CHAPTER 8

Consumption and Green Transformation and Development

1 Connotation, Characteristics and Classification of Green Consumption

1.1 Connotation of Green Consumption

In 1987, British scholars John Elkington and Julia Hailes published the book *Green Consumer Guide*, which first proposed the concept of green consumption. In this book, "green consumption" is defined as avoiding the consumption of the following products: (1) products that endanger the health of consumers and others; (2) products that obviously harm the environment in the process of production, use or abandonment; (3) products with excessive packaging, redundant features or products caused by unnecessary waste due to the short life of the product or other reasons; (4) products made from materials obtained from endangered species or environmental resources; (5) products that include the abuse of animals and unnecessary indiscriminate hunting; (6) products that adversely affect other countries, particularly developing countries. In addition, other scholars have also defined green consumption. For example, Chen Qijie defined green consumption as a rational consumption by consumers considering the protection of their own health and individual interests on the premise of paying attention to protecting the ecological environment, reducing resource waste, preventing pollution and assuming social responsibilities. According to Yin Shijie, green

S. Gu et al., *Green Transformation and Development*,
The Great Transformation of China,
https://doi.org/10.1007/978-981-32-9495-0_8

consumption refers to the consumption of material consumer goods (including food, clothing, housing, use, transportation, etc.) in a certain ecological environment, which requires non-pollution, pollution-free, high-quality and healthy "green consumer goods". Si Linsheng believes that green consumption contains four meanings, namely economic consumption (the consumption of consumers is the least consumption of energy and resources), clean consumption (with minimal pollution and waste), safe consumption (with results that do not harm the health of consumers or others) and sustainable consumption (with results that do not threaten the needs of future generations); Kaisa and Minna believe that green consumption means to minimize the purchase frequency and choose durable, high-quality and recyclable products with ecological labels. Johanna believes that green consumption is a specific type of consumption behavior with social awareness and social responsibility. The China consumers' association defines green consumption as a way of consumption that not only meets the consumption needs of contemporary people and their safety and health, but also meets the consumption needs of future generations and their safety and health. The United Nations Environment Programme (UNEP) defines green consumption as a consumption of "In the whole life cycle of a product or service, it is necessary to minimize the use of toxic materials and natural resources and minimize the generation of wastes and pollutants, so as to meet people's demand for products and services and bring about a high-quality life without causing harm to the needs of future generations".

Any kind of consumption behavior contains several elements such as consumer, consumption object, consumption process and consumption result. Compared with traditional consumption behaviors, green consumers have a stronger sense of social responsibility and consider the impact of the products they consume on resources, environment, themselves and others; The object of consumption is characterized by less consumption of resources and materials, less emission of harmful substances, favorable to recycling and regeneration, health care and environmental protection. In the process of consumption, it will do not cause adverse effects to consumers and others and the surrounding environment. In the consumption result, it is beneficial to health and environmental protection, and produces less waste, which is easy to deal with and recycle. On the other hand, the realization of green consumption depends on the green design and green production of products or services, so green consumption is defined as follows: Based on a high sense

of responsibility for the environment and society, consumers choose products or services with low material consumption, low environmental impact, and beneficial to their health, resources and environmental protection. In addition, in the process of consumption and waste disposal after consumption, consumers choose rational and fair consumption behaviors that do not adversely affect the environment, resources, themselves and the health of others.

1.2 Characteristics of Green Consumption

Green consumption originated from the environmental protection movement in the 1960s. As a response of the consumption field to the action of resource environmental protection, it has its own obvious characteristics compared with the traditional consumption mode (see Table 1).

First, consumers have a high sense of social responsibility. Considering the impact of personal consumption on the environment and others, individual consumption behavior becomes an effective way to fulfill social public responsibility and achieve sustainable development. Consumers' power of consumption choice was once regarded by some Western scholars as "a power more independent and freer than national sovereignty". But under the social responsibility consciousness, consumer spending

Table 1 Comparison of green consumption and traditional consumption

	Green consumption	*Traditional consumption*
Consumer awareness of social responsibility	High	Low
Resource consumption of products or services	Small	Much
Waste generation and emissions	Little	Much
Product quality and durability	High quality, durable	Poor durability, easy to damage
Purchase frequency	Low	High
For your health	Conducive to health	Bad for health
Environmental impact	Environment friendly	Harmful to the environment
Impact on the society	Promote fairness	Unfair
Impact on sustainable development	Support sustainable development	Harm sustainable development

power is restrained, consumers not only need to take into account the consumption of the utility itself, also need to consider to the external effect of personal consumption may be produced, and accept the relevant state laws and social public moral constraint, consumption is no longer merely a completely free and unfettered individual behavior choice, but an effective practice green development and completion of the civic duty of public goals.

Second, the product (or service) consumes less resources, with less waste generation and emissions and is durable and of high quality. Green consumption starts from the green design of products (or services) and relies on the green design of products (or services). These products have the characteristics of less resource consumption, less waste discharge, environmental friendliness and no harm to the health of consumers themselves and others in the society. Moreover, these products are of high quality and durable, which can effectively reduce the purchase frequency.

Third, consumption results are beneficial to the health of consumers themselves and can effectively overcome negative environmental externalities, promote social equity and support sustainable development. Green consumption must first satisfy consumers' pursuit of their own health and refuse to accept products or services that are harmful to their health. Green consumption must also be conducive to environmental protection and social equity, and overcome the heavy ecological and environmental burden of traditional consumption patterns. Meeting the needs of others and the next generation for their own health is an important goal of green consumption and the ultimate embodiment of the difference from the traditional consumption mode.

1.3 Classification of Green Consumption

According to the main categories of consumption, green consumption can be divided into government green consumption, institutional green consumption and private green consumption. Government green consumption generally refers to green government procurement, institutional green consumption refers to the green consumption of enterprises, institutions and social organizations, such as enterprises' green procurement, while private green consumption refers to the green consumption of individuals and families.

According to the purposes of consumption, green consumption can be divided into living green consumption and productive green consumption. Active green consumption mainly refers to the green consumption to meet the needs of daily life, while productive green consumption mainly refers to the consumer goods or services purchased for reproduction, such as various raw materials and services used by enterprises in the production process.

2 The Role and Action Mechanism of Green Consumption

2.1 The Role of Green Consumption

First, reduce the depletion of natural resources. The apparent characteristic of green consumption is abstemious, rational consumption. It requires the reduction of unnecessary consumption and the abandonment of luxury consumption, advocates the purchase of high-quality and durable goods so as to reduce the production times of goods, and requires that the discarded goods after use can also be recycled and recycled. Therefore, it helps to reduce the production of commodities, thus reducing the depletion of natural resources.

Second, reduce the emission of harmful substances. Green consumption advocates a kind of healthy and harmless consumption, which requires that the goods or services consumed are harmless to human health and ecological environment no matter in the manufacturing process, consumption and enjoyment process or in the waste disposal process after consumption. Therefore, it encourages producers to use green raw materials or provide services that do not harm health and ecological environment, which is conducive to reducing the emission of harmful substances.

Third, guide the transformation of the production sector. Nowadays, the consumption demand determines the production supply. The green consumption demand of consumers will stimulate the producers to increase the supply of green products, so as to guide the production of green goods and the formation of green industry. In particular, some consumers with social influence, such as government agencies, large enterprises and celebrities, have more demonstration effect and guiding effect on their green consumption, which can lead the whole society

to conduct green consumption. Once consumers have the awareness of green consumption and the demand for green goods, it will promote the arrival of the green market in all directions-producers not only actively research and provide green goods, but also strengthen the awareness of "green" in the marketing process, such as green packaging, green logistics and green publicity. In short, consumers' green consumption will lead to green production and stimulate the formation of green market.

Fourth, strengthen the formation of green production. The green consumption demand of consumers naturally stimulates the green production in the production field. However, today's enterprise production is a social division of labor, and few enterprises complete the whole process in their own production workshops. This requires enterprises to conduct green product research and development and green product design, and put forward requirements on various suppliers in the upstream and downstream industrial chain, so that they can produce green products and provide green raw materials. Enterprises that do not meet the requirements of green production will be excluded from the industrial chain. In particular, some core enterprises in the industrial chain, its green production requirements will guide other enterprises in the industrial chain to follow the transformation, which plays a role in urging, promoting and self-organization, and is conducive to the arrival of the era of green production.

Fifth, accelerate the formation of a green society. Green consumption plays a very important role in green development. It not only directly reduces the consumption of natural resources and the emission of harmful substances, but also guides the green production in the production field. Moreover, due to the role of social division of labor, it will accelerate and strengthen the self-organization mode of green production, which is conducive to the whole green transition from production to consumption, and accelerate the formation of a green society.

2.2 The Mechanism of Green Consumption

Analysis of the Main Role of Green Consumption

Green consumption involves consumers, producers, regulators and intermediaries. Consumers include individuals, families, enterprises and governments, producers are mainly enterprises, regulators are mainly governments and intermediaries are mainly social media organizations.

These main bodies work together to promote the formation of green consumption and the arrival of green production. Among them, the role of the government is complicated: On the one hand, the government itself is a consumer, and a very influential consumer. On the other hand, the government is also the manager of green production, playing the role of guidance, management and supervision. It has the obligation to guide enterprises' green production through fiscal, taxation and financial policies, and strengthen the management of green products and services through environmental labeling. At the same time, it also supervises green production through legal, administrative, scientific and technological means. Individual and family are the main bodies of green consumption, and its green consumption will affect the green production of producer directly. As a provider of goods and services, green production is not only a prerequisite for the provision of green goods, but also an effective means to improve competitiveness. In green production, it requires industrial chain suppliers to provide green raw materials and services, so as to help them reduce environmental management costs and ensure the completion of green production. In this process, it plays a very broad role in communication, organization and supervision. It urges relevant enterprises in the industrial chain to join the green production organization, thus strengthening the green production of the whole society. Social media organizations mainly play the role of communication and supervision. On the one hand, they provide timely information on the demand for green goods or services in the society, and at the same time help enterprises release information on the supply of green products and services. On the other hand, social media organizations also timely expose the green production status and product quality of enterprises, and supervise enterprises to carry out green production.

