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# People's Republic of China: Policy Advice on Promoting the Circular Economy in Qinghai Province
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# 提升青海省循环经济政策建议

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# Developing a Policy System for Promoting the Circular Economy Development in Qinghai

Policy Advice on Promoting the Circular Economy in Qinghai Province

Project Management Office

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# Abstract

The paper summarizes researches regarding policies of circular economy development in China and abroad, streamlines three levels of practice of circular economy in Qinghai Province, such as large recycle, intermediate recycle and small recycle based on in-depth field investigations of industrial parks in Qinghai, and analyzes current policies of circular economy in the province. In the meanwhile, the paper puts forward policy suggestions to better promote the circular economy development in the province. These suggestions involve industry, economy, talents, science & technology and management policies, in an attempt to help the government to overcome the current challenges and implement the circular economy more effectively in Qinghai. There is also some brief description of laws and regulations and provisional policies concerning the ecological environment protection. The research report mainly focuses on the following areas:

1. **Establishing a Research Basis.** The research project has developed its research framework and storylines along the following aspects: experiences and lessons learned from foreign systems concerning policies & legal codes; structure of policy systems of circular economy; constraints of finance & tax policies on promoting circular economy development; policy advice for promoting circular economy development, and evolution of circular economy policies in China.

2. **Existing Issues in Policy Development and Enforcement.** The research project has categorized, summarized and streamlined various issues existing in the process of policy development and enforcement at the micro, mezzo and macro levels. The causal analysis revealed important causes for the existing issues, such as the problems on supply and demand of national circular economy policies, the flawed formulation mechanisms and inadequate coordination of local circular economy policies, etc. .

3. **Optimizing Policies.** Based on the existing issues, the research project focuses on suggestions for optimizing policies in the following areas: 1) *Industrial Policies*. Those suggestions include optimization of industrial organization policies; design of package policies to strengthen efforts of supporting SMEs; using industrial policies to actively promote corporate competitiveness in the value chains; and optimization of park industrial structure adopting the "large recycle" strategy. 2) *Management policies*. Those suggestions are intended to encourage industrial parks to explore their own management innovations and, meanwhile, strengthen cooperation and collaboration across different industry parks. 3) *Economic Policies which consist of fiscal policies, taxation policies, price policies and financing policies.* For finance policies, suggestions include continuing government financial support for circular economy development; further increasing the support for local development; reforming financial spending methods to allocate more resources to the circular economy development; creating a system of product labeling & certification catered to needs of circular economy. For taxation policies, suggestions include refining resource taxation to stimulate circular economy development; adjusting VAT and income taxes, incorporating the green taxation idea; and accelerating efforts on other taxations

aimed for environmental protection. For price policies, suggestions involve accelerating reform process of pricing system; raising emission costs and further refining auction & trading system regarding emission rights. For financing policies, suggestions include optimizing polybasic investment and financing environments, etc. 4) Talents and S&T Policies. Suggestions include setting up a special government fund to support the R&D activities of SMEs; deepening reforms of local higher education and professional education; improving the efficiency of human resource management system; sustainably increasing the financial support for S&T research and development; creating a system that facilitates the adoption of circular technology and equipment; and further strengthening the integration of "industry –university–research". 5) *Other Policies*. These include developing multiple incentives for green economy; strengthening circular economy campaigns for public awareness & acceptance; encouraging green consumption to mainstream the circular economy practice; and constructing recycle-based communities and demonstrative public places where the knowledge and practice of circular economy are perfectly integrated.

In the study, researchers strictly follow the ADB technical and procedural requirements, mainly on the current policy in the development of circular economy operation of industry of Qinghai province and "13th Five-Year" during the policy improvement is studied.

# Contents

# Preface

Since the "Twelfth Five-Year Plan", the Qinghai Provincial Government have adopted circular economy as a strategic approach to addressing shortcomings of industrial structure, taking full advantage of local strengths based on the provincial realities, enabling development of circular economy to be a major means of transforming economic development. It hinges on the central government's requirements of building national pilot zones of circular economy development, and is aimed to improve the quality and benefits of economic development. During the "Twelfth Five-Year Plan", the industrial structure had become more optimal, with the 10 key strategic industries becoming increasingly prominent, the industrial chain of circular economy beginning to emerge, and some new and featured industries such as renewable energy, advanced materials and biotech products showing rapid growth in Qinghai Province. The "Thirteenth Five-Year Plan" period is a key transitional stage, where the circular economy in Qinghai is proceeding with the ice-breaking process. According to the *Action Plan of the Construction of National Pilot Zones of Circular Economy in Qinghai*, by 2020, the industrial structure in Qinghai will be more rational, the integrated utilization and output of resources will be remarkably enhanced, and the scale of circular economy will be greatly expanded to become the dominant development model, thus achieving the ultimate success of building national pilot zones of circular economy in Qinghai.

For the purposes of exploring an effective approach to circular economy development, and achieving the goal of establishing national pilot zones of circular economy development during the period of the "Thirteenth Five-Year Plan", it is essential to carry out an adequate and in-depth study of the current status of the circular economy development of Qinghai Province and to identify major issues under the general national policy framework, thus providing a broad direction for the further development of the circular economy development in China. Based on reliable field investigations, the research project streamlines related issues, develops a policy framework for promoting circular economy development in the province, and puts forward relevant suggestions for overcoming the challenges for implementing the circular economy in an optimal way.

# Chapter I Basis for Developing a Policy System to Promote the Circular Economy Development in Qinghai

Circular economy is an economic growth mode in line with the idea of sustainable development and a fundamental change of traditional economic mode. It can be described as a closed loop of material flow from "Resource – product – consumption – renewable resource in the whole economic system including production and consumption. It has the fundamental objective of promoting good recycling between ecological system and economic development and achieving coordinated and sustainable development of national economy. Circular economy can bring about not only a fundamental change in economic development mode, but also inevitably a fundamental change in living style and behavior mode, so there is need for positive orientation in terms of national system and policy. Its policies, covering all aspects of socioeconomic development, are a major force of promoting civilized ecological construction, green development and sustainable development. In terms of body of policy formulation, circular economy policy can be categorized broadly and narrowly. In a broad sense, circular economy policy refers to a wide range of guidelines, strategies and documents related to circular economy that are designed to mitigate resource environmental pressure and increasing capacity of sustainable development, with its organization consisting of not only national power bodies, political parties, governmental authorities, but also enterprises and social groups. In a narrow sense, its formulation body only refers to national power bodies, political parties and governmental authorities.[1] In reality, circular economy policies in the PRC can be divided into two broad categories. One is a kind of regulative and institutional policies using laws and regulations, compulsory criteria and other mandatory regulations as a carrier and based on direct control. In terms of circular economy, it generally uses administrative compulsion as a normal standard to adjust the development of circular economy. The other is a kind of regulative and institutional policies using economic policy as a carrier and based on direct regulative control. Market policies of circular economy are meant to support and guide the development of circular economy by employing economic means like prices and taxes. In the research project, the paper is mainly concerned with circular economy policies in a narrow sense.

Qinghai Province has been actively promoting the development of circular economy. Since the development program of the Chaidam Circular economy Experimental Zone (CCEPZ) obtained the approvals of the six ministries or commissions like the National Development and Reform Commission in 2005, becoming one of the first 13 national circular economy pilot parks, the circular economy in Qinghai has developed rapidly, with its plans and fundamental policies initially formed. In 2010, the Xining Economic and Technological Development Zone (XETDZ) was approved as one of the second batch of national circular economy pilot parks; in 2013, the Qing Provincial Party Commission and the Qinghai Provincial Government promulgated and implemented the *Action Plan for the Construction of National Circular economy Development Pilot Zone in Qinghai* (hereafter referred to as 'Action Plan of Qinghai"); in 2015, the CCEPZ and the Circular economy Pilot and

[1] Xi Yongqing. Research on Mechanisms and Policies regarding Circular economy Development [M]. Beijing: Social Science Literature Press, April,2014, 231-232

Demonstration Zone of XETDZ went through the joint acceptance procedure of the seven national ministries or commissions; in January, 2016, Datong County was approved as a demonstration county construction area of national circular economy demonstration.

## I. Practice Basis

Polity science provides good methodological guidance for applying theory into practice. It "generally serves as a bridge between pure research and applied research"[2]. Circular economy policies are a ligament connecting circular economy theory with practice, having a strong behavior orientation. Their behavioral implementation needs a series of links such as policy-related design, execution and effect feedback to ensure the achievement of policy targets. Meanwhile, policy system of circular economy is built on a particular institutional system. On the one hand, the perfection of policy performance depends on institutional innovation. In other words, irrational factors in the applicable institutional structure need to be eradicated and replaced by harmonious and appropriate structural arrangement. On the other hand, innovative system can raise new requirements for policy system vice versa, thus enabling the timely development of new policy instruments to satisfy the institutional arrangement after the evolution. Over the past ten years, the practice of circular economy in the PRC has provided a practical basis for the establishment of a policy system regarding the construction of national circular economy pilot zones in Qinghai. Since the idea of circular economy was introduced into China in the 1990s, it was rapidly spread. Nowadays, the great development of circular economy has become a significant development strategy in the PRC. In July, 2005, the State Council promulgated a succession of documents like the *State Council's Notification on Adequately Implementing the Recent Priorities in Constructing a Saving-oriented Society* (Reference No. Guofa [2005]21) and the State Council's A Number of Opinions on the Acceleration of Circular economy Development (Reference No. Guofa [2005] 22). In 2008, the state issued a document entitled the *Law of the Promotion of Circular economy*; in 2013, the state issued another document named the Strategies of Circular economy Development and Near-term Action Plan (hereafter referred to as Development Strategies and Action Plan). Over ten years of practice and exploration, relevant circular economy activities are being increasingly and extensively carried out at the levels of enterprise, park, industry and society. Circular economy policies have greatly promoted the rapid development of circular economy, but there have been lots of problems with the policies in the practical activities. Therefore, it is necessary to constantly improve the policies.

### 1. Micro-level Practice: Small Recycle

In 1992, the World Business Council for Sustainable Development (WBCSD) proposed the concept of ecological economic benefit in the report of *Processes in Evolution* and greatly promoted practices of circular economy at the enterprise level in its member enterprises. In essence, ecological economic benefit requires a recycle of materials and energy of an enterprise at the production level in an effort to achieve the minimum of pollutants

2 Chen Zhenming. Analysis of Public Policies [M]. Beijing: The People's University of China Press. 2004, (3): 12-16

emission. The practice of small recycle at the enterprise level is a kind of innovative modern process of clean production that mainly uses the idea of circular economy to design energy-saving, water-saving and reduced consumption.

The state has placed a high value on the fundamental role of small recycle of enterprises in the development of circular economy and the ecological protection. It has not only provided the great support at the level of policy, including program orientation, financial support, preferential taxes, S&T innovation support and concessive loans, but also streamlining institutional framework of implementing clean production for enterprises through laying out a series of laws and regulations, such as the *Law of Prevention and Control of Environmental Pollution of Solid Wastes* in 1995, the *Law of Prevention and Control of Atmospheric Pollution* promulgated after the two revisions of in 1995 and 2000 respectively, and the *Clean Production Promotion Law* that began implementing on January 1, 2003. In practice, the state began with "Small Recycle" of circular economy development. In 2005, the national pilot work of circular economy was carried out nationwide, priority sectors and fields also take enterprise recycle development as a primary object. In the first and second batches of national circular economy pilot units, over a hundred enterprises were identified to implement circular economy. In the process of economic development, Qinghai has actively implemented national policies and laws regarding circular economy by strengthening small recycle development at the enterprise level. In accordance with the arrangement of the national circular economy improvement program, qualified enterprises in the Chaidamu Circular economy Experimental Zone (CCEPZ) and the Xining Economic Technology Development Zone (XETDZ) have implemented circular economy improvement projects.

1) **A few enterprises automatically have attached great importance to small recycle, thus adding a value from the practice that circular economy contains economic, social and ecological benefits.** For example, the enterprise of Asian Silicon Company located in the Dongchun Industrial Park in Xining has paid much attention to small recycle at the enterprise level. Over the past decade since the company was funded, it has constantly invested human, physical and financial resources to carry out its technical innovations. Presently, it has made use of the cooling hydrogenation technique of large size fluidized beds, the technique of large size forcing and reduction furnace with 48 cobars and efficient preheat recycle use, the rectification technique of efficient heat coupling and energy conservation, the technique of optical silicon tetrachloride production, the technique of recovery and use of restored tail gas and energy conservation. The techniques at the international leading level have enabled the company to increase preheat use rate from less than 30% at the beginning to 80% at the moment, to save energy of standard coal of about 67,400 tons per year and water use of 414,000 tons per year and to reduce the carbon dioxide emission of 177,000 tons per year, sulfur dioxide emission of 573 tons per year, carbon oxide emission of 500 tons per year. In 2015, the Dongchuan Industrial Park was identified as a transformation and demonstration zone of circular economy. Up to 50% projects out of circular economy transformation projects requested and approved by the state were successfully obtained by the Asian Silicon Company in the whole park. Of course, in the development of small recycle, the company has, through internal technological innovations, laid a solid

"cost" basis for further survival and development within the context of the weak silicon market. [3]

2) **With the national mechanisms of policy orientation and legal enforcements, many enterprises have come to implement small recycle at the enterprise level through technical innovations.** Take the Qinghai Qiaotou Aluminum Power Company, Ltd located in Datong County as an example. As a result of the original 5*125MW coal-fired power generation units, it had high energy consumption, low standard design pollution emission, big pollutants emission, including sulfur dioxide emission of 10,292 tons per year, carbon oxide emission of 24,496 tons per year and dust emission of 2,409 tons per year. However, in the situation of the great national attention to environmental protection, with the orientation of the newly promulgated *Law of Environmental Protection* and under the pressure of atmospheric quality assessment from the local government, the company has decided to close up the original 5*125MW coal-fired power generation units and planned to invest RMB 7.6 billion yuan for reformation, thus it began the construction of 3*660MW coal-fired power generation units in August, 2016. The project to be newly built shall adopt critical boilers having the characteristics of high heat efficiency and low heat consumption, with its pollutants emission to be designed according to ultralow emission criterion, thus decreasing energy consumption, operation costs and emission of various pollutants up to 90%.

## 2. Mezzo-level Practice: Intermediate Recycle

According to the law of recycle and coexistence of ecological system, through communicational network connection, coordination of environmental protection and regional resource sharing and functionally mutual supplementation among all organizations, it is possible for different enterprises to form an industrial coexistent combination of resources sharing and byproducts exchange, to make wastes generated in the upstream production process become the raw materials in the downstream production process to achieve integrated use and mutual optimal resource distribution and to enable economic development and environmental protection to be on the right track.

Ecological industrial park is an important form of circular economy. In accordance with the 3R principles and the law of industrial ecology, it is possible to take advantage of integrations of materials, energy and information among enterprises to form industrial metabolic and coexistent relationships among enterprises. Ecological industrial park is a park of the third generation, following the industrial park and the high-tech park. Intermediate recycle cares about not only economic development but also environment protection and resource use. Industrial chain of circular economy is born with a number of properties of public commodities and external traits. At a formative stage, there are

3 The Asian Silicon Company, Ltd, is an enterprise with high energy consumption, with its power use cost being the main part of its product cost. According to the technical head of the company, it has an annual power consumption of 1billion kilowatts. Generally, the mean industrial power use price in Qinghai is around 0.41 yuan /per kilowatt, but compared with those in Xinjiang and Inner Mongolia, the mean price is over RMB 0.20 higher than them. In such as way, the annual power use cost for the Asian Silicon Company is additionally RMB 200 million yuan higher than other costs of the same type local products in terms of power use price.

weaknesses such as weak identifiable price signals and expected potential profits, dependence upon market distribution of resources, poor motivation and function of industrial association. Therefore, to promote the development of intermediate recycle in the ecological industrial parks, it is important to make good use of compulsory constrain and incentives provided by institutional policies or subsidies directly provided by governmental finance. At present, the development of intermediate recycle is highly motivated by incentive mechanisms with respect to industrial and investment policies. In brief, the state has carried out directional adjustment and control of industrial structure, technology, organization and layout built on the market mechanism.

**1) Practice of the CCEPZ**

The CCEPZ is the only national one based on regional characteristics and set up in the ethnic minority area of the Qinghai Plateau at the time of carrying out the first batch of circular economy pilot work by the state. It is also a major battle field for the Qinghai Provincial Party Commission and the Qinghai Provincial Government to develop Qinghai into a national circular economy pilot region. In September, 2010 and December, 2013, the Provincial government laid out a series of supportive policy documents on separate occasions, like the *QPG's a number of Opinions on the acceleration of Promoting the Development of the CCEPZ* and the *Action Plan of Qinghai*. The documents state policy support in the aspects of land security, S&T support and fiscal taxation, setting up a special fund of RMB 1 billion yuan for circular economy development, of which part of the fund is used for the construction and development of the experimental zone.

Up to now, the CCEPZ is being actively developed. Firstly, considering the natural endowment of rich salt lake resource in the Chaidamu Basin, the zone has proposed an important strategic approach - cascade development of salt lake resources. It centers on the development of salt lake resources, beginning with potassium resource development and focusing on development and extraction of rich magnesium and sodium elements contained in the potassium halogen. The zone has attempted to foster industrial system of integrated use of salt lake resource based on resource cascade development and supplemented by counterbalance of gases such as chlorine and hydrogen chlorine. And the zone has succeeded in developing sylvite series products such as potassium chloride, nitrate of potash, potash magnesium sulphate fertilizer, sodium series products like caustic soda and sodium carbonate, magnesium series products such as high-purity magnesium hydrate, high-purity magnesia and magnesium metal, lithium series products like high-purity lithium carbonate, high-purity lithium chloride and boron series products of borax and refined boric acid, thus forming a situation of industrial groups of cascade development and integrated use of salt resources based on five chemical elements of potassium, sodium, magnesium, lithium and boron. Secondly, the zone has taken the strategic adjustment and transformative upgrading of economic structure as a major attack orientation of the breakthrough development of circular economy, thus soundly promoting the growth of emerging industries like renewable energy, advanced materials and distinctive biology. For the renewable energy industry, the zone has enticed a succession of renewable energy enterprises nationwide to be located in the Chaidamu Basin. In the past few years, it has achieved an installed capacity of renewable energy of 3,260 megawatts (MW), of which the

photovoltaic installation capacity accounts for 9.2% of the total national photovoltaic installation capacity, thus having creating a number of international and national extremities like the largest solar energy photovoltaic installation capacity of power plant in the short time within the same region, the largest grid-connected system engineering of solar energy photovoltaic power plant worldwide and the first photo-thermal power plan of commercial operation nationwide. Up to now, the Chaidamu renewable energy industry has had an cumulative power generation capacity of 9.6 billion kilowatts per hour, with the proportion of renewable energy in the energy structure accounting for 41%. Compared with the thermal power of equivalent power generation, it is about saving 3.36 million tons of standard coal and reducing 8.95 million tons of emission of carbon dioxide, thus achieving the win-win of economic benefits and environmental benefits.

**2) Practice of the XETDZ**

The XETDZ is classified by the State Council in the second bath of experimental zones of circular economy development. In the period of the Twelfth Five-Year Plan, the zones fully implemented 106 industrial node projects of circular economy, making attempts to introduce a batch circular economy projects with highly added values, low energy consumption and low emission. In a sense, the zone has actively pushed technological innovations of enterprises and recycling reformation of the park and speeded up constructing a recycling industrial system.

Firstly, the industrial chains in the park have been initially established, involving sophisticated processing of nonferrous metals, featured chemical engineering, advanced materials, renewable energy, Tibetan carpet and woolen textile, biological products, Chinese and Tibetan medical herbs and so on. The development zone has adequately implemented the *Action plan of Qinghai*, fully creating a number of industrial chains, namely, chain of silicon materials and photovoltaic manufacturing, chain of copper sophisticated process, chain of electronic aluminum and copper foils and their extensions, chain of Tibetan carpet and woolen textile, chain of lithium battery materials and stored energy (power) battery, chain of photovoltaic condensation battery, chain of nonferrous metal metallurgy and deep processing, chain of carbon (graphite) materials and chain of engineering of fine chemicals such as chrome, fluorine and salt. And the zone has greatly fostered an industrial cluster consisting of intensive processing of highland unique animal and plant resources, Chinese and Tibetan medical herbs, Kunlun spar composite materials, and special environmental sanitary equipment. The zone sets about constructing four primary industrial systems, that is, system of metal metallurgy and intensive process supported by integrated use of mineral resources and clean production, system of featured biology based on development and utilization of highland animal and plant resources, system of emerging industries dominated by renewable energy and advanced materials, system of chemical engineering industries built on integrated development of various gases and salt lake resources. The zone has made great efforts in implementing a batch of projects of circular economy industrial chains and causing the chains gradually much improved, thus having obtained new effects in the pilot work of circular economy in the park and gone through the acceptance procedure of national pilot and demonstration units regarding circular economy smoothly. In May, 2015, the seven ministries or commissions like the

National Development and Reform Commission jointly issued an announcement, confirming that development zones can continue enjoying preferential treatments from investment and financial policies for pilot units and be given priority on equal terms in organizing and carrying out “Ten-hundred-Thousand” demonstration actions of circular economy.

Secondly, the zone has developed priority and demonstrative enterprises in the priority sectors or fields. Specifically, priorities are placed on developing the Qinghai Baitong High-purity Materials Development Company, Ltd, the Qinghai Xiaohe Nonferrous Metals Company, Ltd, the Qinghai Jinguang Nickel-Chromium Materials Company, Ltd, the Qinghai Jihua River Source Company, Ltd in the sector of nonferrous metals; the Qinghai Salt Lake Sodium Chemical Engineering Company, Ltd, the Qinghai Yuntianhua Mining Company, Ltd and the Qinghai Zijin Mining Company in the sector of textile; and the Qinghai Snow-boat Three-wools Group Company, Ltd, the Qinghai Tibetan Carpet Company, Ltd and the Qinghai Shengyuan Carpet Company, Ltd in the sector of textile. Those enterprises have basically established their own circular economy modes, having obtained obvious benefits in terms of energy saving and consumption reduction, emission reduction and efficiency increase and the achievement of efficient transformation and use of resources.

Thirdly, in many sectors of nonferrous metals, chemical engineering and building materials, an integrated coexistent network of circular economy industries has been established, with typical development modes, like closed processing mode of resource development and cyclic utilization in the Qinghai Salt Lake Sodium Chemical Engineering Company, Ltd, recycle development mode of titanium metal industrial chain of the Qinghai Energy Agglomeration Titanium Industry Company, Ltd, corporate recycle development mode of nonferrous metals intensive processing of the Qinghai Lufen Xinheng Company, Ltd and recycle development mode of spar silicon industry of the Yellow River Renewable Energy Company, and so on. The zone has got remarkable performance in integrated development and recycling use of resources. It has actively strengthen the integrated development and recovery of resources of lead zinc deposit and associated minerals so that over 98% of valuable metals like zinc, lead, indium, cadmium, copper, gold-copper in lead concentrates and zinc concentrates are comprehensively used, with a total recovery rate of lead melting of more than 95% and a total recovery rate of electrical zinc of 97%. Therefore, the zone has increased the integrated recycling use level of valuable elements in nonferrous metals industry, realizing the optimization and upgrading of nonferrous metals metallurgy.

Fourthly, the zone has focused on promoting the integrated use of solid wastes like smelting waste, chemical waste and organic waste. For instance, production processes such as washing and recycling of smelting waste, cement-making of acetylene sludge and brick-making of phosphogypsum have reduced pollutants emission, saving and replacing other resources; and recycling systems of waste water and waste gases are established to improve the repetitive use rate of water and to achieve the recycle use of gas resources by greatly promoting recycling use of smokes of ferrosilicon, ferrochrome and carbon as well as cogeneration of power.

Lastly, according to requirements for constructing an industrial system of circular economy, in the park enterprises, the zone has spared no effort in implementing technical reformation of energy saving and emission reduction in the park enterprises and intensified efforts for technical development. Specifically, the zone is greatly implementing a number of projects of energy saving and emission reduction and integrated use of resources, like application of converter technique of electrolytic aluminum, cogeneration of ferroalloy, cement denitration reformation, thermal field reformation of monocrystalline silicon furnace, efficient cooling hydrogen of polycrystalline silicon and energy conservation rectification and purification. Additionally, it has enthusiastically been extending new techniques of clean production as well as energy conservation and emission reduction, thus constantly enhancing the level of integrated use of resource and energy conservation and emission reduction. It is noted that the energy conservation and emission reduction has obtained obvious effects, completing the targets and tasks the Municipal Government set up. Compared with the end of the "Eleventh Five-Year Plan" period, the integrated consumption has decreased by 23% in terms of ten thousand industrial value added.

### 3) Practice of Circular Economy Development of Datong County

For historical reasons, Datong County formed an industrial layout with high energy consumption and high pollution, thus make environmental pollution management extremely difficult. In response to this issue, the mode of circular economy development has become an inevitable choice for the sustainable development and environmental management of Datong County. In 2013, Datong County was identified by Qinghai Province as one of the first batch of circular economy pilot zones to greatly implement the renovation scheme of circular economy. In the Datong Qiaotou Aluminum Power Plant, all of newly established 3*660MW generator units have their industrial water source from the reclaimed water of the Datong County Sewage Treatment Plant, trying to achieve the target of "Zero" discharge. After the establishment of the scheme, it will save water of 12.22 million tons, thus having great significance to the protection of underground water resource. The Qinghai Yihua Chemical Engineering Company, Ltd, generates 1,200 tons per day of solid waste acetylene sludge in the process of production, and there is not only large amount of flying dust in the transportation, but also extensive land occupation for solid wastes. In the renovation scheme of circular economy in Datong County, the company has cooperated with 3 emerging building materials enterprises by supplying acetylene sludge as raw materials to those three enterprises. The Qinghai Yihua Chemical Engineering Company has invested RMB 88 million yuan and established a set of conveyor belts systems of acetylene sludge, which is at the test-run stage. In January, 2016, Datong County was identified as a demonstrative county of national circular economy development.

