Radio, Film and Television, the former Ministry of Ecology and Environment	06 - Education, culture and entertainment	0601 - Education
12.	*Notice on the Implementation of Green Printing in Primary and Secondary School Textbooks* XCL [2012] No.11	State Administration of Press, Publication, Radio, Film and Television, Ministry of Education, the former Ministry of Ecology and Environment	06 - Education, culture and entertainment	0601 - Education
13.	*Notice on Green Printing of Bills* XCL [2013] No.9	State Administration of Press, Publication, Radio, Film and Television, the former Ministry of Ecology and Environment, Ministry of Industry and Information Technology, and CNCA	05 - Transportation and communication 06 - Education, culture and entertainment	0501 - Transportation 0502 - Communication 0602 - Culture and entertainment
14.	*Notice on Carrying Out Environmental Labeling Work in China*	The former Ministry of Ecology and Environment	01 - Food, alcohol and tobacco 02 - Clothing 03 - Residence 04 - Daily necessities and	0102 - Beverages (excluding alcohol) 0104 - Catering services 0201 - Clothing 0202 - Shoes

			services 05 - Transportation and communication 06 - Education, culture and entertainment 08 - Other supplies and services	0302 - Housing maintenance, repair and management 0401 - Furniture and interior decoration 0402 - Household appliances 0403 - Household textiles 0404 - Household daily necessities 0501 - Transportation 0502 - Communication 0601 - Education 0602 - Culture and entertainment 0801 - Other supplies 0802 - Other services
15.	*Opinions on Accelerating the Implementation of Green Lifestyle* HF [2015] No.135	Former Ministry of Environmental Protection	/	/
16.	*Notice on Printing and Distributing "the Measures for the Administration Of Green Building Evaluation Marks"* (Trial Implementation)	Former Ministry of Construction	03 - Residence	0302 - Housing maintenance, repair and management
17.	*Notice on Printing and Distributing Implementation Rules for Green Building Evaluation Labels (Trial Revision) and Other Documents*, promulgating *Implementation Rules for Green Building Evaluation Labels (Trial)*, *Regulations on the Use of Green Building Evaluation Labels (Trial)*, and *Working Rules of the Expert Committee for Green Building Evaluation Labels* (Trial)	Former Ministry of Construction	03 - Residence	0302 - Housing maintenance, repair and management

18.	*Notice of the General Office of the MOHURD on the Management of Green Building Evaluation Labels* JBK [2015] No. 53	MOHURD	03 - Residence	0302 - Housing maintenance, repair and management
19.	*Notice of the General Office of the MOHURD on Organizing the Application of 2018 Science and Technology Plan Project* JBKH [2017] No. 845	MOHURD	03 - Residence	0302 - Housing maintenance, repair and management
20.	*13th Five-year Plan for Building Energy Conservation and Green Building Development*	MOHURD	03 - Residence	0302 - Housing maintenance, repair and management
21.	*Notice of the MOHURD and NDRC on Printing and Distributing the Action Plan of Urban Adaptation To Climate Change* (FGQH [2016] No. 245)	NDRC, MOHURD	03 - Residence	0302 - Housing maintenance, repair and management
22.	*Technical Guidelines for Passive Ultra Low Energy Consumption Green Buildings (Trial)* (residential buildings)	MOHURD	03 - Residence	0302 - Housing maintenance, repair and management
23.	*Notice of the Ministry of Industry and Information Technology and the MOHURD on Printing and Distributing the Action Plan for Promoting the Production and Application of Green Building Materials* MIJLY [2015] No.309	The Ministry of Industry and Information Technology, the MOHURD	03 - Residence	0302 - Housing maintenance, repair and management
24.	*Notice on Water Saving Product Certification*	Former China Economic and Trade Commission and former Ministry of Construction	03 - Residence 04 - Daily necessities and services	0302 - Housing maintenance, repair and management 0402 - Household and interior decoration

25.	*Green Hotel Rating Criteria (SB / T 10356-2002)*	Former China Economic and Trade Commission and former Ministry of Construction	01 - Food, alcohol and tobacco 03 - Residence 04 - Daily necessities and services 08 - Other supplies and services	0101 - Food 0303 - Water, electricity, fuel and others 0404 - Household sundries 0802 - Other services
26.	*Measures for the Administration of Green Food Logos*	Ministry of Agriculture and Rural Affairs of the PRC	01 - Food, alcohol and tobacco	0101 - Food
27.	*Measures for the Administration of Pollution-free Agricultural Products,* Order No. 12 of the Ministry of Agriculture of the PRC and the General Administration of Quality Supervision, Inspection and Quarantine of the PRC	Ministry of Agriculture, General Administration of Quality Supervision, Inspection and Quarantine of the PRC	01 - Food, alcohol and tobacco	0101 - Food
28.	*Measures for the Administration of Organic Product Certification* ZJ Order[2004] No. 67	General Administration of Quality Supervision, Inspection and Quarantine of the PRC	01 - Food, alcohol and tobacco	0101 - Food
29.	*Measures for the Administration of Organic Product Certification* ZJ Order[2015] No. 155	General Administration of Quality Supervision, Inspection and Quarantine of the PRC	01 - Food, alcohol and tobacco	0101 - Food
30.	*Green Product Assessment-Textile Products(GB/T 35611-2017)*	AQSIQ, Standardization Administration	04 - Daily necessities and services	0403 - Household textile
31.	*Green Product Assessment-Ceramics Tiles (Board)(GB / T 35610-2017); Green Product Assessment-Waterproof Materials and Sealants (GB / T 35609-2017); Green product assessment-Thermal Insulation (GB/T 35608-2017); Green Product Assessment-Solar Water Heating System (GB/T 35606-2017); Green Product*	AQSIQ, Standardization Administration	03 - Residence 04 - Daily necessities and services	0302 - Housing maintenance, repair and management 0401 - Furniture materials

	Assessment-Wall Material (GB/T 35605-2017); Green Product Assessment-Building Glass(GB/T 35604-2017); Green Product Assessment-Coating Material (GB/T 35602-2017); Green Product Assessment- Wood-based Panels and Wooden Flooring (GB / T 35601-2017)			
32.	*China Standard for Green Hotels (GB / T21084-2007),* including detailed rules for the evaluation of green hotels	Standardization Administration of the PRC	01 - Food, alcohol and tobacco 03 - Residence 04 - Daily necessities and services 08 - Other supplies and services	0101 - Food 0303 - Water, electricity, fuel and others 0404 - Household sundries 0802 - Other services
33.	*Green Wholesale Market for Agricultural and Sideline Products (GB / T19220-2003)*	AQSIQ	01-Food, alcohol and tobacco	0101 - Food
34.	*Standard of Green Retail Market of Product and Relevant Technical Specifications* (GB/T19221-2003)	AQSIQ	01 - Food, alcohol and tobacco	0101 - Food
35.	*Green Hotel (LB / T 007-2006),* including detailed rules for the evaluation of green tourism hotels	Former China Tourism Administration	01 - Food, alcohol and tobacco 03 - Residence 04 - Daily necessities and services 08 - Other supplies and services	0101 - Food 0303 - Water, electricity, fuel and others 0404 - Household sundries 0802 - Other services

Sources: National Bureau of Statistics 2013; CEC

2.2.3 China's sustainable government procurement policy

2.2.3.1 Sustainable government procurement policy concept and development

Government procurement is regarded as an influential economic instrument in supporting products and services. In a broad sense, government procurement refers to the procurement of goods, engineering and labor services by governments at all levels for government departments or groups, from domestic and foreign markets to public bidding and fair competition. Such processes shall be conducted with transparency. Its methods and procedures are practiced under financial supervision with direct payment to suppliers by the financial department, in order to provide goods and services to the public. Principally speaking, the procurement structure is a market competition mechanism integrated with the legal management of government procurement.

In the past few years, China has actively promoted the green governmental procurement. The corresponding regulations on the government's green procurement have been made into a series of laws issued in China.

Article 9 of the *Government Procurement Law* issued in 2003 stipulates that: Government procurement should contribute to the achievement of national economic and social development policy objectives, including environmental protection. Article 16 of the *Cleaner Production Promotion Law of the People's Republic of China* issued in January 2003 stipulates that “The people's government at all levels shall take priority in purchasing the products that are conducive to the protection of the environment and resources, including saving energy, saving water and making recurrent utilization of waste, etc.”

In December 2004, the NPC Standing Committee passed the revised the *Law of the People's Republic of China on the Prevention and Control of Environmental Pollution Caused by Solid Wastes*, whose article 7 stipulates that “The state encourages units and individuals to purchase and use renewable and reusable products. These stipulations have laid a legal foundation for the formulation and implementation of green procurement policies in Chinese government procurement activities.”

On this basis, a series of documents issued by the State Council have made clear the necessity of implementing government's green procurement. In July 2005, in the *Several Opinions of the State Council on Accelerating the Development of Circular Economy*, the State Council pointed out that ‘the consumption mode that is conducive to saving resources and protecting the environment should be strongly advocated in the consumption chain.’ Furthermore, it should be encouraged to use energy efficiency labels, energy-saving and water-saving products, environmental labeling products, green labeling foods, and reduce excessive packaging and the use of disposable products. Government agencies shall implement green purchasing. In December 2005, the State Council issued the *Decision of The State Council on Implementing the Scientific Outlook on Development and Strengthening Environmental Protection*, which states that: In the consumption chain, the environmentally friendly consumption mode should be strongly advocated. Environmental labeling, environmental certification and government's green procurement system should be implemented, and the recycling system of renewable resources should be improved. All of these policies showed that the green governmental procurement has played an important role in guiding the implementation of circular economy and development.

In November 2006, the former Ministry of Ecology and Environment and the Ministry of Finance jointly issued the *Implementation Opinions on Government Procurement of Environmental Labeling Products* and the first batch of *List Of Government Procurement of Environmental Labeling Products*, which required that from January 1, 2007, the first-class Central budget units and provincial budget units (including cities listed in the plan), required that government procurement should give priority to the selection of environmental labeling products. From thereon, the Chinese government's green procurement work had officially taken place. For more than ten years, the Chinese government has continuously built a solid legal and policy foundation for government procurement, which provides a guarantee for promoting the realization of the function of Chinese government's green procurement policy.
In August 2008, the *Circular Economy Promotion Law of the People's Republic of China* passed by the NPC Standing Committee specifies that in government procurement, priority should be given to the procurement of products conducive to environmental protection.

The *Outline of the 12th Five-Year Plan for National Economic and Social Development* issued by China in 2011 proposes “The concept of civilized, economical, green and low-carbon consumption shall be advocated, and the formation of a green lifestyle and consumption pattern suitable for China's national conditions shall be promoted. The government's green procurement shall be implemented and the proportion of energy-saving and water-saving

products and recycled products shall be gradually increased."

Article 6 of *Regulation on the Implementation of the Government Procurement Law of the People's Republic of China* implemented in March 2015 stipulates that "Based on the state's economic and social development policies, and in conjunction with the relevant departments of the State Council, the Ministry of Finance of the State Council shall formulate procurement policies to achieve the goals of energy saving, environmental protection, support the underdeveloped areas and ethnic minority areas, and promote the development goals of small and medium-sized enterprises. Such procurement tasks shall be carried out through the formulation of procurement demand standards, reservation of procurement shares, preferential price evaluation and preferential procurement measures." The *Outline of the 12th Five-Year Plan for National Economic and Social Development* issued by China in 2011 proposes "The state shall advocate for a civilized, economical, green and low-carbon consumption, and promote a green lifestyle and consumption pattern suitable for China's environmental status quo. The government shall implement green procurement, while gradually expanding its scope of practice on energy-saving products, water-saving products and recycled products." The *Outline of the 13th Five-Year Plan for National Economic and Social Development* issued by China in 2016 proposes "The state will coordinate to promote the system of green identification, certification and green procurement."

In 2017, General Secretary Xi pointed out in the report on the work of the 19th National Congress of the Communist Party of China to 'promote green development,' "We will step up efforts to establish a legal framework that promote green production and consumption, and encourage a sound economic structure that facilitates green and low-carbon practices in a circular economy."

From 2006 to 2019, the Ministry of Ecology and Environment and the Ministry of Finance have jointly mandated 22 issues concerning the environmental labeling products on its government procurement list. The list has developed from 14 types of products in the first issue to 59 types of products in the 22nd issue, including office equipment and consumables, passenger cars, household appliances, furniture, and building materials, etc. There were 856 product models from 81 enterprises in its first issue in 2006, and expanded to 392,586 product models from 3,924 enterprises in the 22nd issue in 2019. According to the statistics of the Ministry of Finance in 2018, the government procurement scale of China environmental labeling products has reached RMB 164.74 billion, accounting for 90.2% of the government procurement of similar products.

The report of the 19th National Congress of the Communist Party of China stated that "to form a green development mode and lifestyle", the government's green procurement will play an essential leading role in green development and lifestyle. Based on the concept of "sustainable production and consumption," this notion is not only the focus of sustainable production and consumption, but also a new policy trend of the current procurement system, as well as the key practice in promoting worldwide sustainable development. According to the sustainable development discourse by the United Nations, sustainable government procurement is defined as to realize the basic economic function of "value for money". At the same time, government procurement should exercise a decisive role in the policy-making process to promote sustainability. Specifically, sustainable public procurement must focus on environmental protection and promote the investment, development and production of goods that are energy-saving and protect the environment. Sustainable public procurement would require governments of all nations to formulate laws and policies to stipulate that only products and services that meet the standards of energy conservation and environmental protection can be purchased, while giving priority to the products and services of energy conservation and environmental protection. When purchasing, consumers should not only consider the market price, but also the total cost, environmental cost and usage cost of the purchased goods and services, especially product recovery and recycling. Second, sustainable

government procurement protects workers' rights, respects their personality, prohibits labor discrimination and implements the right of compensation for labor disability. Lastly, sustainable government procurement should support small and medium-sized enterprises, care for the development of underdeveloped areas and protect vulnerable groups.

2.2.3.2 The importance of sustainable government procurement

Sustainable government procurement system in China contributes to realizing the goals and economic benefits. This practice also focuses on the following policy applications:

First is to focus on environmental protection. The government must support and promote investment, development and production of sustainable products. Government procurement can be regulated by laws and policies to only purchase products and services that meet the national energy-saving and environmental protection standards. The implementation of such policies will not only help the government reduce the cost of energy consumption, but also help suppliers develop and increase the production of energy-saving and green products.

Secondly, the social labor security, a long-term labor protection policy that the government must maintain to protect workers' rights, human dignity, prohibition of labor discrimination and compensation rights for disability. The government can expedite the national labor protection policy through mandatory labor security provisions in the government procurement market.

Thirdly, in order to promote a collective development of economy and society, the state must provide proper support to small and medium-sized enterprises, while caring for the development of upcountry areas and protect the vulnerable groups. Therefore, the government procurement should make proper use of administrative enforcements, such as policies, regulations and non-market mechanisms to increase the sales opportunities of products and services among the small and medium-sized business, underdeveloped areas, ethnic areas and vulnerable groups.

In conclusion, sustainable government procurement is collective effort that must be practiced in mass and broad communities. As a country that is sizable in both its population and geography, China is actively promoting sustainable government procurement to achieve sustainable consumption and a sound economy.

2.3 Summary

Sustainable development remains the central challenge for China. The environmental pressure brought by the growth of consumption has outweighed its technological progress. In order to truly realize sustainable development, the effective policies and regulations should be formulated to guide, stimulate and monitor the economic and social development. To develop an effective circular economy, protect environmental resources, and meet the needs of today's socioeconomic development, it is imperative to establish a systematic set of green policies to promote and regulate sustainable consumption at a structural level. As shown in Figure 2.9 below, a basic legal framework diagram for sustainable consumption can provide a better understanding of the legal system and the structural level of sustainable consumption in China.

1) Currently, China's strategic planning for sustainable consumption is still insufficient. In its future plans, the government needs to focus on the executive administration levels to construct methods of implementation, and relay the policies to its departmental levels.
2) As for laws, regulations and policies, there are more than 100 sustainable consumption policies that are applicable on a local level, and are mainly divided into national level and departmental level. However, currently, there are no laws regulating sustainable consumption, and no binding policies for any key practices, such as consumption and post-consumption recycling.
3) Policy instruments mainly include information provision, behavior orientation and green rating, but with insufficient results.

4) Through a comparative analysis of 40 macro-sustainable consumption policies and the categories of the 2013 “Consumer Expenditure Classification of Residents” of the National Bureau of Statistics of China, the distribution of macro-policies is significantly different, and the coverage rates of various policies are quite different. All eight residents’ consumption sectors were applicable to the sustainable consumption policies and their instruments. However, the lack of communication among departments has led to the lack of policy coordination and low public participation.

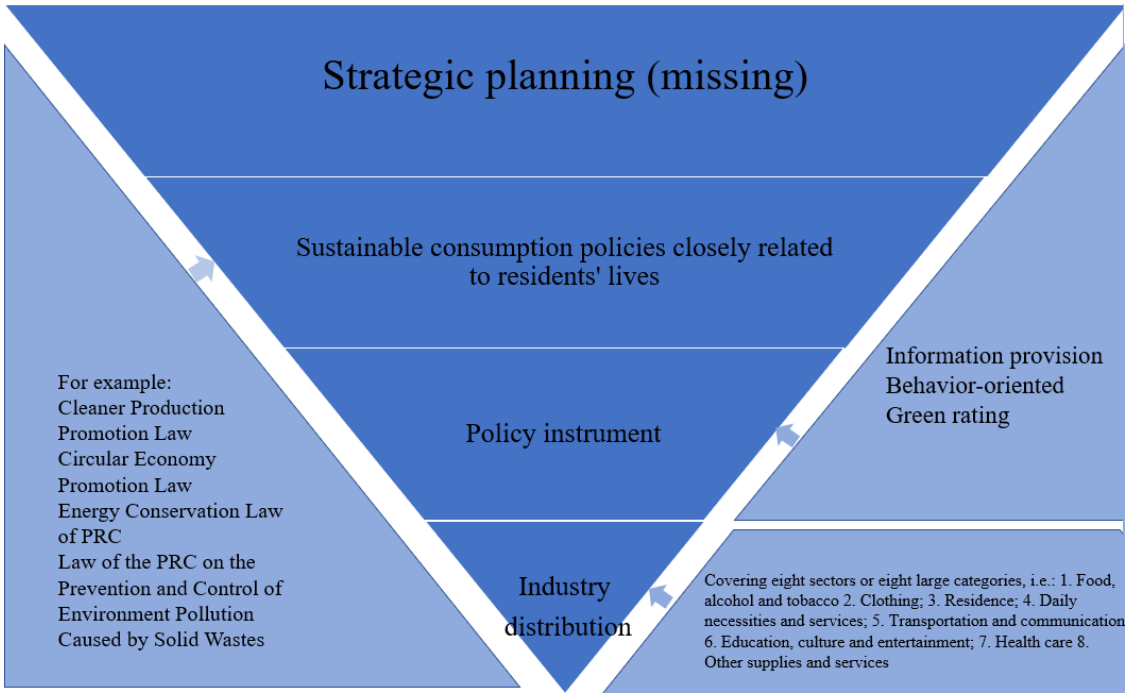


Figure 2.9 Basic Legal Framework of Sustainable Consumption

3. Main Certification Instruments related to Sustainable Consumption

In this chapter, seven certification policies were selected to make a comparative analysis with the residents’ consumption expenditure categories. It aims to measure the environmental and economic benefits, including energy-efficient products and water saving products certification, environmental labeling certification, green hotel, organic products, green food, green building, and green building materials certification. Moreover, this study is based on seven selected criteria which are certification relevance, typicality, government acceptance, normativity, data availability, consumer awareness and implementation.