The Mechanism of Green Consumption

The role of green consumption is most obvious and concentrated in the leading enterprises in the industry. The following is an example of a core enterprise in an industrial chain to illustrate the specific mechanism of green consumption. As shown in Fig. 1, in the process of green development, enterprises are faced with the "five forces" environment, namely:

In terms of impetus, the green demand of the market constitutes a powerful driving force for the green development of enterprises. As a major supplier of products or services, green consumption by the

government, families and individuals, especially the large green purchase demand of the government, has formed its huge green production power, which urges it to accelerate the research and development of green products and green design, so as to continuously gain advantages in the market competition.

In terms of pressure, the government's environmental regulation and daily administrative supervision as well as the supervision and report of

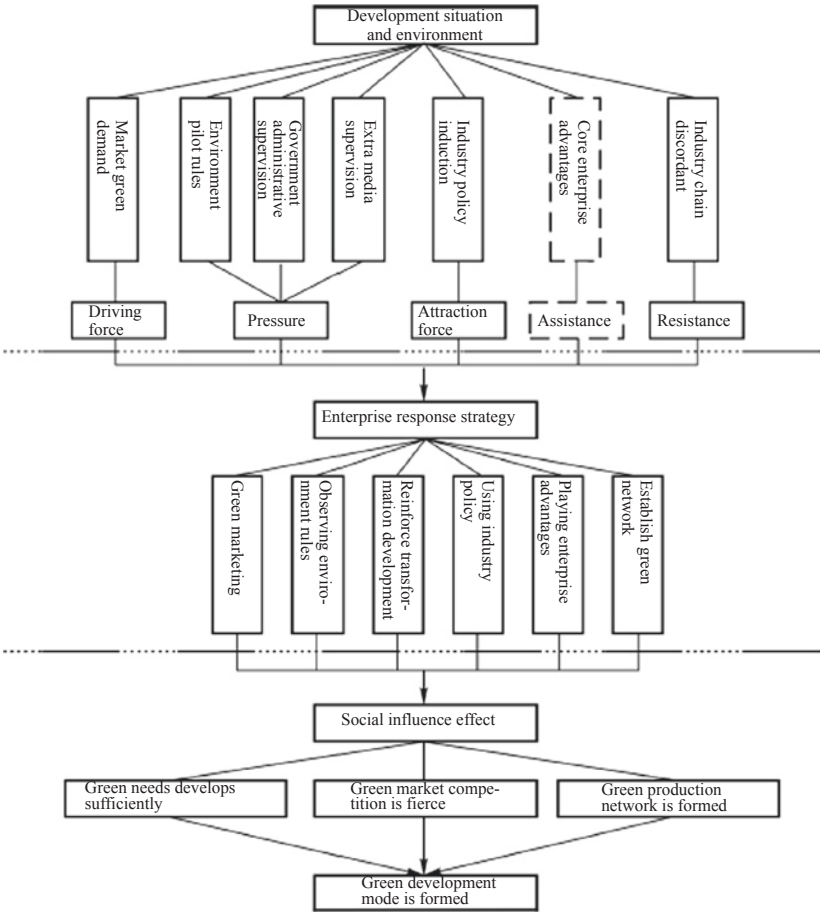

Fig. 1 Action mechanism of green consumption

social media will put pressure on the green production of enterprises. Since the government needs to comply with the demand of green consumption and guide the transformation of green production, it needs to regulate green consumption and green production in advance through laws and other means, and make clear which behaviors are not allowed in green development. For example, the government has set green production energy consumption standards for enterprises, and enterprises that do not meet the standards will be eliminated. At the same time, in addition to the advance regulation of the law, the government will also strengthen the regular supervision of enterprises' daily behavior. In addition, social media will also strengthen the reporting of enterprises' green behaviors, which virtually constitutes a kind of social supervision.

In terms of attraction, the green industrial policy guidance from the government to promote enterprises' green production transformation constitutes the attraction of enterprises' green production. Generally, in order to promote the transformation of green production, the government will guide and stimulate enterprises through fiscal, financial, tax and land supply. For example, land supply will be given priority to enterprises that meet energy consumption and pollution discharge standards, with tax and loan preferences will be given. In this way, enterprises will be constantly stimulated to carry out green production, otherwise they will face the restriction of industrial policy.

In terms of assistance, core enterprises in the industry are generally more likely to receive additional help from the government. For example, when the government intends to guide the transformation of green production, it will pay special attention to the progress of green key and core technologies of relevant enterprises in the industry, and as the leading benchmarking enterprise in the industry, it may obtain assistance from the government in technology research and development. At the same time, the government may also take the relevant technical standards of the enterprise as the green technology standards in the industry, so as to enhance the position of the enterprise in the industry and give the enterprise a technological edge in the competition.

In terms of resistance, the biggest resistance to the green development of enterprises is the unmatching and uncoordinated supply chain between industries. Although the key green technology innovation of the enterprise itself can gain a leading edge in the competition, the modern mode of large-scale production division of labor and the fierce

requirements of enterprise competition efficiency do not allow the enterprise to complete all the details by itself; in fact, it is impossible to do this. Therefore, enterprises are required to conduct close collaboration between the industrial chains and stay invincible by giving play to their core competitive advantages. The uncoordinated and asynchronous development of the industrial supply chain is undoubtedly the biggest obstacle to the green development of core enterprises. In order to promote green development smoothly, core enterprises need to rely on industry influence to establish green supply chain in line with their own development.

In response, enterprises need to make rational choices according to the requirements of development environment and situation, make rational use of various forces in development and actively promote their own green transformation and development. For example, as a core enterprise in the industry, in order to meet the huge social green consumption demand for green transformation and development, it needs to strengthen communication and cooperation with social media, actively collect market green demand information and accelerate product research and development. Consciously, abide by the relevant environmental regulations of the government and make full use of various favorable industrial policies to accelerate the transformation of green development. In order to overcome the resistance of green production effectively, a green supply chain that meets the demand of green production should be established while strengthening its own core technology progress. It will continue to cooperate with suppliers that meet their green production requirements, exclude enterprises that do not meet their green production standards and gradually build a green supply network conducive to their own development. More and more enterprises are brought into the green supply chain. Through this self-strengthening green production self-organization mode, a strong and perfect green production network is built. The main obstacle of green consumption has been broken down, and with the increase of the supply of green products or services in the market, the competition becomes more and more fierce, and consumers become more and more picky and mature, and a new round of green market competition has begun. Finally, a green development model guided by green consumption is gradually taking shape.

The list above is the best in the industry. It's the same for the general enterprise, but a little weaker in terms of assistance. In a word, enterprises in green consumption, on the one hand, are strongly stimulated by

green market demand; on the other hand, it faces the triple constraints of legal regulation, economic inducement and administrative supervision. The rational choice of enterprises is to follow the trend and to transform to green development, besides their own active efforts, seeking the support of partners in the industrial chain has become a prerequisite. Due to the mutual cooperation and supervision among enterprises, a comprehensive green production society has been gradually formed. In turn, comprehensive green production also stimulates green competition in the market, and thus continuously promotes the progress of green technology and the formation of a comprehensive green society.

3 Foreign Experience in Green Consumption Development

3.1 Government Experience

Green consumption, in the long run, is mainly led by consumers themselves, but as a kind of transformation, the role of the government is indispensable, playing a role of rapid promotion. From the experience of foreign countries, the government mainly adopts legislative regulation, economic inducement, administrative supervision and other means in the consumption transformation, and attaches importance to the development of environmental education, so as to cultivate consumers' awareness of green consumption and fundamentally reverse the consumption concept. Since the government itself is also a consumer and can be a big to the extent of "big customer bullying shop" consumers, and has the function of public image, therefore, governments of all countries attach great importance to the role of developing green government procurement in promoting green consumption, so as to give full play to its role in stimulating domestic demand and social demonstration. The following is a list of typical green consumption experience in the United States, Germany, Japan and other countries.

United States

Legal Regulation

Although the United States does not have a national green consumption promotion regulation, its promotion of green consumption is reflected and regulated in different laws, and the laws and regulations enacted by

the federal government and various state governments also reflect the promotion of green consumption. For example, the *Pollution Prevention Act*, the *Resource Conservation and Recovery Act* (formerly known as the *Solid Waste Disposal Act* until 1976, when it was renamed) and other laws embody the requirements of the US government to develop a circular economy and advocate green consumption. Since the mid-1980s, Oregon, New Jersey, California, Wisconsin and other states have enacted laws and regulations to promote the recycling of resources. According to statistics, more than half of the states in the United States have enacted laws and regulations on resource recycling. The *Comprehensive Waste Management Act of California*, passed in 1989, requires glass containers to use 15–65% recycled materials and plastic garbage bags to use 30% recycled materials. Wisconsin requires plastic containers to be made from 10 to 25% recycled material. Although these laws are scattered, they outline the key areas of resource conservation and emission reduction, which is conducive to green consumption and effective conservation and emission reduction in key areas. Moreover, the decentralized legislation of local states, though not unified, has strong regional adaptability and is conducive to implementation.