## 3. Macro-level Practice: Large Recycle

The concept of "Recycle-oriented society" first appeared in the Germany's *Recycle-oriented Economy-Law of Exhaust Gases*. In April, 2000, the *Fundamental Law of the Formation and Promotion of Recycle-oriented Society* passed through in Japan was the first legislation of "Recycle-based society" around the world. At the social level, present focus is on implementation of hazard-free treatment, volume reduction and resource

recycling of living garbage, that is, implementing recycle of materials and energy in and after the production. Additionally, recycle-oriented society should include urban greening and circular economy development of the tertiary industry. In the mode of circular economy, the process from small recycle to intermediate recycle to large recycle does not have any concept of "waste", for wastes generated in each step of production become raw materials in the next step of production, thus all materials are recycled and used repeatedly. In the early 1990s, the PRC extended and launched projects of ecological demonstration zones. In 1997, it began the establishment of environment protection model cities. In 21th century, it proposed creating ecological cities and provinces. The approach of realizing of ecological cities and provinces is undoubtedly about the great development of circular economy at the social level, that is, what is called large recycle, with its basic requirement of industrialization of resource recycling. In China, the *Law of the Promotion of Circular economy* explicitly stipulates fields for implementing circular economy includes production, circulation and consumption[4]. The state offers corresponding support of financial and taxation policies for priority fields of circular economy. On January 5, 2012, the Ministry of Industry and information issued officially a document entitled the *Twelfth Five-Year Plan for the Integrated Use of Enormous Amounts of Solid Wastes,* stating that the integrated use rate of enormous amounts of solid wastes will reach 50% by 2015. To achieve this goal, the administrative authorities will implement the ten priority projects, with a total investment amount of as high as RMB100 billion yuan. Some places have attempted to implement innovative investment and financing policies. For example, the Nanjing Municipality has attracted private funds of citizens in the form of joint stock system to participate in the construction of urban infrastructure and public facilities. In such a way, the citizens can get dividends higher than the rate of saving deposits and the government can obtain construction funds lower than the rate of bank loans. In April 19,2012, the State Council issued the "*Twelfth Five-Year Plan for the Construction of Urban Facilities of Sewage Treatment and Recycling Use Nationwide*", clearly stating that, by 2015, all of directly-controlled municipalities, provincial capital municipalities and specially planned municipalities shall realize hazard-free treatment of living garbage, with a designed rate of hazard-free treatment of urban living garbage of over 90%, a capacity of hazard-free treatment in counties under city at the rate of hazard-free treatment of 70%, and an incremental facility capacity of hazard-free treatment of living garbage of towns nationwide of 580,000 tons per day. In May 8, 2012, the Ministry of Science & Technology, together with the seven ministries or commissions like the National Development and Reform Commission and the Ministry of Environment Protection, officially issued a document entitled the *Twelfth Five-Year Plan (Special) for Technological Scheme of Wastes Recycling* in an effort to lead the development of strategic emerging industries of energy conservation and environment protection by promoting wastes recycling, hazard-free treatment and disposal and scalable absorption. Since July 1, 2012, China has formally implemented the *Management Methods of Levying and Using Funds for the Treatment of Abandoned Electrical Appliances and Electronic Products*. The funds give rated subsides to treatment enterprises according to actually completed numbers of abandoned electrical appliances and

4 Article 2 of the *Law of the Promotion of Circular economy* stipulates, "As defined in the Law, circular economy refers generically to activities such as volume reduction, using, resource recycling carried out in the process of production, circulation and consumption.

electronic products that have been disassembled and treated. Specific criteria are as follows: RMB 85 yuan per TV set, RMB 80 yuan per fridges, RMB 35 yuan per washing machine, RMB 35 yuan per room conditioner and RMB 85 yuan per microcomputer. However, large recycle depends more than changes in people's living style, consumption style and behavior pattern as well as corresponding social organization forms and social policies. In April, 2010, the Ministry of Housing and Construction, the National Development and Reform Commission and the Ministry of Environment Protection jointly issued a document called the *Guideline of Treatment Techniques of Living Garbage*.

The practice of large recycle at the social level in Qinghai Province should and has started with the treatment of kitchen wastes. In 2007, the Xining Municipal Government took advantage of market-oriented operation to carry out a service of uniform collection, transportation and disposal of kitchen garbage. Since the Xining Kitchen Garbage Treatment Project was launched in June, 2008 for production and operation, around 120 tons of kitchen rubbish generated daily in the urban area have been turned into products like protein feed and biodiesel through the process of separation of solid and liquid, breaking and disinfection, thus basically achieving the hazard-frees treatment of kitchen rubbish. Xining Municipality had a rate of resource recycling of kitchen garbage of 99% [6]. On November 1, 2009, as the first local legal code regarding kitchen rubbish management in China, the Xining Kitchen Garbage Management Regulations was officially implemented, the Kitchen Garbage Treatment Plant signed contracts with up to 3000 production units of kitchen garbage, at the signing rate of over 95%, basically ensuring that kitchen garbage cannot be lost at the outset. In 2013, article 7 of the *Action Plan of Qinghai* explicitly stipulates "to promote the development of circular economy at the social level" and sets up corresponding targets, for example, by 2015, the resource recycling use rate of urban living garbage will reach 30% and the recycling use rate of urban waste water will amount to 20%. In 2015, the Chengxi District of Xining Municipality began the implementation of the pilot work of "Garbage Assortment and Treatment".

In recent years, under the pressure of atmospheric and water pollution management, the Qinghai Provincial Government has attached great importance to shifting coal-heating to gas heating scheme in winter and sewage treatment. Xining Municipality, Haidong Municipality and Yushu Prefecture have obtained obvious effects, in particular, shifting coal-heating to gas heating scheme in Xining Municipality has been almost completed. The shifting scheme puts priority on the three counties and has already gone into rural areas. For example, the scheme is being implemented in 4 villages of Shangxinzhang Township in Huangzhong County for 1015 households. The Xining Dongchuan Reclaimed Water Plant treats living waste water into claimed water which in turn becomes industrial water for enterprises like the Asian Silicon Company. Datong County is constructing a living waste water treatment plant. It is also a reclaimed water plant that provides recycled water for the newly established generator units of the Datong County Qiaotou Aluminum Power Plant. The Qinghai Provincial Housing and Construction Bureau has promoted the implementation of green buildings in the whole province through energy conservation transformation of existing houses province-wide and setup of energy conservation criteria for newly established houses in terms of capacity assessment of project approval, design requirements, construction acceptance.

## II. Research Basis

Research subjects of national circular economy policies can be summarized in the five primary aspects:

### 1. Experiences / Lessons Learned from Foreign Systems on Policies & Legal Codes

Major viewpoints:

1) It is advisable to set about formulating policies at the concrete technical level to increase operability and directionality.
2) Legislative institutions in China are not appropriate as microcosmic bodies to participate in the development process of circular economy, but they should make institutional arrangements and develop laws and regulations and policies to encourage producers and consumers to pursue the maximum of their own interests following the mode of circular economy. It is essential to connect policies with laws in an organic manner. In various levels or fields such as clean production, ecological industry, wastes management and renewable energy use, it is necessary to promote policies and laws as well as to pay attention to give full play their integration role.
3) It is important to adopt the methods such as technical progression, market regulation and control, public participation and legal accountability in an integrated fashion.
4) Overall situation should be combined with specialized areas in the development of policies and various modes can be assessed comprehensively in terms of lawmaking. Based on Chinese current laws, it is appropriate to develop a uniform fundamental law of circular economy, while it is important to take serious consideration to the role of other independent laws and other legal agencies, thus strengthening legislation.
5) It is wise to increase coordination among agencies like environment protection agencies and economic agencies. [5]

### 2. Structure of Policy System of Circular Economy

Major viewpoints:

1) Research on policies of circular economy covers two dimensions as follows: one is developing target-oriented policies concerning input end control, process control and output end control based on the theory of life cycle evaluation; another is developing regulative and institutional policies, market policies and participation policies determined by policies.
2) Policy system of circular economy should include three aspects; fundamental policy,

5. Ye Ming, Wang Yang. Japanese Legislative Practice of Circular economy and Its Implications for China [J]. Price monthly, 2008, (2); Dong Liandang, etc. Japanese Strategic System of Circular economy and Its Implications for China [J]. Asian and Pacific Regional Economy, 2008, (2); Zhu Yunhua. The Application of Circular economy in Developed Countries [J]. Transport S&T and Economy. 2008, (2); Research project team. Fundamental Experiences of Developed Countries regarding Circular economy [J]. Macro-economy Study. 2005, (4); Zhang Wanru, Wang Hailan, Jiang Yiran. Circular economy Legal Codes and Practice in Japan [M]. the People's Press, March, 2008.

core policy and basic policy. Fundamental policy refers to a fundamental and generally applicable guideline policy of circular economy development, with the purpose of identifying the strategic position of circular economy in the socioeconomic development and proposing its overall strategic objectives, steps, major systems and measures. According to Japanese experiences, fundamental policies include fundamental laws and fundamental plans. Prior to the issuance of fundamental policies, it is possible for the PRC to first issue a document of fundamental policy, like the *State Council's Opinions on the Acceleration of Circular economy* issued by the State Council. Core policy refers to a policy that can directly promote priority fields of circular economy, that is, fields of production and consumption. They consist of the four priority industrial systems, namely, ecological industrial system, ecological agricultural system, green service system and industrial system of recycling and hazard-free disposal of old and rejected resources. Basic policy refers to a policy for making a big difference in creating a good institutional environment for the practice of priority fields of circular economy. It mainly covers aspects such as policy of economic structural adjustment, trade policy, property rights system favorable to resource and environmental protection, policies of finance, taxation and prices, accounting system of national economy, audit system and cadre assessment system. In light of national realities in the PRC, 3-level policies cannot get complete synchronization, for changes in basic policies are currently in big resistance and difficulty, thus taking long time. Therefore, it is wise to take core policy as a currently feasible breakthrough.

3) It is important to develop a mutually counterpart policy system of circular economy, including policies of macrocosm, industry, finance, taxation, investment and financing, pricing, technology, trade, administration and public welfare.
4) It is appropriate to construct a policy system of circular economy in the seven following aspects: development strategy, economic policy, industrial policy, technological policy, consumption policy, educational policy and legal security. It is advisable to greatly develop knowledge-based economy, to clarify environmental property rights, to adjust system of resource pricing, to establish a green national account, to "green" existing industries, to development environmental-friendly industries, to develop high-tech technology and hazard-free environmental techniques, to orient green consumption, to carry out green education, and to refine legal systems of environmental protection as well. [6]

## 3. Constraints of Finance & Tax Policies on Promoting Circular Economy Development

6 Zhu Xianglin. The Acceleration of Constructing Systems of Laws, Regulations and Policies regarding Circular economy Development in China [J]. Modern Management. 2010 (7); Xie Haiyan. Study on Policy System of Circular economy in China [M]. Beijing; Intellectual Property Rights Press June, 2006; Xi Yongqing, Yangxin. Optimization and Design of Policy System of Circular economy in China [J]. Jimei University Journal (Philosophy & Social Science Version), 2012 (2); Li Chang. Research on the Composition of Technological Policy System of Circular economy in China [J] Work and Practice, 2015 (22); Wang Hanjie. Policy System of Promoting Circular economy Development in the new economic normalization [J]. China Executive Administration, 2015 (9); Wang Pengyu, Kun Fanwen. Developing a Financial Support System that Caters to Circular economy Development in China [J]. Reform and Opening, 2015 (14).

Major viewpoints:

1) In terms of protection and management of ecological environment, there is more serious shortage of financial input than ecological demand.
2) Environmental protection has a low level of investment utilization.
3) Applicable taxation incentives are functionally limited in terms of environmental protection.
4) There are problems with applicable charge systems of emission.
5) There is a lack of tax categories for environmental protection.
6) Applicable taxes for natural resources have issues such as out-of-place nature; too narrow taxation scope, improper tax calculation basis and too low unit tax amount.

## 4. Policy Suggestions for Promoting Circular Economy Development

There are 7 policy suggestions for the promotion of circular economy development in the PRC. They are as follows:

1) It is important to develop a financial subsidy policy for enterprises carrying out clean production and developing circular economy, specifically, including direct goods price subsidy, enterprise loss subsidy, financial interest subsidy and pre-tax loan payment.
2) A governmental green procurement system shall be established. The government gives priority on procuring cyclic regeneration products, environmental label products, authenticated enterprise products, and other green products of saving energy, water and resources.
3) It is essential to strengthen governmental investment orientation. Governmental investment projects should be environment infrastructures, ecological industrial parks and important technological fields and important project fields with big external effects, high industrial correlation and demonstrative and inductive roles.
4) The PRC should normalize the management of restrictive charges and improve current charge criteria for emission. There should be the clarification that emission charges be state-owned fund and the suggestion that gratuitous return policy be cancelled. The charges shall be uniformly used as special budget fund to support the development of circular economy. Moreover, it is necessary to establish relevant mechanisms of producers responsibility extension to enable profitable resource recycling and environmental protection and target-oriented counterpart polices and to enable violation costs far exceeding violation gains, thus fundamentally interdicting the driving mechanism of violations.
5) There is need to reform applicable taxation system, including refining resource tax, reforming consumption tax and adjusting other tax categories.
6) It is advisable to further improve levying and management system of environment protection categories in a progressive manner. It should start with tax payers with sever pollution and easy levying and management and then be extended to others after obtaining experiences and ripe time.
7) There needs to be a perfection of preferential taxation policies, especially by

formulating the one for the use of rejected materials. [7]

## 5. Evolution of Circular Economy Policies in China

Since the Chinese Government launched the initiative of circular economy development approaching the end of 20th century, it has generally gone through the four stages such as idea advocating (approach the end of 20th century to 2002), national decision-making (2003-2005), pilot and demonstration (2006-2008) and overall promotion (2009 up to now) [8]. Correspondingly, the evolution of circular economy policies in China has experienced the infancy stage (approaching the end of 20th century to 2002), where regulative and institutional policies were primarily laid out, and the initially formative stage (2003-2005), at which there were mostly still regulative and institutional policies and focus was already on pollution management at the outset. The rapid development stage (2006-2008) was a stage of overall planning and orientation, pilot and demonstration and policy support. Eventually, there comes the relatively mature current stage (2009 up to now) where circular economy policies have gradually made possible the shift from most regulative and institutional policies to most market policies and the government has provided and set up special funds and governmental green procurement to orient the development of circular economy.

# III. Research Thinkings and Fundamental Policy Framework

With the repaid development of circular economy development in China, increasingly deep, sophisticated and systematical research of circular economy policies has provided a solid theoretical research foundation for adequately upgrading the applicable system of circular economy policies. According to levels of circular economy policies, they can be categorized into two parts: circular economy guidelines and polices at the national level and circular economy policies at the local level. For both regulative and institutional policies and market policies, the former ones have basically formed corresponding policy systems over 20 years of historical process. Unfortunately, field investigation reveals that there exist many inadequacies and imperfections in the circular economy policies of Qinghai at the local level. Therefore, based on principles like feasibility and efficiency and incentive and restrictive policies, the research project, by using issues as an orientation, makes explorative attempt to establish a policy system of promoting circular economy development in Qinghai based on the local realities.

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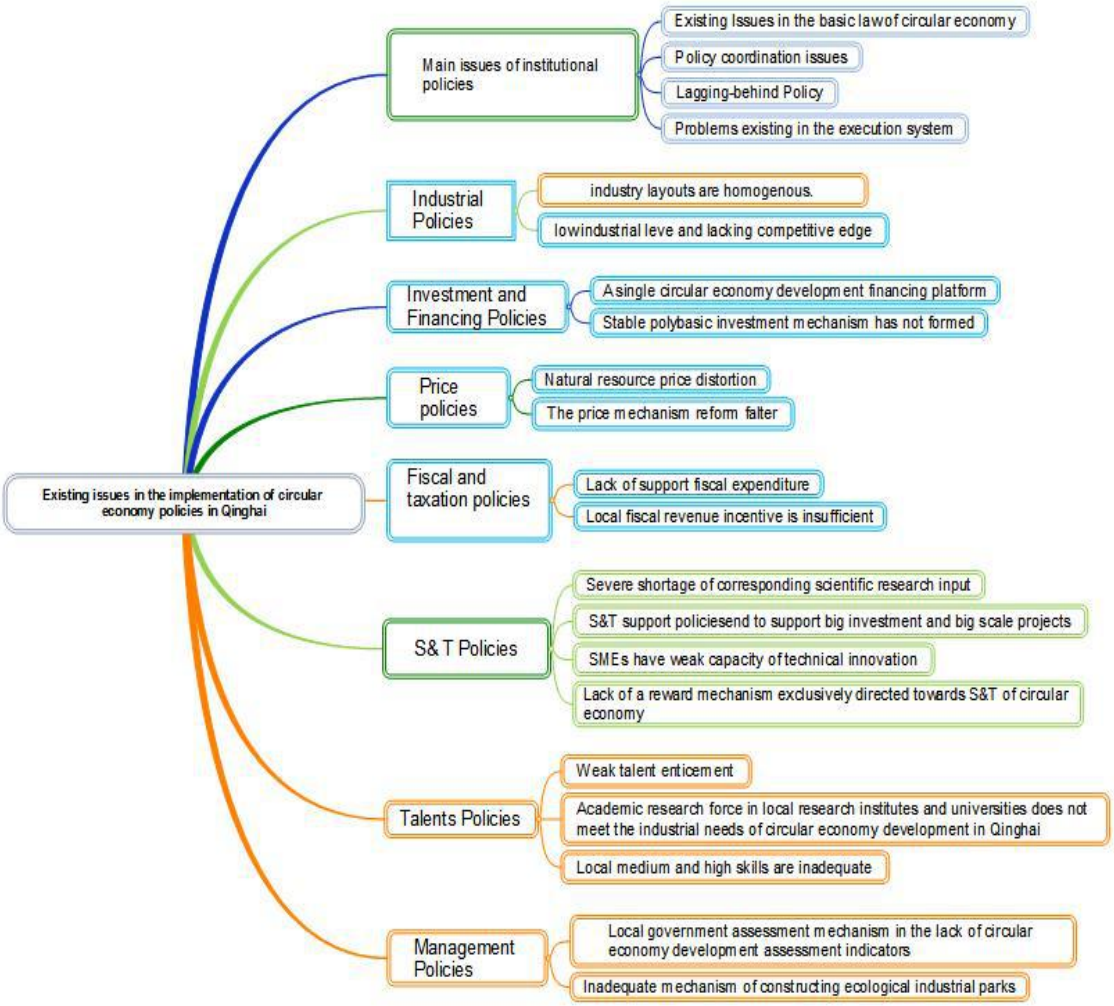
7 Zhang Zhiqiang, Research on Finance & Tax Policies of Circular economy in China [J]. Macroeconomic Management, 2010 (3); Han Qinghua, Wang Xiaohong, Chen Hua. Research on Finance & Tax Policies of Promoting Circular economy Development [M]. Beijing: Economy Science Press, 2009:116-218; Wang Yongjun, Chen Lin. Papers Collection regarding Circular economy [C]. Beijing: Economy Science Press, 2006:49-59; Liu Zaijie, Li Yan. Research on Finance & Tax Policies Based on Circular economy Development [J]. Central University of Finance and Economics, 2011 (5); Yu Yanfang, Ma Tao. Finance & Tax Policies of Industrial Economy Development of Hebei Province in Light of Circular economy [J]. Shijiazhang Economics College Journal, 2011 (5)

8 Ren Yong, Zhou Guomei. Development Modes and Policies of Circular economy Development in China [M]. China Environment Science Press, 2009.

## 1. Orientation of Issues

Firstly, the research project has carefully streamlined various kinds of information obtained from the fields surveys, thus having cleared up existing issues in the implementation of circular economy policies in Qinghai. Here is a map of existing issues:



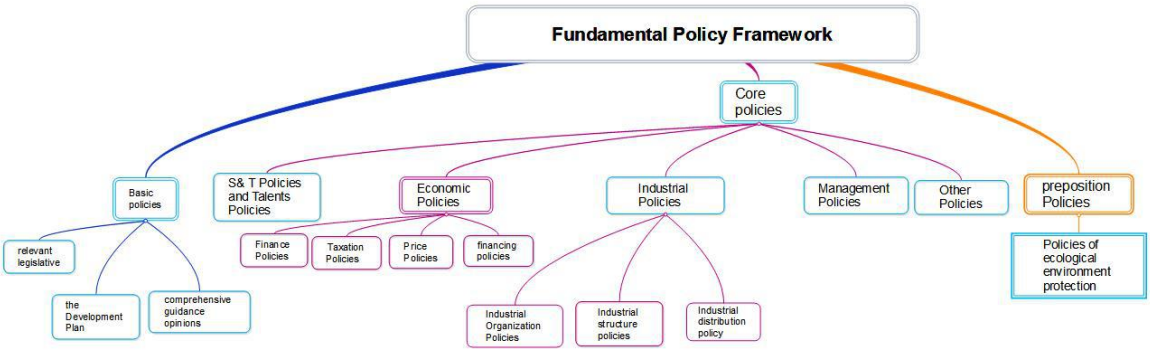

Graph1：map of issues

These issues reflect the weaknesses like uniformity in all cases, fragmentation, direct subsidy and pure overall discussion in the practice of circular economy policies at the macrocosmic level. The fundamental issue lies in the serious systematical inadequacy of policy implementation process. Firstly, there is poor compatibility between market policies and regulative and institutional policies, thus failing to jointly work on the market body and the consumption body in term of incentives and constraints; Next, the supreme decision-maker – the People's Congress have authorized relevant governmental authorities to develop concrete policies, like making a catalogue for compulsory recovery of products and packages, but the related authorities have made no responses so far, thus resulting in

the poor materialization of regulative and institutional policies of circular economy; Furthermore, different agencies and sectors have their own policies, with frequent conflicts and contradictions; Lastly, there is weak supply of local circular economy policies. As a result, it is extremely urgent to strengthen the promotion of policy system of circular economy development in Qinghai Province. Meanwhile, as an undeveloped region, Qinghai suffers from backward economy and limited governmental finance, thus having difficulty in providing powerful financial support policies. Therefore, in the research project, while developing a policy system of circular economy in Qinghai Province, it is essential to follow the principles such as orientation of local issues, being feasible and effective, and incentive and restrictive policies.

## 2. Fundamental Policy Framework

Based on the practice and theoretical research, the research project team has streamlined up a fundamental framework of policy system of circular economy in Qinghai Province (as shown in the table below).




Graph2:Fundamental Policy Framework

## 3. Two Issues to be Specially Explained

1) **Basic policies will not be included as an important component of the research project.** Basic policies cover the *Action Plan of Qinghai*, the *Program of the Qinghai CCEPZ*, the *Development Plan for the XETDZ*, and local legal codes and local governmental regulations regarding circular economy development promulgated by the people's congresses and governments of various levels that have legislative powers in Qinghai Province. Certainly, relevant legislative and comprehensive guidance opinions and development plans at the national level are also an integral part of basic policies. In terms of law-making, issues concerning national laws and regulations, rules can only be resolved by corresponding legislative bodies providing legislations, so the province can only make legislation on legal issues regarding circular economy development within Qinghai. From the streamlining and analysis, basis policies mainly concern existing issues with respect to relevant laws and regulations and rules. Therefore, under the principle of being feasible and effective, basic policies do not fall into the main

category of the research project. When examining concrete critical policies, the team will only carry out an analysis of unavoidable policy issues. In response, the research project team has put forward two suggestions: (a) It is necessary to actively create conditions for promoting the legalization progression concerning circular economy development. Since the Eighteenth People's Congress Conference, the Chinese Government has attached great importance to national governance by law. Experiences of developed nations in developing circular economy can also display the great importance of legalization to the sound development of circular economy; (b) the province must speed up the legalization process of its regulations for the promotion of circular economy. Local governments can make their own legislation within their legislative scope to effectively remedy the generality and abstraction of national legislations. The provincial circular economy development has strong geographical features, but owing to legal generality, it is impossible to give consideration to the provincial local features in national legislations. Therefore, to speed up the legalization work of regulations concerning circular economy is of great significance to realizing the goal of constructing circular economy development pilot zones in Qinghai. In the legislation process, it is necessary to place a high value on the standardization of local legislations and enhance their practical operability; it is also appropriate to careful study reliable experiences of policy legalization of promoting economic development in the development process of more than a decade years. For instance, special funds system with respect to circular economy development in Qinghai shall be fixed by in a legislative manner. All industrial parks should have stable special funds input, thus strengthening the continuity and stability of governmental inputs in this regard. It is advisable to greatly promote the joint academic research by the legal circle and the economic circle with regard to national ownership rights and property rights of natural resources, thus ensuring an effective right of speech in revising the Law of Property and formulating the Civil Law in China in the future.

2) **Policies of ecological environment protection have enjoyed a preposition status in the policy system of circular economy development in Qinghai Province, but they are not taken as a component of the project research.** The province has occupied an important ecological environmental position as a national ecological shelter. Actually, the majority of its region consists of forbidden or limitedly developing areas. In a real sense, the areas that await development are Haidong Prefecture (Haidong Municipality), Xining Municipality and Haixi Prefecture. Most of its region and even some areas included in the provincial development program are much ecologically vulnerable. Apparently, priority should be given to the protection of ecological environment in the socioeconomic development of Qinghai. The province has also explicitly stated the development strategy of "Ecological Protection First". As a result, it is wise to simply view environmental protection policies as subsidiary policies regarding circular economy development[9]. The research project team holds that policies of ecological environment protection should enjoy a preposition status in the policy system of circular economy development in Qinghai Province. The research subject in the

9 Xi Yongqing. Research on Mechanisms and Policies of Circular economy Development. [M]. Social Science Press. April, 2014, 255

research project is “policies regarding the promotion of circular economy development in Qinghai”. In essence, circular economy is an ecological economy. With the increasingly stringent national ecological protection laws and policies, especially the promulgation of the new *Law of Environment Protection* regarded as the strictest environmental protection law in history, the research on transformation of economic development mode has become a push-back mechanism and rigid constraint. Therefore, the concrete research in the project does not concern specific policies with respect to ecological environment protection.

# Chapter II Existing Policy Issues & Their Causes Regarding Circular Economy Development in Qinghai

Circular economy policies in the PRC are aimed at fundamentally resolving the realistic issue of increasingly deficient resources and seriously damaged environments resulting from the blind long-run pursuit of economic growth. Since the development mode of circular economy is designed to resolve the issue of market mechanism failure, it is important to have resort to powerful intervention of policies. However, there exit multiple influencing factors in the operation of policies, like policy subject, policy object and policy environment. Note that as a major carrier of regulative and institutional policies – law is one of the most important factors in them. It comprises elements such as human conduct codes and customs as well as social notions, playing a fundamental role in triggering, constraining or impeding the operation of public policies. In the project investigation, according to the staff of the agency of circular economy policy coordination, "Circular economy is comparable to a giant basket in which various policies are put, together with rigid constraint of legal system and repetition and overlapping of legal stipulations. As a result, there are overlapping, conflicts and repetition of power scope among law enforcement agencies, thus making policy coordination and implementation extremely difficult". In practice, there appear a number of sharp issues with the policy coordination and implementation. In China, a single governmental agency acts as not only a body of formulating relevant policies but also a body of enforcing relevant laws. Unclear rights and obligations among law enforcement bodies will inevitably be reflected in the formulation and implementation of polices. Therefore, it can be safely said that the systematical streamlining specific issues of circular economy policies existing in practice is a foundation for carrying out the principle of orientation of issues.