Table 3.1 The Selection Principles for Certification tools related to Sustainable Consumption

S/N	Principle	Indicator explanation
1.	Relevance	Relevance indicator: the certification category is compared with the Classification of Residents’ Consumption Expenditure in the *Classification of Residents’ Consumption Expenditure* (eight categories, 24 subcategories and 80 sub-classes), which means that the sub-classes are within the scope of study.
2.	Typicality	Typicality indicator: according to the results of relevance principle analysis, the most typical certification category is selected when multiple certifications carry out certification of the same product category.
3.	Reliability	Reliability indicator: mentioned in national or local policy documents, or accepted by relevant national or local policies and systems (such as

		government procurement, government subsidies or government decision-making basis).
4.	Normativity	Normativity indicator: the certification activities carried out are the certification categories filed and approved by the competent authorities of China certification industry.
5.	Data availability	Data indicator: number of certified enterprises, number of certified products and accessible certifications type of relevant environmental performance data.
6.	Awareness	Recognition indicator: the certification categories published by authoritative websites with high recognition.
7.	Implementation	Implementation indicator: the number of licensed enterprises shall not be less than 1000. The certification category that is currently under the normal operation.

Table 3.2 Summary of the Implementation of the Selected Market Certification Tools related to Sustainable Consumption

No.	Certification	Beginning year	Competent departments	Number of Available Standards	Comparison with residents' consumption expenditure	Number of market certified enterprises (2017)	Benefits
1	Energy Saving and Water Saving Certification	In 1999	Certification and Accreditation Administration of the PRC	160	➢ 3 categories ➢ 5 subcategories ➢ 9 sub-classes	4812	√Energy saving √Water saving √ Saving materials √ Decrease of emission of CO_2
2	Environmental Labeling Certification	In 1993	Ministry of Ecology and Environment	101	➢ 7 categories ➢ 15 subcategories ➢ 30 sub-classes	3634	√Energy saving √Water saving √ Saving materials √ Decrease of emission of CO_2 √ reduction of pollutant discharge
3	Green Building Assessment	2007	MOHURD	10	➢ 3 categories ➢ 6 subcategories ➢ 11 sub-classes	4500	√Energy saving √Water saving √ Saving materials √ Decrease of emission of CO_2 √ reduction of pollutant discharge
4	Green Building Materials Assessment	2014	MOHURD, Ministry of industry and Information Technology	8	➢ 2 categories ➢ 2 subcategories ➢ 3 sub-classes	900	√ Saving materials √ reduction of pollutant discharge
5	Green Food Certification	In 1991	Ministry of Agriculture and Rural Affairs of PRC	126	➢ 1 category ➢ 3 subcategories ➢ 15sub-classes	13860	√ reduction of pollutant discharge
6	Organic Food Certification	In 1995	Certification and Accreditation Administration of the PRC	127	➢ 4 categories ➢ 6 subcategories ➢ 17 sub-classes	11835	√ Decrease of emission of CO_2 √ reduction of pollutant discharge
7	Green Hotel Assessment	2008	Ministry of Commerce	2	➢ 4 categories ➢ 4 subcategories ➢ 20 sub-classes	1500	√Energy saving √Water saving √ Decrease of emission of CO_2 √ reduction of pollutant discharge

3.1 Energy Saving and Water Saving Certification

In February 1999, China established the certification system of energy-efficient products, in accordance with the *Energy Conservation Law of People's Republic of China*, along with the setup of China Committee for Certification of Energy Conservation Product, and the publish of *Administrative Measures for Certification of Energy Saving Products in China.* The issued guideline was an introduction to standard labeling procedures for energy saving products. This officially marked the launch of the certification of energy saving products in China. The certification system was created in order to save energy and protect the environment, effectively certify energy-saving products, ensure the development of useful energy-saving products and fair competition in market and promote the international trade of energy-efficient products. In October 2002, with the approval of Certification and Accreditation Administration of China (CNCA), China Economic and Trade Commission, Ministry of Construction, Ministry of Water Resources and other relevant departments started the pilot work of water-saving product certification.

Energy-saving and water-saving products refer to the products that use energy and water with energy efficiency and water efficiency of level 2 or above. The product certification is organized and implemented by CNCA. By certifying these products and promoting their use, their market can be guided and regulated, with the potential of increased public consumption. Such certifications practice aims to improve profits for enterprises, save energy, reduce emissions, and provide better health and wellbeing for consumers.

The Ministry of Finance (MOF) and NDRC carried out the government procurement system for energy-saving products in 2004. On December 17, 2004, MOF and NDRC issued the *Opinions on the Implementation of Government Procurement of Energy-Saving Products*, which required government, institutions and organizations at all levels that use fiscal funds for procurement, to consume energy-saving products while phasing out low-energy products. Considering the progress of government procurement reform, the technology and the market maturity of energy-saving products, MOF and NDRC determined the scope of government procurement for each category of the energy-saving products that have been state certified, and published it in the form of "*Government Procurement List of Energy-saving Products*." *The Decision of the State Council on Strengthening Energy Conservation* (GF [2006] No. 28) and *Notice of the State Council on Printing and Distributing the Comprehensive Work Plan for Energy Conservation and Emission Reduction* (GF [2007] No. 15) proposed the establishment of a compulsory procurement system to strengthen the state's energy conservation, and instruct the guidance function of government procurement policy. The documents required that government agencies give priority to purchase products conducive to energy (and water) conservation, and compulsory procurement should be implemented for certain products that have outstanding energy-saving effect and mature performance. In 2007, the *Notice of the General Office of the State Council on the Establishment of the Government's Compulsory Procurement System for Energy-Saving Products* was published. It required government agencies at all levels to give preferable consideration to the procurement of energy-saving products when using fiscal funds for government procurement, so long as the technology, service and other indicators meet the procurement demand. The *Notice* further requires that, for some products that meet the requirements for both energy-efficiency and performance, compulsory procurement should be implemented, so as to promote energy conservation, protect the environment and reduce costs among government agencies.

At the same time, the results of energy-saving and water-saving product certification have been recognized by all parties of the government, and are promoted as key tasks in the documents of the State Council, jointly issued by the state departments. In the *Quality Development Outline* (GF [2012] No. 9) issued by the State Council, it is proposed that the key to improving the certification and accreditation is to improve China's voluntary certification system, strengthen the certification of energy-saving and water-saving products, which would improve the effectiveness of its compulsory product certification. According to the *Guiding*

Opinions of the State Council on Accelerating the Development of Producer Services To Promote the Adjustment and Upgrading of Industrial Structure (GF [2014] No. 26), it states that energy conservation and environmental protection services are the primary tasks, where energy conservation and environmental protection product certification should be thoroughly developed. On November 17, 2015, the Ministry of Environmental Protection printed and distributed the *Opinions on Accelerating the Implementation of Green Lifestyle* (HF [2015] No. 135), which advocated a conservative consumption concept for consumers to buy products that are low-carbon, energy-saving, and environmentally friendly.

3.1.1 Standard system of energy saving and water saving products certification

The product certification for water and energy efficiency is implemented in accordance with the certification rules issued by China Quality Certification Center (CQC). Up to now, China has implemented the voluntary certification system of energy-saving and water-saving products for 160 categories, and issued the corresponding certification rules. The products involved include computer equipment, computer network equipment, input and output equipment, projectors, MFP, buses, special vehicles, motorcycles, pumps, refrigeration and air conditioning equipment, motors, transformers, ballasts, power equipment, household appliances, lighting equipment, television equipment, video equipment, catering and cooking machinery, lead calendaring and processing materials, toilets, faucets, toilet flushing valves, water tank accessories, valves and showers.

The current standards have been issued since 2011, and the distribution of the product certification guidelines since 2011 is shown in the figure below:

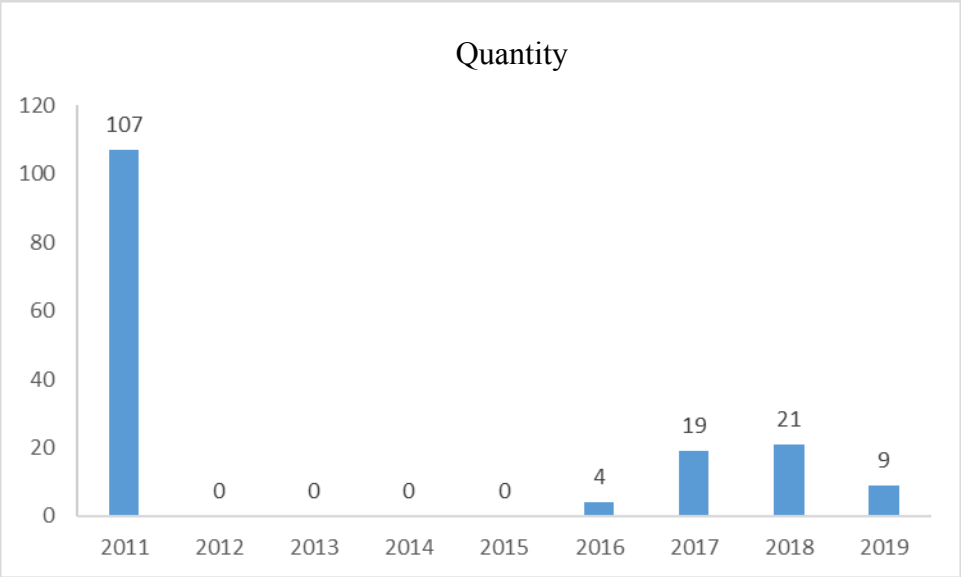


Figure 3.1 Distribution of the Guidelines of Energy Saving and Water Saving Product Certification since 2011
Source: China Quality Certification Center

The comparative analysis and summary of Classification of Residents' Consumption Expenditure and certification guidelines of energy saving and water saving products is shown in the table below.

Table 3.3 Comparative Analysis of Residents' Consumption Expenditure Categories and Certification of Energy Saving and Water Saving Products

Classification of residents 'consumption *Residents' Consumption Expenditure Categories* (2013)				Certification for energy and water saving products	
Category	**Subcategory**	**S/N**	**Group**	**Name**	**Standard number**
Daily necessities and services	Interior decoration	34	Lighting fitting, decorative lighting, etc.	Double-capped fluorescent lamps for general lighting	CQC31-465132-2013
				Self-ballasted lamps for general lighting	CQC31-465131-2013
	Household appliances	35	Large household appliances	Household and similar AC ventilators	CQC31-448158-2016
				Household and similar reverse osmosis water purifiers	CQC32-439154-2016
				Storage-type electric water heaters	CQC31-448173-2018
				Household refrigerator	CQC61-448104-2016
				Air purifier	CQC64-448157-2014
				Air conditioner	CQC31-439122-2010
				Domestic gas fast water heater and gas water heater	CQC61-448262-2015
				Dehumidifier	CQC31-439126-2014
				Smoke exhaust ventilator	CQC61-448151-2018
				Domestic and similar indoor heaters	CQC31-448187-2016
				Shower	CQC32-429111-2016
				Toilet	CQC32-372111-2016
				Household and similar electrical-Electric dishwasher	CQC64-448128-2017
				Domestic electric washing machine	CQC62-448121-2013
				Household and similar electrical appliances--electronic toilet	CQC64-448160-2018
				Heat pump water heater	CQC31-439133-2013
		36	Small household appliances	Household microwave oven	CQC31-448147-2017
				Household automatic rice cooker	CQC31-448171-2017
				Water dispenser	CQC31-448174-2015
				Household electromagnetic cooker	CQC31-448172-2014
				AC fan	CQC31-448152-2009
	Household sundries	41	Washing and sanitary products	Washing powder	CQC32-353223-2010
				Fabric rinse products	CQC32-353225-2009
				Liquid detergent	CQC32-353224-2013
		42	Furniture, tableware, tea set, etc.	Gas cooker	CQC61-448211-2015
		44	Other household sundries	Power outlets and converters	CQC31-462191-2010
Transportation and communication	Transportation	49	Transportation	Motorcycle	CQC31-499111-2015
				Automobile	CQC31-491102-2017
Education, culture and	Culture and entertainment	63		Multimedia display terminal	CQC31-452692-2017

entertainment			Durable consumer goods for culture and entertainment	FPTV	CQC31-452631-2013
				Digital TV receiver (set top box)	31-472111-2011
				Copiers, printers, fax machines and MFP	CQC31-452627-2014
				DVR	CQC31-473232-2014
				Digital projector	CQC61-452628-2016
				Scanner	CQC31-452611-2011
				Copier and multi-functional peripheral with basic function of copying	31-451412-2009
				Computer	CQC31-045201-2012
				Computer display	CQC31-452629-2016
		64	Other cultural and entertainment appliances	Paper shredder	CQC31-451641-2014

3.1.2 Implementation of energy saving and water saving product certification

From 2012 to 2016, China's total government procurement of energy-saving and water-saving products has accumulated to RMB 746 billion (data source: Sustainable consumption development of Chinese residents in 2017). As of 2017, there were 4,812 enterprises that obtained 104,816 certificates with the "Conservation" mark for energy saving and water saving products, up by 15.8% and 16.1% year-on-year, respectively.

In backing the public institutions' leading role, the MOF and NDRC implemented the government procurement system for energy-saving products in 2004, and issued its product listings. By 2018, the 24th issue of government procurement list of energy-saving products was released on August 10, 2018. According to the 24th issue of the list, 26 large categories of energy-saving and water-saving product certification items have been included in the government compulsory procurement and priority procurement list. The 26 categories include 51 energy-saving products and eight water-saving products, in which 23 energy-saving products (office equipment, lighting products, etc.) and four water-saving products (toilets, etc.) are on the government compulsory procurement list. The government procurement system has facilitated the transition to the consumption of efficient energy-saving products, promoted the energy-saving work of public institutions and brought energy-efficient indicators of certain energy-powered products in China to the international framework.

3.1.3 Benefits of energy-saving and water-saving product certification

To realize the benefits, the certification process is mainly reflected in the product's energy and water conservation capacity. According to the *Economic Daily* report on December 5, 2016, from January to November 2016, the certification in 2016 had saved 565.4326 million KWH of electric energy, equivalent to 17.8111 million tons of standard coal. In 2016, the certification of water-saving products saved 46.222 billion tons of water. Compared with 2016, the number of enterprises certified for energy-saving and water-saving products and the number of certificates in 2017 were all on the rise, along with marked environmental improvement.

Its economic benefits can also be observed. In 2018, the scale of China's electricity market reached RMB 810.4 billion, with a year-on-year growth of 1.9%. The retail sales of products such as air conditioners, refrigerators, washing machines, kitchen appliances, bathroom products, small household appliances have all achieved considerable growth. However, the sales of color TV was at RMB143.3 billion, with a 9.59% year-on-year decline. The sales of air conditioners reached RMB 198 billion, with a year-on-year growth rate of 4.5%, while sales of refrigerators reached RMB 96.9 billion, with a year-on-year growth rate of 3.5%. The sales of washing machines reached RMB 70.7 billion, with a year-on-year growth rate of 3.1%, and the annual sale of kitchen and bathroom products reached RMB 176.9 billion, with a year-on-year growth rate of 1.5%.

In 2017, the overall retail sales of China's electricity industry was at RMB 1.7 trillion, with a year-on-year growth of 9.0%. The total sales volume of air conditioners, refrigerators, washing machines, flat TVs and water heaters have increased by 15.4% compared with 2013. In 2017, the domestic sales volume of air conditioners was about 89 million units, with a year-on-year growth of 46.8%, of which the sales volume of energy-saving air conditioners was about 23 million units, a year-on-year growth of 82.2%. The domestic sales volume of refrigerators was about 45 million units, with a 5.2% year-on-year decline, of which the sales volume of energy-saving products was about 34 million units, with a 28.0% year-on-year decline. The main reason was that the upgrade in energy efficiency standards has raised the energy efficiency threshold of energy-saving refrigerators. The domestic sales volume of washing machines was approximately at 44 million units, a year-on-year growth of 7.3%, with 36 million units that were certified that reflected a year-on-year growth of 19.8%. The domestic sales volume of flat TV was about 53 million, a 4.7% year-on-year decline, of which 16 million were energy-saving products with a year-on-year growth of 18.1%. The domestic sales volume of water

heaters was about 42 million units, with a year-on-year growth of 4.4 %, among which the sales volume of energy-saving products was about 40 million units with a year-on-year growth of 6.5%. The sales volumes of energy-saving products of air conditioners, refrigerators, washing machines, flat TV and water heaters in 2017 are shown in Figure 3.2 (data source: industrial online, GMM).

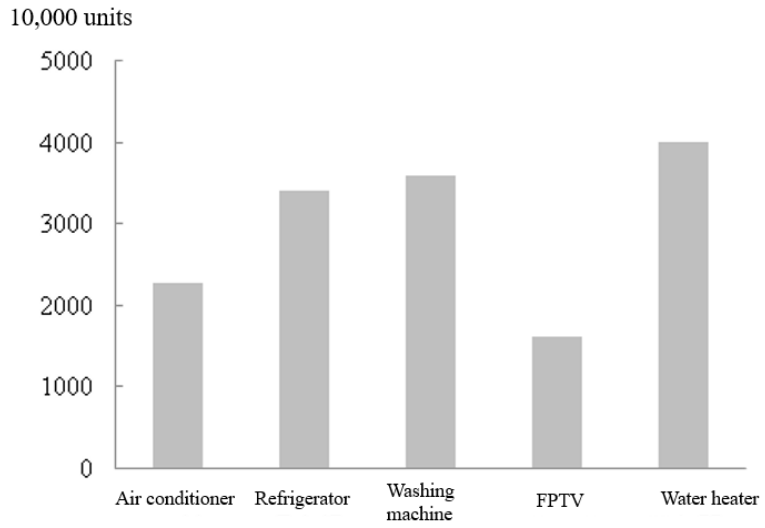


Figure 3.2 Sales Volumes of Energy-saving Products of Air Conditioners, Refrigerators, Washing Machines, Flat TV and Water Heaters in 2017
Source: Chinese Resident Consumption Development Report 2017

For domestic lighting supplies, LED lighting products with higher lumens and longer life have gradually become popular as the new generation of green lighting products. In 2017, the sales of LED lighting products in China exceeded 10.6 billion, with a year-on-year growth of 34%. Domestic sales exceeded 4.7 billion, with a year-on-year growth of 39%. In 2017, the consumption of LED home lighting products exceeded 2.2 billion, with a year-on-year growth of 37% (data source: China Semiconductor Industry Alliance).