The regulation of green consumption in American law emphasizes the responsibilities and obligations of each subject, and the relevant legal provisions clearly stipulate the responsibilities and obligations of each subject on environmental issues. For example, for the government, relevant laws stipulate that the government has the responsibility and obligation to manage the environment. The *National Environmental Policy Act* (NEPA) passed by the United States in 1969 is the representative of environmental legislation in the United States to clarify and strengthen the government's environmental responsibility. The act stipulates that "the federal government has the responsibility to coordinate and improve the programs, plans, resources and functions of the United States federal government in all ways that are coordinated and feasible with national policies". The act also stipulates methods to solve national environmental problems and promote green consumption. In addition to state control, effective federal scientific intervention and control is required. In this way, the government has legally confirmed its responsibility and obligation to manage ecological and environmental issues and promote green consumption, thus establishing its unique authority and obligatory obligation to manage national environmental issues. For manufacturers, the law also stipulates their responsibilities and obligations

in green consumption. For example, the *National Energy Policy and Energy Reserve Act* promulgated by the United States in 1975 stipulates that some home appliance manufacturers must indicate the energy efficiency of the product and the energy consumption within one year on the product label, so that consumers can understand the environmental hazards in consumption. For consumers, relevant laws, such as the *Law on Resource Protection and Recycling*, also stipulate the environmental responsibility of consumers. When purchasing, consumers will generally look at the internal components and environmental impact marked on the package first. Goods with great harm to the environment will be excluded from the selection scope under the action of consumers' awareness of environmental responsibility. In this way, the environmental responsibilities of the government, manufacturers and consumers are clear and unified, which is conducive to the overall implementation of green consumption.

American laws on green consumption regulation are very clear, specific, rigorous, informative, with good feasibility and operability. Taking the *Resource Protection and Recovery Act* of the United States as an example, the act contains 8 chapters and 64 articles, which make detailed and specific provisions on solid waste from generation to disposal, who to dispose and how to dispose. The main contents can be summarized as the following 7 aspects: (1) determine the form of the existence of waste, caused by the waste of resources and the impact on the environment and citizen health and stipulate that state, regional and local authorities shall perform their duties in the effective collection and proper disposal of wastes. The federal government must take further steps to reduce the amount of waste and ensure environmentally safe disposal of unrecyclable waste; (2) the legislative purpose of this law is to protect the environment, safety and human health, and protect valuable energy and materials. The act provides for a number of specific measures: Provide a higher level of solid waste collection, classification and recycling methods and processing technology, provide financial assistance and technical support, provide financial support for vocational training in solid waste disposal and establish close partnerships between federal, state and local governments and businesses to better recycle valuable materials; (3) define the relevant terms; Article 1004 defines "hazardous materials", "resource protection", "recycling resources", "resource recovery system", etc. For example, "resource conservation" means to reduce the amount of solid waste, reduce the waste of various resources and make better use

of recycling resources; (4) determine the organization, management and implementation of the law and their respective functions and powers, and set up a special departmental coordinating committee for resource conservation and recycling to manage and coordinate the various departments dealing with solid waste in accordance with the act; (5) stipulate the hazardous waste management system, including the identification standards and procedures for hazardous waste, the different standards applicable to producers and sellers, and the permit system applicable to owners and operators; (6) the determination of these management systems must follow legal procedures; state and regional regulations on solid waste programs; (7) set out the responsibilities of the department of commerce in resource recovery, such as setting accurate specifications for recycled materials, providing incentives for market development of recycled materials and providing BBS for recycling communication. In addition, the act clearly stipulates that the EPA should provide, assist and encourage the public to participate in the formulation, modification and implementation of laws and regulations, especially in the approval process of permits for the disposal and storage of waste business, so that the public can know the types and disposal methods of waste.

Economic Induction

The economic inducement of green consumption in the United States can be divided into two types: one is a direct economic inducement, with government incentives or subsidies. For example, in order to encourage farmers to produce green agricultural products, the US government gives various direct or indirect subsidies to agricultural production and trade. The other is indirect economic inducement, mainly for emission permit trading and green tax system design. Although the former is simple, convenient and easy to operate, it is difficult to distinguish the efforts of each subject in reducing consumption and emission, and it is also difficult to adapt to the specific technical requirements for reducing consumption and emission of different types of resources. Therefore, the emission permit trading system and green tax system are mainly adopted. In trading permits, polluters are incentivized to reduce emissions by converting their capacity to economic gain. In the green tax system, the range of tax objects and the design of tax rate play a role in guiding consumers' green consumption. The following examples are fuel tax, tax on gas-guzzling vehicles and mining tax to illustrate how green tax system induces green consumption.

In the fuel tax, because gasoline is a non-renewable resource, and the use of gasoline will cause carbon dioxide emissions and air pollution, so the tax on gasoline started very early, and is the top priority of the fuel tax. For example, as early as 1919, the Origen State Government was the first in the United States to impose the tax on automobile fuel. By 1929, all states in the United States completed the establishment of the tax system and put it into practice. In addition to the states, the Federal Government also imposes a uniform federal fuel tax. Federal gasoline is taxed at 18.4 cents per gallon, and aviation fuel and other energy products used for transportation are taxed at 19.4 cents per gallon. To encourage the use of clean fuels, users of clean fuels will receive tax incentives. For example, when a car owner USES liquefied petroleum gas (LPG), natural gas, hydrogen, electricity, or ethanol fuel with an alcohol content of more than 85% as the energy source of the car, he is allowed to deduct the fuel cost from the total income before calculating the tax payable. Owners who use an alcohol-gasoline blend will get a 5.4-cent-per-gallon exemption from the gasoline tax. Tax incentives for consumers who use clean fuels or alcohol-gasoline blends can encourage consumers to use clean energy and protect the environment. In addition to gasoline, the United States imposes a excise tax on some other fuels. General kerosene and other energy products for transportation are taxed at 24.4 cents per gallon, kerosene and other energy products for transportation for trains are taxed at 4.4 cents per gallon, and kerosene and other energy products for certain motor vehicles are taxed at 7.4 cents per gallon.

In the tax on gas-guzzling cars, energy consumption standards and tax design also guide consumers' choice of environment-friendly models. For example, the Federal Government has set fuel efficiency standards for cars, requiring them to travel no less than 12.5 miles per gallon. If they fail to meet that standard, owners will have to pay a $7500 gas-guzzling tax, which will help eliminate the gas-guzzling models and encourage consumers to choose the environmentally friendly ones.

In excise duties on ozone-damaging chemicals, a tax is imposed on chlorofluorocarbons (CFCs) to reduce the consumption of such products. The United States Federal Government began taxing ozone-damaging chlorofluorocarbons (CFCs) in January 1991, based on the amount of chlorofluorocarbons produced and imported. In terms of tax rates, the CFCS rate is set as the base rate, while other ozone-damaging chemicals are taxed as the product of their ozone-depleting potential and the base rate. Through this tax system, the United States reduced the

consumption of CFCS products, effectively slowing the rate of destruction of the ozone layer.

In a mining tax, fossil fuel resources such as coal, oil and natural gas are taxed to keep the air clean. By imposing a mining tax, the United States has reduced carbon dioxide by 99% from the 1970s, carbon monoxide by 97% and particulate matter by 70% as car use has increased.

In the case of disposable razors and used tires, the United States levies a tax on the production and import of disposable razors and used tires. By levying taxes, the price of these two types of products will be raised, the purchase cost of consumers will be increased, and consumers will be restrained from purchasing these two types of products, so as to realize the effect of saving resources and energy.

Consumption Demonstration

The US government, fully aware of their own consumer identity by implementing green government procurement, set an example guiding green consumption. For example, since the early 1990s, the United States has successively formulated and implemented a series of green procurement plans, such as the recycling product procurement plan, the "energy star" plan, the eco-farm product act and the environment-friendly product procurement plan. Chapter 23 of the *US Government Procurement Act* specifically provides for this. The chapter, titled "environmental, natural protection, labor safety and non-toxic workplaces", focuses on green procurement regulations. Paragraph 904 clearly states that "procurement of goods and services that have the least impact on people's health and the environment is a government procurement policy". Nearly all US states have preferential purchase policies for products made from recycled materials.

In addition, the US government has actively created conditions to promote the trade of used goods and the full use of resources. For example, the US government, realizing the diversification and convenience of consumption in the context of informatization, has set up a special website to provide consumers with a convenient trading platform for second-hand goods.

Educational Guidance

Environmental education legislation promotes green consumption and green production in the United States. The United States is the first country in the world to enact *Environmental Education Legislation*.

As early as 1970, the environmental education law was enacted and implemented in 1990 after many amendments. The law has reiterated the country environment education's responsibility and obligation to the public; it has confirmed the urgent need of the state to educate and cultivate high-quality citizens with knowledge and skills of environmental protection, a sense of responsibility for environmental protection and the ability to make correct environmental decisions; it has comprehensively standardized the organization team construction, project management, funds input, awards and other affairs of environmental education in the United States. The promulgation of this law has played an important role in improving the environmental ethics of the American public and promoting the coordinated development of economy and society. Especially in the aspect of green consumption, the multi-level, nationwide and open environmental education has cultivated the green consumption consciousness of American consumers. According to a 1994 Rodale Press survey, one in three Americans has changed their eating habits in the past few years. About 72% of Americans are willing to buy organically grown vegetables and fruits, 77% of Americans say a company's environmental credibility affects its purchasing decisions and 89% of Americans consider environmental standards for consumer products when they are on shopping. At present, almost all consumers in the United States when shopping for agricultural products in supermarkets will consider whether the product is "organic" and whether it is good for the environment and health. The increase of green consumption demand in the market stimulates more enterprises to produce green products, resulting in the market situation of flourishing supply and demand. In 1990, more than 6000 new green products were launched in the US, accounting for 10% of the total number of new products launched in the whole year, while the proportion in the world market was only 1% in the same period. Since the 1990s, organic food sales in the United States have grown at an average annual rate of 20%, reaching $7.7 billion in 2000, making it the world's largest organic food market. Currently, the United States exports a wide range of organic produce to the world.

The development mode of extensive social participation makes environmental education continuously develop and strengthen and virtuous circle. Different from the government-led system in other countries, in the environmental education system of the United States, the government does not directly interfere in environmental education with administrative power, but participates in it as a service provider and supervisor.

Non-profit organizations are the main force, and enterprises also actively participate in it. It is just this kind of development mode that makes environmental education develop continuously. Taking American farms as an example, community and NGO organizations are widely involved in environmental education for farmers, and the results of environmental education stimulate farmers themselves to participate in education: On the one hand, environmental education is directly beneficial to the production and sale of organic agricultural products. On the other hand, the demand of environmental education for practice sites also provides various sources of non-agricultural income for farmers, which greatly arouses the enthusiasm of farmers to participate in environmental education, and some of them provide financial help for environmental education.