As an ecologically vulnerable western region, it is of great importance for Qinghai Province to develop its circular economy. It has to be recognized that he province has paid much attention to the development of circular economy. However, as a small economy province, it suffers from a poor economic or financial strength to support its circular economy development, thus the applicable circular economy policies in Qinghai have numerous issues with their actual operation.

## I. Existing Issues

### 1. Micro Level Issues

#### 1) "Clear Cut' Policy Issue and Lack of Regional Differentiation

Circular economy development should be based on development momentum of regional economy in different areas and requirements of national functional zone division, reflecting different development requirements in those areas. Therefore, the sound development of circular economy depends on differential policy support. In the process of circular economy development, the province has been implementing national industrial systems, mostly, "one cut' policies, that is, policy uniformity in all cases, thus a specialized, differential and

practical policy system that cater to the needs of regional development has not be established, thus failing to play an obvious role in pushing the development of industrial economy, occasionally even constituting an obstacle.

**2) Policy "Fragmentation" Issue and Difficulty in Forming Joint Forces**

In general, government agencies, based on their executive laws, acquire their own legitimate authority whose terms of reference also include contents determining support policies of economic development. As a result, according to the Law of the *Promotion of Circular economy*, the national and local development and reform commissions are the agencies in charge of circular economy work; the Ministry of Commerce and local commerce affairs commissions are the competent authorities responsible for resource recycling and reuse as the core part of circular economy; the Ministry of Environment Protection and local environment protection bureaus are the competent authorities of environment protection; local environment protection bureaus or departments take responsibility for the management of volume reduction of living garbage. Such polybasic management bodies have contributed to developing their own policies or related policies of circular economy development. While issuing policies, there is no effective synergy mechanism among agencies or departments, thus basically, each does things in his own way. As a consequence, there will be inevitably overlapping and repetition, and susceptibly loopholes in policy incentives and constraints with respect to circular economy development as well. There is possibility that the deserved encouragement is not given full play and unnecessary encouragement is done repeatedly. The agencies such as environment protection, reform, economy, business and safety supervision have corresponding enforcement powers regarding circular economy. However, legislation does not identify their power scope. Additionally, evolution of legal system leads to changes in management priorities of executive administration power scopes in different periods of time, thus enabling policies to have a fragmentation state in terms of implementation and the difficulty in forming joint forces. For example, when the development plan of the CCEPZ was approved, the state provides 10 kind of policy support, concerning land greening, highways, educational infrastructure, academic research and development of public techniques, priority security of natural gases and grid construction. The state council required the Qinghai Provincial Government and the concerned departments of the state council in its approval document to develop concrete counterpart measures and implement the development plan. However, the research project team was informed in almost all surveys that the tenth support policies are rarely materialized. In fact, the concerned departments should have their own action plans. Since the national ministries or commissions, the Qinghai Provincial Government, the Haixi Prefecture Government and the Management Committee of the Experimental Zone have different focal points and balance points in the materialization of the experimental zone plan and there are congenital inadequacies in terms of synergy between policy issuance and policy execution, thus finding it hard to form joint forces in the zone development. In the concrete policy execution, the resource allocation has ignored the basic position of market distribution. For instance, the annual volume of solar energy generation is divided into more than 20 targets assigned to the Chaidamu area, thus resulting in the fragmentation of resource distribution and failing to produce sizable effects.

### 3) Direct Subsidy Policy Issue

According to the field survey, the circular economy development in Qinghai depends to a large extend on the direct financial subsidy policies. Taken the Chaidamu Economy Experimental Zone as an example, since 2012, the state has allocated RMB 406.9 million yuan of special funds to support the recycling reformation project of 48 industrial parks in the experimental zone. In the process of circular economy development, direct subsides of governmental finance include those for circular economy development reformation and demonstration projects, academic research grants, electricity prices, water prices and social insurances and so on. Many enterprises carry out production activities of circular economy, fundamentally because they can benefit from direct subsidies of governmental finance. According to the data analysis of survey questionnaires of enterprises, 73.2% of enterprise executives expressed that developing circular economy for them is meant to acquire the support of governmental finance. However, such direct subsidies are not favorable to the growth and development of market mechanism as well as enhanced initiative of their automatic development of circular economy.

### 4) Policy "Generality" Issues

The Qinghai Provincial Party Commission and the Provincial Government has greatly pushed the development of circular economy by especially providing extensive policy support for the CCEPZ and the XETDZ. The field survey reveals that some policies are implemented while some are materialized with great difficulty, with "too general" policies in practice. For example, according to the Minutes of the Symposium of Circular economy in Chaidamu in May, 2014, the conference made a decision that policy support should be further reinforced. Specifically, the first policy support is "to greatly promote the strategy of simplifying administrative procedures and delegating powers to lower levels", and four concrete policies are laid out, one of which is "to administer the Administration Committee of the CCEPZ under the direct planning by the state and delegating the provincial investment authorities the power of project approval". In June, 2014, the detailed implementation work of the policy was explicitly delegated to the Provincial Development and Reform Commission. By April, 2016, the policy has shown no specific improvement. For the other three support policies, except the commercial institutional reform has been carried out nationwide and materialized to some extent, project approval procedures are still complicated and time-consuming.

## 2. Mezzo Level Issues

### 1) Immature Management Policies

For the whole economic and technological development zone, there has been inadequate mechanism of constructing ecological industrial parks. The XETDZ has a framework in which four parks are located, thus they have their programs and arrangements of circular economy development that are unrated with each other. While applying for circular economy reformation projects, the recycling process of industrial chains of their internal

enterprises is taken as a project. After the project approval, it can obtain the support of national project funds as well as other preferential treatments relating to taxes. Moreover, there has been the recycle of enterprise industrial chains. Unfortunately, the recycle may not acquire the financial support under the national circular economy reformation program without investment project backup possibly. In the meanwhile, for various preferential treatment policies, they are generally based either on projects or on energy conservation and emission reduction as well as use of old and abandoned materials. However, for the recycle using intermediary or accessory products generated by enterprises from other parks, there has been no preferential treatment.

There has been differential inadaptability in management systems and mechanisms among industrial parks. Park management committee system, sealing up governmental staff identity files for safekeeping, implementation of performance evaluation mechanism for business invitation and investment introduction and provision of "Baby-sitter" service for newly located enterprises have greatly promoted the work of business invitation and investment introduction in the parks. However, park management committees have not completely established sound relationships with local governments. There have been some realistic and sharp issues with the relationships between both of them, specifically, the Huangzhong County Government and the management committee of the Ganhe Industrial Park on the management of the Kangchuan District, and the Delingha Municipal Government and the Delingha Industrial Park and the Management Committee of the CCEPZ as well. Park management committees commonly do not get on well with government functional departments in terms of administration power scope. For instance, the Xining Municipal National Land and Resources Bureau expressed dissatisfaction with the XETDZ over the issue of land misuse, for the blame was put on the bureau in the patrol of the Ministry of National Land and Resources.

**2) Inadequate Industrial Policies**

To begin with, industry layouts are homogenous. In the *Action Plan of Qinghai*, the province has initially identified the industrial layouts of the CCEPZ, the XETDZ and industrial parks of priority counties. The action plan stipulates, "The CCEPZ shall place priority on the integrated development and use of salt lake resources, thus further planning a big batch of priority projects and additional "chains" projects with powerful driving force and high correlation. Driven by projects, the zone is enabled to form the seven leading industrial chains like salt lake chemical engineering, integrated utilization of coal, petrol and gas chemical engineering, metal metallurgy, renewable energy, advanced materials and featured biology, thus becoming a "dragon head" of constructing circular economy development pilot zones in the province. The XETDZ shall establish the industrial chains like silicon materials, photovoltaic and light metal alloys, coal chemical engineering, lithium battery and featured light industry. The HIP shall construct the five industrial chains like nonferrous metals, equipment manufacturing, organic chemical engineering, featured biology and building materials". However, industrial layouts of the three parks have obviously too general and overlapping descriptions so that the parks are competitively grapping for homogeneous projects in the business invitation and investment introduction, with incurred internal conflicts, rising deal costs, low resource allocation efficiency.

Meanwhile, they also have contributed to weakened industrial clusters and sizable benefits in the development of circular economy. In reality, there has been strong homogeneity between the chemical engineering industries like composite fertilizers, PVC, methanol and boric acid in the Ganhe Industrial Park of the XETDZ, and those in the Geermu Park and the Dachaidan Park of the CCEPZ in terms of technological process and product feature. Moreover, there have been heated competitions regarding investment and resources between the XETDZ and the CCEPZ in terms of lithium resource development. Furthermore, the XETDZ, the CCEPZ, the HIP and parks in priority parks, are developing industries of featured biology, making attempts to develop a modern industrial chain of featured agriculture and livestock from planting and livestock raising to processing to integrated use. However, the development positioning, orientation and modes of such industries fundamentally cling to sophisticated processing of distinctive highland plants like wolfberries and Chinese and Tibetan medical herbs, thus having some overlapping and homogeneity. As a result, in expanding national and international markets, there have been regionally internal competitions with respect to resources and human resource, failure to develop a joint force of regional competitive edge in the terminal markets, and even confusion among consumers as well. Such industrial situation has also resulted to rampant planting and disorderly competitions of highland distinctive plants, seriously affecting quality of raw materials, which in turn may endanger the deep and intensive processing of distinctive highland animals and plants and have an adverse impact over the sustainable development of the industries. According to the field survey, the staffs from the CCEPZ, the XETDZ and the HIP talked differently about scrambling for “enterprise entry” encountered in the business invitation and investment introduction among the parks.

Next, there has been low industrial level, thus lacking competitive edge. During the period of the Twelfth Five-Year Plan, the industrial transformative upgrading in Qinghai Province has gained substantial pace. Specifically, the proportion of high-tech industry in the whole industry increased from 3.4% to 6.2% and the ratio of light industry and heavy industry was adjusted from 7.9:92.1 to 16.4:86.3. The province had an incremental oil and gas storage capacity of 280 million tons, with increased efforts in the construction of oil fiends with a capacity of ten millions of tons of crude oil. However, overall, the proportion of heavy industry and chemical engineering industry in the industrial structure is seriously high. At present, with the increasingly high requirements of environmental protection like “Ten major points” regarding air, water and soil environmental control and under great pressure of energy conservation and emission reduction, the majority of enterprises generally deal with supervision as an expedient, lacking the initiative and motivation of developing circular economy.

Lastly, there has been a low level of ecological network in the parks. All park circular economy development plans explicitly state, the whole park shall be able enough to develop a sound ecological network. Enterprises in the park shall form a number of ecological industrial chains through the connective relations of upstream and downstream primary and secondary products as well as rejected materials, and establish horizontal coupling and synergic and coexistent relationships between primary and secondary products as well as rejected materials among consuming enterprises at different chains. in reality, as a result of lack of definite benefits sharing mechanism, weak technological

innovations and shortage of support policies of park entry for production chain extension enterprises and coupling and coexistent enterprises, the planned ecological network that should have be created in practice have failed to be accomplished as early as possible, thus having impacts over the efficiency of constructing circular economy ecological parks in Qinghai.

**3) Weak Investment and Financing Policies**

First, no channel of "indicator" investment has been established, nor are stable polybasic investment mechanism. In recent years, the state and the Qinghai Provincial Government have intensified financial support efforts in developing circular economy, yet it has had extensive coverage, high technical research & development input need and enormous amounts of fund requirement. So it still needs further financial inputs from the government. In the meanwhile, the state has not developed a stable, restrictive and institutional investment mechanism regarding circular economy, basically with its investment tendency characterized by "One-off discussion for one issue" and "One policy in a time period". In 2010, the National Development and Reform Commission, the People's Bank of China, the China Banking Regulatory commission (CBRC) and the China Securities Regulatory Commission (CSRC) jointly issued a document entitled the *Notification on Opinions regarding Investment and Financing Policies and Measures of Supporting Circular economy Development* (hereafter referred to as Opinions regarding Investment and Financing). It focuses on orienting social capital to invest in projects of circular economy in the ways such as circular economy planning, governmental investment, industrial policies and price leverage. The former three have played a big promotional role in the development of circular economy; unfortunately, the fourth one has not given its full play. For the circular economy in Qinghai, governmental investment and industrial policies can work much better. However, the province itself has backward economic development and small scale special found for circular economy with a provincial circular economy special fund amount of RMB 200 million yuan per year. The provincial special fund is directed towards the whole province and relevant projects concerning circular economy development by being cut and disbursed within the province, like "Scattering pepper powder". As a consequence, it is generally hard to have an effect of government investment opening up a way to social capital investment, thus failing to enable governmental investment to play a role of ushering in social investment. In the meanwhile, the provincial government has not developed a stable mechanism regarding special fund of circular economy, thus park management committees do not have stable expectation of special fund, affecting the efficiency of park work. For instance, the *Qinghai Provincial Government's Opinions on the Acceleration of Promoting the Chaidamu Circular economy Experimental Zone* (Reference No.: [2010] 70) stipulates, the provincial government shall establish a special fund of RMB 1 billion yuan for the CCEPZ, actually, it was only 2014 when the provincial government arranged an amount of RMB 1 billion yuan at one time to support the development of the CCEPZ. The management committee of the CCEPZ thus invited 3.9 billion of social capital into the construction of a recycle system of park heavy industry and agriculture and livestock. Currently, in the experimental zone, constructional funds for circular economy are mostly based on financing from commercial banks, assisted by various special funds from the central and provincial levels and supplemented by the

prefecture-level special budget arrangement of RMB 30 million yuan. However, the zone has not developed a stable polybasic investment mechanism and the current fund scale has been far from meeting the financial requirement of developing and promoting the construction of project entry into the park. Park land reserve and infrastructure depends mostly on bank loans and most of the park capital construction projects are public facilities, with the constant pressure of increasing fund, thus affecting the sustainable development of the park. In addition, there is no definite line-drawing between environment protection investment and circular economy investment. Currently, the provincial governmental investments focus more on the field of environment protection than the field of circular economy and there have been no well-established investment statistical methods and systems in this connection. For these reasons, it is hard to figure out the governmental investment volume or scale in the development of circular economy by calculation.

Second, owing to the singular way of financing platforms, there has been lack of powerful financial support for circular economy development. The XETDZ and the CCEPZ are key industrial concentration zones of circular economy development in Qinghai Province, with different fiancé systems in these two zones. Funded in July, 2000, the XETDZ is a national economic development zone, with relatively complete organization, especially independent fiancé system. However, the CCEPZ is rather complicated. For one thing, the Geermu Industrial Park in the fours parks of the zone has a relatively independent financial system, but the Delingha Industrial Park does not. Worse still, the park has not established a relatively independent financial management system of tax distribution, but only relying on the provincial return allowance of added value tax to maintain its sound operation, with deficit development and construction funds and obviously inadequate carrying capacity. The other two parks are in a formative stage, without corresponding institutional organization. The management committee of the CCEPZ does not have its independent financial system, resulting in an inadequate debt payment mechanism. From the cutout funds of the prefecture finance arrangement over the years, the zone has only collected RMB 40 million of debt payment reserve fund, accounting for 2.3% of the zone debt balance, lower than the down limit of 0.7 percentage points in the reserve fund standard of 3%-8% as required by the provincial debt administration. That is, the collected reserve fund is far from meeting the needs of prevention and risk mitigation. Since the reserve fund has not been included in the debt system of government debt payment, there has been annually increasing risk and pressure of debt and loan payments, thus having a dilemma of repaying old debt with new loan.

Both governmental capital constructional financing of circular economy and corporate financing of industrial development in Qinghai have the issues like weak capital strength, low bank line, inadequate financing capacity and small financing scale. In additional to those weaknesses, there have been no well-established financial management systems in the industrial parks. As a result, they feel it hard to develop polybasic financing channels. Governments at various levels have actively set up corresponding financing collateral companies, limited, exclusively responsible for addressing issues regarding the sound operation of small and medium-sized enterprises and providing services of financing collaterals. However, as the collateral companies have small scale registered capital fund, their fund guaranty capacity is greatly constrained and limited, thus failing to satisfy the

requirements of financing service of small and medium enterprises (SMEs) and project construction in the parks.

**4) Weak Promotional Effects of Taxation Policies over Circular economy**

Taxation policies regarding circular economy can be divided into the three broad categories. The first category is tax preferential treatment policy for the purpose of promoting regional development. For example, in order to adequately implement the initiative of western regional development, the Ministry of Finance, the State Administration of Customs and the State Administration of Taxation jointly issued the Notification on Relevant Taxation Policies regarding the Implementation of the Initiative of Western Regional Development (Reference No.: Chaishui [2011] 58). The second category is preferential treatment policy of structural tax reduction. In 2008, the Central Economic Working Conference first stated the "Structural tax reduction". Later on, the Ministry of Finance and the State Administration of Taxation has laid out a big number of structural tax reduction policies concerning added value tax, income tax and turnover tax, of which the most effective one over circular economy is necessarily the added value tax transformation, a transformation from productive added value tax to internationally generic consumptive added value tax. The last category is special tax preferential treatment policies. They include: (a) added value tax preferential treatments for promoting circular economy development, like those for products and labor service of integrated use of resources and for energy conservation service industries; (b) corporate income tax preferential treatments regarding circular economy as follows: while calculating income tax payable, the deduction shall be added to the R&D expenses occurred for qualified environmental protection, energy and water conservation schemes, development of new technologies, new products and new technological processes, and those for wind and photovoltaic power generations, environmental protection projects and energy and water conservation projects and those for R&D, technical transfer, accelerated depreciation. However, empirical study shows that tax preferential treatments do not have a remarkable promotional effect over enhancing efficiency of energy saving and emission reduction. [10]

According to the field survey, taxation policies in the practice of circular economy development of Qinghai have the following major issues.

Firstly, many SMEs are very difficult to acquire tax preferential treatment policies the state has offered when carrying out circular economy activities. In fact, the PRC has set up corresponding tax preferential treatments for R&D and technical innovation. For those identified as high-tech technological enterprises, they can enjoy preferential treatments for corporate income tax reduction. However, the field investigation has revealed that those enterprises that carry out circular economy are finding it difficult to enjoy those treatments in reality, in particular, SMEs. Tax legalization and unification is a fundamental tax legislation principle for statue law countries, therefore, the setup of tax preferential treatment policies is intended for nationally common technical and managerial levels. For

10 Guo Congzhi, Songkang. Effects of Tax Preferential Treatments over Energy Conservation and Emission Reduction –Based on Empirical Research Analysis of Provincial Panel Data [J]. Resource Science, 2013(2).

instance, the identification of high-tech enterprises shall simultaneously satisfy all the conditions as follows: (a) For enterprises registered with the PRC (excluding Hongkong, Macao and Taiwan), over the past three years, through independent R&D, transfer, donation and M&A (merging and acquisition), alternatively, through over 5 years of monopoly and licensing, they possess proprietary intellectual property rights of core technologies of their key products (services); (b) products (services) fall into the categories stipulated in the document named the *Priority High-tech Fields Sponsored by the State*; (c) Technical staff who have 2-year college education degree and above account for over 30% of the total corporate employees of the year, of which R&D staff make up over 10% of the total corporate employees of the year; (d) In order to acquire new S&T knowledge (including humanities and social sciences), to creatively apply the new S&T knowledge, or to substantially improve technologies, products (services), enterprises have carried out consecutively R&D activities, and also over the past periods of annual accounting, the proportion of the total R&D expenses in the total sales income shall satisfy the requirements as follows: a) the proportion of enterprises with sales income of less than RMB 50 million yuan in the previous year is not lower than 5%; b) the proportion of enterprises with sales income in the range of RMB 50 million yuan to RMB 200 million yuan in the previous year is not lower than 4%; c) the proportion of enterprises with sales come of over RMB 200 million in the previous year is not lower than 3%. To obtain tax preferential treatments shall comply with off-set and deduction requirements as specified by the tax law. The precondition is that an enterprise shall possess a stringent accounting system and professional management staff to collect corresponding costs according to statutory requirements.

Secondly, the levying system of taxes and dues regarding natural resources is not well established. Taxes and dues levied on mineral resources include resource tax, mineral compensation fee, mining royalty and special petrol revenue tax. In addition, mining enterprises shall hand in the administrative fees such as usufruct outlay of exploration rights, usufruct outlay of mining rights, registration fee of mining and registration fee of prospecting. Such resource taxation policies have played an active role in regulating incomes and promoting rational use of resources, but there has still been a wide range of issues as follows: a) There is confusion between specific resource taxation and resource expenses taxation so that taxation is substandard. Resource tax has the properties of range regulation and resource compensation fee which has basically the same property and function as local resource compensation fee. Such approximately identical taxes and fees have different forms of taxation, contributing to a chaos in resource taxes and fees; b) In the situation of coexistence of resource taxes and dues, they are levied by different departments, especially for charges, fees management varies from area to area, lacking uniform standardization. It turns out that resource-related enterprises have varying burdens of taxes and dues, thus failing to create a market environment of equitable competition among resource enterprises; c) Resource tax has narrow coverage, excluding taxations of water resource, forest resource and rangeland resource, thus failing to realize the protection of overall resources; d) Narrow standard of resource taxes and fees have resulted in the correspondingly low use standard of resources, having difficulty in playing a role in pushing the rational development and utilization of resource as well as not facilitating the development of pricing mechanism of rational resource elements; and e) The design of

taxation system does not give consideration to issues regarding resource use and environmental protection such as recovery percentage and pollution management after resource mining.

Thirdly, the design of consumption taxes is lagged behind the demand of circular economy development. Applicable consumption taxes are levied on some pollution production, high energy consumption consumables and non-renewable or alternative resource consumables, with the policy objective of controlling and regulating extravagant consumptive behaviors and emphasizing the role of governmental finance, but the effects of circular economy are obviously inadequate. For example, in the current consumptive taxes, there is no limitation upon the consumption of leaded petrol, lacking related consumptive taxation policies for products that are not beneficial to material recycling. The most typical one is stipulation of taxable items of automobile consumption taxes by applying different tax rates based on only cylinder displacement volume. For those vehicles using brand-new (renewable) energy sources such as natural gas, ethanol, hydrogen battery, there has been no stipulation of corresponding preferential treatment policies for them.

Fourthly, there have been no corresponding taxation preferential treatment policies for renewable resource use. Presently, the tax bearing difference between renewable resources and natural resources has not been effectively pulled open in the PRC. Take retreading of tires for example, developed nations gratuitously make use of old and abandoned tires by providing governmental financial subsidies and carrying out tax-free policy. However, the PRC does not provide tax-free policy for retreading of ties and even its tax rate is higher than those of other processing industries. In a sense, the policy of both no allowance and high prices of old and abandoned tires is not favorable to the recycling use of those tires and the development of processing industry.

Fifthly, there has been too stringent limitation for preferential treatments of enterprise income tax, but recycling use of renewable resources is mostly related to technologically intensive and financially intensive production means. As a consequence, environmental protection enterprises that carry out reuse and recycling, enterprises of integrated use of resources and generally SMEs are finding it hard to enjoy preferential treatment policies in this regard.

Lastly, no effective tax categories have been made for rejected materials, thus basically management is carried out by administrative charges. Currently, financial policies nationwide for containing and regulating pollution behaviors of enterprises are only about carrying out terminal constraints for air pollution, water pollution and emission of solid wastes, without much effort and standardization. Meanwhile, there is a series of issues with applicable emission system, like too low standard of charges, narrow coverage of taxation, irrational taxation basis and low taxation efficiency. Worse still, income function of special charges has been dissimilated in some places, becoming a phenomenon of “Income first, pollution control second”. So it can be safely said that such institutional arrangement is not favorable to the implementation of environment protection and circular economy. Overall, as a result of low emission burden, some socially irresponsible enterprises have made a choice of “emission” between integrated use of side-products and emission.

Difficulty of Finance Policies in Supporting Expected Targets of Circular economy Development

Various-level governments have set their detailed targets of circular economy developments. They are achieved by governmental finance spending policies so as to finance the construction of infrastructure of circular economy development and stimulate enterprises to generate internal motivation of circular economy development. However, in reality, those policies can hardly achieve the expected targets. It is manifested in the following ways:

Firstly, too low total volume of governmental finance can hardly realize the leverage role of social investment. In the field investigation, administrative staff of industrial parks informed that governmental finance spending volume on circular economy development can play a leverage role in attracting social capital investment, showing a strong positive correlation;

Secondly, governmental finance spending policies have overlapping and repetitions in financing specific projects of circular economy development, in a singular way. The PRC's governmental finance spending is based on subsides in a vertical departmental project manner. For enterprises, a energy conservation improvement scheme can obtain governmental financial allowances for circular economy reformation scheme implemented by circular economy promotion authorities, can obtain governmental financing on energy conservation reformation project implemented by environmental protection agencies, and can obtain governmental allowances on technological innovation implemented by S&T authorities.

Thirdly, governments have inadequate green procurement mechanism. When circular economy modes are used to carry out production activities, there is need for technology, managerial experiences, sophisticated equipment and large amounts of financial input. If labels or brands can win market recognition, it is also possible to push enterprises to strengthen the motivation of circular economy development. Therefore, governmental procurement should be the most important market orientation force. Numerous governmental documents advocate that government procurement shall give priority to procuring products generated from green production processes, however, because of no systematical green product labels and their authentication system in the PRC, there is no way to form a green governmental procurement mechanism with rigid constraint in a real sense.

Fourthly, there have been inadequate continuity and initiative with local governmental finance spending. Based on the field survey, the staff of governments at the municipal, prefecture, district and county levels reached a consensus that the inadequate continuity and total spending volume of local governmental finance spending is mainly because there has been impracticability in the distribution of the national overall finance revenue. When it comes to disposition rights and usufruct rights of mining claims of a natural resource survey project, the governments have not been granted the disposition rights. Even if the project is financed by governmental finance at the local level, it gaining sharing is as

follows: 20% at the national level, 50% at the provincial level, 20% at the municipal or prefecture level and 10% at the district or county level. Evidently, investors at the municipal, prefecture, district and county can hardly get their gain sharing equivalent of investment and administrative powers, thus seriously affecting the continuity of local governmental finance input and the initiative of investment.

## 3. Macro Level Issues

### 1) Less Attention Paid to Circular Economy Promotion Based on Clean Production

The research project team conducted a survey of clean production in the CCEPZ, the XETDZ and the Datong Circular economy Demonstration County by questionnaires (handing out 520 questionnaires in the enterprises and collecting 473 valid ones). According to the result analysis, general enterprise executives who understand relevant systems and policies regarding clean production account for 47.3%, relatively, the nation-owned and provincial-controlled enterprise executives are proportionally high, making up 62.7%, while those of private businesses or enterprises represent only 26.5%. Based on the in-depth interview with enterprises, most of them have not paid much attention to the promotion of clean production or its review work. In 2011, the Provincial Economic Trade Commission and the Provincial Environment Protection Bureau issued the Notification on Printing and Issuing the 2011 Review Plan of Clean Production in Qinghai (Reference No. Qingjinzi [2011] 84), disclosing the list of enterprises to be reviewed for clean production in 2011. By the review deadline, less than 40% of enterprises went through the assessment or acceptance procedure of clean production in the list, of which there are 39% in Xining (7 of 18 enterprises listed), 9% in Haixi Prefecture (1 of 11 enterprises listed), 60% in Haidong Municipality (3 of 5 enterprises listed), 50% in Haibei Prefecture (1 of 2 enterprises listed), 0% in Hainan Prefecture (0 of 2 enterprises listed) and 100% in Guoluo Prefecture (only1 of 1 enterprise listed). From the interviews with the staff in charge of clean production in the environmental protection departments, there was a consensus that large enterprises with good profits pay much attention to clean production and its review work, while generally most of enterprises have paid no attention to circular economy modes at all. However, many enterprises can only implement related projects while they are being attracted by striving for governmental funds of financing circular economy development projects.