In 2017, the sales of China's water nozzles was about 200 million units, with a year-on-year growth of about 15%, in which 45 million of them were water-saving nozzles. In 2017, the sales of toilets was about 70 million units (30% of which was exported), and the domestic sales of water-saving toilets was at 18 million (data source: China Building Ceramics and Sanitary Ware Association).

Social benefits can also be seen with the implementation of energy-saving product certification. Such practices have encouraged enterprises to develop and produce more high-quality energy-saving products, improve market competitiveness, effectively promote sustainable consumption, reduce the adverse impact of energy consumption on human living environment, and regulate the market of energy-saving products, as well as catering to consumers' demands. The certification of energy-saving products has also become the driving force to promote the progress of energy-saving technology. Taking household refrigerators as an example, before the implementation of energy-saving product certification in March 1999, only a few models of household refrigerators in China could reach the level A energy efficiency mark of the EU (the world's best energy efficiency level of household appliances). By the end of 2001, energy-saving certification products that reached level A by the EU standards has accounted for 25.58% of all the certified products. Many manufacturers adhere to the energy-saving evaluation indicator as the design and development benchmark of new products, which generally improves the energy efficiency level of China's electric products. In addition, China

also actively maintains its international cooperation in green products certification, and mutual recognition of international energy saving product certification labels. The implementation will help drive Chinese products into the international trade arena and the global market (data source: Certification Instructions For Energy-Saving Products).

3.2 Environmental Labeling Certification

Environmental labeling certification program started in 1993 in China. It was initiated and developed by the Chinese government along with the development of the international ecological labeling, and in response to the idea of sustainable development put forward by the 1992 UNCED in Rio de Janeiro, Brazil. It was directly managed and implemented by the Ministry of Ecology Environment. Environmental labeling strengthens the environmental responsibility and behavior of enterprises by creating public awareness of sustainable consumption, so as to coordinate economic development, social needs and environmental protection. Environmental labeling provides an effective way for the public to participate in environmental protection and promote sustainable economic development, and brings good social, economic and environmental benefits.

The achievements of China Environmental Labeling have been recognized by all parties of the government and promoted in the State Council. As stated in *Some Opinions of the State Council on Accelerating the Development of Circular Economy* (GF [2005] No. 22), the article puts forward that "we should vigorously advocate consumption patterns that are conducive to resource-saving and environmental protection, encourage the use of energy-efficient labeling products, green water-saving certification products and environmental labeling products, green labeling food and organic labeling food, and reduce the use of excessive packaging and disposable products. Government agencies shall implement green procurement. "At the same time, the *Decision of the State Council on Implementing The Scientific Outlook on Development and Strengthening Environmental Protection* (GF [2005] No. 39) proposes that "the environmentally friendly consumption should be vigorously advocated, environmental labeling, environmental certification and government's green procurement system should be implemented, and the recycling system of renewable resources should be improved." The *Opinions of the State Council on Strengthening Major Environmental Protection Work* (GF [2011] No. 35) proposes that "the use of environmental labels, environmental certification and green printing products should be encouraged." In 2016, ten departments printed and distributed the notice of *Guidance on Promoting Sustainable Consumption*, which announced the promotion of China Environmental Labeling certification to improve its label certification system. In February 2019, seven ministries and commissions jointly issued the *Guidance Catalogue of Green Industry* (2019 version), in which the environmental labeling product certification was clearly included in the scope of green industry promotion.

In 2006, the former Ministry of Ecology and Environment and the MOF jointly issued the *Opinions on the Implementation of Government Procurement of Environmental Labeling Products* and the first batch of *List of Government Procurement of Environmental Labeling Products*. It proposes definite demands for the scope, list, working procedure, specific management methods and schedules of the government procurement of environmental labeling products. The enactment provides important system and policy guarantee for China to actively promote and practice the environmental labeling products procurement, and marks the formal implementation of the government procurement system of China Environmental Labeling.

3.2.1 Standard system of Environmental Labeling Certification

In 1994, Environmental Labeling first issued seven standards, such as toilet paper, fluorine-free refrigerator and water-based coating. After more than 20 years of development, by the end of October 2018, there were more than 100 effective product standards, covering five large industries in manufacturing, construction, accommodation and catering, and residential

service. The product standards covered more than 300 large categories, including television, clothing, automobile, computer, furniture, detergent, doors and windows covering, household appliances, clothing, shoes and hats, bedding, office appliances, decoration materials, household chemicals, automobiles, printing services, and other items.

In 2005, the environmental labeling standard was upgraded to environmental protection standard. The distribution diagram of the numbers of China Environmental Labeling standards issued in 2005-2018 is shown in the figure below.

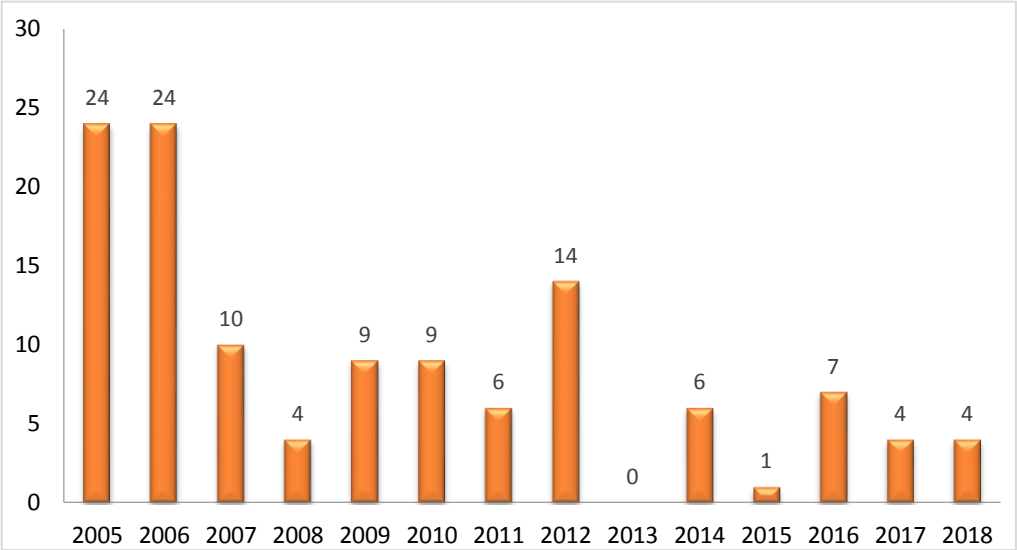


Figure 3.3 Distribution Diagram of the Numbers of China's Environmental Labeling Standards Issued in 2005-2018 (including the canceled standards)
Source: Ministry of Ecology and Environment of China

3.2.2 Comparative analysis of Environmental Labeling certification and residents' consumption expenditure categories

According to China Environmental Labelling Standards and product certification scope, the study group and the *Classification of Residents' Consumption Expenditure* fall into eight categories, 24 subcategories and 80 sub-classes for comparative analysis. The results show that China's environmental labeling product certification covers seven large categories, 15 subcategories and 30 sub-classes, excluding healthcare, with 64 environmental labeling certification standards.

The distribution of China Environmental Labeling product certification standards by consumer consumption is shown in the following table.

Table 3.4 Summary of China's Environmental Labeling Certification Standards by Residents' Consumption Categories

S/N	Classification of residents' consumption expenditure	Number of environmental labeling certification standards (unit: item)
1	Food, alcohol and tobacco	2
2	Clothing	2
3	Residence	12
4	Daily necessities and services	20
5	Transportation and communication	2

6	Education, culture and entertainment	24
7	Other supplies and services	4
Total		66
Notes: As the scope of two certification standards correspond to different classifications of residents' consumption expenditure, i.e., textiles correspond to not only clothing, but also daily necessities and services; wood-based panels and their products correspond to residential products, as well as daily necessities and services. After stripping out double counting of the two standards, 7 categories cover 64 environmental labeling certification standards.		

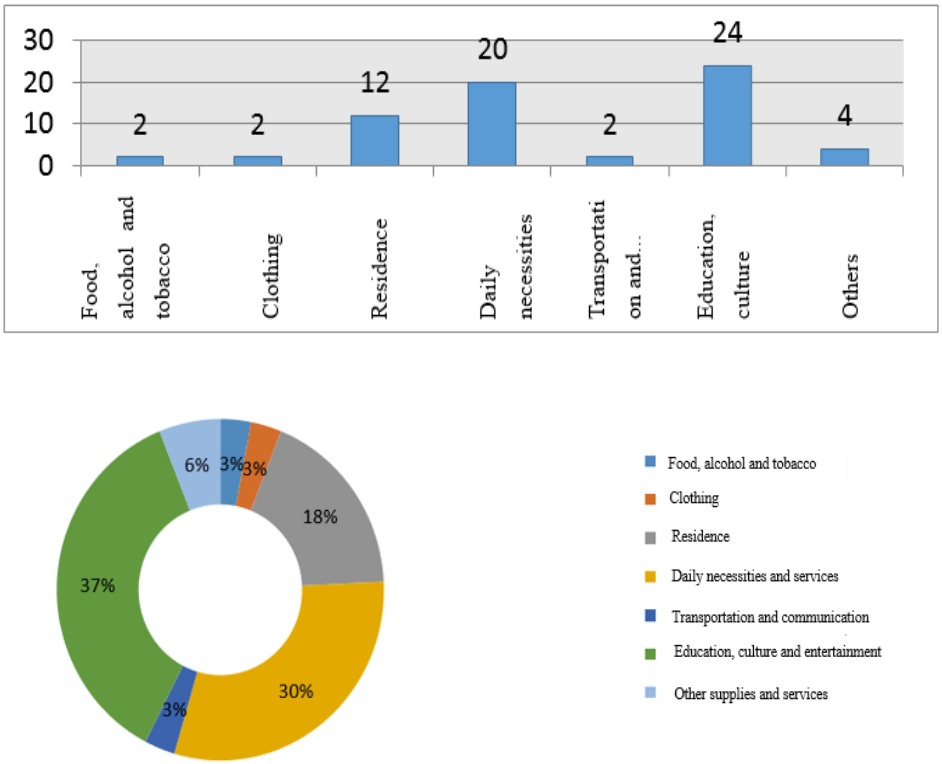


Figure 3.4 Distribution of Environmental Labeling Certification Standards by Residents' Consumption Categories
Sources: National Bureau of Statistics 2013; MEE

From the above figure, the categories with concentrated distribution of certification standards are education, culture and entertainment (37%), daily necessities and services (30%), residential (18%), which the three categories combined account for 85%, while food, alcohol and tobacco, clothing, transportation and communications, altogether, account for a relatively low percentage (9%).

Table 3.5 Comparative Analysis of Classification of Residents' Consumption and Environmental Labeling Certification

Classification of residents' consumption				China certification standard for environmental label products	
Classification of Residents' Consumption Expenditure(2013)					
Category	**Subcategory**	**S/N**	**Group**	**Name**	**Standard number**
Food, alcohol and tobacco	Beverages (non-alcoholic)	/	/	Soft drinks	HJ/T 210-2005
	Catering service	/	/	Single-use dishware	HJ/T 202-2005
Clothing	Clothing	16	Clothing	Textiles	HJ 2546-2016
		17	Costume materials	Textiles	HJ 2546-2016
	Shoes	20	Shoes	Shoes	HJ/T 305-2006
		21	Footwear accessories and processing service fees		
Residence	Housing maintenance, repair and management	24	Housing decoration and maintenance	Building blocks	HJ/T 207-2005
				Asbestos free building products	HJ/T 206-2005
				Ceramic and sanitary ware	HJ/T 296-2006
				Ceramic tiles	HJ/T 297-2006
				Light wall panels	HJ/T 223-2005
				Solvent wood coatings for interior decoration	HJ/T 414-2007
				Waterproof coating	HJ 457-2009
				Wallpaper	HJ 2502-2010
				Cement	HJ 2519-2012
				Water-based coating	HJ 2537-2014
				Wood-based panel and finishing products	HJ 571-2010
				Recycled paper products	HJ/T 205-2005
Daily necessities and services	Furniture and interior decoration	32	Furniture	Furniture	HJ 2547-2016
		33	Furniture materials	Wood-based panel and finishing products	HJ 571-2010
		34	Interior decoration	Recycled paper products	HJ/T 205-2005
	Household appliances	35	Large household appliances	Household refrigerating appliances	HJ/T 236-2006

				Heating radiators	HJ 508-2009
				Vacuum cleaners	HJ 2514-2012
				Domestic electric washing machines	HJ/T 308-2006
				Air purifiers	HJ 2544-2016
				Household dishwashers	HJ 2549-2018
		36	Small household appliances	Household microwave oven	HJ/T 221-2005
	Household textile	38	Beddings	Textiles	HJ 2546-2016
		39	Curtains	Textiles	HJ 2546-2016
		40	Other household textiles	Textiles	HJ 2546-2016
	Household sundries	41	Washing and sanitary products	Household detergent	HJ 458-2009
				Alternative products of ozone depleting substances	HJ/T 225-2005
		42	Kitchen ware, tableware, tea set, etc.	Cupboards	HJ/T 432-2008
				Ceramics, glass ceramics and glassware	HJ/T 312-2006
				Gas cookers	HJ 311-2017
				Pressure cookers	HJ/T 218-2005
		44	Other household sundries	Batteries	HJ 2534-2013
				Mosquito-repellent incense	HJ 2533-2013
				Air incense sticks	HJ/T 219-2005
Transportation and communication	Transportation	49	Transportation	Light-duty vehicles	HJ 2532-2013
	Communication	53	Means of communication	Tel.	HJ 2508-2011
Education, culture and entertainment	Education	56	Preschool education	Pantographic printing	HJ 2503-2011
		57	Primary Education		
		58	Junior High School Education		
		59	Secondary education		
		60	Secondary vocational education		
		61	Higher education		
		62	Other education and training		

	Culture and entertainment	63	Durable consumer goods for culture and entertainment	Cameras	HJ 2504-2011
				Color TV broadcasting receivers	HJ 2506-2011
				DVs	HJ 2511-2012
				Printers, fax machines and MFP	HJ 2512-2012
				Cameras	HJ 2513-2012
				Digital stencil duplicators	HJ 472-2009
				Voice recorders	HJ 2510-2012
				Scanners	HJ 2517-2012
				Projectors	HJ 2516-2012
				Digital copying (including multi-function) equipment	HJ 424-2017
				Microcomputer, display	HJ 2536-2014
				Mobile HDD	HJ 2505-2011
		64	Other cultural and entertainment appliances	Recycled paper products	HJ/T 205-2005
				Regeneration toner cartridges	HJ/T 413-2007
				Toner cartridges	HJ 570-2010
				Paper shredders	HJ 2509-2012
				Inkjet cartridges	HJ 573-2010
				Wooden toys	HJ 566-2010
				Children's toys	HJBZ16-1996
				Stationery	HJ 572-2010
				Inkjet ink	HJ 567-2010
				Cultural paper	HJ 410-2017
				Clay pigeon	HJ/T 203-2005
Health care	/	/	/	/	/
Other supplies and services	Other supplies	73	Jewelry, watches	Optical kinetic watches	HJ/T 216-2005
		74	Other supplies not listed	Bags	HJ 569-2010

				Fire extinguishers	HJ/T 208-2005
	Other services	80	Other services not listed	Printing Part II: Commercial paper printing	HJ 2530-2012

3.2.3 Implementation of Environmental Labeling Certification

In 2018, the number of enterprises that have obtained Environmental Labeling was 3,418, covering more than 400,000 certified product models, thus forming a green market worth RMB 4 trillion.

3.2.4 Environmental benefits of Environmental Labeling Certification

According to the product features, Environmental Labeling standards have established different evaluation systems of product environmental behavior, which require quantitative and qualitative methods. According to the nature of the industries and its products, the quantitative indicators of environmental labeling standards include five categories which are air pollutants, water pollutants, solid waste, energy-saving, and low-carbon and low-resource. The main control indicators of each category are shown in the table below.

Table 3.6 Summary of Quantitative Indicators for Environmental Benefit Assessment of Environmental Labeling Certification

S/N	Category	Main control indicator
1.	Control of the air pollutants	VOCs, formaldehyde, benzene series, SO2, NOx, Co, CO_2, etc.;
2.	Water pollutant control	Phosphate, COD, etc.
3.	Solid waste control	Plastic waste, heavy metal mercury, etc.
4.	Energy conservation	Electricity, fossil fuel
5.	Resource saving	Save new pulp, save water resources, recycled toner cartridge, plastics waste output, industrial waste output, etc.

The difference method[2] and the direct conversion method[3] are adopted for the environmental performance evaluation of Environmental Labeling products. According to the *Environmental Performance Evaluation Report of China's Environmental Labeling Products* in 2019, the quantitative evaluation results of environmental performance of China's environmental labeling products in 2017-2018 are as follows:

Table 3.7 Summary of Environmental Benefit of Environmental Labeling Certification in 2017-2018

S/N	Category	Pollution indicator	2017 emission reduction	2018 emission reduction	Trend
1	Air pollution	VOCs	4.724 million tons	0.5249 million tons	11.13%↑
		CO2	3.0252 million tons	3.6805million tons	21.66%↑
		SO2	3,500 tons	4,300 tons	22.86%↑
		NOx	13,400 tons	16,400 tons	22.38%↑
2	Water pollution	Total phosphorus	3,780 tons	4,574 tons	21.00%↑
3	Solid waste and hazardous waste	Plastic waste	6,411 tons	7,566 tons	18.01%↑
		Heavy metal mercury	35.25 tons	35.85 tons	1.70%↑
		Saving plastics	9,930 tons	11,400 tons	14.40%↑
		Industrial waste and residue	274.87 tons	190.61tons	-30.65%↓

[2] Difference method: Pollutant emission reduction = (National standard or industry mean value - China Environmental Labelling standard value) * Output

[3] Direct conversion method: Resource savings = Recycling ratio of wastes * Output

		Toner cartridge / Inkjet cartridge	2.1647 million pieces	25.0001million pieces	15.65%↑
4	Energy saving	Power Saving	10.721 billion kWh	17.998 billion KWh	67.88%↑
5	Resource conservation	Water saving	68.422 million tons	131.408 million tons	92.05%↑
		Reduction of pulp consumption	1.4174 million tons	1.3229 million tons	-6.67%↓

It can be seen from the above figure that, compared with 2017, excluding industrial waste and residue and reduction of pulp, the emission reduction of all other pollutants increased at varying degrees in 2018.

In addition to the above quantified data, there are also other unquantified environmental benefits, for example, such data is another integral instrument to China's sustainable consumption in its public communications. Environmental labeling can motivate consumers to purchase environmentally-friendly products, create market competitiveness and expand the scope of labeling coverage. By creating public awareness, consumers are advised to adopt green lifestyle and buy sustainable products. "Strengthening cleaner production" is included in the basic requirements of the environmental labeling standards, together with social activities, such as publicity and promotion. These campaigns are created to encourage better practices among enterprises applying for environmental labeling. As part of the life cycle analysis, environmental labeling is principally integrated into this assessment, so in the process of certification, enterprises are asked to submit environmental protection requirements to suppliers and to the entire industrial chain. Internationally, environmental labeling standards in the global community have adopted the *Vienna Convention for the Protection of the Ozone Layer* and the *Stockholm Convention* (POPs Convention) into their product requirements and in the promotion of green projects. In China, after the introduction of environmental labeling standards, the relevant Chinese standards and industry standards have also added correlated environmental protection indicators, in which these labeling standards have promoted China's environmental protection standards.