The design of the tax exemption system has mobilized more social organizations to participate in environmental education. Non-profit organizations are the main force of environmental education in the United States, and the tax exemption in the United States tax law has undoubtedly aroused the enthusiasm of more social organizations to participate in environmental education. For example, paragraph 501 of Chapter 26 of the *Us Tax Code* is effectively a tax exemption provision, which outlines 25 types of non-profit organizations that qualify for tax exemption. Almost all nonprofits are exempt from state and local property and business taxes. At the same time, for a company that donates to a non-profit organization, if the donation does not exceed 3% of its total income, the donated income will be exempted from all taxes, while individual donations will also be exempted from income tax; In addition, US states have set up some preferential taxes for non-profit organizations. California's tax code, for example, exempts non-profits from the GST. The existence of non-profit organizations needs to be guaranteed by certain sources of funds, and the tax-free donation of enterprises and individuals to environmental education non-profit organizations encourages more social members and related organizations to provide survival conditions for environmental education non-profit organizations. In turn, it promotes the development of environmental education, which is also one of the successful experiences of the development of environmental education in the United States.

Germany

Germany is the first country in the world to propose the development of circular economy. As early as the 1870s, Germany began to explore how to develop circular economy and how to promote green consumption.

Its development thought has experienced the transformation from the end of environmental protection to the fundamental control from the source control and from only aiming at the production link to the integrated management of production and consumption. Therefore, green consumption plays a very important role in the idea of circular economy. Germany has established a complete legal system and an effective regulatory system to manage and promote it.

Legislative Regulation

The complete legislation of green consumption in Germany is not only reflected in the systematicness of laws, but also in the task differentiation of different consumption subjects. In addition to the restrictive nature of relevant laws, it also has the characteristics of both guidance and feasibility.

Germany's green consumption legal system is very complete, mainly reflected in the laws and regulations to promote the circular economy. Up to now, Germany has developed a set of well-structured legal system concerning circular economy and green consumption. It has enacted and promulgated laws, regulations and guidelines for the development of circular economy in different aspects such as Waste *Disposal Act, Packaging Waste Disposal Act, Circular Economy and Waste Disposal Act, Federal Soil* and *Water Conservation and Old Waste Act*, *Sustainable Eco-Tax Reform Act, Renewable Energy Act, Disposal of Motor Vehicles Ordinance, Technical Guidelines for Waste Management*. In addition, the EU Directive on recycling of waste oil, agricultural sewage, titanium oxide, batteries and batteries, packaging materials, sewage sludge and other materials also plays a guiding and constraining role in Germany's green consumption.

Like the United States, the legal system of green consumption in Germany also stipulates the environmental responsibility, basic rights and obligations of relevant subjects. For example, the *Circular Economy and Waste Disposal Law* promulgated and implemented in 1996 stipulates the relevant responsibilities and basic obligations of the state, the state government and the people responsible for waste. Legal provisions: (1) the German federal government is responsible for formulating the core principles, rules and regulations, as well as the implementation of the eu regulations, in accordance with the legislative process by the parliament to discuss and enact the implementation. For example, the basic waste classification standard in this law, the material recycling treatment

method, the rights and obligations of the responsible person and the relevant penalty rules for violations. (2) The state governments shall be responsible for designating the competent authorities of their respective states to implement the law and shall be responsible for compiling the development plans of the recycling economy of their respective states, examining and approving the qualification certification of waste recovery and disposal, examining and verifying the professionals and management of the practitioners, and establishing the information base. (3) This paper makes a clear distinction and special provisions for the people responsible for waste management, mainly including producer responsibility, waste owner responsibility and reporting responsibility of the people responsible. Another example is the implementation of the environmental protection labeling system since 1979, which stipulates that government agencies shall give priority to the procurement of environmental protection labeling products and stipulates that the principles of green procurement include prohibition of waste, product durability, recyclability, maintainability and easy disposal.

Germany attaches equal importance to the guidance and feasibility of green consumption legislation, which is fully reflected in its *Circular Economy and Waste Disposal Law.* Its main contents are as follows: (1) It is clear that the legislative purpose of this law is to protect the natural environment, promote the development of circular economy, and ensure that waste is disposed in a way that is conducive to environmental protection. (2) It has stipulated the basic responsibilities and rights and obligations of waste producers and clarifies the principles of circular economy development. The first is to avoid waste generation, especially to reduce the amount of waste and its harm. Secondly, for the reuse of energy and materials, and the implementation and development of circular economy, it puts forward specific requirements and norms, established the basic principles of waste disposal; (3) It has made provisions on product liability, making it clear that manufacturers should follow the "3R" principle to produce and recycle products, and should try their best to avoid producing wastes in the production process to ensure proper disposal of wastes. (4) For the preparation of a circular economy plan, it has stipulated the responsibilities for waste management planning and the preparation of a circular economy, and pointed out that the operation of waste management facilities must be approved and subject to inspection by the relevant competent authorities. (5) It has clarified some incentive policies, emphasizes the guiding role of the government, and required government agencies to follow the

principles of circular economy in their daily work to promote the development of circular economy market. (6) For regulations on promoting the information dissemination of circular economy, including the regulations on the information disclosure of relevant government units, it requires the explanation and comparison of waste recycling planning, which plays a role of publicity and education. (7) It has clarified the responsibility of waste disposal supervision and management, and stipulated the general supervision responsibility, supervision method and responsible person for waste reuse. (8) It has also stipulated punishment methods for violation of this law, coordination between this law and relevant EU laws and regulations, protection of intellectual property rights, etc.

Product Management

In order to promote green consumption and develop circular economy, Germany has strengthened the whole-process management of the whole life cycle of products and now has formed a set of relatively effective consumption management system, including green product liability system and green product quality standard system.

Green product liability system. The green product liability system involves the whole process of waste disposal from production to use, and the green packaging system and environmental protection waste disposal system are the most prominent ones. In the green packaging system, Germany has made clear requirements to restrict the external packaging of commodities, so as to achieve the goal of waste emission reduction. In the environmental waste disposal system, it combines garbage disposal and resource recycling to reduce the amount of landfill and make full use of resources. These systems have achieved good practical results. For example, through the development of product liability system and the promotion of marketization and industrialization of waste disposal, the recycling rate of packaging materials increased from 13.6% in 1990 to 91% in 2009. The recycling efficiency of glass packaging is up to 90%, while that of paper packaging is up to 60%. In addition, Germany has reduced the amount of household kitchen waste by about 65% through the return of deposits and collection of garbage disposal fees, further promoting the recycling of packaging materials.

Green product quality standard system. In order to ensure the quality of green products, Germany has a “blue angel” standard, where environmental labels are posted on all products that meet quality standards to prove that they are of acceptable quality and that they meet

environmental requirements for manufacturing processes and waste disposal. In this way, citizens can feel completely at ease when buying green goods. At present, in Germany, the products with environmental protection marks have accounted for 30% of the country's products, and the varieties have reached more than 4000, which greatly promotes the promotion of green consumption mode.

Government Action

In the green consumption in Germany, the government attaches more importance to its own responsibilities and actions, such as the establishment of fiscal subsidy system and the establishment of green government procurement system.

Financial subsidy system. The purpose of the system is to promote energy conservation and environmental protection and encourage the consumption of new energy. Germany enacted the *Electricity Transmission Law* in 1990 and the *Renewable Energy Priority Law* in 2000, which stipulate that the government should give certain financial subsidies to power grid operators. Under the strong promotion of this policy, although Germany's wind power started late, but the development is very fast, Germany has become the world leader in wind power generation.

Green government procurement system. This system makes the government play a good role in guiding consumers in promoting green consumption. Germany lays down some basic principles for government procurement, which are not to be wasted, should be durable, recyclable and easy to handle. (See the chapter on *Finance and Green Transition Development*, which will not be repeated here.)

Education Promotion

Germany regards environmental education as a part of national development support system, and environmental policies should be changed according to the time. So far, it has gone through three stages. Since the education conference held in Kiel university in 1965, Germany has been the first country in the world to put forward the idea of vigorously developing environmental education. Its environmental education policy has gone through three stages: In the first stage, from the 1950s to the 1970s, Germany had realized that economic development could not take the way of "drain the pond to get all the fish and burn the forest and hunt", and the protection of natural resources was put on the agenda. In the second stage, from the 1970s to the 1990s, Germany, which had

experienced a series of environmental disasters, began to comprehensively solve environmental problems, and its environmental education began to change from "natural protection education" to "environmental protection education". "Education for environmental protection" includes not only providing educates with information on current environmental hazards, but also, more importantly, disseminating knowledge of the interconnectedness and interdependence of natural systems, economic and technological developments and policy-making. In the third stage, from the 1990s to the present, the German environmental protection agency issued the first German sustainable development report in 1998, which pointed out that the earth summit embodied the new insight of human beings that all human activities should be guided by the principle of sustainable development. The federal-state education research and planning promotion commission of Germany implemented BLK "21" plan to carry out comprehensive sustainable development education in German schools, which means that the environmental education in Germany has been promoted from "environmental protection education" to "sustainable development education". The environmental education in Germany is a kind of real "education for all and learning for all", the subject of environmental education continues to expand, and government institutions also become the subject of environmental education. First of all, for formal education in schools, the scale of its educators and educates continues to expand. For example, BLK "21" plan, which was implemented in 1999, aims to promote sustainable development by advocating and practicing interdisciplinary and participatory environmental education and innovative modes of environmental education. The BLK 21 plan has a total budget of 13 million euros and involves about 1000 teachers and 65,000 students from 200 schools. In 2005, the Transfer "21" plan (i.e., to transform the unsatisfactory part of BLK "21" plan into a more sustainable education) was launched, and the number of participating schools increased to 4500. Primary education in Germany was included in the plan, and a training program for teachers was initiated. This means that German teachers have a dual role in environmental education. On the one hand, they undertake the task of environmental education; on the other hand, they must receive timely training so as to constantly update their knowledge and skills to adapt to the constantly developing process of environmental education. Secondly, adult environmental education is also increasing. According to statistics, in 1989, about 150,000 German adults participated in environmental

education activities mainly carried out by night schools, churches and Chambers of commerce. Statistics show that this number has continued to increase over the past decades. Finally, German government institutions are also the subject of environmental education. NGOs in Germany have been instrumental in environmental education. They often establish long-term connections with German schools and communities, carry out non-profit environmental education activities among the public, become an important communication channel between the public and policy makers, and reflect the public's demands on the environment to the German government in different forms. In this sense, German government institutions are often the recipients of environmental education, and many good environmental policies benefit from this education.