### 2) Difficulty of S& T Policies in Supporting Technological Innovations

Firstly, there has been severe shortage of corresponding scientific research input. For various reasons like limited financial strength of the central government of the PRC, the financial input for basic research of S&T is chronically and seriously inadequate, and also the similar input in terms of circular economy is short of special security. It is only in recent years when part of S&T research work has been incorporated into the national S&T development program. There has been low total input for S&T research, and then there is lower total input for basic research. Thus the provincial academic research input is more seriously inadequate. According to the staff of related departments in the Haixi Prefecture where the CCEPZ is located, the Year 2014 is a year with the largest proportion of financial

input of S&T R&D in the Haixi Prefecture, accounting for 0.48% of the prefecture GDP, with the percentage of input of national S&T research and development in the same period of 1.98%. It may take a decade years to turn a number of strategic academic research projects into productive force and complete mass production processes, for example, purification technology of magnesium in salt lake resources. Meanwhile, financial bureaus at the municipal and prefecture level have even smaller scientific research input. The scientific input in the Haixi Prefecture has not increased with the growth of GDP, with its scientific research grant expense at the level of RMB10 million yuan over the years. Certainly, it has to be repeatedly said that there has been low total input for S&T research, and then there is lower total input for basic research. Basic research in China accounts for around 15% of the S&T input at the central level. According to similar statistics, basic research in developed nations generally represents 30-50% of S&T input at the primary level.[11] In the implementation of policies of basic scientific research, most of scientific projects are undertaken by researchers in the academic research institutes and universities, thus failing to facilitate the enhancement of enterprise R&D capacity and the transformation of academic research results into productive force. Enterprises have long undertaken applied technical R&D, which almost does not concern basic scientific research, thus failing to have close relation with academic research projects in the field of basic sciences of academic research institutes and universities and directly affecting applied technical R&D and the transformation of technological achievements. According to the field investigation, when enterprise R&D is being carried out to some extent, the basic scientific research related to the production of this enterprise is an inevitable R&D field for the enterprise. Because technical innovation and technical reformation take the level of basic research as their boundary, that is, without the breakthrough in fundamental law leading industrial change and the knowledge enrichment of resolving key scientific issues restricting development, they will also suffer from bottlenecks.

Secondly, S&T support policies, especially governmental subsidy policies for R&D, tend to support big investment and big scale projects, thus hardly facilitating the progression of technical reformation of SMEs. In the development of circular economy, they constitute an importance force for realizing the extension of industrial chains. For SMEs, technical improvements of internal clean production mostly do not call for too much input, but they can have good effects of energy conservation and emission reduction. However, relevant government agencies are implementing national S&T policies, there is a tendency that consideration is not given to such small projects, but priority is given to projects with big investment amount.

Thirdly, SMEs have weak capacity of technical innovation, and there has been no much improved mechanism of strengthening their capacity of technical innovations. The field investigation found that enterprises, in particular, small and medium ones, have trouble in

11 On the morning, March 8, 2014, Mr. Cheng Jinpei, member of the National Committee of CPPCC, vice chairman of China Zhi Gong Dang at the central level, academician of the China Academy of Sciences, pointed it out while making presentation on the subject “Optimizing the Structure of S&T Input and Establishing A New Mechanism of Steadily Supporting Basic Research” at the third plenary. session of the Second meeting of the Twelfth National Political Consultative Conference.

addressing the issue of talents demand. Whether state-owned enterprises or private enterprises, big enterprises basically have their own R&D teams and platforms, thus they can integrate "industry-university-research' to seek collaborations with research institutes and universities. The sustainable competitive force of enterprise is developed from the sophistication of productive techniques, so small and medium ones shall be built on technological innovation. However, they basically do not possess a capacity of technical innovation, thus seriously affecting the integrity of circular economy development. Supported by the government, they can be able to acquire R&D collaborations with research institutes or universities. Unfortunately, they feel it difficult to have a chance to make equitable dialogue with the research institutes and universities, for their vulnerable position has contributed to their difficult in acquiring corresponding intellectual property rights of R&D success, impeding the enthusiasm of R&D input of those enterprises.

Fourthly, there has been lack of a reward mechanism exclusively directed towards S&T of circular economy. The PRC has set up relevant reward system for R&D of S&T, but in the new situation, there has been on special reward system for circular economy-based S&T, so it is hard for S&T rewards to play a great incentive role in promoting corresponding S&T innovation. As a result of imperfect system, narrow reward scope and small reward amount, existing S&T rewards have played very limited effects of scientific invention. It is one of important causes of inadequate motivation of S&T innovation.

**3) Talents Policies**

Firstly, there has been weak talent enticement. Qinghai's geographical location, harsh climate, and undeveloped economy and education have enabled itself to be naturally disadvantaged in enticing high level of technical and managerial talents. According to the field survey, whether in the CCEPZ or in the XETDZ, all interviewees surveyed of park enterprises unanimously indicated that lack of the high level of talent in technology and management is an important factor constraining the circular economy development of enterprises. According to relevant statistics available on the website of "Thousand Talents Plan", although the plan has been implemented for ten rounds, there has been no one in 6 provinces or autonomous regions like Guangxi, Guizhou, Tibet, Qinghai, Ningxia and Xinjiang included in the plan. The majority of introduced "Oversea returnees" have been chosen in Beijing and the eastern coastal areas like Shanghai, Jiangsu, Zhejiang and Guangdong.[12] On one hand, the enterprises' demand for high level of talents, if not solved locally, has to be introduced from other areas. However, it will contribute to a significant increase in human resource costs for enterprises, thus seriously increasing operational costs of the enterprises. On the other hand, high-level talents in terms of technology and management tend to "fly away". In the field visit, executives of many listed enterprises that have invested in the enterprises in Qinghai informed that they came to work in Qingha from the enterprise headquarters, in fact, reluctantly but unavoidably, most of whom left their kids home, failing to take care of them. Because Qinghai Province is short of good educational resources, with poor teaching quality, they could not stay with their kids

12 Li Yuwei, Song Houquan. Research on Policy Issues of S&T Leading Talents Development in HubeiProvince [J]. Special Zones. 2016 (4)

together in Qinghai. Given a chance, they could manage to leave.

Secondly, local talents development education is not appropriate for circular economy development. Higher learning education and vocational education can not satisfy the demand of industrial planning of circular economy development for average technicians and advanced skilled personnel. According to the field survey, park enterprises in the CCEPZ have had trouble in recruiting common technicians and skilled personnel, thus many enterprises have to recruit employees outside of the province.

Thirdly, academic research force in local research institutes and universities does not meet the industrial needs of circular economy development in Qinghai, for technical R&D of many enterprises relies on interprovincial research institutes and universities. As a consequence, it has increased complexities and costs for the "Industry-university-research" collaborations of technical breakthrough and academic innovation in terms of circular economy.

Fourthly, there have been rigid evaluation criteria for academic researchers. Based on the field investigation, when lots of technical innovation and technical improvement projects are seeking national policy support, as required, the project principal applicant shall be one who regularly hands in social security charges and have obtained academic title of associate professor or above. For those investors who have returned from foreign countries, they might be technical elites in one professional field who have been engaged in a number of industrial technical breakthrough projects, but they do not have academic titles obtained through national review and appraisal. Meanwhile, for some academic researchers who have already passed the retirement age of over 55 and enjoyed retirement pension, they naturally do not need to turn in social security charges. However, in this case, they may lose a qualification for applying for national policy support with respect to technical improvement.

**4) Financing Difficulty of Enterprises, in Particular, Small and Medium Ones**

Corporate financing in Qinghai has had serious problems like weak capital strengthen, low bank credit line and inadequate financing capacity and small scale financing. Moreover, imperfect financial management system in circular economy parks has contributed to the difficulty in opening polybasic financing channels. Governments at various levels have actively set up corresponding financing collateral companies that are exclusively responsible for providing financing guaranty services for accommodating the sound operation and project construction of SMEs. However, as those companies have small scale registered capital fund, their financing guaranty capacities are greatly restricted and limited, thus failing to meet the financing demands of SMEs in the parks and project construction. Therefore, there has been difficult financing issues with the enterprises, especially, small and medium ones. And lots of financing policies developed by the government have not been materialized.

**II. Causal Analysis**

In the promotion of circular economy development, Qinghai Province is itself confronted with objective obstacles, like low socioeconomic development, weak self-economic strength, deteriorating natural conditions and vulnerable ecological environment and so forth.[13] The promotion mainly depends on national circular economy policies, while there have been some vacancy and misplacement in actual supply and demand regarding the policies. Meanwhile, there has been inadequate supply of local circular economy policies, thus resulting in a sill big gap between the circular economy development and the anticipated targets in the province.

## 1. Existing Issues on the Supply and Demand of National Circular Economy Policies

There has been an imbalance between supply and demand between national policies in terms of circular economy development. In accordance with different bodies in the 3 recycles at the big, intermediate, small of circular economy, they have different policy demands of promoting circular economy development. At the level of Large Recycle, it is necessary to have a set of leading laws and regulations to develop a general program, together with counterpart policy measures, indicator system, evaluation methods, and reward and punishment means, thus enabling the whole society to be on the track of circular economy development. At this level, it can be represented by the *Circular Economy Promotion Law* and the *General Program of Circular economy Development*. Moreover, for traditional priority industries with high pollution, high energy consumption with respect to iron and steel, coal and petrochemical engineering, it is essential to develop effective and oriental sector development programs, technical policies and policy measures for comprehensive saving of water, energy, land and raw materials as well as integrated use of resources. At the level of intermediate recycle, it is advisable to lay out policy legal codes and indicators systems regarding full promotion of circular economy development in industrial parks, industrial clusters and urban communities. At the level of small recycle, there is need for corresponding principal body responsibility extension policies and counterpart incentive, regulative and institutional policies to support the development of small recycle.

However, from streamlining the three levels of policies concerning circular economy development, it is found that there has not been a well-established balance between the supply and demand of the policies. There has been a tendency that policies and legal codes laid out in a short time are not target-oriented and practical; counterpart regulative and institutional policies and incentive policies are not accompanied; and there has been a phenomenon where circular economy development policies in some fields have long been in short supply. According to the field investigation, there were some incentive policies regarding circular economy promulgated by the state, especially, those at the level of intermediate recycle, for example, policies of reinforcing the industrial chain extension and subsidiary policies of land preferential treatments of “Enterprise entry into the park” that facilitate the development of industrial coupling and coexistence network. No sooner had they been materialized than the economic environment changed, thus in terms of policies,

13 Ma Jiang. Research on Developing Circular economy in undeveloped western regions [M] Nationalities Press, June, 2009:175-195.

the former and the latter have hardly been connected. For the whole society, the Large Recycle supported by the idea of "Green Consumption" and based on garbage assortment and treatment still stops at the initial stage of "Public Advertisement" campaign for education in the province. In this connection, the state has few regulative and institutional policies and incentive policies directed towards the general public.

### 2. Local Circular Economy Policies with Flawed Formulation Mechanisms

In terms of circular economy development, in particular, located in the undeveloped western region, Qinghai has long been depending on nationally promulgated laws and regulations and incentive economic policies. However, it is hard to come up with local counterpart policies that cater to local realities. Since the CCEPZ was established in 2005, the provincial economic, legal and commercial circles have proposed many times issuing a document of the *Regulations for Promoting the Circular Economy in Chaidamu*, but with no positive response from the governmental agencies and legal institutions. It is not until 2016 that the *Regulations for Promoting the Circular Economy in Qinghai* has been listed as a reserve project for "argumentation" in the legislative program of the Qinghai Provincial Government.

Additionally, for one thing, there has been a paradox in the development mechanism of local policies. Whether regulative and institutional policies using laws and regulations a major carrier or incentive policies using economic policies as a carrier, they implicitly contain the distribution of powers or authority between the central and the local in the process of policy development. In the PRC, there is a definite boundary of power or authority between the central and the local in only a few fields like diplomacy and national defense, there has been no clear division for the majority of powers or authority at the two levels. In this case, the central policies are the boundary of local policies, while the validity of local policies cannot be lower than the central authorities. Such mechanical situation can basically explain many practically operational problems with circular economy policies. For another, various policies laid out at the central level are generally designed for the whole country, so policies are based on principles so as to ensure they can be adapted to various imbalances of socioeconomic development; alternatively, directly operable policies tend to have difficulty in adapting to the areas where socioeconomic conditions do not agree with the policies.

### 3. Inadequate Coordination among Policies

There are serious problems with coordination among relevant policies of circular economy in China, such as repetitions, overlapping and conflicts in a great many policies. For instance, in the *Law of Environmental Pollution Prevention and Control of Solid Wastes*, there are similar stipulations in the aspects of recovery of solid wastes, restriction of excessive packaging and recycling use of agricultural products. As article 5 of the law states, "the state shall carry out the principle of polluter's legal accountability for the prevention and control of pollution environment of solid wastes. Producers, sellers, importers and users shall take legal accountability for pollution prevention and control for their solid wastes generated." Also there are similar stipulations in the *Circular Economy Promotion*

*Law*. As article 15 in the law requires, “For those enterprises that produce products or packages listed in the catalogue of compulsory recovery, they are required to take the responsibility for recovering their abandoned products or packages. For those that can be used, the production enterprises are responsible for using them; for those that cannot be appropriately used for not having technological economic conditions, the enterprises shall be accountable for hazard-free treatment. For those abandoned products or packages as specified in the former article and those the producers have entrusted sellers or other organization to recover or entrusted the enterprises of wastes utilization or disposal to use or dispose of, the commissioned party shall be accountable for recovery or utilization or disposal in accordance with relevant laws, regulations of administrative legal codes and contractual provisions. When it comes to products and packages listed in the catalogue of compulsory recovery, consumers shall deliver abandoned ones to producers or sellers or other organizations that are commissioned for recovery. The catalogues or management methods of those products or packages shall be specified by the department of integrated management of circular economy development under the State Council”. As stipulated in the *Law of Environmental Pollution Prevention and Control of Solid Wastes*, the responsibility bodies of pollution prevention and control of solid wastes include producers, sellers, importers and users, but there is no specific stipulation as to the sequence and position of responsibility taking. The stipulations of the *Circular Economy Promotion Law* are a typical system of producers’ responsibility extension, but the law does not formulate corresponding legal accountabilities as to its Article 15. In the meanwhile, in practice, necessary counterpart recovery catalogues and specific recovery methods have not been timely developed. Both the Circular Economy Promotion Law and the Clean Production Promotion Law make reference to the issue of compulsory recovery catalogue, but there is obviously a conflict between the two laws over the issue of who makes the catalogue. The former law requires that “The catalogues or management methods of those products or packages shall be specified by the department of integrated management of circular economy development under the State Council”, whereas the latter stipulates that “For those enterprises who produce and sell products or packages listed in the catalogues of compulsory recovery, they are required to recover the products and packages after abandoning and using; and the catalogues or specific recovery methods shall be developed by the administrative authorities of economy and trade of the State Council”.

# Chapter III Optimization of The Policy System for Promoting Circular Economy Development in Qinghai

As a new type of higher industrial morphology, circular economy has its core ideas like focusing on various development relations such as integrated planning and protection, efficiency and equitability, total volume and structure, and present generation and future generation, constructing a new type of industrial system characterized by innovation, openness, integration, conglomeration and sustainability and eventually forming a sound recycle of economic development, social advancement and ecological civilization. The overall requirement of promoting the development of circular economy in Qinghai is to uphold the idea of circular economy of 3R (reduction, recycling and reuse), thus pushing forward the culture of resource-saving and energy-saving in the whole society and improving use efficiency. It is advisable to select priority fields and strategic points with comparative advantages nationwide and some development base for pilot trials and key breakthrough, thus embarking on the road of circular economy development with Qinghai local characteristics. There shall be integrated plan of circular economy developments regarding heavy industry, agriculture and service and covering all aspects and all strategic points of the society, full play of the demonstrative and guiding roles of parks by constructing a number of demonstrative projects and enterprises of circular economy, thus promoting the full development of circular economy. And it is important to establish effective incentive and restrictive mechanisms, to strengthen innovations in legal codes, systems, technology and management, thus enhancing the internal motivation and development level of circular economy.

## I. Industrial Policies

Industrial policy is a generic term which consists of a comprehensive set of policies designed to carry out directional regulation of industrial structure, technology, organization and layout changes based on the market mechanism in order for a nation to achieve its economic and social targets. To sum up, it is the total of various policies for the central government or its local governments of a nation to proactively intervene in industrial activities for the sake of global and long-run interests, including industrial ones with respect to structure, layout, organization and technology. Therefore, to develop circular economy, the key lies in the scientific rationality of regional industrial policies. Economic policies built on the policies relating to finance, taxation, finance and price should currently be the most effective and common policies regarding the promotion of circular economy development in the PRC. As a result, it is necessary to actively coordinate and use the policies concerning finance, taxation, prices and banking in order to provide subsidies, allowances and preferential treatments for production and living behaviors favorable to circular economy development in the mode of realistic economy[14]. It can also be assisted by the punitive constraints of laws and regulations for those economic behaviors that are not consistent with the protection of ecological environment in regulative and institutional policies. In such a way, orientations, incentives and regulations and systems can be

[14] Dufang, Yuhaifeng. Ecological Taxes, Circular economy, Sustainable Development [M]. China Finance Economy Press, November, 2007, 38

effectively used to help developing a market motivation mechanism of circular economy development.

Over the past ten years of promoting circular economy development, Qinghai has attached great importance to industrial policies regarding circular economy. The province has issued the important policy documents on relevant programs, the *Implementation Plan for the CCEPZ* and the *Action Plan for Constructing National Circular economy Pilot Zone in Qinghai* (hereafter referred to as *Action Plan of Qinghai*) to carry out systematical planning, thus forming a basic industrial layout in which systems relating to heavy industry, agriculture and services as well priority ecological industrial parks and priority counties are identified based on its natural resource endowment and development status. However, currently, industrial parks in the province have common issues such as short extension of production chains and weak coexistent coupling.

The *Action Plan of Qinghai* states the construction of national circular economy pilot zones in Qinghai, setting about creating a strategic situation of Large Recycle. It is advisable to make use of industrial transformative upgrading to further strengthen the development of circular economy at the park level by following the regular pattern of ecological recycle in an effort to comprehensively push the clean production and resource recycling use within enterprises, parks and industries, to spread recycle-based layout, combination and circulation among industries, between production and living systems and between the provincial and the interprovincial, and to the recyclability of resource use, the bearing capacity of environment and the sustainability of economic development. Industrial transformative upgrading refers to a transformative process in which an industry improves from weak technology, low added values, serious pollution and big energy consumption to strong technology, high added values, light pollution and small energy consumption. It calls for the joint efforts at the microcosmic level – enterprise, the intermediate level – industry and the macrocosmic level – region, thus realizing the enhancement of core competitive edge of the entire region.

## 1. Optimization of Industrial Organization Policies

It is important to use industrial organization policies to greatly push technological improvement and innovation of enterprises themselves so as to realize transformative upgrading within them. According to the field survey, only a few enterprises in the province can take the initiative to carry out internal technical reformation and innovation at the microcosmic level. Such autonomous corporate practice in line with circular economy shows that they have fully attained the economic value hidden in circular economy itself, in essence, which can effectively enhance their internal motivation of implementing the circular economy development mode. The research project team contends that Qinghai must give full consideration to the balance between competitive benefits and scalable benefits and develop the market potential of corporate S&T innovation by themselves in terms of design of industrial organization policies, and greatly promote the close linkages between SMEs and big enterprises and corporate groups in the development of circular economy through specialization and collaborative production within the province so that SMEs can take full advantage of big enterprises and corporate groups. In so doing, there

will be real development of industrial chain extension and coupling that is essential to circular economy of industrial parks in Qinghai, ultimately achieving industrial transformative upgrading.

## 2. Design of "Package" Policies to Strengthen Support for SMEs

There is need to intensify efforts in supporting SMEs. Due to the constraints such as small scale, weak technology and limited capital, they have become a weak link in the development of circular economy in the province. However, in the network of industrial chain extension and enterprise coexistence and coupling, SMEs constitute an integral component. In industrial parks, a dominant industry of circular economy tends to possess its superior position, being able to gain considerable profits in the production and competition. Therefore, in the policy design of promoting circular economy development, the government shall consider the set up of "binding" policy or "package" policy, that is, forming a fair and reasonable benefits distribution mechanism between dominant enterprises and extension and coupling enterprises in order to promote the extension of industrial chain and the network of coexistence and coupling among enterprises with respect to circular economy. The government can also use the mechanisms of returning partial taxation fund and pricing of big enterprises' by-products and rejected materials and other policy preferential treatments to support SMEs, and orient them through the mechanism of preferential concessional cooperation to intensify support efforts.

## 3. Using Industrial Policies to Actively Promote Corporate Competitiveness in Industrial Value Chain

In the Dongchuan Industrial Park, the Zhongli Optical Fiber Company has occupied optical fiber preform rods and optical fiber production in the industrial value chain. In terms of profits, for the whole chain, optical fiber rods accounts for 70%; optical fiber for 20%; and ultimate product – optical cable for 10%. The company was put into production in 2015 and gained tens of millions of profits in the year. The park has offered great policy support for the company in the aspects such as land (delivering the land adjacent to the Asian Silicon Company to the Zhongli Optical Fiber Company by land leasing), project approval procedure and governmental finance support for the project. The company chose the Dongchuan Industrial Park, with a planned investment of RMB 3.4 billion yuan, because the Asian Silicon Company has grasped the technique of silicon tetrachloride purification through technological innovation, thus being able to ensure the supply of the majority of raw materials for the Zhongli Optical Fiber Company. The research project team holds that while developing industrial policies for parks, the government should consider an enterprise's position in the industrial value chain a primary factor of enterprise entry in the parks, thus enabling the possible maximum benefit of circular economy with the same level of resource consumption.

## 4. Optimization of Park Industrial Structure through Adopting the "Large Recycle" Strategy

Scientific industrial layout can enable the provincial circular economy development to

show a healthy state by minimizing internal conflicts arising from industrial homogeneity among different industrial parks province-wide, enhancing the efficiency of circular economy development and raising the overall competitive edge of regional economic development in the province. Presently, it is wise to primary depend on the government's institutional innovation. *The Action Plan of Qinghai* has drawn up a set of industrial policies regarding circular economy development in Qinghai in great length, identifying in principle the distribution and goals of circular economy systems of heavy industry, agriculture and livestock, services and society. During the period of "Thirteenth Five-Year Plan", it is advisable to further accelerate the construction of a complete recycle-based industrial system, by extending industrial chains and pushing forward recycling reformation, thus enabling industrial solid wastes to have more than 60% of integrated use efficiency. It is also important to speed up the establishment of a recycle-based agricultural and livestock system where multiple sectors like agriculture, forestry, livestock and fishing are coexistent, by building system of recycling use of rejected materials from farm cultivation and livestock raising and promoting thrifty use of agricultural resources, clean production process, circular industrial chains and recycling treatment of wastes. There is need to quicken the creation of a recycle-based service system by promoting "green" service bodies and clean service process and refining system of renewable resource use, thus establishing a system of recycling use of renewable resources in which recycling, dismantling, assorting, processing and trading are integrated into one. In addition, it makes perfect sense to push forward the movement of public participation in circular economy, to strengthen the use of renewable resources in rural and urban areas and to promote the recycle-based social construction. It is achieved by taking advantage of ideas of green consumption and green building to implement and create demonstration towns of circular economy and speeding up R&D and application of advanced adaptable techniques in terms of environmental engineering, recycling use of rejected materials and energy-saving buildings as well as new technological process and new equipment.

For one thing, there needs to be further detailing the distribution of industrial systems and specific deployment of industrial parks in the *Action Plan of Qinghai*. However, mere principle-based plans are not sufficient to develop an effective synergic development mechanism of circular economy province-wide. Therefore, it is advisable to further refine the industrial layout and realization mechanism of circular economy development through special circular economy programs. For another, it is essential to ensure the realization of legal validity of programs through vital institutional innovation. Meanwhile, there should be a clarification of the role and position of the government and the market in the industrial layout of circular economy. Industrial parks shall establish a mechanism of market entry by drawing up a "negative list" in an objective, proper and legal fashion. For the enterprises unlisted, it is possible to use the market to orient their development. Certainly, it is impossible to completely get rid of the industrial homogeneity of different parks by prior stipulation. Therefore, it is important to develop in advance a mechanism of synergy among various levels of governments in the development of circular economy so as to minimize internal conflicts arising from industrial homogeneous competition among park management agencies in the process of business invitation and investment introduction.

## II. Management Policies

To explore management policies adaptable to the development of ecological industry parks in Qinghai needs to be given particular attention in the construction of current policies, since good management policies can integrate all development forces of all industry parks so as to avoid internal fighting in the process of circular economy development.

### 1. Encouraging Industrial Parks to Explore Their Own Management Innovations

The industry parks in Xining have relatively mature management approaches and modes, having established good coordinative relationships with local governments. As a regional circular economy development industrial park that almost covers the Haixi Prefecture, the CCEPZ needs to further explore how to develop a suitable regional management approach. Presently, it is advisable to actively promote the "single-row administration" approach for the CCEPZ, speeding up its management innovation.

### 2. Strengthening Cooperation and Coordinated Development of Different Industry Parks

Many domestic industry parks have greatly integrated their development advantages and potentials through interregional cooperative developments like the Suzhou Industry Park cooperatively developed by China and Singapore and the Industry Park cooperatively developed by the Suzhou Municipality and the Suqian Municipality, thus enabling them to gain healthy development. In 2008, the State Council issued a document (Reference No.: Guofa [2008] 30), explicitly proposing "To actively explore mutually beneficial and win-win finance policies and soundly promote the joint creation of interregional development zones". On December 1, 2011, the State Council promulgated a document entitled *Outline of China Rural Poverty Alleviation Development (2011-2020)*, which further identifies the Tibet Autonomous Region and Tibetan Areas of the four provinces (Sichuan, Yunnan, Gansu and Qinghai) that are adjacent poverty areas as a major battle field for poverty alleviation development, calling for "the promotion of collaboration between the western and eastern regions" to push poverty reduction, in the sense that it can be achieved by industrial poverty alleviation policies and by development of jointly created industries within the industrial parks. Therefore, to address the issue of fierce internal fighting existing in business invitations of circular economy development in Qinghai, it is a shortcut to embark on the road of cooperative development. Undoubtedly, all successful experiences of cooperative development are built on the systems supply of "Top-level Design".