3.3 Green Hotel Assessment Standards

On May 21, 2018, the Ministry of Commerce, together with the Central Civilization Office, the NDRC, the Ministry of Education, the Ministry of Ecological Environment, the MOHURD of the PRC, the People's Bank of China, National Government Offices Administration, the China Banking Regulatory Commission, issued *Several Opinions on Promoting the Development of Green Catering* (hereinafter referred to as the *Opinions*), which established the overall requirements, defined eight main tasks and proposed four safeguard measures. At the same time, they issued the *Guidelines for the Construction of Green Catering Subjects* applicable to the catering entities (catering enterprises, government agencies, institutions, universities and other units) for eco-friendly planning, construction and operation process. The *Guidelines* clarifies the meaning of green catering: providing standardized, convenient and high-quality services for diners, with the concepts of safety and health. Green catering should also adhere to environmental protection, yield low carbon, and maintain the characteristics of honesty and trustworthiness. It should be based on scientific design, efficient management and considerate service, while aiming at maximizing resource efficiency and minimizing environmental impact. The *Guidelines* defines specific requirements for all aspects of the construction process of green catering enterprises, including "procurement, restaurants, operation, service and online ordering. "The second item of the main task of the *Opinions*, "Perfecting the Green Food and Beverage Standard System," proposes to formulate the assessment standard for green catering, and specify the assessment indicator, assessment process, acceptance and other requirements. National and local governments, as well as industries, are actively exploring the assessment criteria for green catering.

3.3.1 Assessment standard system of green hotel

In 2002, China began to explore sustainable consumption in the hotel industry. In 2002, the commercial industry standard *Green Hotel Rating Criteria* (SB/T 10356-2002) was issued, and in 2007, the Chinese standard *Green Hotels* (GB/T 21084-2007) was issued (the *Green Hotel Rating Criteria* was abolished). Subsequently, the tourism industry standard *Green Hotel* (LB/T 007-2015) was released in 2015. The standard focuses on green guest rooms, green catering and green design. The detailed rules for quantitative assessment include the key specifications of green hotel operation.

The scoring rules of the new China standard *Green Hotel* (GB/T 21084) were revised and released in 2018, according to the "*Guidelines for the Construction of Green Catering Subjects*" issued in May 2018. The green catering group standard, *General Principles for Assessment of Green Catering* (T/JCLA 0008-2019), was officially released in January 2019. The standard includes basic requirements, as well as requirements for environment and layout, environmental protection, safety management, green production, honest service, energy conservation, consumption reduction, green publicity, online ordering, green chain catering enterprise and assessment process. The rules for assessing green catering in the standard are detailed in the form of scores, which can help catering enterprises (units) improve their management and carry out self-auditing methods.

3.3.2 Implementation of green hotel assessment system

According to the 2018 National Green Hotel Assessment Agency Working Conference, by June 2018, more than 1,500 green hotel enterprises had been assessed by more than 2,300 reviewers.

In accordance with the *List of China's Green Hotel (Catering) Enterprises* issued by the Green Hotel Special Committee, 261 hotels were assessed in 2015, 300 hotels were assessed in 2016 and 544 hotels were assessed from 2017 to June 2018. In summary, a total of 1,105 hotels in 3.5 years have been assessed from 2015 to 2018, accounting for more than 70% of all green hotel enterprises, indicating a year-on-year upward trend.

3.3.3 Benefits of green hotel assessment system

Introduced by the Green Hotel Special Committee, using the more than 10,000 domestic star-rated hotels in China as an example, as a hypothesis, if all of the hotels convert to green hotels, the saved water would be equivalent to nearly 20 West Lakes in Hangzhou or sufficient for 180 small and medium-sized cities for a year. The electricity saved would be equivalent to the electricity generated by the Three Gorges Power Station in one month, or sufficient for nearly 170 small and medium-sized cities for a year. According to the 2018 National Green Hotel Assessment Agency Working Conference report, the creation of green hotels can help enterprises save electricity by an average of 15%, save water by an average of 10%, increase income by an average of 12.08%, and increase gross profit margin by an average of 3.51%. Under the current rising trend of energy costs year by year, the average energy consumption per RMB 10,000 of income is reduced by 8.6% year on year. It can be seen that green hotels have great potential in saving energy, reducing consumption and increasing income, and is an effective way to improve the efficiency of resource allocation in the industry. Moreover, green hotel is conducive to the promotion and application of energy-saving products and technologies.

3.4 Organic Product Certification

China's organic product certification started in the 1980s due to the demand for Chinese organic products in the international market. Since then, with people's increasing understanding of organic food and awareness of food health and safety, the domestic organic food market has gradually risen.

In May 2015, the national government issued the *Opinions of the CPC Central Committee and the State Council on Accelerating the Ecological Civilization Construction* (ZF [2015] No.12),

which listed organic agriculture and ecological agriculture as important contents of the green industry development, using the organic product certification and low-carbon product certification as key applicable measures. In September 2015, the *Overall Proposal for Reform of the Ecological Civilization System* was issued, recommending the establishment of a unified green product system, where organic products will be an important part of China's unified green product system.

With consumers' rising demands for health and environmental protection, the corresponding demand for organic products has increased significantly, along with the production and consumption of organic products that have grown rapidly. As of December 31, 2017, as approved by Certification and Accreditation Administration of the PRC, there were 45 certification bodies with organic product certification qualifications. The number of organic products in the Chinese market has reached more than 20 categories and more than 500 varieties, including vegetables, tea, rice, coarse cereals, fruits, honey, aquatic products, livestock and poultry products. More than 11,000 enterprises have obtained more than 17,000 organic product certificates, with more than 1.7 billion organic labels filed.
The output value of China's organic products is increasing year by year. Starting from 2014, the output value of China's organic products exceeded RMB 100 billion, reaching RMB 132.3 billion in 2016, 2.2 times the annual output value in 2012 (see Figure 3.5). The production land for certified organic plants was 1.95 million hectares, while the total output of certified livestock and aquatic products were 1.35 million tons, and the certified processed products was 2.28 million tons.

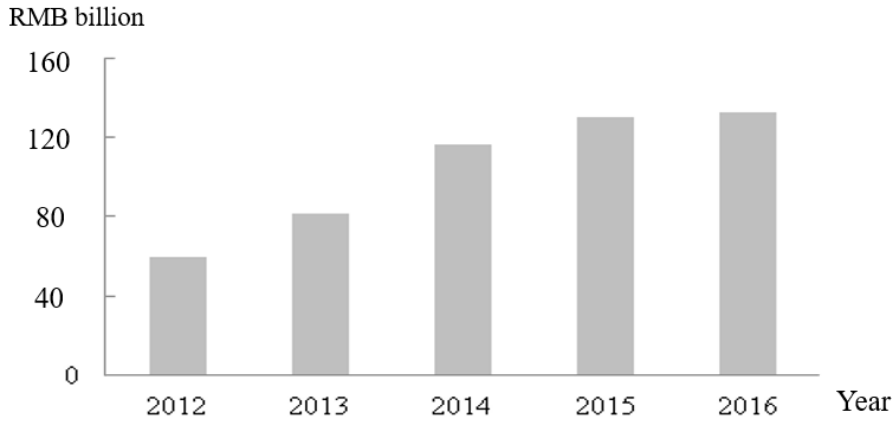


Figure 3.5 Output Value of Organic Products from 2012 to 2016
Source: Chinese Resident Consumption Development Report 2017

Organic products mainly fall into four categories in China: Plant, livestock and poultry, aquatic products and processed products. Among them, the output value of organic processed products, fruits and nuts, and organic grains were 65.1%, 8.3% and 7.4% of the total output, respectively.

Table 3.8 Output Value of Various Organic Products in China in 2016 (RMB billion)

Product	Output value	Proportion
Processing	86.2	65.1%
Fruits and nuts	11	8.3%
Grains	9.7	7.4%
Vegetables	5.6	4.2%
Other crops	3.7	2.8%
Livestock and poultry	3.4	2.6%

Aquatic products	3.3	2.5%
Soybeans and other oil crops	3.1	2.3%
Tea	2.1	1.6%
Animal products	1.9	1.5%
Silage	1.4	1.0%
Wild plant harvesting	0.9	0.7%
Total	132.3	100%

Source: Certification and Accreditation Administration 2016

On the whole, China has issued an *Organic Product Certification Catalogue*, covering 127 kinds of plants, livestock and poultry, aquatic products and processed products.
By the end of 2017, China's organic product standards had issued 18,330 organic certificates in China, and the number of organic product certification enterprises had amounted to 11,835. The distribution of certified enterprises by region is shown in the figure below.

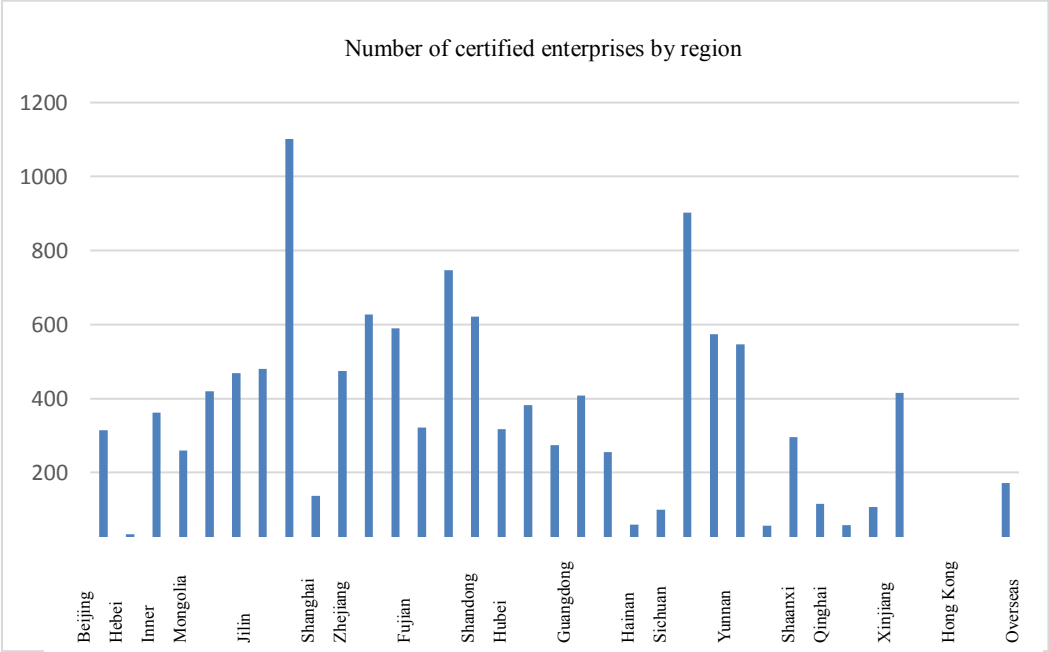


Figure 3.6 Quantity Distribution Figure of Certified Enterprises by Region
Sources: Certification and Accreditation Administration et al.

As shown in the above figure, the top three provinces with the largest number of certified enterprises were Heilongjiang (1,101), Sichuan (902) and Jiangxi (747), accounting for 23% of the total.

In 2017, organic products in China were still dominated by primary products, with plant products accounting for the majority, where 11,814 certificates were issued and accounted for 63.3% of all organic certificates. The number of processing production certificates was 4,928, or 26.4%, while 951 livestock and poultry production certificates were issued, accounting for 5.1% of the total number of certificates. There were relatively few certificates for aquatic products and wild plant harvesting, at 541 and 441, accounting for 2.9% and 2.4%, respectively.

Table 3.9 Types and Distribution of Various Organic Product Certificates in China from 2013 to 2017

Year	Certification type	Plants	Processing	Livestock and poultry	Aquatic products	Wild plant harvesting
2013	Number of licenses issued (sheets)	6775	2976	525	340	---
	Proportion (%)	68	29.9	5.3	3.4	---
2014	Number of licenses issued (sheets)	9872	4169	826	423	335
	Proportion (%)	63.2	26.7	5.3	2.7	2.1
2015	Number of licenses issued (sheets)	8038	3488	643	367	274
	Proportion (%)	62.7	27.2	5.0	2.9	2.1
2016	Number of licenses issued (sheets)	7467	2977	542	560	334
	Proportion (%)	64.9	25.9	4.7	4.9	4.7
2017	Number of licenses issued (sheets)	11814	4928	951	541	441
	Proportion (%)	63.3	26.4	2.9	2.9	2.4

3.5 Green Food Certification

At present, 126 standards have been issued for China's green food labeling, and 31,946 products from 13,860 enterprises have obtained green food labeling (including the expired green food labeling).

By the end of 2018, there were 126 current and effective product standards applicable to China's green food, covering three subcategories, i.e., food, beverages, alcohol and tobacco, and 15 groups, i.e., grains, potatoes, beans, edible oils and edible fats, vegetables, edible fungi, livestock meat, poultry meat, aquatic products, eggs, milk, dried and fresh fruits, candy, cakes, other foods, tobacco, and alcohol. The distribution diagram of the China green food standards issued in 2007-2018 is shown in the figure below.

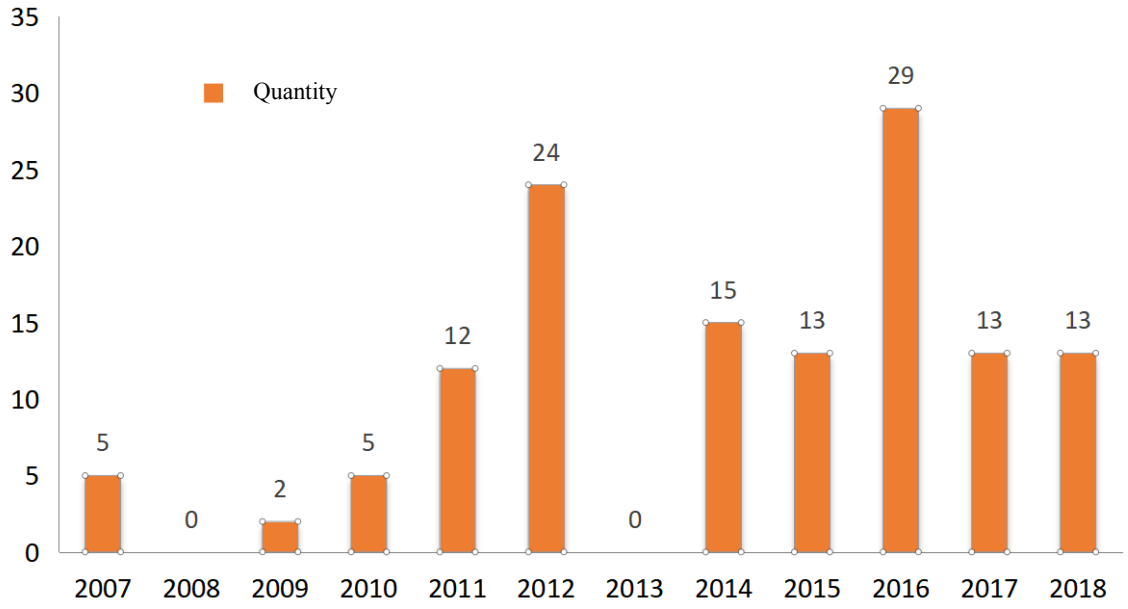


Figure 3.7 Quantity Distribution of Green Food Standards Issued from 2007 to 2018
Sources: Certification and Accreditation Administration et al.

3.6 Green Building Assessment System

In 2015, the Notice of the General Office of the MOHURD of PRC on the Assessment Labeling Management of Green Building (JBK [2015]No.53) mentioned that "the MOHURD will no longer publicize, announce or uniformly issue certificates and labeling to green building identification projects approved by local housing and urban-rural construction administrative

departments and relevant assessment agencies". Each institution may "in the name of the assessment institution, publicize, announce, issue certificates and labeling to the approved projects". “Administrative departments of local housing and urban construction can gradually transfer their green building assessment to a third-party assessor based on local individual cases within their respective administrative areas." “Administrative departments of local housing and urban construction should strengthen the management of green building assessment agencies" and "urge assessment agencies to improve the quality of assessment work." The release of this policy marked the beginning of the third-party assessment implementation of green building labeling in China.

3.6.1 China Green Building Assessment Standard

From the release of *Assessment Standard for Green Building* (first of its kind in China, revised in 2014) from 2006 to the end of 2018, China successively issued six currently valid Chinese standards and four China's technical rules, covering a broad range of civil buildings. At the same time, 25 provinces, autonomous regions and municipalities also successively formulated local standards.

The distribution diagram of China's assessment standards for green buildings from 2006 to 2018 is shown in the following figure.

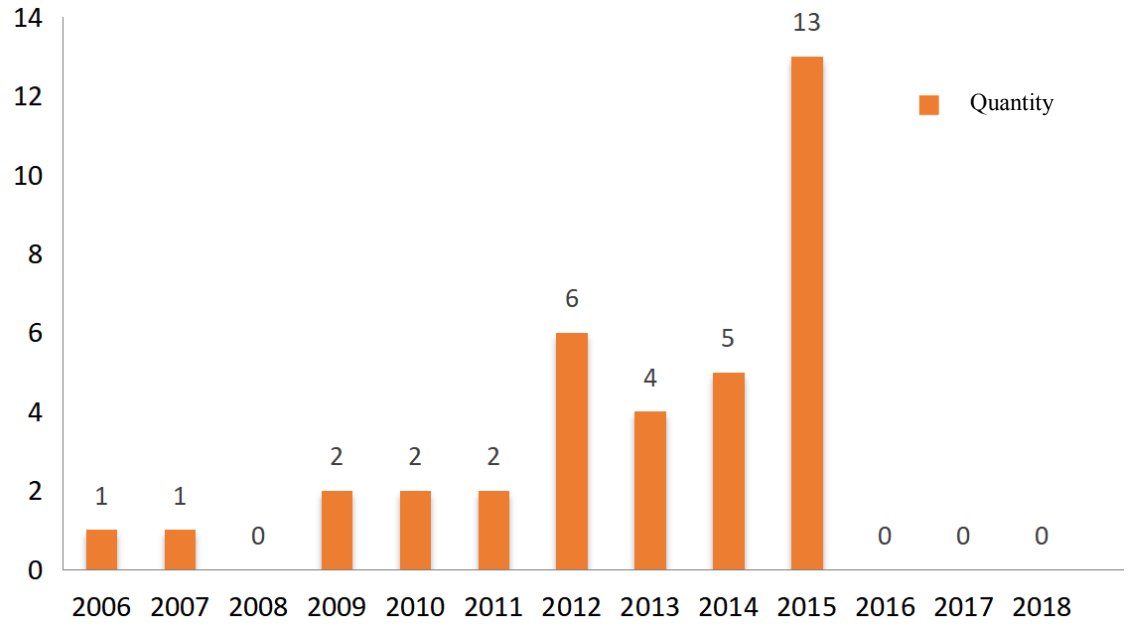


Figure 3.8 Quantity Distribution of Green Building Assessment Standards Issued from 2006 to 2018 (including canceled standards)
Source: China Green Food Development Center

3.6.2 Implementation of Green Building Assessment System in China

In 2015, China had 1,533 green building assessment labeling projects, of which 53, or 3.46%, were operational labeling projects. The remaining 96.54% were 1,480 design labeling projects. In 2016, China had 387 green building assessment labeling projects, of which 51 were operational labeling projects, or 13.18%, and 336 design labeling projects accounting for 86.82%. In 2016, compared with 2015, the number of projects obtaining operation labeling increased by 9.72 percent. It can be seen that with the development of green building assessment labeling each year, from 2008 to 2016, there is an overall upward trend in green labeling and certification.