Environmental education in Germany, on the one hand, directly promotes green consumption and environmental protection; on the other hand, it turns green consumption into a new industry and economic growth point. Most hotels in Germany, for example, have seen environmental groups take part in initiatives to "recycle towels" by putting cards inside their hotels to tell guests. If you don't change the recycling towels and sheets every day during your stay, you can contribute to saving resources and reducing pollution. The Naturschutzbund Deutschland (NABU), with more than 110 years of history and about 250,000 members, is powerful economically and politically, and has successfully saved large areas of forests and wetlands by purchasing lands of conservation value. The "educatee" status of German government institutions makes them pay more attention to the formulation and implementation of environmental protection policies. The German government vigorously promotes energy conservation and emission reduction and the development of circular economy at home, which not only promotes the conservation and utilization of resources, improves the utilization efficiency of resources and reduces pollution, but also promotes economic development and employment. Statistics for 2006 show that the annual turnover of waste treatment alone has exceeded 41 billion euros, with 1 million employees.

Japan

Comprehensive Legislation

Japan's laws on green consumption are well developed. This is reflected in the following aspects:

First, the legal system is three-dimensional and comprehensive. Japan's laws and regulations to promote green consumption and circular

economy can be roughly divided into three levels: At the basic level, the *Basic Law on the Formation and Promotion of a Circular Society* is a basic law. At the main level, two laws, the *Solid Waste Management and Public Cleaning Law* and the *Law on Promoting the Effective Use of Resources*, were formulated as comprehensive laws. At the branch level, five specific laws and regulations have been formulated, namely *Promoting the Classification of Containers and Packages, the Law on the Recovery of Household Appliances, the Law on the Recovery of Buildings and Materials, the Law on the Recovery of Food* and *the Law on Green Purchasing*. In this way, Japan has constructed a three-dimensional and overlapping legal system from three levels, which has created a good social environment for promoting green consumption and circular economy. Japan has not only formulated a set of laws and regulations directly related to green consumption and circular economy, but also formulated other relevant laws and regulations to coordinate and unify them as a whole. For example, in 2000, the Japanese government enacted the *Green Procurement Law*, which requires the government, enterprises and individuals to protect the environment through consumption. In 2003, the *Law on the Promotion of Environmental Education* was enacted to incorporate environmental education into the law on compulsory education, so as to promote citizens' awareness of environmental protection.

Second, the law can be translated into concrete actions. Different from the "principle" legislation, "framework" legislation and "advocacy" legislation in some countries, Japan's green consumption and circular economy legislation is very detailed, with equal emphasis on guidance and compulsion, which can be translated into concrete actions in practice. Take the *Basic Law on the Formation and Promotion of a Circular Society* as an example. As mentioned above, this law is the basic law on the development of recycling economy and the promotion of green consumption in Japan. Compared with Germany's *Circular Economy and Waste Disposal Law*, it is more profound and richer in objectives and contents. Its purpose is to change the traditional social and economic development model and establish a "circular society". The *Basic Law on the Establishment of a Circular Society* consists of three chapters and 33 articles. The main contents are as follows: (1) Clearly put forward the establishment of a "recycling society" and defined it, that is, "recycling society" refers to the construction of a society that minimizes environmental load by recycling resources, inhibiting waste generation, ensuring reasonable disposal, controlling excessive consumption of natural

resources and energy. (2) It defines the object of adjustment of the law, and defines the concepts of "recyclable resources" and "wastes". For example, "recyclable resources" refers to those things in the waste that still have use value. (3) It stipulates the legal order for the utilization and disposal of recyclable resources: (a) inhibit production; (b) reuse and recycling; (c) heat recovery; (d) reasonable disposal. That is to say, in the use and disposal of wastes and recyclable resources, raw materials and products should be controlled to become wastes in the process of production, circulation and consumption as far as possible. Secondly, resources that can be reused should be recycled to the maximum extent. Thirdly, materials that cannot be recycled should be burned to obtain heat energy. Finally, resources that cannot be disposed according to the first three requirements should be disposed harmlessly. (4) The responsibilities of the central government, local governments, enterprises and citizens are clearly defined, mainly expanding the responsibilities of producers and emitters. Producer responsibility means that after the product is consumed, the producer and the seller still have the responsibility to manage the product cycle. The responsibility of emitters means that the producers, sellers and consumers who discharge wastes should bear the first responsibility for material recycling. (5) The government is required to formulate the "basic plan for building a circular society" according to legal procedures, so as to better guide enterprises and citizens to conduct green consumption and develop a circular economy. (6) It specifies some basic policies, such as requiring the state to take the lead in promoting the use of renewable materials, carrying out pre-evaluation of enterprise products, and popularizing relevant knowledge by the government. As can be seen from the above, the *Basic Law on the Establishment of a Circular Society* has three characteristics: It covers a wide range of areas, including the recycling and reprocessing of waste garbage during and after consumption. Strong operability, such as the disposal of a variety of sequence and should follow the principles of the method are specified. The responsibilities are clear. The responsibilities of the government, enterprises and consumers are all assigned and defined in relevant laws and regulations.

Third, highlight the government's environmental responsibility. Although the responsibility of each subject is clearly defined in the laws related to green consumption and circular economy in Japan, Japan especially emphasizes the responsibility of government in environmental management, and writes the responsibility of government in

environmental management into various laws to make the behavior of government management legalized and normalized. For example, with the formation of the public hazard law system, the Japanese government has established its environmental responsibility accordingly. The *Basic Law on Countermeasures against Public Hazards*, revised in 1970, specifies that the environmental responsibility that the government should assume is mainly reflected in the following aspects: The government has the obligation to set various environmental standards and to revise and improve them according to the continuous development of science and technology. Establish the basic measures to be taken by the government to prevent and control public hazards, including pollutant removal control, establishment of pollution prevention and control facilities, tracking and investigation of public hazards, etc.; Local governments should carry out appropriate measures to prevent and control public hazards. The government should establish the mechanism of handling public nuisance disputes and the system of victim relief. Establishing a financial system to assist in the prevention and control of public hazards; setting up a special administrative body to promote the prevention and control of public hazards. To further promote the government's environmental responsibility, Japan enacted the *Basic Law on the Environment* in 1993. The law advocates reducing environmental pollution (the so-called load on the environment) by itself and building a sustainable society, so as to promote international cooperation to preserve the earth's environment while leaving a good environment for future generations to inherit.

Economic Guidance

Green government procurement. The Japanese government directly stimulates the development of green industry through large-scale green government procurement. In 1994, Japan formulated the green government action plan, which laid down the basic principles of green procurement policy and encouraged all central and local governments' regulatory agencies to actively purchase green products. In May 2000, Japan promulgated the *Green Procurement Law*. The law has been in effect nationwide since April 2001. It requires national and local governments and public bodies to take the lead in purchasing environmentally friendly renewable products, promote the dissemination of information on green consumption, require all central governments and their agencies to implement annual green procurement plans, and submit green procurement reports to the Minister of the Environment on time.

The law focuses on promoting the green procurement of stationery, paper, household appliances, automobiles and other specific products, and defines the duties, rights and obligations of local government departments, local public organizations, companies and enterprises as well as citizens. According to the survey, Japan's public sector expenditure accounts for about 1/5 of the total domestic expenditure, while the government's green procurement enhances entrepreneurs' enthusiasm for environmental protection and green product production, directly promoting the development of Japan's green industry.

Green tax system. The Japanese government guides people's consumption behavior mainly through tax suppression and tax reduction (exemption, low). Tax suppression is mainly reflected in fuel tax and consumption tax. The purpose of Japan's fuel tax is to protect the environment, guide consumption and obtain income. For example, the tax on fuel consumption will inevitably affect the behavior of car owners in purchasing and using fuel. This encourages fuel consumers to use fuel wisely and save energy, so fuel tax has a positive effect on green consumption. Japan's consumption tax on fuel is shared between central and local governments, which is divided into four sub-items: gasoline tax, diesel tax, natural gas tax and local road tax. They are all off price taxes with amount based on quantity. Gasoline taxes are measured in liters and are levied when gasoline is shipped from the warehouse. Diesel is also taxed on a "liter" basis, when consumers who use diesel buy it. As an extension and supplement of oil consumption tax, natural gas tax is levied on liquefied natural gas. The road use tax takes the gasoline leaving the factory as the tax object, which is levied in conjunction with a gasoline tax when gasoline is shipped from the warehouse. In addition, Japan has set fuel economy standards for motor vehicles to promote reforms in its manufacturing sector, encourage consumers to buy fuel-efficient cars and reduce the amount of energy wasted due to inefficient fuel use. In terms of tax reduction (exemption and low tax), it mainly applies to environmental protection industry or behavior. There are many preferential tax measures related to environmental protection in the Japanese tax law. For example, the special depreciation rate ranging from 14 to 20% should be increased on the basis of the original depreciation rate for environmental protection facilities. The *Basic Law on Measures against Public Hazards* stipulates that fixed asset tax can be reduced or exempted for public nuisance prevention and control facilities. According to the

difference of facilities, the reduced or exempted tax rate is 40~70% of the original tax.