## III. Economic Policies

The cultivation and development of circular economy in Qinghai is a long-term and ongoing process. It possesses a strong trait of positive externality in the sense that enterprises as main market players generally do not take the initiative to develop circular economy in the formative stage of circular economy. If the scale of resource recycling use cannot reach the minimum cost, without economic advantage over new resource utilization but with rigid development of circular economy, then there will be a serious issue of

“Recycle with no economy”. Circular economy has a high demand for the technological level more complicated than that of the traditional economy. It tends to involve a good many scientific fields, calling for enormous input for technological R&D. In the meanwhile, circular economy has relatively high demands for equipment and raw materials, with big costs of equipment operation that require enormous financial support. Although Qinghai Province has some resource advantage in developing circular economy, there have been obvious disadvantages in terms of natural environment and geographical location. Therefore, at the current stage, the promotion of circular economy development in Qinghai must be oriented and dominated by policy incentives.

## 1. Finance Policies

Policy systems dominated by the government, that is, the most powerful policy tools handled by the government, are undoubtedly finance and taxation. Specifically, the government makes use of its policies involving financial spending and taxation to form a powerful economic orientation over main market players, thus achieving the goal of microcosmically regulating the national economy of the PRC. At present, governments at various levels have spread the rapid development of circular economy nationwide through finance and taxation policies. Unfortunately, as an undeveloped region, Qinghai has been confronted with concrete issues such as limited financial resources and weak investments far from meeting actual needs of circular economy development, thus resulting in the poor role of those policies in developing the circular economy in the province.

### 1) Continuing Government Financial Support for Circular Economy Development

Qinghai Province must put best efforts forward to request the Central Government to intensify financial support efforts in the development of circular economy in the province. It can be achieved by increasing the financial amount of local circular economy special funds in Qinghai and refining the system of those special funds. On one hand, it is essential to identify sizes of special funds according to different industrial parks or proportions of financing them and to increase the anticipation of special funds supporting circular economy, so that the industrial parks can make an informed prior judgment as to development funds when they are formulating their own development programs and specific plans and then enable their various tasks to have a nature of forward-looking. On the other hand, it is important to further refine the mechanisms of supervision and management of fund use, especially, the mechanism of evaluation directed at fund support projects.

### 2) Further Strengthening the Support forLocal Development

While further increasing government functional transformation, there is need to make improvements in the scientific division of powers and duties between the central and the local, forming a definite mechanism of powers or authority at various levels. At the same time, it is appropriate to match administrative powers with financial powers. Based on the field visit, the staffs of relevant governmental agencies and park management committees in the Haixi Prefecture noted the proportion of gain sharing for prospecting rights,

indicating that income distribution does not well match administrative power. There is a proposal that the proportion of income distribution in mining claims for municipal or prefecture investment shall be adjusted as 20% at the national level, 10% at the provincial level, 60% at the municipal or prefecture level and 10% at the district or county level; that for district or county investment shall be 20% at the national level, 10% at the provincial level, 10% at the municipal or prefecture level and 60% at the district or county level. The research project team also concludes that similar proportions shall be indeed adjusted, based on the principles of "Who invests, who benefits" and administrative powers for jurisdictional territory.

### 3) Reforming Financial Spending Methods to Increase the Support for Circular Economy Development

Currently, financial spending is mostly based on the support method of "direct subsidy", having a great many realistic problems. As a result, it is a must to carry out corresponding reform. For one thing, it is necessary to limit the scope of "direct subsidy" in financial spending and to define the scope in an explicitly written legal system manner. The scope shall consist mainly of scientific research breakthrough, technological innovation and talents support, for the former two have high uncertainties in terms of results, time and risks, but their academic outcomes are of great importance in enhancing the social productive force. Plus, these aspects themselves are hard to develop sound commercialization. For another, methods of financial spending should be polybasic or diversified. With the further reform of national taxation systems and the gradual formation of pricing mechanism of resource environment, it is helpful to constantly internalize the positive externality of circular economy, generating an endogenous power mechanism of circular economy development and enabling the market to increasingly become a foundation of resource distribution. Therefore, financial spending support shall be based on such methods as preferred stock investment, creditors investment and financing interest subsidy support and governmental green procurement.

### 4) Creating a System of Product Labeling & Certification Catered to the Needs of Circular Economy

Nowadays, the government must cultivate self-regulatory organizations of related industrial chain enterprises of circular economy, which can integrate existing brands of green products in Qinghai. On such basis, affiliated or innovative product labels and brands regarding circular economy production mode as well as promotion of the brands using multiple approaches and methods can be employed to increase the popularity of products of circular economy production mode in the market. As a starting point, it is advisable to start by creating a catalogue of circular economy products for governmental procurement in Qinghai, thus further raising brand awareness and market brand effects of circular economy products in the province.

## 2. Taxation Policies

### 1) Refining Resource Taxation to Improve Circular Economy Development in Qinghai

On July 1, 2016, the PRC began to implement and extensively promote the reform of resource taxation (Reference No.: [2016] 53). One of its fundamental principles is clarifying charges and developing taxes, in the sense that it sets about resolving current issues like overlapping of taxes and fees and functional interleaving and appropriately including charge funds such as compensation fee of mineral resources in the resource tax, cracking down various charge funds established through violations and beyond deserved authority, thus further streamlining the relationship between taxes and dues. Specifically, it is required to completely clean charge funds regarding mineral resources. While implementing the reform of calculating and levying resource taxes according to prices, it is proper to reduce resource compensation charge rates of all resource items to "Zero", to stop charging price regulation funds and cancelling various charge items designed for mineral resources beyond deserved authority. Various-level local finance bureaus, together with relevant departments shall carry out a complete review of charge funds involving mineral resources. Those charge funds that do not comply with national stipulations and are established beyond local deserved authority shall be cancelled. For those charge fund items that need to be kept by legal stipulation, it is required to strictly carry out charges in accordance with levying scope and criteria, effectively standardizing taxation behaviors. Undoubtedly, it is effective to tackle the core issue of taxation system regarding resource taxes. However, local finance policies to promote the development of circular economy in Qinghai can be affected in a short time. Currently, in the new on-going economic process, the Qinghai Provincial Government has provided preferential treatment policies such as tax exemption, tax reduction and tax postponing of mineral resource compensation fees levied within the province as well as charge account treatment on credit of mineral resource compensation fees owed in order to less the finance pressure of enterprise to develop circular economy. Unfortunately, the reform of resource taxation by cleaning charges and developing taxes has placed the province in a dilemma where relevant preferential treatment policies will be cancelled. Therefore, it is recommended that tax and circular economy development authorities undertake extensive researches and suggest alternative feasible policies. On one hand, consideration is given to conditions for implementing relevant national preferential treatment policies within the scope of resource taxes, providing enterprises, investors and potential investors with well-informed services as to the reform of resource taxation and its effects. Where necessary, it is useful to provide tax-paying training courses, enabling the enterprises and investors to benefit most from national preferential treatment policies in the activities of production, operation and investment; on the other hand, further improvements should be made in giving full play to a role of taxation preferential treatment policies in guiding circular economy development. It can be achieved by further streamlining other taxation preferential treatment policies, for example, the expansion of applicable scope and the extension of time of the added value local sharing and return policy, or the postponing of the police of enterprise income tax exemption and tax reduction based on the policy of taxation preferential treatment under the initiative of western regional development, and so forth.

**2) Adjusting VAT and Income Taxes, Incorporating the Green Taxation Idea**

Enterprises need to be pushed to greatly develop, extend and use production technologies

and processes that can save resources and energy, and reduce wastes emission, to develop and apply technologies that facilitate rational use and integrated use of resources or promotion of resource value-adding and to introduce and extend hazard-free environmental technologies.

As a result, to begin with, for R&D input of enterprises in the aspects of new products, new technologies and new processes, while calculating enterprise income taxes, with the deduction of total amount before tax, the portion over 10% of the growth rate of various expenses, it is appropriate to increase the proportion of the actual amount occurred to be deducted from the amount of taxable income, thus encouraging the enterprises to constantly increase the R&D input of new technologies, new products and new processes.

Next, to encourage enterprise to update and renovate old equipment and purchase advanced equipment for improving efficiency of integrated use of resources, it is possible to allow for speeding up the depreciation of such types of equipment.

Furthermore, there is need to increase and extend environment-friendly functions of consumption taxes. For consumptive products and behaviors with large amount of consumption, like one-off chopsticks, drinks containers, one-off paper diapers, high-level building, decorating materials and golf tools, they shall be included in the scope of resource taxation; for consumptive products and behaviors resulting in serious environmental pollution, like cars, cross-country vehicles, motorcycles and motorboats with high pollutants emission, they shall be charged for high consumptive taxes. For coal, battery and one-off plastic packages and Freon products that will cause damage to ozone layer, they shall be listed in the scope of consumptive taxes. For consumptive behaviors of environmental pollution, it is possible to make use of environment protection tax and consumptive tax on enterprises' products that are harmful to the environment to increase their production costs as well as price signal to limit the consumption that cause damage to the ecological environment, thus encouraging healthy consumption and green consumption of resource environment protection.

Additionally, it is necessary to develop an effective incentive mechanism, embodying taxation preferential treatments for renewable resource use. Tax exemption and tax reduction shall be carried out for production sectors and products that use "Three wastes"; and taxation preferential treatment policies shall be provided for enterprises that process and utilize old and abandoned tires. In terms of projects regarding integrated resource use in the clean production, exemption and reduction of added value taxes and income taxes shall be given to those products produced by using the "Three wastes", environmental-friendly equipment (products) and water-saving equipment (products) as long as they can meet requirements as specified by national taxation preferential treatments. In accordance with relevant national stipulations, enterprises are qualified for preferential treatments of tax reduction and exemption with respect to incomes generated from technical development and technical transfer of clean production; exemption of custom duties and import-linked added value taxes shall be carried out for those imported equipment, instruments and technical documentation materials that cannot be produced nationally but can be directly used for clean production in the technological reformation projects. Enterprise expenses

used for review and training concerning clean production can be listed in the operational costs of the enterprises. Various enterprise expenses occurred regarding R&D of new products, new technologies and new processes in the clean production can be counted toward managerial costs. Tax exemption policy shall be given to the enterprises that recover old and abandoned goods. Tax credit shall be implemented for the enterprise investment for environmental protection. Special priority preferential treatment of tax exemption for all shall be given to those that are engaged in integrated use of resources. No taxation of added value taxes shall be done for those units that recover and deal with old and abandoned goods for selling these goods purchased. If general tax-payers who turn in added value taxes for its production buy in the goods from the units mentioned above, the input VAT (input value added tax) to be deducted can be calculated at the rate of 10%, based on the amount indicated on the general invoice supervised and prepared by the tax authorities and issued by the units.

### 3) Intensifiying the Efforts on Taxations related to Environmental Protection

At the 22nd Conference of the Standing Committee of the Twelfth National People's Congress on August 29, 2016, the draft document entitled Environment Protection Tax was submitted for review, and finally the law came to light. Such charge fund items as emission were changed into environment protection taxes levied, thus creating independent tax categories of environment protection. Based on the principle of "Who pollutes the environment, who pays the tax", tax-payers of environment protection shall be as follows: the enterprises, public institutions and individuals who engage in the production of taxable products harmful to the environment and the conduct of taxable behaviors of emission. While explaining the draft document, minister of the Ministry of Finance Mr. Lou Jiwei noted, the legislative principle of drafting the document is "Translation of tax bearing", in the sense that emission charge is translated into environment tax, with tax-payers in line with applicable emission charge. Levying environment protection tax is actually a major reform event, thus the mere "Translation of tax bearing' obviously does not agree with the realistic needs of environment protection and promoting circular economy development.

Taxable items under the environment protection tax include atmospheric pollution tax, noise pollution, ecological compensation tax, carbon tax, water pollution and garbage pollution tax (use of harmful materials in building decoration and electrical appliances) and so on. For the design of tax rates under the environment protection tax, differential tax rates shall be carried out based on the characteristics of pollutants, meaning that the tax rates for pollutants with serious environmental hazard and their harmful chemical elements shall be higher than those with light environmental hazard and their elements.

## 3. Price Policies

The research object of economics is how to use pricing mechanism to allocate resources in order to achieve the Pareto Optimality. Circular economy is defined as a development mode of operating on the principles of reduction, reuse and recycling, mitigating the constraints of the resource environment and reducing pollutant emission through resource saving and recycling use of resources by enterprises and the society. As price is a fundamental tool of

resource distribution, circular economy development must be based on the price theory. In the market economy, limited by cost estimation, producers determine production volume according to price signals, whereas constrained by income budget, consumers determine consumption volume based on price signals. Both of them achieve the maximum profit and the maximum efficiency respectively. However, there exists a specialty in the issue of resource and environment, in the sense that property right bodies of resource and environment are hardly defined and resource consumption; their environmental price hardly calculated; and markets are hardly available, so price mechanism of the resource environment is hardly developed, thus constituting a major obstacle constraining circular economy development. For Qinghai Province, given its particular ecological position and its characteristics of developing circular economy based on regional natural resource endowment, unhealthy pricing mechanism of the resource environment will surely increasingly severely constrain the development of circular economy in Qinghai. On October 12, 2015, the Central Committee of the Communist Party of China and the State Council issued a document entitled the Opinions on the Promotion of the Pricing Mechanism Reform (Hereafter referred to as the Pricing Reform), clearly identifying guidelines, fundamental principles, overall objectives and key tasks concerning the price mechanism reform, thus providing fundamental orientation for carrying out future pricing work and designating the major attack direction in giving full play to the leverage role of price to promote the structural adjustment and the transformative upgrading of national economy.

**1) Accelerating the Reform Process of Pricing System**

Environmental resources are having too low prices exactly because their costs and values are not approached from the scientific perspective. Undoubtedly, scientific accounting of environmental costs can reflect the expenditures occurred throughout the entire process with respect to the generation, renewal and consumption, destruction, even management, restoration and improvement of environmental resources. Too low initial resource prices will contribute to low benefits from the input and output of resource saving and unobvious comparative advantages of recycling use of resources and wastes, with a phenomenon of “Recycle without economy”. Take coal resource as an example, the document of the Regulations on Resource Tax developed in 2011 indicates that the tax rate for coking coal is 8 yuan per ton. Although its market prices are in the state of fluctuation, but it is an inevitable fact that taxation amount is only a tiny portion of its market price. That is exactly why a great many coal mines have had a low rate of recovery and large amounts of resources have been wasted. For this reason, it is essential to raise the price of initial resources at the outset of production, thus forcing enterprises to improve resource use rate and to reduce waste materials contained in the emissions into the environment. On July 1, 2016, resource taxation was reformed fully into taxation based on prices. In 2016, Hebei Province began to carry out the pilot work of levying resource tax. However, in the new ongoing economic process, for the development of circular economy in Qinghai, the reform of pricing system may add new difficulties to the development of enterprises in a short time. First, the enterprises are faced with an increase in taxes for the use of raw materials and an increase in the enterprise operation costs, thus further increasing their operational risks; second, sluggish economic situation, difficult recovery of enterprise capital, and an increase

in resource taxation, will certainly get the industrial operation with high dependence upon resources in Qinghai to be first affected. Therefore, governments at different levels are required to approach the reform with the mentality of openness and forward-looking, meanwhile within their own powers or authority, they can find ways of helping enterprises to seek development in the reform process so as to promote the sound development of circular economy in the province.

**2) Raising Emission Costs**

Since the pricing of initial resources is too low, the enterprises have small costs of initial resources. Meanwhile, owing to the presence of environmental negative externality, the costs of wastes discharged by enterprises have not been internalized, enabling the enterprises to have the costs of consuming initial resources far smaller than those of recycling use of wastes, and making renewable resources have no comparative advantages. In this case, it is hard to carry out circular economy work. Therefore, while increasing the pricing of initial resources, it is certain to increase the cost of wastes emission, internalizing it the production costs of the enterprises, enabling the marginal costs of environment resource users to be equal to those of the society and forcing the enterprises to make use of renewable resources that have superiority in prices. At the same time, they are forced to make efforts in enhancing the level of technology and the use rate of resources, thus reducing emission volume and realizing the target of volume reduction. The recycling use of wastes tends to require a more complicated technical treatment process, with high cost of input. On one hand, reproduction industries of wastes resource are often faced with the shortage of “resources” and the dilemma of costs. In the field investigation, it was found that the fundamental cause for hardly spreading the garbage assortment in the Xining Municipality is inadequate volume of wastes that can be “recycled”, in the sense that there is basically no possibility in attracting investors to invest in the industrialization of renewable resources. There is a serious problem of “Not full”, that is, “having equipment without “resources”. The recovery equipment cannot maximize its efficiency, thus the pressure of the cost arising is troubling the development of the enterprises. on the other hand, for enterprises or individuals that engage in reuse of wastes resources, their behaviors have the effect of strong positive externality, but they tend to have no relevant earning compensation.

Therefore, the government should, through the internalization of external benefits, provide some compensation and support for enterprises developing circular economy. Indeed, there are some support policies for the development of circular economy industries. However, their range and intensity shall be further adjusted so as to achieve the goal of really promoting the sound development of enterprises. Unfortunately, the fundamental feature of the circular economy development in Qinghai is, for circular economy industries of “Using up and most” in the development of natural resources, other than those in a general sense, there has been no definite support policies for them at the national level. In the field survey, a good many enterprises noted, “For the investment in the circular economy development in the province, there is no convincing sense that the circular economy is being supported by governmental policies”. It is suggested that in the construction of circular economy pilot zones in Qinghai, priority should be given to improving this undesirable situation.

### 3) Further Refining Auction & Trading System Regarding Emission Rights

The report of the Eighteenth Party Congress proposes, "It is important to speed up the construction of an ecological civilization system by deepening the reform of resource-oriented product pricing and taxes and dues, implementing the system of paid use of resources and actively promoting systems regarding energy conservation carbon emission right, emission right and water right". As an environmental economy policy by using market mechanism to control environmental pollution, trading system of emission right is an inevitable choice for innovation in environment policies as well as an important approach to the quality, beneficial and sustainable development in the PRC. The commercialization reform concerning pricing mechanism has gone through two stages for more than a decade. The period from 2001 to 2006 was an explorative pilot stage. At the outset, the pilot work was carried out through physical projects like the Sino-American Environment Cooperation Project, the ADB's Taiyuan Municipal Project. In 2004, Jiangsu Province made an attempt in the trading work of pollutants emission right; in 2006, Jiaxing Municipality in Zhejiang Province fully started up the trading work on the total volume control of water pollutants and the emission right and established the first trading platform of emission right nationwide. The period from 2007 up to now is a deepening pilot stage. At this stage, the stage has pushed the pilot work of trading emission rights in a up-to-down way; and the local has taken the initiative to carry out the explorative pilot work in a down-to-up way. 10 provinces or municipalities like Jiangsu, Zhejiang, Tianjin and Hubei have undertaken the pilot practices of paid use of emission rights and trading. On the basis, in August, 2014, the General Office of the State Council issued in print the document of the *Guidance Opinions on Further Promoting the Pilot Work of Paid Use and Trading of Emission Rights of Major Pollutants*, marking that the system of emission rights trading has become an important environmental economy policy. On February 8, 2014, Qinghai Province issued and implemented a document entitled the *Pilot Implementation Plan of the Paid Use and Trading of Emission Rights of Major Pollutants in Qinghai (Trial)*. On July 30, 2014, the first auction of major pollutants in Qinghai was carried out at the Provincial Public Resource Trading Center. However, there has been no explicit definition of emission right at the national legal level, with a lack of legislative security, thus having difficulty in building emission rights trading markets nationwide. Moreover, because of narrow scope of pollutants covered by emission rights, the system has not given full play to environmental pricing. And the system has not achieved an organic connection with such environment management systems as emission permit, EIA approval of constructional projects, the "3 simultaneous steps" acceptance procedure, emission declaration and emission charges, thus affecting the deepening progression of pilot work[15]. In the process of the field survey, many corporate executives expressed their dissent, believing that the system ought to replace the systems like emission declaration and emission charging. Meanwhile, there has been no development of detailed rules, information disclosure, trading supervision regarding emission right auction and trading. Pricing mechanism is a key mechanism in the market which should be based on the development of market rules and systems. Therefore, Qinghai

15 Ren Yanhong, Zhou Shuxun. Tentative Discussion on Total Volume Permit and Supervision of Local Pollutants Emission [J]. Environmental Economy, 2013, 6:52-54.

must greatly promote the establishment of rules and systems concerning the auction and trading of emission rights to further extend its scope, to further streamline relevant institutional relationships with applicable emission management and to further strengthen the construction and refinement of related resource trading markets.

## 4. Financing Policies

### 1) Optimizing Polybasic Investment and Financing Environments

There is need to optimize a diverse investment environment. To begin with, it is important to increase administrative review and approval matters delegated to industrial parks in the reform of administrative streamlining and power delegation. Administrative review and approval powers are not only the core of enterprise entry system, but also a legal expression of the relationship between the government and the market. Therefore, in order to clarify the fundamental relationship between management committees and local governments, the core of refining the systems and mechanisms of circular economy industrial parks lies in deepening the reform of administrative review and approval systems for it is of utmost importance to a polybasic investment environment. Next, economic statistics agencies must draw a clear distinction between statistical methods of environment protection and those of circular economy so as to statistically express the investment in the circular economy development. Of course, detailed financial amounts from the governmental investment in the circular economy can also be clearly reflected, thus playing a “leading and modeling” role in ushering social capital investment in the circular economy development. The environmental protection investment in the PRC has developed a complete set of corresponding statistical data, including 3 primary components such as investments concerning management of industrial pollution sources, “3 simultaneous steps” of constructional projects and urban environmental infrastructure. They have their own statistical calibers and methods, eventually consolidating the three investments into the total investment of environmental protection. Evidently, the statistical data of 3 primary components can not completely reflect the investment situation of circular economy development. It is certain to make good use of “3R” principles of circular economy development to create its statistical calibers and methods. Additionally, it is important to establish a real governmental green procurement mechanism, highlighting the preference to products from circular economy enterprises in the governmental procurement. In such a way, it will also push social capital to enter the development of circular economy, attracting diversified investment bodies.

### 2) Developing a Polybasic Investment & Financing Mechanism regarding Circular Economy

A polybasic investment and financing mechanism consists of polybasic bodies, approaches, methods and investment orientations. In the government investment, its orientations comprise not only infrastructure investment but also circular economy industry investment; its approaches and methods cover equity investment, and creditor investment that has low interest loan, no interest loan and government bonds. Therefore, for the development of a polybasic investment and financing mechanism regarding circular economy, it is essential

to require relevant government agencies to carry out the following jobs.

First, possess a mode of innovative thinking. In identifying policies to promote the establishment of a polybasic investment and financing mechanism, within the mandatory scope, there should be various approaches and methods to be employed, making good use of "combination" technique and guarding against going to the extremes. The field investigation found that the staff of some government agency of coordination of circular economy development have rigid thinking modes in their work, arguing that former governmental "Direct subsidy" for the industrial development of circular economy caused the loss of national assets should be changed into "preferred stock" in the next step. Certainly, it is not a wise consideration. Actually, any approach or way has its own advantages or disadvantages and its applicable conditions and situations. It is necessary to give full play to strengths and evade weaknesses.

Second, materialize principle-based stipulations in the *Opinions on Investment and Financing*. It explicitly states, "To support national and provincial circular economy demonstration and pilot parks and enterprises issuing direct financing tools such as corporation bonds, convertible securities, short-term financing bonds and medium-term notes (MTNs) with respect to the enterprises"; and "To explore small and medium enterprises (SMEs) in the circular economy demonstration and pilot parks issuing joint securities". Those that are qualified for the policy support are "national and provincial circular economy demonstration and pilot parks and enterprises". However, the policy has not been implemented at all. On one hand, it lacks detailed operational stipulations, thus calling for further refinement at the national level; on the other hand, it offers an approach to innovation reform. Government agencies in charge of circular economy work and finance and financial institutions shall jointly conduct research to seek approaches and methods that can be used to materialize the policy within the applicable institutional framework.

Third, support social capital to enter the construction of public facilities regarding circular economy. The investment in this connection cannot merely rely on governmental investment. It is significant to greatly push the entry of social capital, actively striving for the support of PPP cooperative investment projects at the national level.

Four, further support the development of financing collateral platforms for small and medium enterprises (SMEs). For instance, the Chaidamu Financing Collateral Company, Ltd, founded with the approval of the Qinghai Provincial Government, is a company which provides financing guaranty services designed to accommodate the sound operation and the project construction of SMEs in the parks. Since it was funded three years ago, the company has cooperated with 13 banks province-wide, guaranteeing 216 loans for 75 SMEs, with a cumulative amount of RMB 3 billion yuan. There is no denying that it has played a positive role in mitigating the financing difficulty of SMEs and ensuring their sound operation in the parks.

Five, refine a financial management system of circular economy experimental zones, in particular, in Chaidamu. Qinghai shall conduct research and develop a much-improved

financial management system in the experimental zones as soon as possible, led by the Provincial Finance Bureau and assisted by prefecture governments and management committees in the experimental zone. And using the Delingha Industrial Park as an entry point, it is appropriate to establish a financial management system of "Integration of administrative powers and financial powers" so as to improve park functions and enhance project bearing capacity.