Table 3.10 Statistics of Green Buildings with Assessment Labels from 2008 to 2016

Year	Labels type	Three-star			Two-star			One-star			Design labels Annual total	Operation labels Annual total
		Public building	Residential building	Public building	Public building	Residential building	Public building	Public building	Residential building	Public building		
2016	Design labels	57	1	18	62	1	42	85		70	336	
	Operation labels	10	1	5	5	2	3	23		2		51
2015	Design labels	164	4	53	339	5	239	357		319	1480	
	Operation labels	5	6	3	7		17	11		4		53
2014	Design labels	112	5	72	196	3	202	213		234	1037	
	Operation labels	11	2	2	15		13	10		2		55
2013	Design labels	60	3	33	112	4	187	105	1	143	648	
	Operation labels	5	1	2	8	1	20	17		2		56
2012	Design labels	53	2	31	57	1	89	57		74	364	
	Operation labels	8			3		4	10				25
2011	Design labels	31		41	36		46	27		47	228	
	Operation labels	4		2	2		3	1		1		13
2010	Design labels	11		10	17		23	3		10	74	
	Operation labels	3			2		2	1				8
2009	Design labels	8		1	3		2	3		1	18	
	Operation labels	1			1							2
2008	Design labels	3		1	2			1		3	10	
	Operation labels											0

3.7 Green Building Materials Certification

In May 2014, the *Notice of the Ministry of Housing and Urban-Rural Development of People's Republic of China and the Ministry of Industry and Information Technology of the People's Republic of China on Printing and Releasing the Measures for the Administration of Assessment and Labelling for Green Building Materials* (JK [2014] No.75) determined the certification procedures and requirements for assessment and standardized labeling of green building materials. It puts forward that "according to the technical requirements and assessment results, the labels can be classified into three grades: one-star, two-star and three-star from low to high," which clearly states that "the Ministry of Housing and Urban-Rural Development of People's Republic of China and the Ministry of Industry and Information Technology of the People's Republic of China are responsible for the supervision and administration of the nation-wide green building materials assessment and labeling" and "the green building materials assessment agencies are responsible for assessment and labeling for green building materials in accordance with these Measures and corresponding technical requirements."

In August 2015, the *Notice of the Ministry of Industry and Information Technology and the Ministry of Housing and Urban-Rural Development on Printing and Releasing the Action Plan for Promoting the Production and Application of Green Building Materials* (GXBLY No.309 [2015]) proposed to establish a green building materials assessment and labeling system in accordance with the *Measures for the Administration of Green Building Materials Assessment and Labelling*. It pays close attention to the introduction of detailed implementation rules and technical requirements for green assessment of various building materials products, carries

out the star-rating assessment and publishes the catalogue of green building materials.

In October 2015, the *Notice of the Ministry of Housing and Urban-Rural Development and the Ministry of Industry and Information Technology on Issuing the Rules for the Implementation of the Measures for the Administration of Green Building Materials Assessment and Labelling* and *Assessment Guideline for Green Building Materials (Trial Implementation)* (JK [2015] No.162) issued the *Detailed Rules for the Implementation of the Measures for the Administration of Green Building Materials Assessment and Labelling* and *Assessment Guidelines for Green Building Materials (Trial Implementation)* (First Edition). The *Rules for the Implementation of the Measures for the Administration of Green Building Materials Assessment and Labelling* establishes the basic organization and implementation framework for assessment and labeling, and stipulates its scope, principles and mechanisms, organization and management, expert committees, assessment institution's application and publicity, label application, assessment and usage, supervision and management, etc. The *Assessment Guideline for Green Building Materials (Trial Implementation)* (First Edition) sets out the assessment technical requirements for seven types of building materials products, including materials for masonry, thermal insulation, ready-mixed concrete, energy-saving glass, ceramic tiles, ceramic and sanitary ware, and ready-mixed mortar. The guideline also establishes an assessment index system.

In September 2015, the national government issued the *Overall Proposal for Reform of the Ecological Civilization System*, which mentioned the establishment of a unified green product system. The current separately catalogued products of environmental protection, energy saving, water saving, recycling, low-carbon, regeneration, organic and others will be integrated into green products, and a unified green product standard, certification, labeling and other relevant systems will be established. From thereon, green building materials were applied to green products, and the assessment and labeling for such materials have entered a new era of green products certification.

In November 2016, the *Opinions of the General Office of the State Council on Developing a Unified Standard, Certification and Labelling System of Green Products* (GBF [2016] No.86) mentioned that the main objective is to integrate the current separately catalogued products of environmental protection, energy saving, water saving, recycling, low carbon, regeneration, organic and others into green products. The main tasks include "implementing a unified list of green product assessment standards and certification catalogues" and "strengthening the capacity of technical institutions and the construction of information platforms."

In December 2017, the five departments of AQSIQ, the Ministry of Housing and Urban-Rural Development, the Ministry of Industry and Information Technology, the China Certification and Supervision Commission and the China Standards Commission jointly issued the *Guiding Opinions on Promoting the Work about the Standards, Certification and Identification of Green Building Materials Products* (GZJRL No.544 [2017]). It defines that "current assessment and evaluation systems of green building materials are uniformly included into the administration of green products standard, authentication and labeling system." The establishment of product standard system is managed by the Standardization Administration, the Ministry of Industry and Information Technology of the People's Republic of China, and the Ministry of Housing and Urban-Rural Development of People's Republic of China. The establishment of the product certification system is under the responsibility of the Certification and Accreditation Administration of the People's Republic of China, the Ministry of Housing and Urban-Rural Development of People's Republic of China and the Ministry of Industry and Information Technology of the People's Republic of China. The *Guiding Opinions* required that "it should be promoted proactively and stably to include the green building materials assessment into the unified green product certification."

In April 2018, seven standards and catalogs of green building materials were published in the

Announcement of State Administration for Market Regulation on the Issuing the Green Product Assessment Standards List and Certification Catalog (First Batch) (Announcement of State Administration for Market Regulation, No. 2, 2018).

As of now, the green building materials assessment and labeling covers seven building material categories, along with eight effective Chinese standards released for building materials in the green products assessment standards.

3.7.1 The Standard Green Building Materials Certification

Currently, China has two assessment systems in its green building materials labeling. The first system, the *Assessment Guideline for Green Building Materials* (Trial Implementation) (First Edition), jointly published by the Ministry of Housing and Urban-Rural Development the People's Republic of China and the Ministry of Industry and Information Technology of the People's Republic of China in 2015, covers seven building material product categories, including masonry materials, thermal insulation materials, premixed concrete, energy-saving glass for buildings, ceramic tile, ceramic and sanitary ware and ready-mixed mortar. The second assessment system is a series of China standards for green product assessment, jointly released by AQSIQ (General Administration of Quality Supervision) and the Standardization Administration in 2017. This second system entails eight items related to building material products in China's standards, including artificial board and wooden floor, coating, ceramic and sanitary ware, building glass, wall materials, thermal insulation, waterproof materials and sealants, and ceramic tiles (board).

3.7.2 Implementation of Green Building Materials Certification

From 2016 to 2019, there have been a total of 924 products that had passed the green building materials assessment and labeling. From the total products mentioned, there were 163 masonry material products, or 17.64%, 86 thermal insulation products, or 9.31%, 428 ready-mixed concrete products, or 46.32%, eight energy-saving glass products for building, or 0.87%, 98 ceramic titles, or 10.61%, 25 products of ceramic and sanitary ware, or 2.71%, and 115 ready-mixed mortar products, or 12.45%, altogether. In the whole-category assessment and labeling, the number of products labeled as three-star accounts for 67.10%, and products labeled as two-star and one-star account for 31.39% and 1.52%, respectively. It is observed that with the introduction of the *Assessment Guideline*, the R&D of green building materials has been gaining momentum, and the compliance rate of the certified products is generally high, with half of them rated above the three-star mark.

3.8 Summary

Seven kinds of green product certification tools with high quality, recognition, and standards were selected. This includes energy-saving and water-saving products, environmental labeling products, green hotel, organic product, green food, green building and green building materials. The typical characteristics of green product certification tools are shown in the table below.

Table 3.11 Typical characteristics of green product certification tools

Green certification tool name	Standard system	Category comparison analysis	Certification implementation
energy-saving and water-saving products	In February 1999, officially launched the certification of energy saving products in China. In October 2002, with the approval of CNCA, China Economic and Trade Commission, Ministry of Construction, Ministry of Water Resources and other relevant departments	Comparative analysis of categories : Certification of energy saving and water saving covers 3 categories, 5 subcategories and 9 subclasses in daily necessities and services, transportation and communication, education, culture and entertainment	Implementation : Up to 2017, 4,812 enterprises had obtained 104,816 certificates with the "Conservation" mark for energy saving and water saving products

	started the pilot work of water-saving product certification.		
China environmental labeling products	Certification standard system; In 1994, China Environmental labeling first issued 7 standards, including toilet paper, fluorine-free refrigerator and water-based coating, etc. By the end of October 2018, there were 101 effective product standards.	Comparative analysis of categories :Environmental labeling product certification involves 7 categories, 15 subcategories and 30 subclasses (excluding health care)	Implementation: In 2018, the number of enterprises that have obtained China Environmental Labeling certification was 3,418, covering more than 400,000 certified product models, forming a green market worth RMB 4 trillion.
green hotel	Certification standard system : The green catering group standard General Principles for Assessment of Green Catering (T/JCLA 0008-2019) was officially released on January 15, 2019.	/	Implementation: by June 2018, more than 1,500 green hotel enterprises had been assessed by more than 2,300 reviewers. The creation of green hotels can help enterprises save electricity by an average of 15%, save water by an average of 10%, increase income by an average of 12.08%, and increase gross profit margin by an average of 3.51%. Under the current rising trend of energy costs year by year, the average energy consumption per RMB 10,000 of income is reduced by 8.6% year-on-year.
organic product	Certification standard system :China has issued an Organic Product Certification Catalogue, covering 127 kinds of plants, livestock and poultry, aquatic products and processed products.	Organic product certification covers 3 major categories, 6 medium categories and 17 subcategories, involving 115 organic products. Organic product certification is concentrated in food, tobacco and alcohol	Implementation : By the end of 2017, China's organic product standards had issued 18,330 organic certificates in China, and the number of organic product certification enterprises had amounted to 11,835. In 2017, China's organic products were still dominated by primary products, with plant products accounting for a large proportion of certificates, followed by processed products.
green food	At present, 126 standards have been issued for China's green food labeling, and 31,946 products from 13,860 enterprises have obtained green food labeling (including the expired green food labeling).	/	By the end of 2018, there were 126 current and effective product standards applicable to China's green food, covering three subcategories, i.e., food, beverages, alcohol and tobacco, and 15 sub-classes, i.e., grains, potatoes, beans, edible oils and edible fats.
green building	Certification standard system as of 2018; China issued 6 currently valid Chinese standards and 4 China's technical rules, covering civil buildings. At the same time, 25 provinces, autonomous regions and municipalities also formulated local	/	Implementation: In 2016, China had 387 green building assessment labeling projects, of which 51 were operational labeling projects, accounting for 13.18%; 336 design labeling projects, accounting for 86.82%.

	standards.		
green building materials	From 2016 to 2019, a total of 924 products passed the green building material assessment and labeling.	/	The green building materials assessment and labeling covers the requirements of 7 building material categories. There have been 8 effective Chinese standards released for building materials in the green products assessment standards

As illustrated, there are seven kinds of green product certification tools that are the main standards of practice for sustainable consumption. With sound national policies, social responsibility and public participation, China will be able to steadily advance towards a sustainable consumption society.

4 Trends and Challenges on Sustainable Consumption in China

4.1 Trends Analysis on Sustainable Consumption in China

4.1.1 Consumption potentials of sustainable consumption in China

There have been great changes in the consumption scale and structure of urban and rural residents. These changes have had a profound and long-term impact on the economic development, social progress and sustainability of resources and environment.

(I) China's consumption scale continues to expand rapidly

China has seen a stable and rapid consumption growth. Since 2012, the gross retail sales of consumer goods increased from RMB 21 trillion to RMB 33 trillion in 2016, with an average annual growth rate of 11.6%, 3.3 percent higher than that of GDP year-on-year. It is estimated that the average annual consumption growth was at 7.2%, from 2015 to 2020. The number is projected at 5.3% from 2021 to 2035, and 3.5% from 2036 to 2050. The consumption scale in 2050 will likely reach approximately RMB 340 trillion.

Meanwhile, there is still much more room for consumption growth among China's urban and rural residents. As of 2017, consumption among urban and rural residents in China has accounted for 40% of its GDP. Compared with developed countries whose urban and rural residents' consumption proportion is generally over 70%, China still has a huge growth potential in the future. Simultaneously, using the final per capita household total expenditure as the standard, China's spending was USD 2,700 in 2017, which is only equivalent to 13% of the average spending level (USD 20,000) in countries and areas like Japan, Europe and Singapore. Therefore, the medium and long-term consumption growth potential of China is enormous.

(II) Consumption has come a long way in China, a drastic transformation from the days of ensuring basic living needs to today's moderate prosperity, and the consumption behaviors have been increasingly diverse.

It is calculated that the Engel's coefficient of China's consumption in 2017 declined to 28.4%, from 31.2% in 2013, and is expected to continually decline to 20% in 2035, and meet the international standard (20-30%) of a wealthy country as defined by the United Nations. The pattern of consumption will further transform from the material-oriented to the service-oriented, and from the necessity-driven to the development-driven. The per capita consumption expenditure of transport and communications, education, cultural and recreation, health care and medical services, etc., will be on the rise. At the same time, consumption behavior will also be increasingly diverse, especially with the development of internet technology, where consumer behavior has changed from offline to the integration of online + offline.

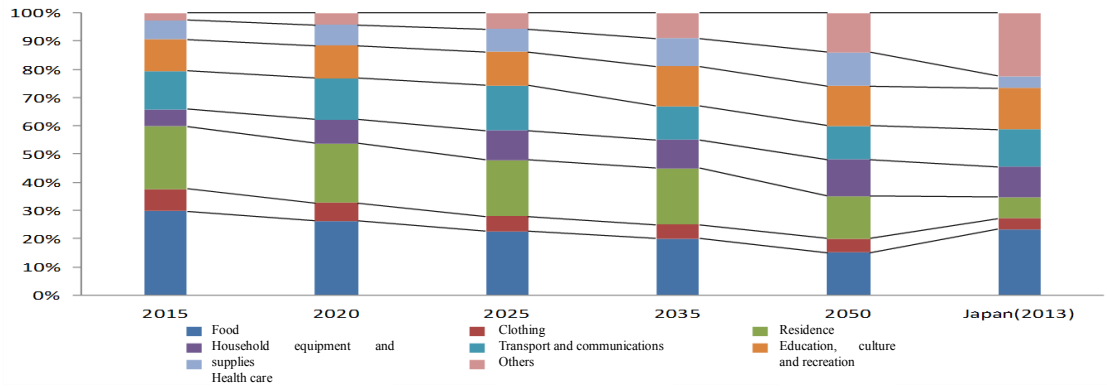


Figure 4.1 Expectation of Resident Consumption Structure Trends in China as of 2050
Source: CCICED

(III) Consumption has become an important drive for China's economic growth, as well as the

main cause of environmental pollution and emissions of greenhouse gases.

The country's resource and energy consumption has grown rapidly. In 2015, the nation's energy consumption expended 1.14 billion tons of standard coal. It is expected that the number will reach 2.28 billion tons in 2035, an increase of 88%, compared with that of 2015. The emissions of chemical oxygen arising from the consumption in 2015 was about 11.84 million tons, ammonia and nitrogen at 1.28 million tons, sulfur dioxide at 7.2 million tons and nitrogen oxide at 5.12 million tons, accounting for 51.6%, 57.8%, 70.2% and 84.5% of the total emissions, respectively. It is anticipated that the above emission numbers can further grow to 24.97 million tons, 2.61 million tons, 17.22 million tons and 11.57 million tons in 2050, respectively, accounting for 60%, 60%, 68% and 68%, respectively, of the total emissions.

4.1.2 Analysis on economic and social development trends

Currently, China is facing issues on its aging population and depressed consumption. As China enters the 21st century, the old-age dependency ratio (ODR) has seen an uptrend, which indicates that the growth tendency of ODR and that the aging of population in China have been accelerating. The influence of the aging population on its consumption can be observed in the following:

(I) Aging population will promote the optimization of consumption structure in China.
The aged has a relatively lower demand in basic every day needs, but prefer to spend in the areas of development, such as culture, recreation and health care, which may promote the optimization of the consumption structure. The aged will be able to spend time and money in traveling, culture, education and entertainment if they have income security, due to less pressure and more available time. With their physical decline, their demand in housekeeping service becomes higher while paying more attention to health care, and the consumption of medical and health care products will likely increase. In addition, the ODR shows an inverse relationship with the food and clothing consumption, which reflect the shift in physiological needs for this demographic. Hence, the expenditure ratio in food will reduce as the aging population increases.

(II) Large consumption potential due to the aging population in China
With social development and the gradual improvement in its social security system, the aged will have a certain income that could guarantee their future security to a certain extent. Meanwhile, the aged will pay more attention to the quality life when their basic needs are met. At the same time, there is an enormous potential in the service market related to the aging population in China. It can be predicted that the consumption need in life care will trigger a trillion yuan-class market in 2020, stated by an official of the National Development and Reform Commission of China.

4.2 The Gap between Sustainable Consumption Theory and Practice in China

In general, there are two main challenges in promoting sustainable consumption in China. First, the supply of sustainable products including green foods, energy-saving products, green buildings, public transportation or environmental labeling products has been inadequate and small in scale. Sustainable products have not become the mainstream of consumption necessities of life, leading to limited options for consumers.

Second, despite the rapidly increasing public preference in sustainable goods, people will pay more attention to their health rather than the environmental impact. One analysis of the Ali Research shows that the ratio of consumers who prefer sustainable consumption via Ali retail platforms increased to 16.2% in 2015 from 3.8% in 2011, and the fastest growing consumer group is 23-28 years of age with the average premium of green goods at 33% (ratio between the green goods' price and non-green goods' price). One public investigation related to the Environmental Labelling indicated that 90% of the respondents know "Environmental Labeling," while 78.4% of them are willing to pay the equivalent or higher price for the certified

products with "Environmental Labeling." However, the dilemma between separate collection of municipal waste and the current situation of overconsumption shows that there are still big challenges in order to drive changes in consumers' behavior and lifestyle towards a more sustainable consumption pattern.