Green consumption incentives. Japan's Ministry of Environment has also set up a system of consumption points to promote green consumption through economic incentives. In other words, when consumers buy designated energy saving and environmental protection products, they can obtain corresponding "ecological points". To participate in the program, consumers must submit an application form and then redeem points with a shopping receipt and a warranty card. Each point is worth one yen and can be spent in department stores, electrical stores, post offices or on public transportation. At present, the selected products include more than 2000 kinds of home appliances.

Education Promotion

Japan regards environmental education as an indispensable force to ensure the sustainable development of the economy and society. The environmental education, which was originally a pure environmental crisis education, has become one of the important driving forces for the construction of ecological civilization society. From the Second World War to the early 1970s, this was the stage of public hazard education in Japan. Before the war, the ecological environment in Japan's industrialized big cities like Hanshin began to deteriorate. However, after the war, the large-scale industrialization led to frequent outbreaks of various environmental hazards such as minamata disease and itai-itai disease in the 1950s. The outbreak of environmental pollution and various occupational diseases make people reflect on the relationship between human beings and ecology, and schools begin to educate on environmental pollution prevention. For example, in 1967, Japan established the National Primary and Secondary School Pollution Education Countermeasures Research Institute, and the school began to educate students about environmental education. In 1968, the term "public hazard" was first used in the revision of the syllabus of *Social Science*. In 1970, the Ministry of Education decided to increase the content of public hazard learning in the "social science" of secondary schools and implement public hazard education. From the mid- and late 1970s to the early 1980s, public hazard education changed to environmental education. The rapid growth of economy has brought about abundant material supply, while the excessive production and consumption have directly or indirectly brought

about various environmental problems. With the development of international environmental education, such as the publication of the famous *Belgrade Charter*, the purpose, objectives, objects and guiding principles of environmental education have had an important impact on Japan. For example, in 1975, the original National Primary and Secondary School Pollution Education Countermeasures Research Institute was renamed as the National Primary and Secondary School Environmental Education Research Institute. From 1977 to 1979, primary schools, junior high schools and senior high schools set up units related to environment in relevant teaching subjects and carried out environmental education practice activities. Since the late 1980s, it has been a period of establishment and comprehensive promotion of the concept of environmental education. During this period, with the influence of the international concept of sustainable development and the development of environmental education, Japan gradually established the concept of environmental education. For example, in 1986, the Japanese environment agency set up the "Environmental Education Talkfest". In 1988, the Office of the Environment published the *Report of the Environmental Education Talkfest*. In this report, environmental education is positioned to enable the public to take reasonable actions by deepening the public's comprehension and understanding of the relationship between human and environmental education. It also lists five aspects of environmental education and environmental learning. On the basis of environmental education policies, local governments and autonomous bodies have formulated basic environmental education policies and plans suited to local conditions and put them into practice. In 1989, the environment department established the regional environmental protection fund to support the development of regional environmental education. In the 1990s, environmental education was written into relevant laws and combined with social development as an important driving force for social development. For example, in 1993, Japan enacted the *Basic Law on the Environment*, which made relevant provisions on environmental education in article 25 of the law. Since then, environmental education has been recognized and guaranteed by law in Japan. In December 1994, Japan formulated and promulgated the *Basic Environmental Plan*, which is the embodiment of the basic environmental law and shows that environmental education has been integrated into its long-term social development plan and become one of the important guarantees for its construction of ecological society.

The innovation of environmental ethics makes people establish a good concept of the relationship between man and the environment, and lays an ideological foundation for the whole society to correctly handle the relationship between man and the environment. The basis of environmental ethics in Japan mainly includes: (1) The natural right to life. Not only human beings, but also biological species, ecosystems and landscapes have their own right to live. Therefore, human beings cannot deny them arbitrarily. (2) Generational ethical issues. The present generation is responsible for the viability of future generations. (3) Globalism. The earth's ecosystem is not an open universe, but a closed world. These ethical thoughts have far-reaching influence and wide social response, which is the ideological basis for them to call on the whole society to participate in environmental "preservation". Its idea of environmental "preservation" has a far-reaching influence. It makes members of the Japanese society, when using natural resources and environment, regard "nature" as an organic organism with equal status with human beings, and deal with it from the perspective of friendly attitude and careful relationship maintenance, thus avoiding the ecological crisis caused by the abuse of the environment.

Japan regards environmental education as the education related to individual life survival, lifelong learning and everyone's responsibility. In environmental education in Japan, the relationship between people and the surrounding environment is highlighted, and it requires people to know the surrounding environment in which they live, and become a person with practical ability to properly deal with the relationship with the surrounding environment. Geographical grounding is one of the distinctive features of environmental education. Environmental education in Japan requires lifelong learning and everyone's responsibility. Environmental education is not limited to students and schools. All members of society have the obligation to learn how to better preserve the environment. All relevant places can be used as places for environmental education and learning. For example, Paragraph 2 of Article 3, "basic concepts", of the *Environmental Education Promotion Act* stipulates that: In order to deepen the understanding of environmental protection through natural experience activities such as forests, fields, parks, rivers, lakes, coasts and oceans and other experience activities, efforts should be made to obtain the participation and cooperation of local residents and various subjects constituting the society. It can be seen that

Table 2 Contents and essentials of environmental education in Japanese primary schools

Viewpoint	*Environment learning content*	*Discipline*
Symbiosis	Relation to other regions	Social sciences
	The relationship between the activities of animals and plants and their growth and seasons	Science
	The relationship between family work and family	Family science
Ecology	The relationship between land environment and industry	Social sciences
	The relationship between living things and the environment	Science
	Family life and environment	Family science
Cycle	Waste disposal	Social sciences
	The relationship between the sun and the ground form	Science
	Appropriate shopping	Family science
Balance	The stability of national life	Social sciences
	The regularity of leverage	Science
	Coordinated diet	Family science
Limited	Guarantee of the electricity and gas	Social sciences
	The production and growth of animals	Science
	Appropriate shopping	Family science
Diversity	The function of agriculture, aquaculture and its relation with natural environment	Social sciences
	Conditions for the germination and growth of plants,	Science
	Way of living	Family science
Conservation	The relationship between cultural heritage, cultural property and self	Social sciences
	Formation and change of land,	Science
	Make something useful for life	Family science
Value/ethics	Make every effort to improve the quality of life of the local people	Social sciences
	The structure of the human and other animal bodies	Science
	Simple food cooking (safe use of utensils)	Family science

Source Song Shuang. *Environmental Education in Japan and Its Implications.* Dalian: Dalian University of Technology, 2007

environmental education in Japan is not limited to places and requires participation and collaboration of all members of society.

In the context of environmental education in Japan, consumption education is regarded as an important part. The content of environmental education in Japan can be roughly divided into the following eight aspects: living together, ecology, cycle, balance, limited, diversity,

conservation and value/ethics. At the same time, these eight viewpoints are also the constitutive framework and prominent contents of the textbook content. For example, the environmental education in Japanese primary schools reflects these (see Table 2). As can be seen from Table 2, students should not only understand the environment and understand the relationship between human activities and the environment, but also establish correct environmental concepts and principles. For example, "living together", "cycle", "balance", "limited", "conservation", it is more important to form behavioral habits and abilities that are conducive to environmental protection, among which "appropriate shopping" appears repeatedly in "cycle" and "limited". This shows that Japan's environmental education attaches great importance to the status of consumer education, which is one of the ultimate major goals of its environmental education.

3.2 Experience in the Enterprise

Develop Environmental Education

Environmental problems are not only related to terminal consumption, but also to production design and manufacturing process. For example, most of the world-famous public hazards are the results of unreasonable production methods. Therefore, in this sense, enterprises are the indispensable subject of green consumption implementation. While enterprises carry out environmental education and promote green consumption, which not only directly saves the cost of materials and environmental treatment, but also sets up a good public image and cultivates many potential customers who love green consumption. For this reason, many large enterprises in the world carry out environmental education activities, and Japanese enterprises are very typical in this regard. The main ways for Japanese enterprises to develop the environment include: (1) Advocate "ecological design", from the design of products to take full account of environmental factors, from the source to reduce and control the production of pollutants, to provide low environmental load products for the society. (2) The use of recyclable materials in production can save resources and protect the environment. (3) Actively develop and promote environmental protection products, and guide the public to choose and use environmental protection products as far as possible. (4) To compile environmental reports and report their environmental management status to the society and consumers. (5) Carry out

comprehensive environmental education within the enterprise, including business philosophy, corporate culture and staff lifestyle, encourage employees to actively participate in regional environmental activities, advocate green consumption, and change the original lifestyle in order to reduce environmental load. (6) Combine with social public relations, marketing promotion and other activities; carry out environmental education for the public; guide green consumption; and cultivate potential customers.

Among them, Panasonic and NEC are typical. The environmental headquarters of Japan's Panasonic corporation, in addition to undertaking activities to solve the earth's environmental problems, also recognized the need to change the values and lifestyles of citizens. Therefore, since February 1982, the "earth citizen campaign" has been implemented among employees and their families to encourage employees and their families to actively participate in regional environmental activities and change their original lifestyle in order to reduce environmental burden. Panasonic held a home energy conference to reduce consumption of water, electricity, gas and gasoline, which has achieved good results. In 2000, CO_2 emissions per household of Panasonic employees decreased by 1.5% on average (Fan Lianying, 2005). Panasonic also held an "eco-tote campaign" with shopping bags and no-disposable polythene bags and also solicited design and production proposals for eco-tote bags from employees and their families, which were well received. In addition, through television, brochures and other methods, Panasonic also publicized and introduced the activities and a variety of ecological life information in the company. In Japan, NEC adopts various production and operation plans to protect the environment under the basic policy of "realizing all-field environmental management with the participation of all employees". In addition to environmental protection in the development of environmental products, recycling of waste, zero waste and other aspects of production and operation, NEC has also carried out environmental education workshops, environmental action meetings and other environmental learning, and increased the green shopping, green consumption lifestyle education.