## IV Talents Policies and Science & Technology Policies

To construct a policy system of the circular economy development in Qinghai, support policies for science & technology and human resource, management policies and other counterpart policies are safeguard that run through the 3 levels of recycle, that is, small recycle at the enterprise level, intermediate recycle at the regional level and Large Recycle at the social level. Circular economy is, in essence, based on notional, technical and managerial innovations while support policies for S&T and human resource are a fundamental assurance for promoting the sound development of circular economy. According to the field survey, human resource and S&T are the key factors restricting the development of circular economy in Qinghai. Therefore, at the current stage, in constructing a policy system of promoting the circular economy development in the province, the policy for S&T talents shall be positioned as the basic and central part of key policies. In order to promote the shift from the traditional linear economic production mode to the new recycle-based economic production mode, the required S&T level and achievements shall undoubtedly be the most important restrictive factors. With corresponding technological means, the achievement of all targets by transforming the economic mode will be in vain. As there have been no short-term economic benefits and as an enormous systematic project, it requires coordination and cooperation from all walks of life, new technical targets and S&T development orientation are hard to grow naturally in the soil of market economy. Only by corresponding S&T policies providing effective orientation and promotion as well as ensuring their wide application and adequate implementation, will the new economic mode taking the reduction of resource use and the control of environment pollution as operational prerequisite and import targets to be widely promoted in the whole society. There has been an annual increase in S&T input in Qinghai Province. In 2015, the province implemented significant S&T support engineering programs using "123" and "1020" as priorities, intensively making breakthroughs in key technique issues restricting the socioeconomic development. The "123" S&T Support Program focuses on developing new chains centering around the existing industrial chain, with its priorities on 10 distinctively advantageous industries, like renewable energy, advanced materials and equipment manufacturing and so on. It has organized and implemented 34 S&T projects, with a total investment cost of RMB 972.93 million yuan, of which RMB 154.89 million yuan is financed by the provincial S&T grant. After project implementation, it is expected that there will be an incremental output value of 2.14 RMB billion yuan as well as a total value of profits and taxes of RMB 470,000 million yuan. It has succeeded in developing and extruding the longest P91 seamless steel pipe in the world. The research and demonstration of key technique of 320MWp water-light mutual complementation have filled a nationwide gap in key technique of big-scale water-light mutual complementation, thus the project has become the largest power plant of water-light

complementation. It has succeeded in developing an earth observation system for the innovative high altitude airship named “Blue Sky”, thus realizing the real-time monitoring and management, analysis and assessment of rangeland productive force with respect to the Qinghai Lake watersheds environment. The province has constructed an innovative platform of technological integration regarding efficient use of distinctive biological resources in the Qinghai-Tibet Plateau. It has initially established platforms concerning separation and purification technology and freeze-drying and pre-production of highland distinctive resources, providing a basis for optimizing Chinese and Tibetan medical dosage forms and processes. The “1020” S&T Support Program of ecological agriculture and livestock, centering around the development of 10 key agriculture and livestock distinctive industries of the whole province, has organized and implemented 43 S&T planning projects, with a total investment cost of RMB 464 million yuan, of which RMB 79.2 million yuan is financed by the provincial S&T grant and RBM 385 million yuan from social investment. However, from the perspective of the provincial circular economy development, S&T and human resource policies are still the bottlenecks restricting its development in this regard.

## 1. Talents Policies

In response to the current status and special issues regarding the implementation of human resource policy in Qinghai, it is important to take effective and target-oriented measures. There is a need to make innovations in policy mechanism, making efforts to resolve the issue of shortage of technical R&D human resource of SMEs. The strategy of human resource in the province shall be implemented to create a good social culture where talents can be well enticed, well-kept and well used in an open-minded fashion.

### 1) Setting up a Special Government Fund to Support the R&Ds of SMEs

In the design of human resource policy, the government should set about largely tending to favor SMEs. For R&D talents who are badly needed by SMEs, it is possible to give full play to the strategy of “To make good use of talents rather than bringing them under control”, for example, the government can look for suitable R&D talents in the corresponding areas that offer counterpart assistance, specially recruit them through the governmental collaboration mechanism and engage them in undertaking the R&D work badly needed by the enterprises. The government can pay specially recruited staff from its R&D special fund for supporting SMEs a kind of salary higher than the general R&D income level in the local area. Meanwhile, the outcomes of commissioned R&D project supported by the government should in principle belong to the SMEs that are in great need R&D, thus facilitating the sustainable development of the enterprises. In an effort to stimulate the academic research motivation of the staff, it is advisable to fully ensure that a researcher has rights of signature and usufruct to academic outcomes. It is also appropriate to clearly indicate on the Special Recruitment Agreement that certain proportion of the income obtained from enterprise applied research achievement shall go to the academic researcher.

### 2) Deepening Reforms of Local Higher Education and Professional Education

The industrial plan of circular economy in Qinghai should be taken as an orientation to carry out reform of higher education and professional education, striving for turn out a large number of quality technicians and highly skilled personnel satisfying the needs of industries of circular economy development in the period from 5 years to ten years, so as to meet the demands for local human resource of enterprises. In such a way, it can accomplish dual purposes: to push the enhancement of local employment rate in Qinghai and to reduce the employment cost of enterprises.

### 3) Improving the Efficiency of Human Resource Management System

There needs to be an improvement in implementation mechanism of governmental policies. Necessary reform has to be carried out of some unrealistically rigid requirements, like criteria for academic title of the principal applicant of S&T policy support projects and where he or she turns in social insurance charges. Actually, it is appropriate to add criteria of "on the equal level", further strengthening the practicability and effectiveness of policy implementation. In the meanwhile, it is helpful to develop a corresponding evaluation mechanism of support projects, preventing other problems arising from flexible criteria from taking place.

In addition, personnel and social security agencies shall further improve the level of governmental human resource service. As for human resource service, on one hand, working and living conditions should be created; on the other hand, managerial and technical staff should pay much attention to the recognition of their managerial and technical levels from the society. However, in Qinghai, a number of professional fields are not given the right to a qualification for granting high-level academic titles, so that there has been some problem with academic titles of high-level technicians of the enterprises in the fields enter the parks. In response, the personnel and social security agencies must take proper measures to ensure the rights and interests of high-level technicians in the academic title rating.

## 2. Science & Technology Policies

### 1) Sustainably Increasing Financial Support for S&T Research and Development

Basic research input is the foundation and assurance of scientific and technological development, because it is a fundamental driving force of S&T development. Although international S&T exchange plays an important role in raising the level of science and technology, the core technology cannot be bought. Chronic dependence on the S&T exchange with developed nations can only lead to the nation being in the backward state of S&T. In a sense, an innovative achievement of academic research in the basic research field tends to bring about a transcendental S&T development. The PRC should use scientific and technological policies to increase the input in the basic fields of academic research. It should start by clearly indicating the proportion of academic research input in the GDP and the proportion of basic research input in the spending of R&D grant and then placing the research on circular economy S&T on the more prominent position, thus increasing the proportion of basic academic research input regarding circular economy S&T. in the S&T

research that can also increase economic benefits, priority is given to supporting the recycle-based S&T research. Moreover, for the approval of academic research project, it is advisable to use circular economy requirements such as ecological benefits and environmental security as an important condition or factor for considering the project approval. In the case of limited fund, there needs to be full support for the research of S&T regarding circular economy. It is important to strengthen research grant support for relevant basic research fields such as ecology and environment sciences in expectation of providing theoretical support and research basis for breakthroughs in the corresponding technical fields. Specifically, R&D of circular economy S&T can be an important scientific research project initiation and then special funds are set up to ensure R&D activities associated with green S&T and ecological S&T as well as breakthrough improvements of critical and generic technologies required by circular economy. All in all, the PRC must take basic research input directed at circular economy S&T as an important S&T support measure, thus constituting an important policy component of the promotion of corresponding S&T development.

**2) Creating a System that Facilitates the Adoption of Circular Economy Technology and Equipment**

Costs and benefits can be closely linked in an enterprise to improve its motivation to engage in technical innovations and to use new techniques so as to make improvements in the traditional process. As an important component of S&D policies, it is essential to planned financial subsidies for environmental protection S&T and ecological S&T into governmental budget and to make an assessment of their use after a year in order to ensure that the fund can be given its deserved play. It is appropriate to take corresponding financial systems in Japan as a reference to develop systems in the following aspects: providing financial aids for creative scientific and technological R&D, subsidies for production enterprises that engage in recycling use of wastes, subsidies for enterprises that introduce integrated resource use equipment and integrated energy recycling use equipment and allowances for enterprises that promote the practicability of environment-friendly technologies. In addition, it is possible to adopt such methods as price subsidy, pre-tax loan repayment, finance discount and subsidy for enterprise loss to place priority upon enterprises that use environment protection technologies. A series of financial subsidy favor tendencies and systems can give full play to the orientation and influence of the governmental investment over social investment, causing social capital including banking finance to flow into recycle-based industries. Financial institutions like banks are encouraged to develop green finance and green credit policies to offer preferential treatments in terms of loan and interest for R&D associated with recycle-based S&T, further stimulate the enthusiasm of the enterprises to make improvements in the production process. There needs to be the formulation of S&T policies regarding financial subsidies supporting green S&T in order to provide necessary financial support for the innovation and extension of recycle-based S&T, to give full play to the orientation of S&D policies and to create a good social environment for developing economy within the framework of ecological environment protection.

**3) Further Strengthening the Integration of "Industry – University – Research"**

It is important to formulate policies designed to support SMEs S&T research and developments. Moreover, in order to help weigh down the situation of SMEs, depending on "micro-fund and micro-project", the criteria corresponding with R&D level of SMEs shall be set up to comprehensively promote the work of internal technical reformation of clean production of SMEs and enhance the overall level of the circular economy development inn Qinghai Province. Simultaneously, the province must further strengthen the integration of "Industry-University-Research", opening up a way to basic science and applied technical R&D and realizing the rapid transformation of R&D outcomes into production force, with its core of pushing enterprises to participate in the research work of basic science based on the needs of their self-development. Furthermore, it is essential to develop a S&T award system of circular economy. Based on the requirements of circular economy, the PRC needs to develop a system of various special S&T awards directed towards circular economy to encourage innovative R&D of corresponding S&T fields with a more FAT reward system. It is possible to add new regulations based on the revision of the original system of S&T invention awards as well as create a complete set of systems of special S&T awards. Consideration is given to borrowing the Japanese S&T award system by establishing award systems using the Central Government and provincial or municipal governments as bodies and encouraging such groups as enterprises and S&T associations to set up awards of recycle-based S&T like green S&T and ecological S&T. it is important to extend the scope of awards. Awards shall be not only directed towards invention and creation of corresponding S&T fields, but also given to groups and individuals who have made outstanding contributions in extending corresponding S&T achievements and vitalizing environment-friendly industrial development. For those units or individuals who have achieved innovative outcomes in recycle-based S&T fields, they can be given the awards different from other S&T awards, with independent awarding. The award value shall be increased by means of material award, mental award and reputational title award. The Central Government can set up awards like Environment Protection Science and Technology Medal", while local governments, enterprises and civic organizations or NGOs can give material awards. Fat awards or prizes can be used to highlight the great importance of recycle-based S&T in the sense that governmental attitude or stance can be made good use of to influence and act on behaviors of enterprises, groups or organization and the general public so as to create a good social environment favorable to the R&D and extension of circular economy S&T, to push the development of recycle-based industries and to further promote the construction of circular economy development mode in the whole society.

## V. Other Policies

Circular economy development is an undertaking that involves all sectors and all homes, thus calling for the concerted efforts of governments, enterprises and all walks of life in the whole society. Based on the data collected from the field survey, only 7.1% of those people surveyed hold that circular economy development is a shared responsibility of the whole society. Furthermore, according to the survey on urban and rural communities, the former has a circular economy cognition rate of 3.5% while the latter has a circular economy cognition rate of 4.1%. Although there are principle-based provisions as to social policies

regarding circular economy in the Action Plan of Qinghai, in reality, "Large Recycle" implementation at the social level in the province has shown a point-like distribution and there has been no systematical policies to support the linear development of "Large Recycle". When the circular economy development in Qinghai enters the current stage, it is not enough to purely rely on the government's strength to push forward, but it is essential to depend on the whole society's identification of the idea of circular economy and active participation in an effort to enhance the development of circular economy to the higher level.

## 1. Developing Multiple Incentives

As opposed to traditional economy, circular economy is a completely new concept. In our modern society, there have been two primary trends of circular economy. Specifically, one is mainly carried by knowledge economy of information based on IT and dematerialization, while the other is by environmental hazard-free technology, resource recycling use technology and clean production technology.[16] Historical experience shows that creating a new idea requires an on-going process. As a matter of fact, over many years of circular economy pilot work, there have been a big number of success paradigms or models regarding small recycle at the enterprise level and intermediate recycle at the regional level in the PRC. In promoting the construction of circular economy, the construction of ecological communities has been well studied at the theoretical level and there have been quite a few models. In the process of economic activities, people tend to pay much attention to economic incentives, seeking the maximum economic benefits in the development. In terms of circular economy development, the government must take the lead in enabling people to engage in economic activities through setting up a series of policies, with their motivation having dual purposes of seeking the maximum economic benefits and seeking the maximum of ecological benefits. Therefore, it is essential to rely more on a policy system based on economic incentives at the initial stage of development. However, when circular economy development enters a given stage, incentives for people's behaviors cannot depend purely on economic incentive, but on other incentives such as honor incentive and achievement sense incentive.

## 2. Strengthening Circular Economy Campaigns for Public Awareness & Acceptance

Ultimate implementation effects of all policies are closely related to public participation. The prerequisite of the working of other incentives lies in the mechanism of the whole society's recognition of their behaviors. Based on the actual situation of low public awareness of circular economy in Qinghai Province, it is essential strengthen the work of publicity and education regarding recycle education. School education, training, exhibition, community education and mass media can be made good use of to raise the awareness of circular economy, enabling it to become a common understanding for the general public and creating a good social atmosphere. Currently, in the province, the publicity of the idea of consumption based on circular economy only stops at the level of "Public service

16 The Zhongguancun National Environment Protection Industry Centre. Circular economy – National Trends and China Practice [M]. The People's Press.2005, (7):180

advertisement". In the construction of national circular economy pilot zones, various governments and their departments must incorporate the publicity and education of the idea of consumption based on circular economy into the government agenda and greatly support the publicity and education using a wide range of carriers and means at the community level, thus gradually enabling the idea to be fully instilled and grown in the minds of people. To realize circular economy, it is an important link to let the general public consciously to arrange their living and production as required by circular economy. For other incentives regarding circular economy like honor incentive and achievement incentive, their actual effects shall also use wide social recognition as a prerequisite. Therefore, the strengthening of circular economy and education shall be listed as a task for various governmental departments, thus they need to establish corresponding mechanisms in terms of planning, implementation, efficiency evaluation and assurance.

### 3. Encouaging Green Consumption to Widen the Adoption of Circular Economy Practice

Consumption occupies an important position in the economy. Circular economy practice can not only significantly adjust economic and industrial structures but also have an impact over people's traditional consumption notion and habits. Advocating the consumption consistent with the idea of circular economy is a strategic link to promote the development of circular economy. It is important to strengthen the policy research on enhancing the recycle-based consumption idea in expectation of developing a mechanism of policy incentives regarding the promotion of the public recycle-based consumption living style. Firstly, various extravagant consumptions can be constrained by gradually replacing personal income regulation tax with personal consumption regulation tax; and good virtue of being thrifty can be given full play to raise public awareness of energy-saving, water-saving, material-saving and food-saving. Secondly, policies shall be laid out to limit the use of one-off goods to let consumers not use or use them less; consumers should be encouraged to buy and use energy-saving environment-friendly products, energy-saving and land-saving households, to prepare shopping bags by themselves, while enterprises are banned to have access package on commercial products. Thirdly, the development of saving-oriented transport is further encouraged. Various means of transportation are connected in an integrated manner to accelerate the realization of "Zero Distance Interchange" and "Seamless Connection". There should be rational deployment of infrastructures of railway, highway and airport, scientific identification of constructional size and systematical enhancement of use efficiency of resources like land, energy and water. Fourthly, actions of green buildings need to be taken. Energy-saving reformation practices such as building thermometers, pipeline heat balance, building periphery protection structure and natural ventilation are promoted, and energy-saving products like high efficiency lamps are advertised and extended.

### 4. Constructing Recycle-based Communities and Demonstrative Public Places Which Integrates the Knowledge and Practice of Circular Economy

"Large recycle" at the social level is a mode in which social citizens jointly participate in the practices of circular economy development. Therefore, to construct recycle-based

communities is a platform on which the general public can practice circular economy. In 2016, Datong County was identified as a national circular economy demonstration county. Qinghai shall use this as an entry point to carry out exemplary construction activities of recycle-based communities province-wide. The recycle-based communities tend to provide ecological services of social living, like specialized service of delivering clean vegetables to the market, reduce energy consumption and emission of domestic wastes and comprehensively promote garbage assortment and treatment to improve the recycle use rate of social wastes. Industrial waste water and living waste water can be collected and treated in a separate way in order to improve the recycling use rate of reclaimed water. With the construction and demonstration of recycle-based communities, the gradual development and implementation of social ecological system will enable the consumption of energy and natural resources to decrease in the whole society, eventually realizing the significant decrease of wastes emission as well as the ecological and healthy treatment of wastes. Meanwhile, the idea of circular economy will be made popular in the communities and people will more readily purchase green products produced in the mode of circular economy, thus further promoting the sound recycle of socially ecological system.

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研究成果（三）

# 构建促进青海省循环经济发展政策体系

《提升青海省循环经济政策建议》

项目办公室

2017 年 2 月

# 摘　要

课题在概括总结国内外理论界关于循环经济发展政策的研究状况的基础上，深入青海省各产业园区实地调研，通过对循环经济“三个层次”——大循环、中循环、小循环的实践梳理，分析青海省现行循环经济发展的政策，以问题为导向、以落地为原则，具体从产业、经济、人才、科技、管理等方面提出促进青海省循环经济发展政策体系的建议，架构青海省循环经济发展的政策体系框架。在具体研究工作中，对于法律法规等基础性政策和生态环境保护前置性政策作了扼要说明，未作为研究内容。主要内容：

1. 构建研究基础。从国外政策法规体系经验借鉴、循环经济政策体系的结构问题、促进循环经济发展财税政策的局限性问题、推动循环经济发展的政策建议和我国循环经济政策演进等五方面构建起课题研究框架和思路。

2.政策构建与执行存在问题。从宏观层面、中观层面和微观层面对政策制定、执行等过程中存在的各种问题分类总结梳理，并在指出造成问题的重要原因是国家循环经济政策供需存在问题、地方性循环经济政策形成机制不畅、政策协调性系统性不足等。

3.政策优化。根据存在问题，重点从以下方面提出了优化建议。一是，产业政策。优化产业组织政策、以政策“捆绑”设计，加大对中小企业的支持力度、通过产业政策积极促进企业提升价值链位置、以“大循环”战略优化各园区产业布局。二是，管理政策。鼓励各产业园区探索适合自身发展的管理方式和管理模式、加强合作开发产业园区的制度供给。三是，经济政策。财政政策：持续加大支持循环经济发展的财政资金投入力度、进一步增强地方的发展积极性、改革财政支出支持循环经济发展的方式、探索建立循环经济生产方式产品标志及其认证制度。税收政策：完善资源税促进青海省循环经济发展、调整增值税和所得税，体现绿色税收理念、开征环保税并加大征收力度。价格政策：加快价格制度改革进程、提升排放成本、进一步完善排污权拍卖与交易制度。金融政策：优化多元化投融资环境、促进循环经济多元化投融资机制的建立。四是，人才、科技政策。建立政府支持中小企业研发力量建设的专项基金、

深化高等教育与职业教育改革、加强人才管理制度实效性、持续加大科学技术研发的财政投入力度、进一步加强“产学研”一体化等。五是，其他政策。形成多项激励，改变经济激励的单一模式、加大宣传力度，提升全社会对循环经济的认知度、引导绿色消费，拓宽循环经济在全社会的实践道路、建设循环社区，形成公众知行合一的示范地。

本课题在研究中，研究人员严格遵循亚行的技术和程序要求，主要就青海省工业循环经济发展中现行政策运行问题和“十三五”期间政策改善进行了深入研究。

# 目　录

# 引言

“十二五”以来，青海省立足省情发挥特色优势，紧紧围绕建设国家循环经济发展先行区的总体要求，坚持以提高经济发展质量和效益为中心，将循环经济作为破解产业结构性矛盾的主要途径，发展循环经济成为转变经济发展方式的主攻方向。“十二五”期间，青海省的产业结构不断优化，10 大特色优势产业地位更加凸显，循环经济产业链初步形成，新能源、新材料、生物制品等新兴产业和特色产业发展迅猛。“十三五”时期是青海省循环经济承前启后、攻坚克难的关键时期，按照《青海省建设国家循环经济发展先行区行动方案》，到 2020 年，产业布局科学合理，资源综合利用和产出率显著提高，循环经济规模不断扩大，成为发展主导模式，最终建成国家循环经济发展先行区。

为了探索更有效的循环经济发展途径，实现循环经济发展的新突破，完成“十三五”时期建成国家循环经济发展先行区的目标，有必要对青海省循环经济发展的现状进行全面深入研究，发现在国家循环经济政策基本成熟条件下青海省循环经济政策运行存在的主要问题，为循环经济进一步发展指明方向。因此，本研究通过扎实的调查研究，梳理出相关问题，提出青海省循环经济发展的政策体系框架，并从优化关键政策的角度提出具体促进青海省循环经济发展的政策建议。

# 第一章　构建促进青海省循环经济发展政策体系的基础

循环经济作为一种符合可持续发展思想的经济增长模式，包括生产和消费过程的整个经济系统，形成“资源——产品——消费——再生资源”的闭环式物质流动，根本目标是促进生态系统与经济发展的良性循环，实现国民经济的协调、持续发展。循环经济不仅带来经济发展模式的根本变革，也带来生活方式和行为模式的根本变革，需要国家制度和政策的积极引导。循环经济政策，涉及经济社会发展的各个领域，是推进生态文明建设、绿色发展和可持续发展的主要力量。从制定政策的主体范围而言，循环经济政策有广义和狭义之分。广义的循环经济政策是指组织机构为缓解资源环境压力、增强可持续发展能力而制定的与循环经济相关的方针、策略、文件，其组织不仅包括国家权力组织、政党组织、政府机构，还包括企业、社会团体等。而狭义的循环经济政策，其制定主体仅仅指国家权力机关、政党组织和政府机构。[1]现实中，我国循环经济政策主要有两类，一类是以法律法规、强制性标准、其他强制性规定等为载体、以直接管制为主的规制性政策，一般以行政强制为规范来调整循环经济的发展；另一类是以经济政策为载体、以间接调控为主的市场性政策。循环经济市场性政策主要通过价格、税费等经济手段来支持和引导循环经济的发展。本课题研究中，主要讨论狭义的循环经济政策。

青海省积极推进循环经济的发展，自2005年柴达木循环经济试验区发展方案获得国家发改委等六部委的批准，成为国家首批13个循环经济试点园区之一，循环经济在青海省得到了快速发展，循环经济规划及基本政策初步形成。2010年西宁市经济技术开发区获批国家第二批循环经济试点园区，2013年省委、省政府颁布实施了《青海省建设国家循环经济发展先行区行动方案》（以下简称《青海行动方案》），2015年柴达木循环经济试验区和西宁市经济技术开发区循环经济试点示范区通过国家发改委等七部门的验收，2016年1月大通县获批国家循环经济示范县建设地区。

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[1]郁永勤.循环经济发展的机制与政策研究[M].北京：社会科学文献出版社，2014年4月，231-232

## 一、实践基础

政策科学为将理论付诸实践提供了良好的方法论指导，它在“通常纯粹的研究和应用的研究之间架起了桥梁”[2]。循环经济政策是联系循环经济理论与实践的纽带，具有很强的行为导向性。循环经济的运行实施需要通过政策的设计、执行与效果反馈等一系列环节，以确保政策目标的实现。同时，循环经济政策体系以一定制度体系构建为基础。一方面，政策绩效的完善有赖于制度的创新，现行的制度结构中不合理因素需要及时剔除，代之以和谐、相适应的结构安排；另一方面，创新的制度反过来又对政策体系提出新的要求，这使得新的政策手段及时产生以满足演变后的制度安排。我国十余年循环经济的实践为青海省建设国家循环经济先行区政策体系的构建奠定了实践基础。循环经济理念自 20 世纪 90 年代末引入我国以来，得到快速地传播，大力发展循环经济已经成为我国一项重大的发展战略。2005 年 7 月，国务院先后颁布了《国务院关于做好建设节约型社会近期重点工作的通知》（国发[2005]21 号）、《国务院关于加快发展循环经济的若干意见》（国发[2005]22 号），2008 年国家颁布《循环经济促进法》、2013 年国家制定实施《循环经济发展战略和近期行动计划》（以下简称《发展战略和行动计划》）。经过十多年的实践和探索，循环经济相关活动已在企业、园区、产业和社会等多个层面普遍开展起来。循环经济政策在大力促进循环经济的快速发展上发挥了决定性作用，但政策在运行中出现了不少问题，需要不断完善。

### （一）微观层面的实践：小循环

1992 年世界工商企业组织发展理事会（WBCSD）在《变革中的历程》报告中提出了生态经济效益的理念，并在其成员企业中有力推动了循环经济在企业层次上的实践。生态经济效益的本质是要求组织企业生产层次上物料和能源的循环，达到污染排放的最小量化。企业层次的“小循环”实践，主要是以清洁生产为导向、以循环经济理念设计节能、节水、降耗的现代新型工艺。我国高度重视企业“小循环”在循环经济发展和生态保护中的基础性地位，不仅给予了政策层面的大力支持，包括规划引导、财政支持、税收优惠、科技创新支持、贴息贷款等等，而且通过颁布一系列法律法规

[2]陈振明.公共政策分析[M].北京中国人民大学出版社.2004，(3)：12~16

廓清了企业实施清洁生产的制度框架，包括 1995 年颁布《固体废物污染环境防治法》、1995 和 2000 年两次修订颁布《大气污染防治法》、2003 年 1 月 1 日开始实施《清洁生产促进法》等等。从实践层面上来讲，国家循环经济发展始于“小循环”。2005 年，全国开始实施循环经济国家试点工作时，在重点行业和重点领域里亦是以企业的循环发展为主要对象。国家第一批、第二批全国循环经济试点单位确定了一百余家企业实施循环经济。青海省在经济发展过程中，重视加强企业层面的“小循环”发展。在国家循环经济改造规划安排下，在柴达木循环经济试验区、西宁市经济技术开发区对于符合条件的企业实施了循环经济改造。

1、少数企业自主施行“小循环”，取得了循环经济蕴涵经济、社会和生态效益相统一的价值。位于西宁市东川工业园区的亚洲硅业，非常重视企业层面“小循环”。在公司成立十余年中，不断投入人力、物力、资金进行技术改造，目前已掌握国际领先水平的大型流化床冷氢化技术、48 对棒大型加压还原炉生产及高效预热循环利用技术、高效热耦合节能精馏技术、光纤级四氯化硅生产技术、还原尾气干法回收利用及节能技术等，使公司最初的预热利用率不足 30%提高到 80%，节能量折合标煤约 6.74 万吨/年，可减少二氧化碳排放 17.7 万吨/年、二氧化硫排放 573 吨/年、碳氧化物排放 500 吨/年，节约用水 41.4 万吨/年。2015 年东川工业园区确定为循环经济改造示范区，园区向国家申报获批的循环经济改造项目中接近 50%的项目是亚洲硅业取得。当然，亚洲硅业在“小循环”发展中，通过内部技术改造奠定了自己在硅市场不景气情况下仍能生存和发展的“成本”基础。[3]