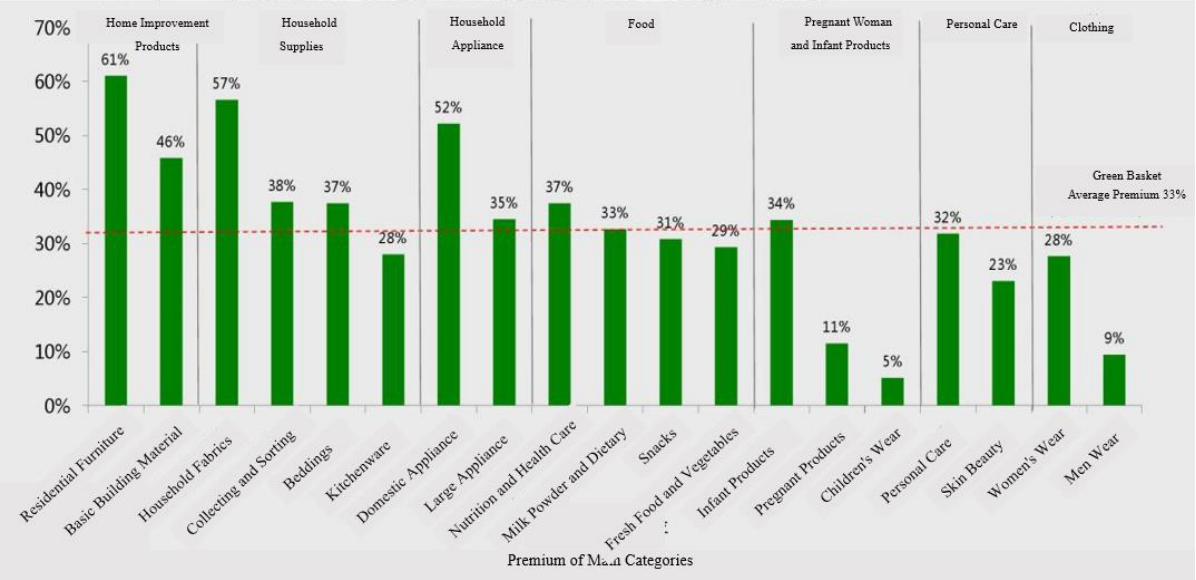


Figure 4.2 Premium Level of Green Goods (cited from: Ali Research)
Source：Ali Research

These features of sustainable consumption reflect inadequate incentives and influence of the current policy framework, as seen in the following analysis:

Inadequate systematical plan and top-level design. National documents on regulations and strategies contain the outline of concepts and principles of sustainable consumption. However, various ministries have developed disconnected policies and regulatory documents that lack coherence with one another, resulting in limited administrative power and effectiveness. A sound legislative framework consisting of laws and regulations, policies, standards, technical specifications and supervision system still remains to be seen. In addition, the current responsibilities related to sustainable consumption are still scattered in different ministries, along with the lack of competent authorities.

Insufficient effort for sustainable consumption. At present, China's policies related to sustainable consumption mainly focus on the categories of daily supplies, service, transportation and communications, while detailed policies and guidelines to promote sustainable consumption in tourism, environmental service, green design, clothing and other services are still very limited. Currently, there are numerous policies that promote effective energy consumption and resource saving products that received very positive feedback. However, there are only a few policies related to sustainable consumption that involve environmental protection and have very limited effect. Due to the lack of subsidies for green products, it is entirely up to the consumers' own willingness to make individual and responsible choices. Thus, there is insufficient public drive towards green consumption, along with a handful of policies that have limited regulatory effects.

Lack of linkage between sustainable consumption and key pollutants control. Firstly, the various green products certification and policies did not correlate with the current key goals of environmental protection, such as soil, water and air pollution control. Secondly, serious impacts to environment caused by production have not been stipulated into the standards of the environmental labeling certification. Thirdly, the drive towards sustainable consumption

has been insufficient, resulting in a weak influence on green consumption, while regulatory effects of macro-economic policies related to sustainable consumption has shown minimal effect on consumer behavior.

Lack of incentives and legislative support. The motivating force for sectors to create sustainable consumption has been insufficient. There is a shortage of supply in sustainable consumption products, while the scale of green food, energy-saving products, green buildings and products with environment labeling remains small. As such, these every day household goods were unable to become mainstream products. Enterprises also lack the incentives to develop and produce green products, and as a result, their innovation capability and competitiveness have become weak. Some enterprises even use the "green" concept as a stunt, leading to ineffective supply of green products. Furthermore, the cost of green products remains high, causing a phenomenon, 'heavy on promotion, but lack of consumer support,' and the market demand is yet to be further investigated. There is a real need for the standardization of green products. As of now, the cost of breaking the law is still low for enterprises, where product display and the actual merchandise have a stark discrepancy in quality. The incidents of substandard goods replacing quality goods frequently happens, all of which affect customers' buying confidence. In addition, laws and regulations to promote the consumption of green products need improvement. Relevant policies are not sound, standards fall behind, fiscal taxation policies have not been implemented, bidding mechanism needs improvement, propaganda and promotion has not been strong, the protection is insufficient, and market supervision is not yet in place. These factors lead to policy failure in effectively stimulating and guiding the market.

4.3 Problem Analysis on Sustainable Consumption Policies of China

Analysis of problems on current policies are shown in the table below.

Table 4.1 Analysis of the Sustainable Consumption Implementation in China

No	Policy Category	Policy Document	Government Departments	Implementation Period	Existing Problems
1	Popularization of high efficiency and energy saving lighting	*Interim Measures on Management of Fiscal Subsidies for Promotion of Efficient Lighting Products* (Financial Construction[2007] No. 1027)	Ministry of Finance National Development and Reform Commission	2007- 2013	The recycle of energy saving lamps are confronted with the problem of "ineffective management." Abandoned energy-saving lamps are treated as general waste, and mercury contained in the energy-saving lamps directly contributes to the poisoning of human health.
2	Popularization of Efficient Energy Saving Appliances	People-benefit project with energy saving	National Development and Reform Commission Ministry of Industry and Information Technology of the PRC Ministry of Finance	2009- 2013	Concurrent and post-supervision and control are not implemented, resulting in cheatings on subsidies during the implementation of the subsidy policy of promotion of the efficient energy saving appliances.
3	Desktop microcomputer with efficient energy-saving	people-benefit project with energy saving	National Development and Reform Commission Ministry of Industry and Information Technology of the PRC Ministry of Finance	2012- 2013	The occupancy of the desktop computer is small, whose brands and type are limited, while notebook is not in the range of subsidies. Moreover, the form of energy-saving subsidy is prepayment by distributors. Therefore, there are many issues under this situation. In addition, the subsidy level is low, and its

					profit margin is insufficient, so merchants have little interest in the energy-saving subsidy.
4	Popularization of efficient motors	people-benefit project with energy saving	National Development and Reform Commission Ministry of Industry and Information Technology of the PRC Ministry of Finance	2010- 2017	Price of efficient motors is generally high, 20% higher than the price of common motors, and part of that is 50% higher, so the subsidy is relatively weak and untimely. The policy is implemented in 2010, but the liquidation of subsidies for motor promotion started in 2017.
5	Subsidy for energy saving and new energy automobile	*Notice for Carrying out Demonstration and Promotion Pilot of Energy Conservation and New-Energy Automobile*	Ministry of Finance Ministry of Science and Technology	2010	The subsidy for promotion is too high at the preliminary, and it is unsustainable. But as the reduction of subsidy policy is later introduced, the adjustment of subsidy amount is too huge and fast, the subsidy of the main models of cars reduced by 40%-50% (total sum of the Central government and local subsidy), compared with that before reduction. The guidelines of subsidy for industrial development is inadequate, and the setting of threshold and permission standard of subsidy lacks clear and strict guidance. As a result, cheating of subsidy and interest arbitrage occurs.
6	Upgrading quality of oil products	*Notice of National Development and Reform Commission on Opinions about Price Policy of Improvement of Quality of Oil Products* (Price of Notice of National Development and Reform Commission 〔2013〕No. 1845)	National Development and Reform Commission	2013- 2017	
7	Recycling and refabrication of waste electrical and electronic equipment	*Letters on Printing and Releasing the Proposal on Promotion of Trade-in of Home Appliances* (SSMF[2010]No. 190)	Ministry of Commerce Ministry of Finance Ministry of Environmental Protection	2010- 2011	Income of dissembling enterprises mainly depends on the fund subsidy and their self-production mechanism is weak. The payment of subsidy is long term, and the dissembling enterprises are generally faced with large capital pressure. The subsidy fund is not enough for expenditure, and its system needs to be improved, mainly due to payment standards of funds that are lower than the subsidy standard.
8	Recycle and refabrication of waste and old automobiles	*Interim Measures for Management on Subsidies of*	Ministry of Finance Ministry of Commerce	2004	Although the industry of recycle and dismantling for scrapped cars have risen rapidly in recent years, the level of recycling and

		Scrap and Update for Old Cars			dismantling enterprises in China falls behind, compared with developed countries. Extensive scrap and recycle method is used by most enterprises, their management method and technological means fall behind, and most facilities are simple and crude. Recovered parts of the scrapped cars are difficult to repurpose due to low recycling level, resulting in recoverable parts becoming wastes, aggravating environmental burden.

Analysis on the issues of sustainable consumption tools are shown in the table below.

Table 4.2 Analysis of China's Implementation of Sustainable Consumption Instrument Practice

No.	Instrument Type	Document	Government Departments	Time of Implementation	Standard System	Issues
1	Certification of energy saving and water saving products	*Administrative Measures for Certification of Energy Saving Products in China*	National Development and Reform Commission Ministry of Housing and Urban-Rural Development Ministry of Water Resources	1999	160	Many domestic institutions can implement similar certification, and their technical specifications are different, so the comparability of test results is low, and certification labels are various, which affects the authority and effectiveness. There is also aggressive competition.
2	China Environmental Labeling Product Certification	*Administration Measures on the China Environmental Labelling and Identification*	State Environmental Protection Administration of China	1994	101	Currently, the standard category of China Environmental Labelling is scarce, and confined to products that are closely linked with consumers. There is a lack of relevant standard for products and services that consume a lot of resources during production that result in serious pollution.
3	Green Hotel	*Notice on Further Implementation of Establishment of Green Hotel*	Ministry of Commerce	2008	1+1	Although the industry standard of *Green Hotel* was released and the evaluation criteria of green hotel was specified and can be quantitative and scored, hotels will not be punished by law even if they don't implement as per regulations because such regulations are industrial specifications with no legal binding, so the supervision and control is almost ineffective.
4	Organic products	*Measures for the Administration of Organic Food Label*	State Environmental Protection Administration of China	1995	127	Currently, transactions of organic product labels are done illegally in the organic product certification industry and enterprises, with forged organic product labels, due to oversight of the certification process and lack of post-supervision and control, leading to contemptible market effect.
5	Green foods	*Measures for the*	Ministry of Agriculture and	1993	126	The propaganda of green food certification is not enough, and

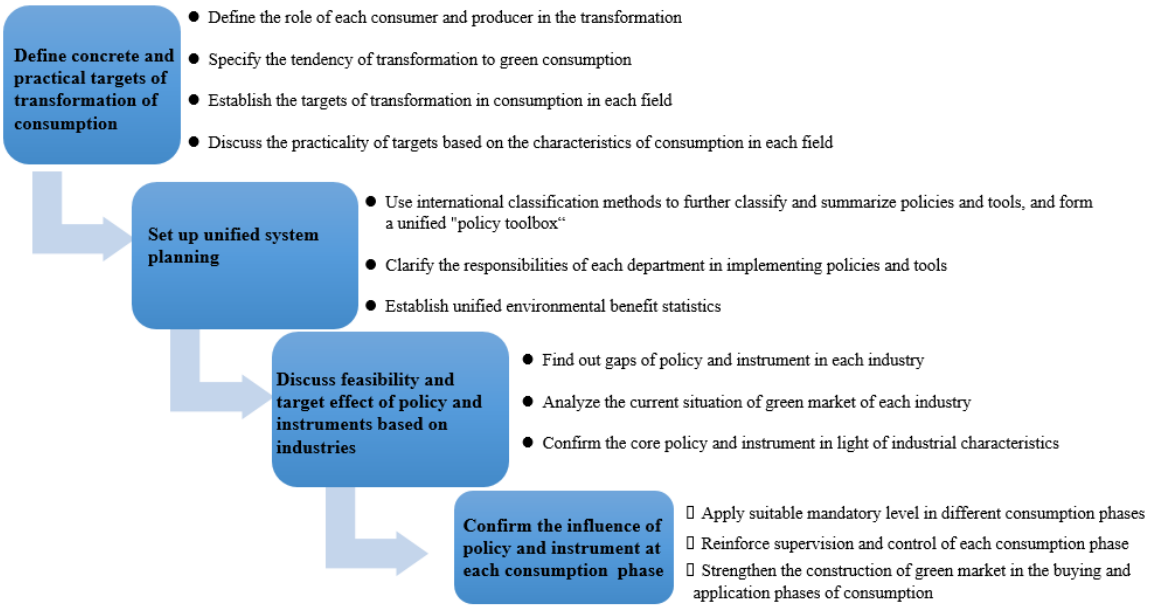
		Administration of Green Food Logos	Rural Affairs of People's Republic of China			the publicity on green food and its effect on environmental protection is insufficient. Livestock, poultry meat, aquatic and marine products, which consumers paid the most attention and have the largest market demand, have a small proportion.
6	Green building	*Measures for the Administration of Evaluation and Indication of Green Buildings*	Ministry of Housing and Urban-Rural Development	2007	10	The current administrative system for the assessment labeling of green buildings mainly standardizes the declaration process, filing, publicity, announcement of labels and relevant works. They have the following disadvantages; one is lack of effective supervision and control system on the quality of assessed items from the assessment agencies at all levels, and their quality of assessment cannot be guaranteed, the second is that the supervision and control on the implementation of labeling needs strengthening, and the contents in design and construction drawings frequently fail in their implementation, the third is that there is no clear decision whether operations should be evaluated for the design labeling projects, and labels are difficult to illustrate its function.
7	Green building materials	*Measures for the Administration of Evaluation and Labelling of Green Buildings*	Ministry of Housing and Urban-Rural Development	2014	8	Currently, cognition and recognition of green building materials is not ideal, and there is inadequate basic R&D of standards for green building materials.

5. Policy Suggestions on Sustainable Consumption in China

Through the analysis of China's current situation on sustainable consumption in chapter 1, 2 and 3, the problems and challenges related to policies and tools faced by China are identified and analyzed in chapter 4. Based on the key findings in previous chapters, the policy recommendations to accelerate sustainable consumption for China are proposed in this chapter.

5.1 Road map of sustainable consumption in general

To form an effective road map, we first need to clarify the goals and trends of consumption transformation, plan systematically, and understand the effectiveness of policies and tools. The general and basic requests for a road map have been outlined in the chart below.



5.2 Policy Recommendations to Accelerate Sustainable Consumption in China

At present, China is transforming its economic development from high-speed growth towards a quality-focused platform, along with consumption itself as the main economic drive. The pressure imposed on the resource and environment from traditional consumption in China is mounting, and its environmental problems are becoming increasingly serious. It is imperative to integrate sustainable consumption principles into the public's daily practice. It would be important for China to translate its strong political will into strategy by adopting effective policy measures and social practice to promote the transformation towards green consumption through consistent practice and policies. The policy recommendations to fast-track its sustainable consumption are proposed as follows:

5.2.1 Speed up the establishment of a sound policy framework on sustainable consumption.

It is suggested to incorporate the sustainable consumption into the national strategy of China to drive the nation's economic growth. The government may develop specific law or integrate sustainable consumption into the legislation, through which the legal specifications of sustainable consumption need to be well-defined, along with the context that entail legal responsibilities and obligations.

It is proposed to prioritize revising the *Government Procurement Law* to define the restrictions on the government green procurement and encourage enterprises and other social organizations to establish supporting policies. In addition, standards and lists of green procurement should be improved and expanded. To expand the coverage, government procurement and green standards should be jointly promoted. An inter-departmental coordination mechanism between ministries and commissions is needed to clearly delineate roles and responsibilities of government agencies.

5.2.2 Establish a market-based, consumer-based and government-led promotion mechanism.

To provide high-quality green products, eco-labeled products, and persuade public opinion, the economic incentives and market-driven mechanisms are proposed to be established for finance and taxation, credit and loan, price, supervision and control, market credit and other aspects. The government should also develop more sustainable social norms via the government's green procurement and practice, and evaluate performance to make adjustments. Likewise, the public needs to receive pertinent knowledge on environmental

impact through ethical and social marketing, advertisements, and labeling of ecological products, social products and services. By providing broader-based sustainable products, services, infrastructure and system for consumers, the public would be then able to appreciate and cultivate a more sustainable lifestyle.

5.2.3 Focus on improving environmental quality as a key to promoting sustainable consumption.

The most stated concerns from consumers are haze and fog, soil pollution, heavy metal pollution, household waste and others, which constitute the overall waste output from every day consumption. The government should support the mass public to cooperate and overcome tough conditions from the pollution, and establish means for prevention and control through new media and other means, along with proactively promoting policies in key consumption areas. Product certification policy instruments should be further applied through the issuance of policies and standards of environmental labeling in key industrial products of “water, air and soil."

The national supply-side structural reform would be an opportunity for the state to make the transformation in sustainable consumption by providing support and guidance in green service, eco-tourism, environmental service, green design, clothing, and other sectors.

5.2.4 Improve market and economic incentives.

Price policy should play a guiding role in the promotion of sustainable consumption, as observed in the following recommendations. First, provide appropriations for electricity pricing, technical guarantees, and increase investment funds. For example, water pricing and household electricity should be set through tiered pricing with different baselines in different provinces. Second, optimize the subsidy policy to promote sustainable consumption. Third, establish special funds for sustainable consumption together with the price subsidy policy for certified products related to pollutants reduction index, such as environmental labeling. Fourth, provide subsidy for green government procurement. Fifth, provide green procurement subsidy to high-performing enterprises that have good credit. Lastly, expand the brackets of consumption tax and improve its collection methods.

The government should advocate for stronger financing to develop consumption credit and loans based on sustainability, while supporting innovation products, business integration, multilevel credit options for sustainable consumption, and exercise their fiscal authority to support sustainable consumption. Green financing may include discounts or low lending rate and convenient financing services when purchasing green products and services (such as new energy automobile, certified energy-saving electronics, certification of environmental labeling products, solar water heater, small and energy-efficient housing, etc.). Financing that is based on loan collaterals should be revisited. Instead, the state should explore and expand the financing sources to citizens by offering mortgage with expected returns in energy conservation, environmental protection and energy management contracts.