Implement Green Procurement

Many enterprises have realized that the modern large-scale production division system, the crisscross industrial chain relations and the competitive advantages of each have made it almost impossible for a

single enterprise to rely on its own green design and green production. Therefore, many enterprises, especially large enterprises with influence in the supply chain, have demanded the implementation of green procurement. Many enterprises not only carry out green design at the source, but also require participating suppliers to provide green raw materials, green technology or green services, which ensures the completion of its own green production, and monitors the green production of suppliers and cooperative enterprises, so as to promote the green production and green consumption of the whole society. Japan's large firms in electronics and electronics are typical in green procurement (see Table 3). The green procurement of these large enterprises virtually guides, guides, supervises and helps other enterprises in the supply chain to produce green products through the interest relationship of the supply chain.

Table 3 Green procurement practices of Japanese enterprises in the electronics and electrical industry

Enterprises	*Main practices*
SONY	Sets the "SONY Green Partner Standard", which purchases parts and materials only from suppliers that have earned the green partner designation, which is reviewed every two years
Panasonic	Issues "Green Procurement Standards" and "Chemical Substance Management Grading Standards", requiring suppliers to understand and comply with their environmental policies and activities and give priority to purchase from manufacturers who actively carry out various environmental protection activities
Canon	Actively carries out earth environmental protection activities, strives to work with suppliers to carry out environmental protection activities, and requires suppliers to meet their environmental management evaluation standards
Fujitsu	Has three "green procurement" requirements for suppliers: an environmental management system; compliance with restrictions on specified chemicals; establishing a chemical substance management system
Ricoh	Establishes the Environmental Management System Guide (EMS) and the Chemical Substance Management System Guide (CMS), as well as the green purchasing standard based on the former two, and requires suppliers to meet the above environmental management standards
Mitsubishi Electric	Establishes management standards for hazardous substances in products, requires suppliers to comply with them, and evaluates the supplier environmental protection system

Source Chen Sheng. Practices and Experience of Japanese Enterprises in Implementing Green Procurement Standardization. *World Standard Information*, 2007 (10): 51–54

It overcomes the disadvantages of relying on the high cost of the government and the "impotence" of the public supervision in the traditional supervision, and is a new type of supervision and restriction relationship, which deserves special attention in the green consumption.

4 The Status Quo and Existing Problems of Green Consumption in China

4.1 Current Situation of Green Consumption in China

The Demand for Green Consumption Keeps Growing

China's repeated product quality and safety incidents have greatly increased Chinese consumers' green consumption based on product quality and safety. For example, after the melamine-tainted milk powder incident, Chinese consumers travelled overseas to buy safe milk powder, or at home, they only bought milk powder produced by foreign manufacturers. In the field of medicines and personal care products, there are also a large number of consumers who buy high-priced foreign products based on the consideration of quality, safety and health. In addition, the improvement of residents' income level also enables high-income groups to favor healthier and more secure green products and environment-friendly goods. For example, the green consumption survey conducted by Zhang Zhimin (2011) in 2010, taking Dongguan as a case study, shows that the higher income groups purchase green products more frequently (see Table 4). As can be seen from Table 4, residents who "never" buy green products are all middle- and low-income

Table 4 Green product purchases by different income groups

Monthly income	*Always*	*Often (%)*	*Occasionally (%)*	*Never (%)*
Below 2000 Yuan	9.6>	32.5	55.0	2.9
2001 ~ 4000 Yuan	8.4%	36.0	54.2	13
4001 ~ 6001 Yuan	21.6>	29.7	48.6	0
6001 ~ 10,000 Yuan	12.5%	56.3	31.3	0
10,001 ~ 20,000	20.0%	50.0	30.0	0
Over 20,000 Yuan	25.0%	75.0	0	0

Data source Zhang Zhimin. Survey and Analysis of Green Consumption of Dongguan Residents. *Journal of Dongguan University of Technology*, 2011, 18 (4)

groups with a monthly income of less than 4000 Yuan. Among the people whose monthly income is 4001–6000 Yuan, 51.3% have the habit of purchasing green products. Among the people with monthly income of 6001 ~ 10,000 Yuan, 68.8% have the habit of purchasing green products. People with monthly income of 10,001 ~ 20,000 Yuan, up to 70.0% have the habit of purchasing green products. With monthly income of 20,000 Yuan and above, 100% have the habit of buying green products.

The Market Supply of Green Products Has Been Greatly Increased

In line with the green consumption trend in the market, Chinese businesses are also vigorously developing green products, and the market supply of green products has greatly increased. For example, in recent years, the state has repeatedly adjusted the prices of water and energy resources to promote resource conservation. In order to save the cost of water, electricity and other resources, many families purchase household electronic products that save water and electricity, which leads to the mainstream of water and electricity saving, health and environmental protection, mini multi-purpose home appliance market design in recent years. For another example, in China's green food market, green food manufacturers and annual supply has also greatly increased. In 1997, China's domestic sales of green food reached 24 billion Yuan and its

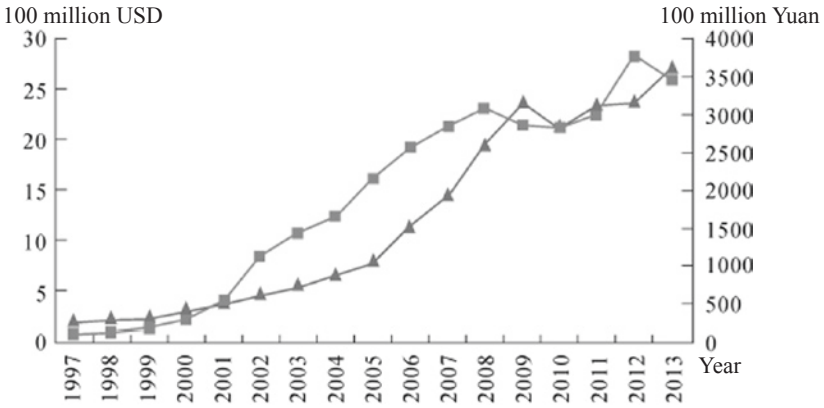

Fig. 2 Sales and exports of green food in China from 1997 to 2013 (*Data source* Du Haiyang, Liang Zhichao, Xiu Wenyan et al. Development Status and Prospect of Green Food in China. *Agricultural Prospect*, 2014 [10])

export value reached 70.5 million US dollars. In 2013, the domestic sales of green food increased by 14 times to 360 billion Yuan, and the export value of products also increased by 36 times to 2.6 billion US dollars (see Fig. 2).

The Government Management of Green Consumption Has Been Strengthened

In recent years, the Chinese government's management of green consumption is no longer limited to the quality and safety management from the perspective of health impact, but expands to resource conservation, environmental protection, social responsibility and so on. Management means are no longer purely economic penalties, but combined with legal norms, economic inducement, social demonstration and cultural construction. For example, in terms of legal norms, several laws related to green consumption have been enacted successively: The *Clean Production Promotion Law of the People's Republic of China* in 2002, the *Renewable Energy Law* in 2006, the *Energy Conservation Law* in 2008, the *Circular Economy Promotion Law* in 2009, etc. These laws and regulations have made relevant provisions on promoting green consumption at different levels, and the specific provisions are mainly reflected in the following provisions. For example, Article 10 of the *Circular Economy Promotion Law* points out that "citizens should enhance the awareness of environmental protection and resource conservation, make rational consumption and save resources". In addition to the above-mentioned laws, Article 9 of the *Government Procurement Law* also states that "government procurement shall contribute to the realization of the policy objectives of national economic and social development, including environmental protection". "Government procurement should give priority to the procurement of high-tech and environmental protection products to promote the development of environmental protection enterprises and ensure the sustainable development of the economy". The existence of these laws and regulations promotes the vigorous development of green consumption in China, and at the same time supervises the government's green procurement, which provides a clear legal basis for green consumption. In addition, China also has some relevant laws and regulations to promote green consumption. For example, in 2007, the general office of the state council issued the *Notice on Restricting the Production and Sale of Plastic Shopping Bags*, the *Regulations on Environmental Protection in Shenzhen Special Economic Zone*, *Regulations on the Construction of Circular Economy and Ecological City in Guiyang*

and other local government regulations. These legal systems and policies promote green consumption from different perspectives.

In terms of economic inducement, we have promoted the tiered pricing system for resource products, the green tax system and other relevant policies aimed at promoting green consumption. Since 2012, China has implemented tiered electricity price, tiered water price and tiered gas price in various regions. These tiered prices of resource products promote green consumption in the field of resource products in China. Local governments are also innovating to promote green consumption. For example, in Beijing, the lottery for buying a car has always been a difficult problem. In order to promote green consumption and solve the problem of air pollution such as haze, the government has promoted consumers' consumption of new energy vehicles through measures such as increasing the number of successful applicants for the lottery and unrestricted driving.

4.2 Problems in China's Green Consumption

Low Awareness of Social Responsibility of Green Consumption

Although Chinese consumers are also fond of "green consumption", they have low awareness of the social responsibility given by green consumption. At present, the basic motivation of green consumption of Chinese consumers lies in the beneficial "health and safety guarantee", "saving living expenses", "improving the quality of life", etc., but the awareness of social responsibility of green consumption is not well understood. For example, although many high-income people buy green food, they still eat rare animals and plants that are included in the scope of protection. They have little sense of social responsibility to protect rare animals and plants and biodiversity. For another example, many consumers purchase low-pollution environmental protection goods, but they have no idea about the impact of waste on the environment after the use of the goods. They seldom consider from the perspective of reducing the use and emission, but use as much as they want, and immediately replace the old with the new.

Higher Prices Restrain the Demand for Green Consumption

Although green products have been growing in China in recent years, the overall proportion is still not high. Just because the real green products are not enough, the price of green products is generally higher than

ordinary goods. For example, green organic river shrimp costs four times more than regular river shrimp; green pork is 50% higher than similar products. Although the variable frequency air conditioner is energy saving, the general price is hundreds or even thousands of Yuan higher than the ordinary air conditioner. Such a price puts off many consumers. Coupled with the imperfect management of the green product consumption market, the phenomenon of sailing under false colors and passing off fish eyes for pearls often occurs, which leads consumers to choose common products based on the consideration of product quality risk.