2、多数企业在国家政策引导机制和法律规制机制下，通过技改实施企业层面“小循环”。位于大通县的青海桥头铝电股份有限公司，原 5*125MW 燃煤发电机组，能耗高、设计污染排放标准低，污染物排放量大，其中二氧化硫排放 10292 吨/年，碳氧化物排放 24496 吨/年，烟尘排放 2409 吨/年。在国家高度重视环境保护的态势下、新《环境保护法》严格制度导向下及地方政府大气质量考核的高压下，青海桥头铝电股份有限公司决定关停原 5*125MW 机组，计划投资 76 亿人民币，于 2016 年 8 月开工

[3]亚洲硅业是高耗能的企业，其用电成本是其产品成本的主要部分。据该公司技术负责人介绍：该公司一年耗电达到 10 亿度。青海省工业用电平均价格约 0.41 元/度，与新疆、内蒙等地工业相比用电平均价格高出近 0.20 元。如是说，亚洲硅业一年用电成本因用电价格与其他地方同类产品成本高出近 2 亿元！

建设 3*660MW 燃煤机组。新建项目采用临界锅炉，具有热效率高和热耗低的特点，污染物排放按照超低排放标准设计，可以降低能耗、减少运行成本，各种污染物排放量下降近 90%。

## （二）中观层面的实践：中循环

循环经济的“中循环”是根据生态系统循环、共生的原理，通过各个组织之间交通网络衔接、环境保护协调、地区资源共享和功能互补等，使不同企业之间形成共享资源和互换副产品的产业共生组合，使上游生产过程中产生的废物成为下游生产过程的原料，实现综合利用，达到相互间资源的最优化配置，使经济发展和环境保护走向良性互动轨道。生态工业园区是循环经济“中循环”的重要形式，按照 3R 原则和工业生态学原理，通过企业间的物质集成、能量集成和信息集成，形成企业间的工业代谢和共生关系，它是继工业园和高新技术园的第三代工业园。“中循环”过程中不仅注重发展经济，更要注重环境保护和资源利用。循环经济产业链先天存在诸多公共产品特性和外部性特征，在其形成之初，可识别的价格信号和可预期的潜在利润微弱，依托于市场配置资源、形成产业关联的动力和功能不强。促进“中循环”生态工业园区的发展，必须依托于制度政策的强制约束、激励或者政府直接提供资金进行补贴。目前，“中循环”的发展以产业政策与投资政策激励机制为主要动力。简而言之，国家对以市场机制为基础的产业结构、产业技术、产业组织和产业布局变化进行定向调控。

### 1、柴达木循环经济试验区的实践

柴达木循环经济试验区,是国家在第一批循环经济试点工作时设立在青海高原少数民族地区、唯一一个以区域为特征的循环经济试验区，是青海省委、省政府把青海建设成为国家循环经济先行区的主战场。2010 年 9 月和 2013 年 12 月，省政府分别研究出台了《青海省人民政府关于加快推进柴达木循环经济试验区发展的若干意见》、《青海行动方案》等扶持政策，从土地保障、科技支撑、财政税收等方面给予政策支撑，设立了 10 亿元循环经济发展专项资金。目前，柴达木循环经济试验区的发展，一是依据柴达木盐湖资源供半生的禀赋，提出了梯级开发盐湖资源的思路，围绕盐湖资源开发，以钾资源开发为龙头，以开发提钾老卤中所富含的镁、钠资源为核心，培

育以资源梯级开发为主、以配套平衡氯气、氯化氢气体为辅的盐湖资源综合利用产业体系，成功培育出了氯化钾、硝酸钾、硫酸钾镁肥等钾盐系列产品，烧碱、纯碱等钠系列产品，高纯氢氧化镁、高纯镁砂、金属镁等镁系列产品，高纯碳酸锂、高纯氯化锂等锂系列产品，以及硼砂、精硼酸等硼系列产品，初步形成了钾、钠、镁、锂、硼“五子登科”的盐湖资源梯级开发和综合利用的产业集群状态。二是将经济结构的战略性调整和转型升级作为循环经济突围发展的主攻方向，新能源、新材料、特色生物等新兴产业培育工作稳步推进。以新能源产业来说，先后吸引国内众多新能源企业入驻柴达木，短短几年间就实现了新能源装机容量3260兆瓦，其中光伏装机容量占全国光伏总装机容量的9.2%，创造了同一地区短期内最大太阳能光伏电站安装量、全球最大的太阳能光伏电站并网系统工程、全国第一家商业化运营光热电站等多个世界和中国之最。截至目前，柴达木新能源产业累计发电量达96亿千瓦时，能源结构中新能源比例达到41%，与相同发电量的火电相比，相当于节约标煤336万吨，减少二氧化碳排放895万吨，实现了经济效益与环境效益的双丰收。

**2、西宁市经济技术开发区的实践**

西宁市经济技术开发区被国务院列入国家第二批循环经济发展试验区。“十二五”期间，全力实施了106个循环经济产业节点项目，谋划引进了一批高附加值、低能耗、低排放的循环经济项目，积极推动企业技术创新和园区循环化改造，加快构建循环型工业体系。一是园区有色金属精深加工、特色化工、新材料、新能源、藏毯绒纺、生物制品、中藏药等产业链初步形成。开发区深入贯彻《青海省行动方案》，全力打造硅材料及光伏制造产业链、铜精深加工产业链、电子铝箔铜箔及延伸产业链；藏毯绒纺产业链、锂电池材料及储能（动力）电池产业链、光伏聚光电池产业链；有色金属冶炼及精深加工产业链、碳（石墨）材料产业链、铬化工、氟化工、盐化工等精细化工产业链；大力培育了高原特色动植物资源精深加工、中藏药、昆仑晶石复合材料、环卫专用设备等产业集群。着力构建以矿产资源综合利用和清洁能源为支撑的金属冶炼和精深加工产业体系、以高原动植物资源开发利用为主的特色生物产业体系、以新能源新材料产业为主导的新兴产业体系、以多气源和盐湖资源融合发展为主导的化工循环产业四大体系。大力实施一批循环经济产业链条项目，促使产业链条逐步完善，

园区循环经济试点工作取得新成效，顺利通过国家循环经济试点示范单位验收。2015年5月国家发改委等七部委发布公告确认，开发区可继续享受试点单位在投资、金融等方面的政策，并将在组织开展循环经济“十百千”示范行动中同等条件下优先考虑。二是在重点行业领域培育循环经济重点企业和示范企业。如有色金属行业培育青海百通高纯材料开发有限公司、青海湘和有色金属有限责任公司、青海金广镍铬材料有限公司、青海际华江源实业有限公司；在化工行业培育青海盐湖海纳化工有限公司、青海云天化、青海紫金矿业；在纺织行业培育青海雪舟三绒集团、藏羊集团、圣源地毯，这些企业循环经济模式已基本形成，并在节能降耗、减排增效、实现资源的高效转化利用方面取得明显成效。三是在有色金属、化工、建材等多行业综合循环经济产业共生网络形成，形成典型发展模式。如青海盐湖海纳化工的资源开发循环利用闭合加工模式、青海聚能钛业的钛金属产业链循环发展模式、青海鲁丰鑫恒的有色金属精深加工企业循环经济发展模式、黄河新能源公司的晶硅产业循环发展等模式。资源综合开发和回收利用成绩突出。积极加强铅锌矿、共伴生矿产资源的综合开发和回收，使铅精矿、锌精矿中所含的锌、铅、铟、镉、铜、金铜等有价金属98%以上得到综合利用，园区铅冶炼总回收率达到95%以上，电锌总回收率达到97%，提升了有色金属工业有价元素的综合回收利用水平，实现有色金属冶炼的优化与升级。四是重点推进冶炼废渣、化工废渣及有机废渣等固体废弃物的综合利用。如冶炼废渣洗选回收、电石渣制水泥、磷石膏制砖等，减少了污染物的排放，节约和替代了其它资源；建立废水及气体回收系统，提高水的重复利用率，大力推进硅铁、铬铁、碳素烟气回收和余热发电等，实现气体资源的循环利用。五是按照构建循环经济产业体系的要求，在园区企业中着力实施节能减排技术改造，加大技术开发力度，大力实施电解铝变频技术应用、铁合金余热发电、水泥脱硝改造、单晶硅炉热场改造、多晶硅高效冷氢化和节能精馏提纯等一批节能减排和资源综合利用项目，积极推广“清洁生产”和节能减排新技术，不断提高资源综合利用和节能减排水平，节能减排取得明显成效，完成了市政府下达的节能减排目标任务。与“十一五”末相比，万元工业增加值综合能耗下降23%。

### 3、大通县循环经济发展的实践

大通县历史形成的高能耗、高污染的产业布局状态，使环境污染治理举步维艰。

对此，循环经济发展模式成为大通县可持续发展与环境治理的不二选择。2013 年大通县被青海省确定为青海省首批循环经济试点地区，大力实施循环经济改造项目。桥头铝电新建 3*660MW 发电机组项目水源全部采用大通县污水处理厂生产的中水，废水实现“零”排放目标，项目建成后，每年可节水 1222 万吨，对于地下水资源的保护具有重大意义。青海宜化化工有限公司，生产过程中产生固体废物电石渣 1200 吨/日，运输过程中不仅产生大量的扬尘，而且堆放占用大量土地。在大通县循环经济改造中，青海宜化与三家新兴建材企业合作，电石渣供应给新兴建材企业作为原材料使用，青海宜化投资 8800 万元，建成电石渣运输的传送带系统，已进入调试阶段。

### （三）宏观层面的实践：大循环

“循环型社会”的概念首先出现在德国的《循环型经济•废气物法》中，日本 2000 年 4 月通过的《循环型社会形成推进基本法》是世界上关于“循环型社会”的首次立法。社会层面上，目前主要是实施生活垃圾的无害化、减量化和资源化，即在消费过程和消费过程后实施物质和能源的循环。另外，还应该包括城市绿化，第三产业循环经济发展等等。循环经济模式中，从“小循环”、“中循环”到“大循环”，没有了废物的概念，在每一个生产过程产生的废物都变成了下一生产过程的原料，所有的物质都得到循环往复的利用。20 世纪 90 年代初，我国推广实行生态示范区，1997 年开始创建环境保护模范城市，随后，许多地方提出了创建生态城市、生态省的目标。实现生态城市、生态省的途径无疑是大力发展社会层面的循环经济，即“大循环”，基本要求应该是资源循环产业化。我国《循环经济促进法》中明确规定循环经济实施领域包括“生产、流通和消费”[4]。我国以循环经济试点“重点领域”给予相应的财税政策支持，2012 年 1 月 5 日，国家工业与信息化部正式发布《大宗工业固体废物综合利用“十二五”规划》，该规划明确到 2015 年大宗工业固体废物综合利用率将达 50%。为实现这一目标，组织实施了十大重点工程，投资总额高达千亿元。部分地方探索实施新型投融资政策，如南京吸收居民资金，以股份制方式参与城市基础设施和公用设施的建设，居民可以获得高于储蓄存款利率的分红，政府得到低于银行贷款利率的建设

[4]《循环经济促进法》第二条规定：“本法所称循环经济，是指生产、流通和消费等过程中进行的减量化、在利用、资源化活动的总称。

资金。2012 年 4 月 19 日，国务院发布《“十二五”全国城镇污水处理及再生利用设施建设规划》明确，到 2015 年，直辖市、省会城市和计划单列市生活垃圾全部实现无害化处理，设市城市生活垃圾无害化处理率达到 90%以上，县县具备垃圾无害化处理能力，县城生活垃圾无害化处理率达到 70%以上，全国城镇新增生活垃圾无害化处理设施能力 58 万吨/日。2012 年 5 月 8 日科技部会同发改委、环保部等七部委正式印发《废物资源化科技工程“十二五”专项规划》，推动废物的资源化、无害化处理处置与规模化消纳，引领节能环保战略性新兴产业发展。2012 年 7 月 1 日正式实施《废弃电器电子产品处理基金征收使用管理办法》，该基金对处理企业按照实际完成拆解处理的废弃电器电子产品数量给予定额补贴。但是，“大循环”更有赖于人们生活方式、消费方式和行为模式的改变，以及与之相适应的社会组织形式和社会政策等。我国显然对此有明确的认识，并采取积极措施予以推进，2010 年 4 月国家住房与建设部、发改委和环保部联合下发《生活垃圾处理技术指南》。

青海省社会层面“大循环”的实践起步应当从餐厨垃圾的处理开始。2007 年，西宁市政府通过市场化运作，对餐厨垃圾实行统一收运处置服务。西宁市餐厨垃圾处理项目自 2008 年 6 月投产运行以来，市区内每天产生的一百二十多吨餐厨垃圾，经过固液分离、破碎、消毒等程序，变成蛋白饲料、生物柴油等产品，基本实现了餐厨垃圾的无害化处理。西宁市餐厨垃圾资源化利用率达到 99%，2009 年 11 月 1 日，作为我国首部餐厨垃圾管理方面的地方性法规——《西宁市餐厨垃圾管理条例》正式实施，餐厨垃圾处理厂与西宁市近三千家的餐厨垃圾产生单位签订了收用合同，签订率达 95%以上，基本保证了餐厨垃圾不从源头上流失。2013 年《青海省行动方案》中第七条明确了“推进社会层面循环经济发展”，并确定了相应目标，如 2015 年城市生活垃圾资源化利用率达到 30%，城市污水再生利用率达到 20%等。2015 年，西宁市城西区开始实施社区“垃圾分类处理”试点工作。

近几年，大气和水污染治理压力加大。青海省高度重视冬季取暖“煤改气”工程和污水处理，西宁市、海东市、玉树州等市州取得了明显的效果，尤其是西宁市的“煤改气”工程已基本完成。目前，西宁市“煤改气”向三县延伸，并已经开始走向农村，如湟中县上新庄 4 个村庄 1015 户“煤改气”正在施工。西宁市东川再生水厂生活污

水经处理为中水后，为亚洲硅业等企业提供工业用水；大通县正在建设的生活污水处理厂也是提供给新建桥头铝电发电机组中水的再生水厂。省住建厅通过全省范围已有住房的“节能改造”和新建住房从立项能评、设计要求、施工验收等环节“节能”标准的设定，在全省推进了绿色建筑的实施。

## 二、研究基础

国内对循环经济的政策研究可概括成五个大方面。

### （一）国外政策法规体系经验借鉴

主要观点有：1、应从具体的技术层面着手制定政策以增强可操作性和目的性。2、立法机构不适宜直接作为微观主体加入循环经济的发展过程,而是应通过制度安排,制定法律、法规和政策,激励生产者和消费者通过循环经济模式追求自身利益最大化。必须将政策和法律有机衔接起来,在清洁生产、生态产业、废物管理、再生能源利用等各个层次和领域,既要分别以政策和法律推进,又要注意发挥它们的整合作用。3、要综合采用技术推进、市场调控、经济刺激、公众参与、法律责任等方法。4、在政策制定方面要兼顾全局和专门领域,在立法上要综合考察各种模式,在现有法律的基础上,既要制定统一的循环经济基本法,又要充分重视其它单行法和其它法律部门的作用,加强立法。5、应增强部门间如环保部门和经济部门之间协调度。[5]

### （二）循环经济政策体系的结构问题

主要观点有：1、循环经济政策应该包括两个纬度的研究，一个维度是基于生命周期评价理论，制定有针对性的输入端控制政策、过程性控制政策和输出端控制政策，另一个维度是政策性质决定的规制性政策、市场性政策以及参与性政策。2、循环经济政策体系应包括三个方面：基本政策、核心政策和基础政策。基本政策是循环经济发展的最根本和普遍适用的指导政策,其目的是确定循环经济在社会经济发展中的战略地位,循环经济发展的总体战略目标、步骤、主要制度和措施。根据日本经验,循环

[5]叶明，汪洋.日本循环经济立法实践及其对我国的启示[J].价格月刊,2008，(2)；董联党等.日本循环经济战略体系及其对中国的启示[J].亚太经济,2008，(2)；朱云桦.循环经济在发达国家的应用[J].交通科技与经济.2008，(2)；课题组.发达国家发展循环经济的基本经验[J].宏观经济研究.2005，(4)；张婉茹、王海澜、姜毅然.日本循环经济法规与实践[M].人民出版社，2008 年 3 月

经济基本政策包括基本法和基本计划。学者提出在基本法出台之前,我国可以先发布基本指导文件,如国务院发布的《国务院关于加快发展循环经济的意见》。核心政策是直接推动循环经济重点领域的政策。重点领域主要是生产和消费领域,包括四个重点产业体系，即生态工业体系、生态农业体系、绿色服务业体系及废旧资源再利用和无害化处置产业。基础政策是指更大程度为循环经济重点领域实践创造良好制度环境的政策，包括经济结构调整政策、贸易政策和有利于资源环境保护的产权制度，财政、金融、税收和价格政策，国民经济核算制度、审计制度和干部考核制度等方面。鉴于我国国情,三种政策层面不可能完全同步进行,基础政策的变革在目前情况下阻力和难度相对较大,需要漫长的时间,目前可行的突破口是核心政策。3、要制定相互配套的循环经济政策体系,包括宏观政策、产业政策、财政政策、税收政策、投融资政策、价格政策、技术政策、贸易政策、管理政策和公共政策。4、可以从发展战略、经济政策、产业政策、技术政策、消费政策、教育政策和法律保障七个方面构建循环经济的政策体系,应该大力发展知识经济,明晰环境产权、调整资源价格体系、建立绿色国民账户,“绿化”现有产业、发展环保产业,发展高新技术和环境无害化技术,引导绿色消费、开展绿色教育以及完善环保法律体系。[6]

### （三）促进循环经济发展财税政策的局限性问题

主要观点有：1、保护和治理生态环境的财政投入相对于需求严重不足。2、环保投资使用效率低下。3、现行税收措施对环境保护的作用力度有限。4、现行排污收费制度存在问题。5、缺乏环境保护税种。6、现行自然资源税存在性质定位不合适、征收范围过窄、计税依据不合理、单位税额过低等问题。

### （四）促进循环经济发展的政策建议

当前学界对我国促进循环经济发展的政策建议主要有：1、对开展清洁生产、发

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[6]祝湘琳.加快建设我国发展循环经济的法律、法规和政策体系[J].现代管理，2010（7）；谢海燕.中国循环经济政策体系研究报告[M].北京；知识产权出版社 2006 年 6 月；郗永勤，杨欣.我国循环经济政策体系的优化与设计[J].集美大学学报（哲学社会科学版），2012（2）；李畅.我国循环经济科技政策体系构成研究.[J].工作实践，2015（22）；汪汉杰.经济新常态下促进循环经济发展的政策体系[J].中国行政管理，2015（9）；王鹏宇，孔凡文.构建适应我国循环经济发展的金融支持体系[J].改革与开放，2015（14）

展循环经济的企业实施财政补贴政策,具体形式包括：直接物价补贴、企业亏损补贴、财政贴息、税前还贷等。2、建立政府绿色采购制度,政府优先购买资源循环再生产品、环境标志产品、通过认证的企业产品和其它节能、节水、节约资源的“绿色产品”。3、加强政府投资引导,政府投资的项目主要是那些外部效应大、产业关联度高、具有示范和诱导作用的环境基础设施、生态产业园以及重大技术领域和重大项目领域。4、规范限制性收费管理,提高现行排污收费标准,并明确排污费为国家所有资金，取消无偿“返还”政策,统一按照预算内资金专项用于支持循环经济发展。建立生产者责任延伸的相关机制,使循环利用资源和保护环境有利可图,配套相应的针对性政策,使其违规成本远远超过其违规所得,从根本上阻断其违规活动的利益驱动机制。5、改革现行税制,主要包括完善资源税、改革消费税以及调整其他税种。6、进一步完善环保税种的征管体系,采取循序渐进的办法,先从重点污染和易于征管的课税对象入手,待取得经验、条件成熟后再扩大征税范围。7、完善税收优惠政策,制定废弃物利用的税收优惠政策。[7]

## （五）我国循环经济政策演进

自 20 世纪末我国政府开始进行循环经济实践以来，循环经济在我国的发展大致经历了理念倡导（20 世纪末——2002 年）、国家决策（2003——2005 年）、试点示范（2006——2008 年）和全面推进（2009 年至今）四个阶段[8]。相应的我国循环经济政策演进也就呈现为四个阶段，分为萌芽阶段（20 世纪末——2002 年），以出台规制性政策为主要形式；初步形成阶段（2003——2005 年），依然以规制性政策为主，已经开始关注源头治理；快速发展阶段（2006——2008 年），以全面规划引导、试点示范政策支持为主要方式；相对成熟阶段（2009 年至今），循环经济政策已经逐步实现由以规制性政策为主转向市场性政策为主的转变，政府提供设立专项资金、政府绿色采购等引导循环经济的发展。

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[7]张志强.我国循环经济财税政策研究[J].宏观经济管理，2010（3）；韩庆华，王晓红，陈华.促进经济循环发展的财税政策研究[M].北京：经济科学出版社，2009：116-218；王雍君，陈灵.循环经济论集[C].北京：经济科学出版社，2006：49-59；刘在杰，李艳.基于循环经济发展的财税政策研究[J].中央财经大学学报，2011（5）；于艳芳，马涛.循环经济视野下河北省产业经济发展的财税政策[J].石家庄经济学院学报，2011（5）

[8]任勇、周国梅.中国循环经济发展模式与政策.[M].中国环境科学出版社，2009 年 2 月

## 三、研究思路与政策基本框架

伴随着我国循环经济快速发展，循环经济政策研究日益深入、精细、系统，为全面完善循环经济政策体系提供了坚实的理论研究基础。循环经济政策，从层次上讲，有国家层面的循环经济政策和地方层面的循环经济政策。国家层面的循环经济政策，不论是规制性政策，还是市场性政策，经过 20 余年的历程，相应的政策体系已经基本形成。但是，考察青海省地方层面的循环经济政策，还存在着不够健全、不够完善的问题。因此，本课题研究以问题导向，秉持可行有效、激励约束等原则，力求在因地制宜的基础上，探索构建促进青海省循环经济发展的政策体系框架。

### （一）问题导向

一是课题组认真整理调研中获取的各种资料，将青海省循环经济政策实施中存在的问题进行了详尽梳理，得出如下问题图：

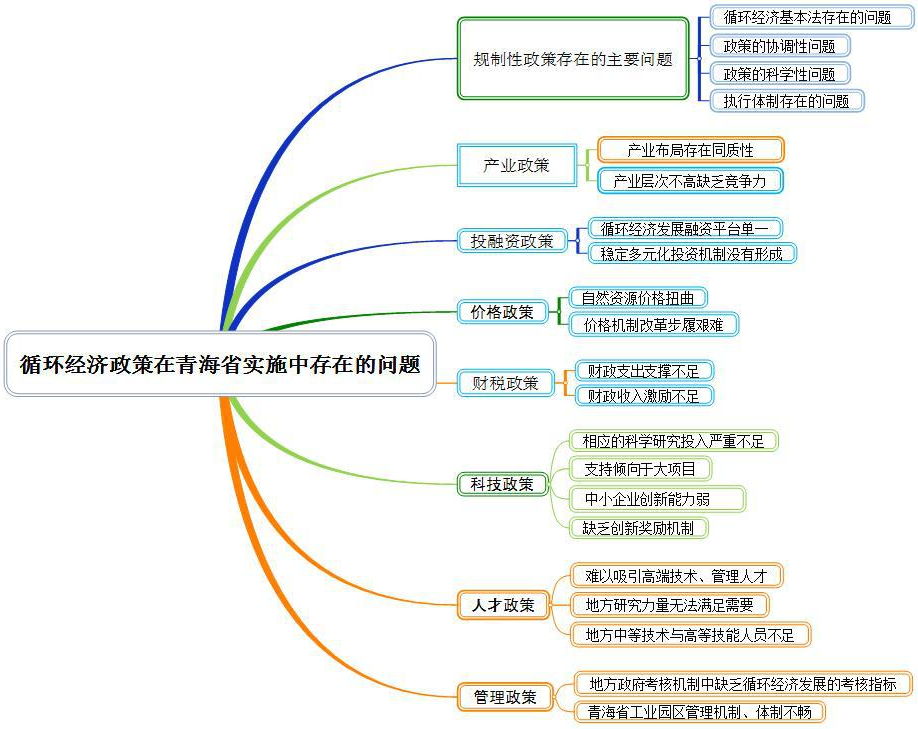


图 1：问题图

这些问题在宏观层面呈现出循环经济政策在实践中“一刀切”、“碎片化”、“直补

性”和“务虚化”的表现，根本原因在于政策制定与实施过程中的系统性严重不足。首先，表现为市场性政策与规制性政策匹配性不强，无法对于市场主体和消费主体从激励和约束两个方面共同产生作用；其次，表现为人民代表大会通过法律授权政府部门制定的具体政策，如产品与包装的强制回收目录，相关部门迟迟不予理会，也造成了循环经济规制性政策难以落到实处；再次，表现为各部门、各行业之间的政策各行其是，冲突和矛盾频发；最后，本地政策供应严重滞后。因此，加强促进青海省循环经济发展政策体系的建设刻不容缓。同时，青海省作为不发达地区，本身经济落后、财力有限，也难以提供强有力的财政支持性政策。所以，在构建青海省循环经济政策体系时，应当坚持本地问题导向，秉持可行有效、激励约束为原则。