5.2.5 Establish mechanism for information dissemination and encourage stakeholder participation.

A support mechanism for information disclosure is proposed to be established based on honesty, and disclosure coverage should be expandable, including the distribution channels to provide necessary support for sustainable consumption. There is a general need for a unified publishing platform to publish green products and service information, through big data, and encourage related parties to acknowledge certification and assessment results. Communities, third parties and enterprises will look to the government for support in implementing the certification and assessment of green products, along with their need for capacity-building and training for stakeholders.

5.2.6 Improve sustainable supply chain management through consumer information tools.

As people become more interested in healthy and environmentally sound products due to the pandemic outbreak. Sustainable supply chain management through the policies and tools which promote sustainable lifestyle and sustainable products, such as reliable consumer information tools to trace supply chain of food and share more information behind products, would enable more people especially middle and high-income groups access sustainable options so as to accelerate sustainable consumption and production patterns.

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Annexes

i. List of Central Decisions related to Sustainable Consumption
ii. List of State Council Policies related to Sustainable Consumption
iii. List of Ministerial Information based Instruments related to Sustainable Consumption
iv. List of Ministerial Macroeconomic Policies related to Sustainable Consumption

Annex i

Summary of Central Decisions related to Sustainable Consumption

No.	Name of policy	Key words	Content related to sustainable consumption	Release date	Release agency
1.	Report of Xi Jinping at the 19th National Congress of the Communist Party of China	Green and low-carbon lifestyle	Promote green development. Accelerate the establishment of legal systems and policy guidance for green production and consumption, and establish and improve an economic system of green and low-carbon recycling development. Build a market-oriented green technology innovation system, develop green finance, and strengthen the energy conservation and environmental protection industry, clean production industry, and clean energy industry. Promote the revolution in energy production and consumption, and build a clean, low-carbon, safe and efficient energy system. Promote the comprehensive conservation and recycling of resources, implement national water-saving actions, reduce energy and material consumption, and realize the circular link between production systems and living systems. Promote a simple and moderate, green and low-carbon lifestyle, oppose extravagance, waste and unreasonable consumption, and carry out actions such as creating economical institutions, green families, green schools, green communities, and green travel.	2017.10	/
2.	13 items including "National New Urbanization Plan (2014-2020)"	Sustainable consumption	Urbanization development goal: The urban development model is scientific and reasonable. Green production and sustainable consumption have become the mainstream of urban economic life, and the proportion of energy-saving, water-saving products, recycled products and green buildings has increased significantly.	2014.3	The Central Committee of the Communist Party of China the State Council
3.	Opinions of the Central Committee of the Communist Party of China and the State Council on comprehensively	Guide sustainable consumption and public green life	One opinion: promote the formation of green development methods and lifestyles. (1) Promote the development of economic green and low-carbon cycles; vigorously develop energy-saving and environmental protection industries, clean production industries, and clean energy industries, strengthen scientific and technological innovation, focus on	2018.6	The Central Committee of the Communist Party of China

	strengthening ecological and environmental protection		guiding sustainable consumption, and actively improve energy-saving, environmental protection, resource recycling and other green industrial technology equipment Level, nurture and develop a number of key enterprises; (2) Promote comprehensive energy and resource conservation; 3) Guide the public to green life;		
4.	Several Opinions of the Central Committee of the Communist Party of China and the State Council on Improving the Consumption Promotion Mechanism and Further Stimulating Residents' Consumption Potential	Sustainable consumption awareness, sustainable consumption products	Sustainable consumption includes the establishment of a diversified supply system for green products and the enrichment of the production of sustainable consumer goods, such as energy-saving and water-saving products, resource recycling products, environmental protection products, green building materials, and new energy vehicles.	2018.9	the State Council
5.	Several Opinions of the Central Committee of the Communist Party of China and the State Council on Improving the Consumption Promotion Mechanism and Further Stimulating Residents' Consumption Potential	Sustainable consumption awareness, sustainable consumption products	Promote green production methods, resolutely develop high-quality agricultural products with green, organic and geographical indications, and support the creation of regional brands; promote the integration of industry, agriculture and service sectors, take advantage of ecological resources, develop leisure agriculture and rural tourism, and drive poor farmers out of poverty	2019.9	The Central Committee of the Communist Party of China
6.	Several Opinions of the Central Committee of the Communist Party of China and the State Council on Deeply Promoting Structural Reform on the Agricultural Supply Side and Accelerating the Cultivation of New Momentum for	Green industry	Devote to developing green industries such as wood, grain and oil and other economic woodlands, such as precious tree species, flowers, bamboo and rattan, and vegetation. Implement forest ecological labeling for construction projects; improve the quality of agricultural products and food safety, guide enterprises to strive for international certification of organic agricultural products, and accelerate the improvement of the legitimacy and influence of organic products certification.	2016.12	the State Council

	Agricultural and Rural Development				
7.	Several opinions of the Central Committee of the Communist Party of China and the State Council on further strengthening urban planning and construction management	Green building and building materials	Promote innovation of energy-saving technologies. Improve building energy efficiency standards, promote green buildings and building materials. Give priority to public transportation development. Strengthen comprehensive waste management.	2016.2	The Central Committee of the Communist Party of China
8.	Guidance of the Central Committee of the Communist Party of China and the State Council on carrying out quality improvement actions	Proportion of supply of green products, government procurement	Proactively develop the primary and deep processing of agricultural products, increase the proportion of green product supply, and increase the added value of agricultural products; promote green manufacturing, promote clean and efficient production processes, reduce product manufacturing energy consumption, material consumption and water consumption, and improve the energy and water efficiency of end-use products ; Encourage enterprises to optimize functional design, modular design, appearance design, ergonomic design. Promote personalized customization, flexible production, improve product scalability, durability, comfort and other quality characteristics to meet green environmental protection, sustainable development, Consumption-friendly and other needs; promote the formation of a government procurement mechanism of high quality and good price.	2017.9	the State Council
9.	Opinions of the Central Committee of the Communist Party of China and the State Council on accelerating the construction of ecological civilization	Green industry, green lifestyle	Basic principles: Incorporate ecological civilization into the core value system of socialism, strengthen the propaganda and education of ecological culture, advocate diligence and frugality, green and low-carbon, civilized and healthy lifestyle and consumption patterns, and raise the awareness of ecological civilization in the whole society. Develop green industries, improve economic policies, and cultivate green lifestyles.	2015.4	The Central Committee of the Communist Party of China

Annex ii

Summary of State Council Policies related to Sustainable Consumption

No.	Name of policy	Key words	Content related to sustainable consumption	Release time	Release agency
1.	Notice of the State Council on Forwarding the Implementation Plan of the Development and Reform Commission and Other Departments to Promote the Expansion of Domestic Demand and Encourage the Replacement of Automobile Home Appliances〔2009〕No.44	old-for-new	In order to further expand the consumption of automobiles and home appliances, promote the expansion of domestic demand, and maintain a stable and rapid economic development, we have specifically formulated an implementation plan that encourages automobiles and home appliances to “old-for-new.”	/	The State Council
2.	Provisional Regulations of the People's Republic of China on Vehicle Purchase Tax State Council Order No. 294	Vehicle purchase tax	Units and individuals who purchase vehicles under the Regulations within the territory of the People's Republic of China, taxpayers for vehicle purchase tax, shall pay vehicle purchase tax in accordance with these Regulations.	2001.1	The State Council
3.	Notice of the General Office of the State Council on Governing Commodity Excessive Packaging [2009] No. 5	overpacked	To control excessive packaging of commodities, we must start from the source. For products directly related to the lives and vital interests of the people, on the premise of satisfying the basic functions of protection, quality assurance, labeling, decoration, etc., in accordance with the principles of reduction, reuse, and recycling, from the number of packaging layers, packaging materials, The effective volume of packaging, the proportion of packaging costs, and the recycling of packaging materials regulate the	2009	The State Council

			packaging of goods, and guide enterprises to reduce resource consumption and waste generation in packaging design and production, and facilitate the recycling of packaging materials.		
4.	Notice on restricting the use of plastic shopping bags for production and sales [2007] No. 72	the restriction of plastic bags	From June 1, 2008, the production, sale and use of plastic shopping bags with a thickness of less than 0.025 mm are prohibited nationwide	2007	The State Council
5.	Opinions of the General Office of the State Council on Establishing Unified Green Product Standards, Certification and Labeling Systems〔2016〕 No. 86	green product	Improving the green market system and increasing the supply of green products are an important part of the reform of the ecological civilization system. The establishment of a unified green product standard, certification, and labeling system is an inevitable requirement for promoting the development of a green and low-carbon cycle and cultivating a green market. It is an important measure to strengthen supply-side structural reform, improve the quality and efficiency of green product supply, and guide industrial transformation. The urgent task of upgrading and enhancing China's manufacturing competitiveness is an effective way to lead sustainable consumption, guarantee and improve people's livelihood, and is a practical need to fulfill international emission reduction commitments and enhance China's institutional voice in participating in global governance.	2016	The State Council
6.	Guiding Opinions of the State Council on Actively Playing the Leading Role of New Consumption and Accelerating the Cultivation of New Supply and New Power〔2015〕 No. 66	Effective supply and quality improvement	Fully implement the spirit of the Eighteenth National Congress of the Party and the Second, Third, Fourth, and Fifth Plenary Sessions of the Eighteenth National Congress, in accordance with the Party Central Committee and the State Council ’s decision-making and deployment, play a decisive role in the market in the allocation of resources, and actively discover and meet the consumption upgrade of the masses Necessary, to stimulate new vitality with innovation of institutional mechanisms, to release new space with improved consumption environment and market order norms, to expand effective supply and improve quality to meet new demands, to drive product upgrades and	2015.11	The State Council

			industrial development with innovation, to promote healthy interaction between consumption and investment, and industry Upgrading and consumption upgrading are synergistic, innovation-driven and economic transformation are effectively connected, and a development path that combines consumption upgrading, effective investment, innovation-driven and economic transformation is constructed to provide a more durable and stronger driving force for economic quality and efficiency upgrade.		
7.	Opinions of the General Office of the State Council on Promoting the Coordinated Development of E-commerce and Express Logistics 〔2018〕 No. 1	Green idea	Strengthen green concept and develop green ecological chain: promote resource conservation, promote green packaging, and promote green transportation and distribution	2018.1	The State Council
8.	Notice of the General Office of the State Council on Issuing and Improving the Implementation Plan (2018-2020) of the System and Mechanism for Promoting Consumption 〔2018〕 No. 93	Sustainable consumption	Develop sustainable consumption. Strengthen the implementation of the relevant standard mark certification system, improve the government procurement system, and innovate the leader mechanism and the linking mechanism of relevant technical standards. Unify the battery and charger standards of common electronic products. Study and establish a green product consumption points system. Promote the development of green circulation, advocate reduction of packaging in circulation, and use of degradable packaging.	2018	The State Council
9.	Guiding Opinions of the General Office of the State Council on Actively Promoting Innovation and Application of Supply Chain 〔2017〕 No. 84	Green supply chain	Key tasks: Actively advocate green supply chain. 1. Vigorously advocate green manufacturing. Promote green management of the entire product life cycle, and carry out green supply chain management demonstrations in the automotive, electrical and electronic, communications, large-scale complete equipment and machinery industries. 2. Actively promote green circulation. Actively advocate the concept of sustainable consumption and cultivate a sustainable consumer market. Encourage the promotion of	2017.10	Tthe State Council

			energy-saving technologies in the circulation sector, speed up the upgrading and transformation of energy-saving facilities and equipment, and cultivate a group of green circulation enterprises that integrate energy-saving transformation and sales of energy-saving products. 3. Encourage the establishment of a waste resources recycling platform based on the supply chain, and build an online waste and renewable resources trading market.		
10.	Circular of the State Council on Printing and Distributing the "13th Five-Year" Comprehensive Work Plan on Energy Conservation and Emission Reduction〔2016〕 No. 74	Sustainable consumption, green life	Mobilize the whole society to participate in energy conservation and emission reduction: promote sustainable consumption. Advocate green living, promote the people to be more thrifty, green, low-carbon, civilized and healthy in terms of clothing, food, housing and transportation, and resolutely resist and oppose all forms of luxury and waste. Carry out "zero disposal" of used clothes to facilitate the exchange of idle items. Speed up the flow of green product circulation channels, encourage the establishment of green wholesale markets, energy-saving supermarkets and other green circulation entities. Vigorously promote green and low-carbon travel, and advocate a green lifestyle and leisure model. By 2020, the market share of energy-efficient household appliances such as air conditioners, refrigerators, and water heaters with energy efficiency labels of level 2 or higher will reach more than 50%.	2016	The State Council
11.	Opinions of the General Office of the State Council on Further Expansion of Consumption in Tourism, Culture, Sports, Health, Elderly Education and Training〔2016〕 No. 85	Sustainable consumption	Cultivate and strengthen sustainable consumption. 1. Research and promulgate energy efficiency standards for household green purification appliances such as air purifiers and washing machines, and incorporate them into the energy efficiency leader program to guide consumers to purchase and use energy efficiency leader products first. 2. Strengthen the evaluation of green building materials such as energy-saving doors and windows, ceramic thin bricks, water-saving sanitary ware, and guide the expansion of the market share of green building materials consumption. 3. Improve the green product certification system and standard system, establish a unified green product standard, certification and labeling system, formulate promotion	2016.11	The State Council

			catalogs of energy-saving and environmental protection technology products in the circulation field, and encourage circulation enterprises to purchase and sell green products. 4. Improve product and service standards. Continue to increase the total scale and quality level of pollution-free agricultural products, green food, organic agricultural products and geographical indication agricultural products ("three products and one standard" product).		
12.	Notice of the State Council on Printing and Distributing the "13th Five-Year" Work Plan for Controlling Greenhouse Gas Emissions [2016] No. 61	Low-carbon development	Promote the development of low-carbon urbanization: (1) Strengthen urban and rural low-carbon construction and management. (2) Build a low-carbon transportation system. (3) Strengthen waste resource utilization and low-carbon disposal. (4) Advocating a low-carbon lifestyle.	2016	The State Council
13.	Notice of the State Council on Printing and Distributing "Made in China 2025" 〔2015〕 No. 28	Green manufacturing system	Actively build a green manufacturing system. Support enterprises to develop green products, implement ecological design, significantly improve the energy saving, environmental protection and low carbon levels of products, and guide green production and sustainable consumption.	2016.5	The State Council
14.	Notice of the General Office of the State Council on Printing and Distributing the Implementation Plan for Prohibiting the Import of Foreign Garbage and Promoting the Reform of the Import Management System for Solid Waste 〔2017〕 No. 70	Solid Waste	Main goal: Strict solid waste import management. Before the end of 2017, the import of solid wastes with great environmental hazards and strong public feedback will be banned; before the end of 2019, the import of solid wastes that can be replaced by domestic resources will be gradually stopped. By continuously strengthening the supervision of the import, transportation and utilization of solid waste, we ensure the safety of the ecological environment. Maintain a high pressure against the smuggling of foreign garbage, and completely block the entry of foreign garbage. Strengthen resource-saving and intensive use of resources, comprehensively raise the level of domestic solid waste innocuity and resource utilization, and gradually fill up domestic resource gaps, providing a strong guarantee for building a beautiful China and building a well-off society in an all-round way.	2017.7	The State Council

15.	Notice of the General Office of the State Council on Establishing a System for Compulsory Procurement of Energy-Saving Products by the Government [2007] No. 51	Compulsory procurement of energy-saving products	In order to effectively strengthen the energy-saving work of government agencies, give play to the policy-oriented role of government procurement, establish a system for compulsory procurement of energy-saving products by the government, and on the basis of actively promoting the priority purchase of energy-saving (including water-saving) products by government agencies, select some energy-saving products with significant energy-saving effects and comparative performance Mature products are subject to mandatory procurement.	2007	The State Council
16.	Notice of the General Office of the State Council on Forwarding the Implementation Plan of the Domestic Waste Classification System of the Ministry of Housing, Urban and Rural Construction of the National Development and Reform Commission 〔2017〕 No. 26	Domestic waste compulsory classification	To implement the mandatory classification of domestic garbage in some areas: hazardous garbage, perishable garbage, recyclables; guide residents to consciously carry out domestic garbage classification; strengthen the construction of supporting system for domestic garbage classification; strengthen organizational leadership and job security	2017.3	The State Council
17.	Notice of the General Office of the State Council on Printing and Distributing the Work Plan for the Pilot Construction of "Wasteless City" 〔2018〕 No. 128	Wasteless city	Adhere to system integration and focus on collaborative linkage. Centering on the construction goal of "Wasteless City," systematically integrate relevant pilot demonstration experience in the field of solid waste. Adhere to the combination of government guidance and market dominance, improve the integration of solid waste comprehensive management and promote supply-side structural reforms, and promote the realization of green and circular production, circulation, and consumption links.	2018.12	The State Council

Annex iii

Summary of Ministerial Information based Instruments related to Sustainable Consumption

No.	Name of policy	Policy category	Release time	Release agency	Behavioral influence	Target consumption stage
1.	Administrative Measures for Certification of Energy Saving Products in China	Certification of energy-saving product	1999.2	National Development and Reform Commission	2	Purchase
2.	Measures for the Administration of Energy Efficiency Labels National Development and Reform Commission and AQSIQ, Order No. 17	Energy efficiency label	2004.8	National Development and Reform Commission, AQSIQ	2	Purchase
3.	Measures for the Administration of Energy Efficiency Labels National Development and Reform Commission and AQSIQ, Order No. 35	Energy efficiency label	2016.2	National Development and Reform Commission, AQSIQ	2	Purchase
4.	Management Measures for Water Efficiency Labels National Development and Reform Commission, Ministry of Water Resources and AQSIQ, Order No. 6	Water Efficiency Label	2018.3	National Development and Reform Commission, Ministry of Water Resources and AQSIQ	2	Purchase
5.	*Notice on Printing and Distributing the Action Plan for National Energy Conservation during the 13th Five-Year Plan Period* FGHZ [2016] No. 2705	National energy conservation	2016.12	National Development and Reform Commission, the Publicity Department of the Central Committee of Communist Party of China, Ministry of Industry and Information Technology of the PRC, Ministry of Finance, Ministry of Housing and Urban-Rural Development, Ministry of Transport, The People's Bank of China, SASAC, State Taxation Administration, AQSIQ, National Bureau of Statistics, National Government Offices	1	Use

				Administration, National Energy Administration		
6.	Notice about Guidance on Promoting Sustainable Consumption FGHZ [2016] No. 353	Sustainable consumption	2016.2	National Municipal Development and Reform Commission, the Publicity Department of the Central Committee of Communist Party of China, Ministry of Science and Technology, Ministry of Finance, the former Ministry of Environmental Protection, Ministry of Housing and Urban-Rural Development, Ministry of Commerce, General Administration of Quality Supervision, Inspection and Quarantine, National Tourism Administration and National Government Offices Administration	1	Use
7.	Notice of National Development and Reform Commission on Printing and Distributing China's Response Plan To Climate Change(2014-2020) FGCC [2014] No. 2347	Sustainable consumption	2014	National Development and Reform Commission	1	All stages