Low Recognition of Green Product Market Management

At present, China's green product market management system is not perfect, and the recognition degree of green product market is low, which affects green consumption. The "green degree" of products from all walks of life objectively requires certain evaluation standards and certification procedures. At present, except food, cosmetics, electronic products, building materials and other categories of green products in China are relatively perfect in the evaluation of green certification, the other products are not perfect in the evaluation and certification of "green degree". Moreover, due to bribery, rent-seeking, imperfect supervision and other factors, many products with the title or logo of green products are actually misnamed and have hidden dangers such as quality safety and health hazards, leading to general distrust of consumers and their reluctance to choose green products.

4.3 The Crux of China's Green Consumption Problem

Lack of Consumer Awareness of Social Responsibility

In China's consumer education, most of the education is still about "how to identify fake goods", "how to choose the right products", "how to save money and get a better deal", but little about the environmental impact, social effect and personal behavior regulation in consumption. This phenomenon leads to the low awareness of social responsibility of consumers when they consume, and the over-amplification of their own consumption demand while ignoring the social impact. Thus, the understanding of green consumption is only based on their own health and does not cover the health of social groups. From the perspective of

education, law and culture, we should strengthen the education of environmental knowledge and the consciousness of social responsibility in consumption.

The Effective Supply of Green Production Technology Is Insufficient

In a sense, the current high price of green products in China is due to the insufficient supply of green technology. Compared with traditional production technology, green technology is a "breakout", "breakthrough", so the cost of innovation is higher. In addition, the current green science and technology innovation organization system is not developed; many enterprises do their own research and development innovation, so the cost of innovation is high, and the cost of innovation is included in the production cost of enterprises, which naturally pushes up the price of green products produced by enterprises. On the other hand, it is the lack of similar green products in the market that makes manufacturers dare to sell their "green products" at a much higher price than ordinary products. Therefore, the high price of green products on the market reflects the undeveloped status of green production technology from another perspective.

The Green Consumption Management System Lags Behind

Compared with foreign green consumption management system, China's green consumption management system is still relatively backward. Foreign countries comprehensively use various systems to manage, like legal, economic, educational, scientific, cultural and social. As an important support for sustainable development, green consumption has penetrated into all aspects of social management system, and is very detailed and specific, involving deeper technical and knowledge issues. In contrast, China's green consumption management system, the legal provisions are still on the statement of principles, lacking detailed management of the environmental and resource issues that may arise in the consumption of various products. Moreover, the supporting implementation rules of management have not been established to improve and supplement it. The current management objects in the tax and price system are also limited to resource products such as energy, and they are mainly targeted at the links of consumption, but far from the links of production and waste disposal. In the education system, the slogan propaganda and the moral indoctrination are more than the scientific

knowledge education and the management technology imparting. In the certification and supervision system, money can break through the strict technical standard threshold to some extent. All the above indicates that China's management of green consumption should be refined, perfected and rationalized in the future.

5 Ways to Promote Green Consumption in China

5.1 Environment Construction

Comprehensive use of education, law, culture and other factors to create a soft environment for green consumption. Consumption is divided into private consumption and public consumption, and the former accounts for the majority. Although the legal provisions can make all kinds of mandatory restrictions on residents' consumption, such restrictions are more rigid than flexible, and the cost of supervising the scattered private consumption subjects is too high. Therefore, green consumption must fundamentally improve consumers' awareness and initiative of green consumption, and the way to promote green consumption must fundamentally rely on education, especially environmental education related to green consumption. Although moralizing can temporarily urge consumers to choose green products, consumers are also strongly influenced by economic income level, personal feelings, likes and dislikes and other factors when choosing green products. Only when consumers have a strong awareness of the relationship between consumption and resources and environment, as well as the relationship between individual consumption behavior and social group life, can they improve their sense of social responsibility in consumption, consciously choose green products and form green consumption habits. In the future, China's education on green consumption should not be confined to simple preaching on the moral and emotional level, but should make use of all opportunities available for publicity and education to increase education on consumption behavior, environmental impact and action response, which enables consumers to rationally understand the relationship between consumption and environment from the perspective of knowledge and technology, so as to fundamentally establish the awareness of green consumption and develop green consumption habits. It is suggested to open more courses about ecological civilization and green consumption in formal school education, and to expand green consumption education in social

education. For example, the use of television, the Internet, radio and other channels to increase public awareness of green consumption.

To give full play to the superiority of the legal system, we must strengthen the regulation and restriction in the key fields of green consumption. The legal system has the advantages of coerciveness, authoritativeness and seriousness, and the application of the legal system gives full play to the specialty of the legal system in the related fields where China must strengthen and promote green consumption. For example, China's current environmental degradation, basic subsistence resources (water, land, energy, etc.) are in short supply in many areas. Using legal system to regulate the green consumption of these basic survival resources can reduce consumption, reduce waste discharge and thus achieve the purpose of saving resources and protecting the environment. It is suggested to list the key areas and key lists of green consumption and formulate detailed green consumption management regulations on the basis of the investigation of the environmental impact of resources, environment, household income and waste discharge.

In terms of culture, the concept of green consumption is actively penetrated through advertising, film and television, conference and exhibition, celebrity and star activities and other Windows to promote green consumption culture. For example, international conferences, exhibitions, competition schedules and celebrity activities attracting worldwide attention should take advantage of this window to actively convey green consumption signals and establish a social culture advocating green consumption.

5.2 Incentives for Innovation

We will support innovation and development of green technologies. The underdevelopment of green technology is the fundamental reason for the limited supply and high price of green products. The government should encourage the innovation and development of green science and technology through various ways, such as providing financial support for green technology innovation of enterprises, preferential loans, tax breaks, capital subsidies and financing relaxation, etc. To provide human capital support for the green technology innovation of enterprises, such as providing opportunities for the scientific research personnel of enterprises to continue to study and further study, providing opportunities for the ordinary workers of enterprises to receive technical training, or directly

providing certain economic subsidies to enterprises carrying out green technology training; The establishment of incentive system for green technology innovation, such as the establishment of a special patent protection system for green product enterprise innovation, and the granting of high rewards and other non-material rewards to enterprises that have achieved major technological innovation.

5.3 Organizational Strengthening

Establish a production organization system in line with the development of green enterprises. The production of green products is a collaborative process. Enterprises' fighting alone not only increases the innovation cost of enterprises, but also increases the risk of enterprises (industries) due to the too fragile production organization. Cultivating a strong and perfect green production organization system is one of the preconditions to promote green consumption. This requires: In terms of the upstream and downstream technology relationship chain of the industry, the industrial chain should be cultivated and improved according to the upstream and downstream cooperation relationship of the industrial chain. In terms of spatial layout and organization, regional agglomeration and park agglomeration should be appropriately promoted to promote the development of regional green production organizations and collaborative innovation. In terms of the relationship between enterprises, the leading role of enterprises, organizational role, internal self-supervision, industry standard formulation and implementation role should be played to encourage the formation of a sound supply chain organizational relationship.

5.4 Basic Guarantee

We will intensify reform of the asset management system in the resource sector. The green non-consumption behavior in China is related to the lag of the management system reform in the field of natural resources. For example, the one-sided understanding of the functional value of natural resources, the emphasis on economy over ecology, the emphasis on private use over public use, makes some of our country's natural resources that should be reserved for public use have also been developed and even completely exhausted. The state ownership income status is not implemented in place, leading to the sale of resources, which leads

to the low price of resources and ultimately leads to the abuse, waste and other non-green consumption behavior. The unreasonable price comparison of various resources leads to the unreasonable consumption structure of resources and aggravates the further imbalance of China's resource structure. For example, the price ratio of primary resources and secondary resources is seriously unreasonable, which leads to the fact that people only pay attention to the exploitation of primary resources but neglect the recycling and reuse of recyclable resources, further aggravating the per capita shortage of resources and the pressure of waste disposal in China. In the future, we should further strengthen the reform of classified management of resource functional value, the reform of resource asset income and its distribution system, the reform of resource commodity price and fiscal and taxation system, so as to lay a foundation for green consumption in China.

5.5 Management Improvement

Actively improve the effectiveness of green consumption management: First, the extension of management objectives. It is no longer limited to the product quality management of private health impact, but expands to the social impact management and environmental impact management of private consumption. Second, the expansion of management means. Comprehensive use of a variety of means to manage, in addition to the traditional economic means and legal means, but also a comprehensive use of education and training, cultural communication and social demonstration means to promote green consumption. Third, expand the scope of management. No longer limited to the management of the consumption field, but the whole process of product consumption into the scope of green consumption management, from production to waste disposal to establish the product life cycle of green consumption management mode. Fourth, strengthen management. In particular, we should strengthen the green standard evaluation and certification system, production supervision system, market access and elimination system for various products and accelerate the circulation of high-quality green new products and the elimination of backward and fake green products. Fifth, improve management efficiency. In addition to the active participation of relevant government departments in management, relevant subjects in green consumption should be encouraged to participate in management to improve management efficiency. For example, consumers are the

direct users of product quality and quality, and they are more concerned about product quality and safety than government personnel in some aspects. Therefore, consumers are encouraged to participate in the safety supervision of product quality and establish a product quality and safety supervision team including government departments, consumers, suppliers and social media.

5.6 Demonstration of Behavior

The government sets a good example by intensifying green purchasing. In terms of green consumption, apart from formulating various systems for effective standardized management, the government should also make use of its own identity as a consumer with huge influence to promote the development of green consumption by strengthening the procurement of green products and improving the government's green procurement system. The government may, on the basis of existing regulations, set technical standards, procurement proportion and procurement procedures for green procurement in various industries. Through competitive bidding, preferential procurement, long-term contract incentives and other forms, it encourages enterprises to increase the intensity of technological innovation, so that they become the top of the industry and compete for the government procurement suppliers, thus stimulating the innovation of green technology. In addition, the government should also strengthen the publicity of green procurement through various windows to demonstrate green consumption to the whole society.

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