8.	Notice on Printing and Distributing *Circular Development Leading Action*	Sustainable consumption	2017.4	National Development and Reform Commission, Ministry of Science and Technology, Ministry of Industry and Information Technology, Ministry of Finance, Ministry of Land and Resources, the former Ministry of Ecology and Environment, Ministry of Housing and Urban-Rural Development, Ministry of Water Resources, Ministry of Agriculture, Ministry of Commerce, SASAC, State Taxation Administration, National Bureau of Statistics, The State Forestry Administration of the People's Republic of China	1	Finished using
9.	Notice on Printing and Distributing the Action Plan of Promoting Consumption Driven Transformation and Upgrading FGJG [2016] No. 832	Sustainable consumption	2016.4	24 ministries and commissions including National Development and Reform Commission	1	All stages
10.	Notice of the Ministry of Transport on Printing and Distributing the Implementation Plan for Promoting the Construction of Transportation Ecological Civilization JGHF [2017] No. 45	Traffic and transport	2017.4	Ministry of Transport	1	Use
11.	Announcement on the Implementation of Green Printing GAPP No. 2, 2011	Green Printing Announcement	2011	State Administration of Press, Publication, Radio, Film and Television, the former Ministry of Ecology and Environment	4	Production
12.	Notice on the Implementation of Green Printing in Primary and Secondary School Textbooks XXLL [2012] No.11	Green Printing of Primary and Secondary School Textbooks	2012	State Administration of Press, Publication, Radio, Film and Television, Ministry of Education, the former Ministry of Ecology and Environment	4	Production

13.	Notice on Green Printing of Bills XXLL [2013] No.9	Green Printing of Bills	2013	State Administration of Press, Publication, Radio, Film and Television, the former Ministry of Ecology and Environment, Ministry of Industry and Information Technology, and CNCA	4	Production
14.	Notice on Carrying Out Environmental Labelling Work in China	China Environmental Labelling Certification	1993	The former Ministry of Ecology and Environment	1	Purchase
15.	Opinions on Accelerating the Implementation of Green Lifestyle HF [2015] No.135	Green Lifestyle	2015.11	Former Ministry of Environmental Protection	1	All stages
16.	Notice on printing and distributing the *Measures for the Administration Of Green Building Evaluation Marks*(Trial Implementation)	Green Building Evaluation	2007.8	Former Ministry of Construction	2	Production
17.	*Notice on Printing and Distributing Implementation Rules for Green Building Evaluation Labels (Trial Revision)* and Other Documents, promulgating *Implementation Rules for Green Building Evaluation Labels (Trial)*, *Regulations on the Use of Green Building Evaluation Labels (Trial)*, and *Working Rules of the Expert Committee for Green Building Evaluation Labels* (Trial)"	Green Building Evaluation	2008.10	Former Ministry of Construction	2	Production
18.	*Notice of the General Office of the Ministry of Housing and Urban-Rural Development on the Management of Green Building Evaluation Labels* JBK [2015] No. 53	Green Building Evaluation	2015.10	Ministry of Housing and Urban-Rural Development	2	Production

19.	Notice of the General Office of the Ministry of Housing and Urban-Rural Development on Organizing the Application of 2018 Science and Technology Plan Project JBKH [2017] No. 845	Selection of passive ultra-low energy consumption green building demonstration project	2018	Ministry of Housing and Urban-Rural Development	1	Production
20.	Building energy conservation and the 13th five-year plan of green building development	Green energy-saving building	2016	Ministry of Housing and Urban-Rural Development	1	All stages
21.	Notice of the Ministry of Housing and urban-Rural Development of the State Development and Reform Commission on Printing and Distributing the Action Plan of Urban Adaptation To Climate Change (FGCC [2016] No. 245)	Green building	2016.2	National Development and Reform Commission, Ministry of Housing and Urban-Rural Development	1	All stages
22.	Technical Guidelines for Passive Ultra Low Energy Consumption Green Buildings (Trial) (residential buildings)	Green building	2015.11	Ministry of Housing and Urban-Rural Development	1	Production
23.	Notice of the Ministry of Industry and Information Technology and the Ministry of Housing and Urban-Rural Development on Printing and Distributing the Action Plan for Promoting the Production and Application of Green Building Materials MIJLY [2015] No.309	Green building materials	2015.8	The Ministry of Industry and Information Technology, the Ministry of Housing and Urban-Rural Development	1	Production
24.	Notice on Water Saving Product Certification	Certification of water-saving product	2002	Former China Economic and Trade Commission and former Ministry of Construction	2	Purchase

25.	Green Hotel Rating Criteria (SB / T 10356-2002)	Green Hotel	2003	Former China Economic and Trade Commission and former Ministry of Construction	2	Purchase
26.	*Measures for the Administration of Green Food Logos*	Green Food Certification	1993	Ministry of Agriculture and Rural Affairs of People's Republic of China	2	Purchase
27.	Measures for the Administration of Pollution-free Agricultural Products Order No. 12 of the Ministry of agriculture of the people's Republic of China and the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China	Pollution-free Agricultural Products Certification	2002	Ministry of Agriculture, General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China	4	Production
28.	Measures for the Administration of Organic Product Certification ZJ Order[2004] No. 67	Organic Food Certification	2004	General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China	2	Purchase
29.	Measures for the Administration of Organic Product Certification ZJ Order[2015] No. 155	Organic Food Certification	2015	General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China	2	Purchase
30.	Green Product Assessment-Textile Products(GB/T 35611-2017)	Green Textile Assessment	2018.7	AQSIQ, Standardization Administration	2	Purchase
31.	Green Product Assessment-Ceramics Tiles (Board)(GB / T 35610-2017); Green Product Assessment—Waterproof Materials and Sealants (GB / T 35609-2017); Green Product Assessment—Thermal Insulation(GB/T 35608-2017) Green Product Assessment—Solar Water Heating System(GB/T 35606-2017) Green Product Assessment-Wall Material(GB/T 35605-2017) Green Product Assessment-Building Glass(GB/T 35604-2017) Green Product	Green Building Materials Evaluation	2017	AQSIQ, Standardization Administration	2	Purchase

	Assessment—Coating Material(GB/T 35602-2017) Green Product Assessment—Wood-based Panels and Wooden Flooring (GB / T 35601-2017).					
32.	China Standard for Green Hotels (GB / t21084-2007) includes detailed rules for the evaluation of green hotels	Green Hotel	2007	Standardization Administration of the People's Republic of China	2	Purchase
33.	Green Wholesale Market for Agricultural and Sideline Products (GB / T19220-2003)	Green market	2003	AQSIQ	2	Purchase
34.	Standard of Green Retail Market of Product and Relevant Technical Specifications (GB / T19221-2003)	Green market	2003	AQSIQ	4	Purchase
35.	Green Hotel (LB / T 007-2006) includes Evaluation rules for green tourist hotels	Green Hotel	2006	Former China Tourism Administration	2	Purchase

Annex iv

Summary of Ministerial Macroeconomic Policies related to Sustainable Consumption

No.	Policy name	Policy category	Macro sector	Release time	Issue agency	Mandatory level	Target consumption stage
1.	Interim Measures for the Management of Financial Subsidies for the Promotion of Efficient Lighting Products (2007) No. 1027	High-efficiency lighting	Financial	2008	Ministry of Finance of the People's Republic of China National Development and Reform Commission	3	Purchase
2.	Notice on Adjusting the Financial Subsidy Policy for High-efficiency Energy-saving Air Conditioners (2010) No. 119	High efficiency energy saving air conditioner	Financial	2010.6	Ministry of Finance of the People's Republic of China National Development and Reform Commission	3	Purchase
3.	Notice on the pilot work of demonstration and promotion of energy saving and new energy vehicles (2009) No. 6	Subsidies for hybrid, pure electric vehicles, and fuel cell vehicles	Financial	2009	Ministry of Finance of the People's Republic of China Ministry Science and Technology of the People's Republic of China	2	Purchase
4.	Notice on the pilot of subsidies for private purchase of new energy vehicles (2010) No. 230	Plug-in hybrid and pure electric passenger cars	Financial	2010	Ministry of Finance of the People's Republic of China Ministry of Industry and Information Technology of the People's Republic of China National Development and Reform Commission	2	Purchase
5.	Notice on the issuance of detailed implementation rules for the promotion of energy-saving products for the benefit of the people (2009) No. 214	High efficiency energy saving air conditioner	Financial	2009.6	Ministry of Finance of the People's Republic of China National Development and Reform Commission	2	Purchase
6.	Notice on the Implementation Rules for the Promotion of the "Energy-Saving Products Benefiting People Project"	Energy-efficient flat-screen TV	Financial	2012.6	Ministry of Finance of the People's Republic of China Ministry of Industry and Information Technology of the People's Republic of	2	Purchase

	[2012] No. 259				China National Development and Reform Commission		
7.	Notice on the Implementation Rules for the Promotion of Energy-saving Products Huimin Project for the Promotion of High-efficiency and Energy-saving Household Refrigerators [2012] No. 276	Energy-efficient refrigerator	Financial	2012.6	Ministry of Finance of the People's Republic of China Ministry of Industry and Information Technology of the People's Republic of China National Development and Reform Commission	2	Purchase
8.	Notice on the Implementation Rules for the Promotion of Energy-saving Products Huimin Project for the Promotion of High-efficiency and Energy-saving Electric Washing Machines (2012) No. 277	Energy-efficient washing machine	Financial	2012.6	Ministry of Finance of the People's Republic of China Ministry of Industry and Information Technology of the People's Republic of China National Development and Reform Commission	2	Purchase
9.	Notice on the Implementation Rules for the Promotion and Implementation of Energy-saving Products Huimin Project for the Promotion of High-efficiency and Energy-saving Household Water Heaters [2012] No. 278	High-efficiency energy-saving water heater	Financial	2012.6	Ministry of Finance of the People's Republic of China Ministry of Industry and Information Technology of the People's Republic of China National Development and Reform Commission	2	Purchase
10.	Notice on the Implementation Rules for the Promotion of the "Energy-Saving Products for the People" Project [2012] No. 702	High-efficiency energy-saving desktop microcomputer	Financial	2012.10	Ministry of Finance of the People's Republic of China Ministry of Industry and Information Technology of the People's Republic of China National Development and Reform Commission	2	Purchase
11.	Notice on Implementation Rules for the Promotion of "Energy-Saving Products Benefiting People" Project	High efficiency motor	Financial	2010.6	Ministry of Finance of the People's Republic of China Ministry of Industry and Information Technology of the People's Republic of	2	Purchase

	(2010) No. 232				China National Development and Reform Commission		
12.	Notice on further promotion of demonstration and promotion of energy saving and new energy vehicles (2011) No. 149	Energy saving and new energy vehicles	Financial	2011	Ministry of Finance of the People's Republic of China Ministry Science and Technology of the People's Republic of China Ministry of Industry and Information Technology of the People's Republic of China National Development and Reform Commission	2	Purchase
13.	Announcement on continuing to promote the application of new energy vehicles (2013) No. 551	Energy saving and new energy vehicles	Financial	2013	Ministry of Finance of the People's Republic of China Ministry Science and Technology of the People's Republic of China Ministry of Industry and Information Technology of the People's Republic of China National Development and Reform Commission	2	Purchase
14.	Notice on the promotion and application of financial support policies for new energy vehicles from 2016 to 2020 (2015) No. 134	Energy saving and new energy vehicles	Financial	2016	Ministry of Finance of the People's Republic of China Ministry Science and Technology of the People's Republic of China Ministry of Industry and Information Technology of the People's Republic of China National Development and Reform Commission	3	Purchase
15.	Notice on the "13th Five-Year" New Energy Vehicle Charging Infrastructure Reward Policy and Strengthening the Promotion and Application of New Energy Vehicle (2016) No. 7	Charging infrastructure construction and operation	Financial	2016	Ministry of Finance of the People's Republic of China Ministry Science and Technology of the People's Republic of China Ministry of Industry and Information Technology of the People's Republic of China	3	Purchase

					National Development and Reform Commission National Energy Administration		
16.	Notice on adjusting the policy of promoting and applying financial subsidies for new energy vehicles (2016) No. 958	Energy saving and new energy vehicles	Financial	2016	Ministry of Finance of the People's Republic of China Ministry Science and Technology of the People's Republic of China Ministry of Industry and Information Technology of the People's Republic of China National Development and Reform Commission	3	Purchase
17.	Notice on adjusting and perfecting the policy of financial subsidies for the promotion and application of new energy vehicles (2018) No. 18	Energy saving and new energy vehicles	Financial	2018.2	Ministry of Finance of the People's Republic of China Ministry Science and Technology of the People's Republic of China Ministry of Industry and Information Technology of the People's Republic of China National Development and Reform Commission	3	Purchase
18.	Letter regarding the issuance of the trade-in program for the trade-in of household appliances (2010) No. 190	Trade in old appliances for new ones	Financial	2010.6	Ministry of Commerce of the People's Republic of China Ministry of Finance of the People's Republic of China Ministry of Ecology and Environment of the People's Republic of China	2	End use
19.	Notice on the issuance of the "Interim Measures for the Administration of Retirement and Renewal Subsidy Funds for Old Automobiles" [2002] No.742	End-of-life vehicle subsidies	Financial	2002	Ministry of Finance of the People's Republic of China Former State Economic and Trade Commission	3	End use
20.	Notice on the issuance of old car scrapping and updating subsidy fund management measures [2013] No.183	End-of-life vehicle subsidies	Financial	2013	Ministry of Finance of the People's Republic of China Ministry of Commerce of the People's Republic of China	3	End use

21.	mplementing Measures for Car Trade-in [2009] No. 333	Trade in an old car for a new one	Financial	2009.7	Ministry of Finance of the People's Republic of China Ministry of Commerce of the People's Republic of China Ministry of Industry and Information Technology of the People's Republic of China National Development and Reform Commission Etc.	2	End use
22.	Subsidy standards for waste electrical and electronic products disposal funds No. 91 of 2015	Electronic and Electrical Products Processing Fund	Financial	2016.1	Ministry of Finance of the People's Republic of China Former Environment of the People's Republic of China National Development and Reform Commission Ministry of Industry and Information Technology of the People's Republic of China	3	End use
23.	Notice on adjusting and optimizing the implementation mechanism of government procurement of energy-saving products and environmental labeling products [2019] No. 9	Government procurement of environmental labeling products and energy-saving products	Financial	2019.4	Ministry of Finance of the People's Republic of China National Development and Reform Commission Environment of the People's Republic of China State Administration for Market Regulation	4	Purchase
24.	Opinions on the implementation of government procurement of environmental labeling products [2006] No. 90	Priority procurement of environmental label products	Financial	2007.1	Ministry of Finance of the People's Republic of China Former Environment of the People's Republic of China	4	Purchase
25.	Opinions on the implementation of government procurement of energy-saving products [2004] No. 185	Priority procurement of energy-saving products	Financial	2005	Ministry of Finance of the People's Republic of China National Development and Reform Commission	4	Purchase

26.	Notice on Doing a Good Job in Declaring Loan Discounted Funds for Product Quality Upgrade [2016] No. 56	Discount subsidies for oil upgrades	Investment	2015	Ministry of Finance of the People's Republic of China National Energy Administration	3	Produce
27.	Opinions on further encouraging and guiding private capital to enter the urban water supply, gas, heating, sewage and garbage treatment industries [2016] No. 208	Private capital	Investment	2016.9	Ministry of Housing and Urban-Rural Development of the People's Republic of China	2	Purchase, End use
28.	Guidance on building a green financial system [2016] No.228	Green finance	Financial	2016.8	Ministry of Finance of the People's Republic of China National Development and Reform Commission Former Environment of the People's Republic of China Etc.	1	Produce
29.	Notice on allowing car trade-in subsidies and vehicle purchase tax reduction policy to enjoy at the same time [2010] No. 1	Trade in old cars for new ones	Tax	2010.1	Ministry of Finance of the People's Republic of China Ministry of Commerce of the People's Republic of China	3	End use
30.	Notice on Energy Saving and Use of New Energy Vehicles and Vehicles Tax Policy [2012] No. 19	Car and boat tax concessions	Tax	2012	Ministry of Finance of the People's Republic of China State Taxation Administration Ministry of Industry and Information Technology of the People's Republic of China	3	Use
31.	Notice on preferential policies for energy-saving use of new energy vehicles, vehicles and ships tax [2015] No. 51	Car and boat tax concessions	Tax	2015.5	Ministry of Finance of the People's Republic of China State Taxation Administration Ministry of Industry and Information Technology of the People's Republic of China	3	Use
32.	Notice regarding the issuance of 2015 vehicle purchase tax revenue subsidy local funds for	Purchase tax targeted subsidies	Tax	2015	Ministry of Finance of the People's Republic of China Ministry of Transport of the People's	3	Use; End use

	transportation energy saving and emission reduction, road drop-and-hook transport pilot, and old car scrapping and updating project application guidelines [2015] No. 13				Republic of China Ministry of Commerce of the People's Republic of China		
33.	Notice on the reduction of consumption tax on low-pollution cars [2000] No. 26	Consumption tax incentives	Tax	2000.1	Ministry of Finance of the People's Republic of China State Taxation Administration	3	Purchase
34.	Notice on reduction of consumption tax on low-pollution cars [2003] No. 266	Consumption tax incentives	Tax	2004.1	Ministry of Finance of the People's Republic of China State Taxation Administration	3	Purchase
35.	Notice regarding the issuance of the "Administrative Measures on the Collection and Use of Waste Electrical and Electronic Product Disposal Funds" [2012] No. 34	Electronic and Electrical Products Processing Fund	Tax	2012.7	Ministry of Finance of the People's Republic of China Former Environment of the People's Republic of China National Development and Reform Commission Ministry of Industry and Information Technology of the People's Republic of China General Administration of Customs,P.R.China State Taxation Administration	3	End use
36.	Notice on Guiding Opinions on Trial Implementation of Stepped Electricity Prices for Resident Electricity Development and Reform Price [2011] No. 2617	Residential electricity	Price	2011	National Development and Reform Commission	3	Use
37.	Notice on further advancing the reform of urban water supply prices Calculated price [2002] No. 515	Residential water ladder water price	Price	2002	National Planning Commission of the People's Republic of China Ministry of Finance of the People's Republic of China Ministry of Housing and Urban-Rural	3	Use

					Development of the People's Republic of China Etc.		
38.	Guiding Opinions on Accelerating the Establishment and Perfection of Urban Residents 'Water Use Ladder Price System Development and Reform Price [2013] No. 2676	Residential water ladder water price	Price	2013	National Development and Reform Commission Ministry of Housing and Urban-Rural Development of the People's Republic of China	3	Use
39.	Notice on Opinions on Oil Quality Upgrade Price Policy Development and Reform Price [2013] No. 1845	Discount subsidies for oil upgrades	Price	2013	National Development and Reform Commission	3	Produce
40.	Opinions of the National Development and Reform Commission on Innovating and Improving the Price Mechanism for Promoting Green Development Development and Reform Price Regulation [2018] No. 943	Green development price	Price	2018.6	National Development and Reform Commission	3	Purchase

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