## （二）政策基本框架

在实践基础和理论研究基础上，梳理出青海省循环经济发展的政策体系基本框架（见下图）。

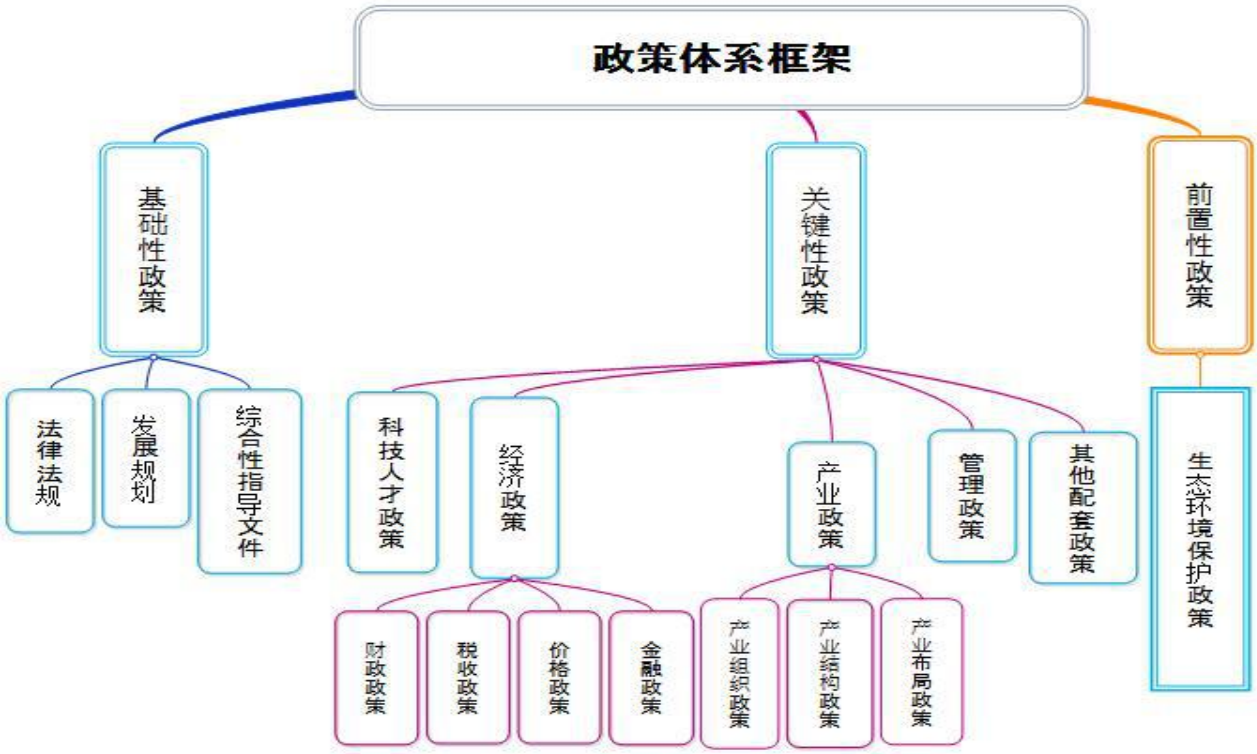


图 2：政策体系框架

## （三）两个特殊说明的问题

### 1、基础性政策不作为本课题研究的主要内容

《青海行动方案》和《青海省柴达木循环经济试验区规划》、《西宁市经济技术开发区发展规划》，以及青海省有立法权的各级人民代表大会及各级政府颁布与循环经济发展的地方性法规和地方政府规章都属于基础性政策范畴，国家层面的相关立法和综合性指导意见、发展规划等也是其组成部分。法律法规层面，对于国家层面的法律、法规、规章存在的问题，只能由相应立法权的立法主体提供立法予以解决，青海省只能就青海省区域内的循环经济发展法律问题进行立法。从梳理分析的问题来看，基础性政策问题主要是国家层面的相关法律、法规、规章存在的问题。因此，本着可行有效的研究原则，基础性政策不作为本课题研究的主要内容，在具体研究关键性政策时，无法回避的基础性政策问题予以分析。对此，课题组提出两条建议：

（1）积极创造条件促进循环经济发展的法治化进展。十八大以后，我国高度重视依法治国。发达国家循环经济发展的经验也彰显了法治化对于循环经济良性发展的重要意义。（2）青海省应当加快本省循环经济促进条例的立法进程。地方在立法权限内通过立法可以有效补充国家立法的原则性和抽象性。青海省循环经济发展有着很强的地域特征，由于“法的普遍性”，国家立法中更多着眼于设立全国普遍性的制度与规则。因此，加快青海省循环经济促进条例的立法工作，对于青海省循环经济先行区目标的实现至关重要。在对方立法中，应当高度重视地方立法的规范性，增强其实践操作性；积极研究青海省十余年循环经济发展的政策法治化问题，将实践中已经稳定、行之有效的政策，如青海省循环经济发展专项资金制度应当以立法的方式予以固定，使各个工业园区在循环经济发展中形成稳定的专项资金投入，加强循环经济发展的政府投入的持续性和稳定性；大力推进法学界与经济界就自然资源国家所有权与自然资源产权进行联合科研，保证在未来国家《物权法》修订和《民法典》制定中取得有效话语权。

### 2、生态环境保护政策在青海省循环经济发展政策体系中居于前置地位，但是不作为本课题研究的内容

青海省作为我国生态屏障的生态环境地位，依据国家主体功能区划分，青海省绝大多数地区是禁止或者限制开发地区，真正意义上能够开发的就是海东地区、西宁市及海西地区。同时，青海省大部分地区，甚至是纳入可以开发的地区生态本身非常脆弱，显然，在青海省经济社会发展中，生态环境保护具有优先地位，青海省也已明确“生态保护第一”的发展战略。因此，不能简单的将环境保护政策定位为“循环经济发展的辅助性政策”[9]。课题组认为，青海省发展循环经济政策体系中生态环境保护政策应当具有前置地位。由于本课题的研究主题是“促进青海省循环经济发展的政策”，本质上，循环经济就是生态经济，在国家生态保护法律和政策日益严格的态势下，尤其是新《环境保护法》——被称为是史上最严环保法——的颁布，对于经济发展方式转型研究形成倒逼机制和刚性约束，因此，本课题具体研究中不涉及到具体的生态环境保护政策。

[9]郁永勤.循环经济发展的机制与政策研究.[M].社会科学出版社.2014 年 4 月，255

# 第二章　青海省循环经济发展政策存在的问题及原因

我国循环经济政策的目的,在于从根本上解决由于长期片面追求经济增长而导致的资源日益紧缺、环境遭受严重破坏的现实问题。循环经济的发展模式以解决市场失灵问题而提出，必须借助于政策的强力干预。但是，政策运行又存在着多种影响因素（例如政策主体、政策客体以及政策环境等），其中规制性政策的主要载体法律是最为重要的因素之一，它由人的行为规则、习惯及社会观念等元素构成，对公共政策的运行起到激励、约束或者阻碍的基础性作用。调研中，政府有关部门的工作人员认为：“循环经济就是巨大的筐，什么政策都得往里装，又加上法律制度的刚性约束和法律规定的重复、交叉，导致执法部门之间权限的重叠、冲突、重复等，使得政策的协调落实极其困难”。实践中，也突出反映了政策协调性的诸多问题。在我国，同一部门既是相关政策的制定主体，也是相关法律的执法主体。执法主体之间权责不明必然反映在政策的制定与落实上。因此，系统梳理循环经济政策在实践中存在的具体问题，是落实问题导向原则的基础。

## 一、存在的问题

### （一）宏观层面的表现

#### 1、政策“一刀切”，缺乏地区差别化

循环经济发展立足于地方区域经济发展情势和国家功能区划分要求,彰显着各地方不同的发展特色。因此，循环经济良性发展有赖于差别化的政策支持。青海省在循环经济发展的过程中，所享受的产业政策多为国家“一刀切”政策，专有性、差别化、符合区域发展实际的政策体系尚未建立，对工业经济发展的推动作用不尽明显，有的甚至还产生了较大的阻碍。

#### 2、政策“碎片化”，很难形成发展合力

一般情况下，政府各部门依据履行的法律取得法定职权，这一职权范围也包含着

经济发展支持政策内容。因此,《循环经济促进法》确定主管循环经济工作的部门是国家和地方政府“发展与改革委员会”,作为循环经济核心内容的资源回收与再利用工作的主管部门是商务部及各地的“商务委”,而环境保护的主管部门是环保部和各地环保局,生活垃圾的减量化管理工作则是由地方环卫部门负责。多元化的管理主体导致各自出台各自的循环经济发展政策或者与循环经济发展相关的政策。各部门出台政策时没有有效的协同机制，基本属于各自为政的状态，必然导致政策之间的交叉、重复，容易产生循环经济发展政策激励与约束的漏洞，可能存在应该激励的没有得到激励，得到激励的可能重复激励。环保、发改、经济、工商、安监等部门都对循环经济执法拥有相应的权力,但是，立法又未能明确各自权力的边界。加之法律制度的变迁,引起行政管理权限在不同时段管理侧重的变化,使得政策在实施中呈现“碎片化”状态，很难形成发展合力。如柴达木循环经济试验区发展规划获批时，国家给予 10 项政策支持，涉及绿化土地、公路、教育基础设施、公共技术的科技研发、天然气优先保障、电网建设等。国务院在批复中要求青海省政府和国务院各部门制定具体配套措施，落实规划。但是，调研中普遍反映，这 10 项支持政策落地由差距。事实上，涉及的相关部门都有一定的行动，但由于中央各部门、青海省政府、海西州政府及试验区管委会对于试验区规划的落实，会有不同的关注点和平衡点，政策的出台与执行在协同一致上会存在先天不足,很难形成试验区循环经济发展的合力。在政策执行中，忽视市场配置的基础性地位的问题时有发生，如太阳能发电年容量被分割为 20 多份下达到柴达木地区，导致资源“碎片化”配置，难以产生规模效应。

**3、政策“直补性”，易产生补贴“惰性”**

调研发现，青海省循环经济发展主要依托于国家、省级的财政直补政策的支持。如柴达木循环经济试验区 2012 年以来，国家累计下达循环化改造专项资金 4.069 亿元，支持试验区四个工业园 48 个循环化改造项目建设。青海省循环经济发展过程中财政资金的直补包括循环经济改造示范项目的财政补贴、科研经费的财政补贴、电价补贴、水价补贴、社会保险费用补贴等等名目繁多。很多企业之所以进行循环经济方式的生产活动，其出发点就在于得到国家财政直补资金。针对企业调查问卷的数据分析也同样发现，73.2%的企业高管认为发展循环经济的目的是获取国家财政资金的支

持。可见，这种直接补贴不仅不利于市场机制的培育和发展，也不利于企业自主发展循环经济的能动性提高。

**4、政策“虚化”，难显政策的高效性**

青海省委、省政府大力促进循环经济的发展，尤其对于柴达木循环经济试验区、西宁市经济技术开发区给予了广泛的政策支持。调研发现，这些政策有的得到了落实，有的落地却非常艰难，政策在实践中虚化的现象突出。如2014年5月柴达木循环经济工作座谈会会议决定要进一步强化政策支持，第一项就是“大力推进简政放权”，设定了四项具体政策，其中“对柴达木循环经济试验区管委会实行计划单列管理，并授予省级投资部门项目审批权”。2014年6月省政府进一步明确此项工作由省发改委负责具体落实。截止2016年4月，这项政策没有任何具体推进。其余三项简政放权的政策支持，除商事制度改革在一定程度上得到落实，项目审批仍然程序复杂、时间冗长。

## （二）中观层面的表现

**1、管理政策不够成熟**

整个经济技术开发区生态产业园建设机制不完善。西宁市经济技术开发区，一区四园的架构，使得各园区循环经济发展的规划、项目安排各自为政。在申报循环经济改造项目中，各园区企业产业链之间的循环过程，作为循环经济改造项目申报获批后可以获得国家项目资金支持，同时，还可以获得其他税收优惠。但是，园区与园区之间存在着的企业产业链的循环，如果这种循环由于没有投资项目支撑，也就不可能获得国家资金的支持。由于各类优惠政策，要么以项目为依托，要么依托节能减排、废旧物资利用等，因此，一园区中某一企业从另一园区的企业产生的中间产品或者附属品为原料的跨区循环，就没有任何优惠政策可言。

各工业园区的管理体制与机制不同程度存在不适应性。就体制而言，管委会工作人员实施招商引资绩效考核机制，对入驻企业实施“保姆式”的服务，有力促进了园区招商引资工作。但是，管委会与地方政府之间的关系并没有完全形成良性关系。如湟中县与甘河工业园区管委会关于康川新城治理的关系、德令哈工业园区与德令哈政

府、柴达木循环经济试验区管委会与海西州之间的关系，都存在一些现实突出问题，各园区管委会与政府各职能部门之间管理权限普遍存在不够融洽的情况。如西宁市国土局对于西宁市经济技术开发区用地出现的问题，在国家国土部巡查中“板子”打在西宁市国土局身上就深表不满。

**2、产业政策不够完善**

一是产业布局存在同质性。青海省在《行动方案》中对于柴达木循环经济试验区、西宁市经济技术开发区和重点县域工业园区产业布局定位进行了初步确定。规定“柴达木循环经济试验区重点围绕盐湖资源综合开发利用，进一步谋划一批牵动性强、关联度高的重点项目和补链项目。通过项目带动，形成盐湖化工、煤炭综合利用、油气化工、金属冶金、新能源、新材料、特色生物七大主导产业链，成为全省建设循环经济发展先行区的龙头；西宁市经济技术开发区形成硅材料、光伏、轻金属合金、煤化工、锂电池、特色轻工等六大产业链；海东工业园区构建有色金属、装备制造、有机化工、特色生物、建材等五大产业链。”但是，三个工业园区产业布局的表述明显笼统，存在重叠，因而各园区在招商引资中相互争夺同质投资项目、发生内耗和交易成本增加，导致资源配置效率不高，产业集群和规模效益弱化。现实中，西宁市经济技术开发区之甘河工业园的复合肥、PVC、甲醇、硼酸等化工产业与柴达木循环经济试验区之格尔木、大柴旦园区在工艺流程和产品特色方面均存在较强的同质性。另外，西宁市经济技术开发区和柴达木循环经济试验区在锂资源开发方面也存在着相互之间投资、资源的争夺；西宁市经济技术开发区、柴达木循环经济试验区和海东产业园区及重点县域园区都在发展特色生物产业，打造“种植、养殖—加工—综合利用”现代特色农牧产业链，但是，此类产业的发展定位、方向和模式，基本都围绕枸杞、中藏药等特色高原植物精深加工产业存在一定的重合、同质，导致在开拓国内外市场时形成区域内部资源、人才等方面竞争，在终端市场不能形成地区竞争优势的合力，甚至使得消费者混淆。这种产业状态也造成高原特色植物的种植泛滥、无序竞争，严重影响原材料的品质，进而可能会危害高原特色植物和动物的精深加工，影响产业的可持续发展。调研中柴达木循环经济试验区、西宁市经济技术开发区及海东工业园区的工作人员都不同程度的谈到招商引资中遇到的各园区对于“企业入驻”的争夺。

二是产业层次不高缺乏竞争力。在“十二五”期间，青海省工业转型升级迈出实质性步伐，高新技术产业占规上工业比重由3.4%提高到6.2%，轻、重工业比由7.9：92.1调整为16.4：83.6。新增油气储量2.8亿吨，千万吨级油田建设力度加大。但是，产业结构中总体上依然是重工业、化工工业比重偏高。目前，在大气、水、土“十条”的环保要求日益高的情况下，企业面临的节能减排压力巨大，绝大多数企业基本处于应付监管状态，缺乏发展循环经济的主动性与能动性。

三是各园区生态网络化程度不足。各园区循环经济发展规划明确以区内企业上下游主副产品和废弃资源的衔接关系构成若干生态产业链，以及不同产业链上消费企业之间利用主副产品和废弃资源之间构成横向耦合、协同共生关系，整个园区应当能够形成良好的生态网络。现实中，由于缺少明确的利益分享机制、技术创新不足以及缺少生产链延伸企业、耦合共生企业入园的政策支持，使得规划层面应当产生的“生态网络”并不能一蹴而就，影响了青海省循环经济生态园的建设实效。

**3、投融资政策乏力**

一是投资硬性渠道尚未建立，稳定的多元化投资机制没有形成。近些年来，国家和青海省政府加大对循环经济发展的财政支持力度，但是，循环经济涉及面广，技术研发投人较高，资金需求量依然庞大。青海省循环经济发展仍需要政府进一步加大对循环经济的资金投入。同时，国家没有形成稳定、约束、制度性的循环经济投资机制，循环经济投资基本处于“一事一议”、“一时一策”的状态。2010年，国家发展改革委员会、中国人民银行、中国银监会、中国证监会联合发布了《关于支持循环经济发展的投融资政策措施意见的通知》(以下简称《投融资意见》)，重点是从循环经济规划、政府投资、产业政策和价格杠杆引导社会资金投向循环经济项目。前三类对于循环经济发展起到了较大的促进作用，价格机制并没有发挥应有的作用。对于青海省循环经济而言，政府投资和产业政策的作用更大一些。但是，由于青海省自身经济发展落后，循环经济专项基金规模小，省级专项基金2亿元/年，并且面向全省与循环经济发展相关项目，分割发放，如同“撒胡椒面”一般，很难起到政府投资撬动社会资金的效果，很难发挥政府投资对于社会投资的引领作用。同时，省政府关于循环经济专项基金没有形成稳定的机制，使得园区管委会对于专项基金没有稳定的预期，影响园区工

作效率。如《青海省人民政府关于加快推进柴达木循环经济试验区发展的若干意见》（青政〔2010〕70号）文件规定，省政府应当为柴达木循环经济试验区设立10亿元的专项基金，但是，实际上只有2014年省政府“一次性”安排10亿元资金支持柴达木循环经济试验区发展。试验区管委会以此撬动了社会资金39亿元投入园区工业、农牧业循环体系建设。目前，试验区循环经济建设资金以各商业银行融资为主，以中央及省级下达的各类专项资金为辅，以州级预算安排3000万元专项资金为补充，稳定的多元投资机制也没有形成，现有资金规模已远远不能满足发展和推动项目入园建设的需求。园区的土地储备及基础设施建设大多依赖银行贷款，园区基础设施建设项目大部分为公益性设施，资金压力不断增大，影响园区可持续发展。另外，现阶段环保投资与循环经济投资没有明确的界分，青海省政府投资更多投向环保领域，也没有形成完善的循环经济投资统计方法和制度，因此，无法核算出政府在发展循环经济的投资量。

二是融资平台单一，循环经济发展缺乏强有力的金融支持。西宁市经济技术开发区与柴达木循环经济试验区是青海省发展循环经济的主要工业集聚区，两个园区有不同的财政制度。西宁市经济技术开发区成立于2000年7月，是国家级的经济开发区，园区内设立了比较完整的组织机构，尤其是有独立的财政制度。但是，柴达木循环经济试验区情况比较复杂，其一区四园中格尔木工业园区存在相对独立的财政制度，德令哈工业园区没有独立的机构，更尚未建立相对独立的分税制财政管理体制，仅仅依靠省级下达的增值税返还补助资金维持基本运转，发展建设资金匮乏，承载支撑能力明显不足。另外两个园区刚刚起步，也没有相应的组织机构。柴达木循环经济试验区管委会没有独立的财政体制，造成偿债机制不健全，试验区从历年州级财政安排切块资金中累计只归集了4000万元还贷准备金，为试验区债务余额的2.3%，低于省政府债务管理要求3%-8%的还贷准备金标准的下限0.7个百分点，已归集的还贷准备金远远不能满足防范和化解风险的需求,由于未纳入政府偿还类债务体系，偿债风险和还贷压力逐年增大，已出现借新债还旧债的困境。

青海省不论是政府循环经济基本公共设施建设融资，还是产业发展的企业性融资，都存在资本金实力较弱，银行授信额度不高，融资能力不足和融资规模较小的问

题。加之循环经济产业园区的财政管理体制不够完善，难以开拓多元化融资渠道。目前，各级政府都成立了融资担保有限责任公司，专门为解决园区中小企业健康运行和项目建设提供融资担保服务。但是，由于担保公司注册资本金规模小，担保能力受到极大的制约和限制，无法满足园区中小企业和项目建设融资服务需求。

4、税收政策促进效应不显著

我国循环经济发展税收政策可以分为三大类，一类是促进区域发展的税收优惠。如为了全面贯彻西部大开发战略，2011 年财政部、海关总局、国家税务总局发布《关于深入实施西部大开发战略有关税收政策问题的通知》(财税[2011]58 号)；二类是结构性减税中的优惠政策。2008 年中央经济工作会议首次明确提出“结构性减税”，财政部、税务总局出台一系列涉及增值税、所得税、营业税等结构性减税政策，其中对于循环经济影响最大的应当是增值税转型，即由生产型增值税转为国际上通用的消费型增值税；三是循环经济发展专门税收优惠政策。其一是促进循环经济发展的增值税优惠，即资源综合利用产品及劳务的增值税优惠、节能服务产业的增值税优惠；其二是促进循环经济发展的企业所得税优惠，即企业从事符合条件的环境保护、节能节水项目，开发新技术、新产品、新工艺发生的研究开发费用在计算应纳税所得额时加计扣除等等，风力发电、光伏发电、环境保护、节能节水项目的所得税优惠，科技研发、技术转让、加速折旧的税收优惠等等。但是，实证研究表明，税收优惠对于提高节能减排效率的促进效应尚不显著[10]。

调研发现，青海省循环经济发展实践中税收政策存在以下主要问题：(1) 中小企业在进行循环经济活动时很难获得国家层面的税收优惠政策。事实上，我国对于研发和技术改造都设置了相应的税收优惠，对于高新技术企业，可以享受企业所得税减免优惠。税收法定和税收统一是成文法国家基本的税制立法原则，因此，税收优惠政策的设定是针对于全国普遍的技术水平和管理水平。比如高新技术企业认定须同时满足以下条件：在中国境内（不含港、澳、台地区）注册的企业，近三年内通过自主研发、受让、受赠、并购等方式，或通过 5 年以上的独占许可方式，对其主要产品（服务）的核心技术拥有自主知识产权；产品（服务）属于《国家重点支持的高新技术领域》

[10]郭存芝、孙康.税收优惠的节能减排效应——基于省级面板数据的实证分析[J].资源科学，2013（2）

规定的范围；具有大学专科以上学历的科技人员占企业当年职工总数的30%以上，其中研发人员占企业当年职工总数的10%以上；企业为获得科学技术（不包括人文、社会科学）新知识，创造性运用科学技术新知识，或实质性改进技术、产品（服务）而持续进行了研究开发活动，且近三个会计年度的研究开发费用总额占销售收入总额的比例符合如下要求：A.最近一年销售收入小于5000万元的企业，比例不低于5%；B.最近一年销售收入在5000万元至20000万元的企业，比例不低于4%；C.最近一年销售收入在20000万元以上的企业，比例不低于3%。获得税收优惠必须符合税法规定的抵扣要求，前提是企业必须具备严格的会计核算制度和专业财务人员，才能按照法定要求进行相应成本费用的归集。但是，青海省循环经济企业，尤其是中小企业的实际经营状态很难达到优惠条件，因此，青海循环经济企业很难实际享受到这些税收优惠政策。（2）自然资源税费的征收制度不完善。矿产资源征收的税费主要包括资源税、矿产资源补偿费、矿区使用费和石油特别收益金等。除此之外，矿业企业还要缴纳探矿权使用费、采矿权使用费、采矿登记费和勘查登记费等行政性收费。这些资源税费政策对调节收入和促进资源合理利用起到一定的积极作用，但仍然存在诸多方面的问题：①资源税从量征收和资源税费关系混淆，征收不规范。资源税既具有资源税调节级差的性质，也具有“资源补偿费”的性质，这与地方存在的资源补偿费在性质和作用上已基本趋同。这种对具有相近性质和作用的税和费，采取不同形式征收的做法，造成资源税费关系的紊乱。②在资源税费并存的局面下，税和费由不同的部门征收，尤其是在收费上，各地管理不相一致，缺乏规范性，导致各地资源企业的税费负担高低不同，无法在资源企业之间形成一个平等竞争的市场环境。③资源税覆盖范围偏窄，没有将水资源、森林资源、草场资源等包括到征收范围中，无法实现对全部资源的保护。④资源税费标准偏低，导致资源的使用成本相应较低，难以起到促进资源合理开发利用的作用，也不利于形成合理的资源要素价格形成机制。⑤税制设计中没有考虑资源利用和环境保护方面的问题，如回采率和资源开采后污染的处理等。（3）消费税设计滞后于循环经济发展需要。现行消费税对部分污染产品、高能耗消费品及不可再生或替代的资源性消费品进行征收，其政策目标是控制和调控奢侈消费行为，强调财政作用，对发展循环经济的作用明显不够。比如，现行消费税中对含铅汽油的消费就

没有什么限制，对不利于物质循环的产品缺乏相关的消费税收政策。最为典型的是汽车消费税的税目规定，只以气缸排量大小而适用不同的税率，而对使用新型(或可再生)能源如天然气、乙醇、氢电池的车辆并没有规定相应的优惠政策。(4）对再生资源利用没有确定相应的税收优惠政策。目前，我国对于再生资源与原生资源的税负差距未能有效拉开。以轮胎翻新为例，发达国家对废旧轮胎实行无偿利用，政府给予财政补贴，还实行免税政策。但是，在我国不仅不免税且税率高于其他加工行业；不仅无补贴且价格高于普通轮胎，不利于我国废旧轮胎回收利用及加工行业的发展。(5）企业所得税优惠限制过于严格。再生资源的循环利用大多同技术密集、资金密集型生产方式相关，使得进行再利用再循环的环保企业、资源综合利用企业以及一般中小企业很难享受到这方面的优惠政策。(6）对于废弃物没有开征有效的税种，基本通过行政收费进行管理。目前，国内对企业的污染行为进行制约和调控的财政政策，是以排污费的形式对空气污染、水污染、固体废弃物排放进行末端约束，力度小且不规范。同时现行排污费制度存在收费标准偏低、征收面窄、征收依据不科学、征收效率低等一系列问题，且专项收费的收入功能在一些地区被异化，演变为收入第一、治污第二，在制度安排上不利于环保及循环经济工作的开展。总体上企业的排污负担较低，一些社会责任感不强的企业在副产品综合循环利用与排污两者之间选择了排污。

**5、财政政策难以支撑循环经济发展的预期目标**

各级政府在经济、社会发展的规划层面都设定了循环经济发展的具体目标，这些目标的实现有赖于政府通过财政支出政策的方式，支持循环经济发展的基础设施建设和激励企业发展循环经济内生动力的产生。但是，现实中财政支出政策难以实现预期目标的实现，具体体现在：(1）财政支出总量偏低，很难实现对于社会投资的杠杆作用。调研中各工业园区管理人员都谈到政府关于循环经济发展的财政支出量对于社会投资具有撬动作用，呈现很强的正相关关系。(2）财政支出政策在支持具体循环经济发展项目上存在交叉与重复情况，并且方式单一。我国财政支出是以垂直部门的项目补贴方式为主进行的。对于企业来说，一项节能改造项目，既可以取得促进循环经济发展主管部门实施的国家循环经济改造财政补贴资金，又可以取得环保部门实施的节能改造项目的财政支持资金，还可以取得科技主管部门实施的技术创新的财政补贴资

金，资金效益不高。(3）政府绿色采购机制不健全。循环经济生产活动，需要技术、管理经验、先进设备和大量资金投入，如果能够通过绿色产品标志赢得市场认可，也会促进企业加强循环经济发展的动力，政府采购应当是最重要的市场引导力量。大量的政府文件提倡政府采购应当倾向采购通过绿色生产工艺生产的产品，但是，由于我国没有系统的绿色产品标志及其认证体系，无法形成真正意义上的具有刚性约束力的绿色政府采购机制。(4）地方财政支出的可持续性与积极性不足。市州政府与区县政府的工作人员大都认为，地方财政支出的可持续性和支出总量不足，在于国家整体财政收入在中央、省级、市州级和区县级之间分配存在不切合实际的情况。比如对于自然资源勘查项目探矿权的处置权和收益权问题，目前，市州与区县没有被赋予自然资源勘察项目探矿权的处置权，即便该项目是由市州级财政或者区县级财政出资的；而收益分成比例是国家 20%、省级 50%、市州级 20%、区县级 10%，显然投资方市州和区县没有获得与投资和管辖事权相匹配的收益分成，这严重影响地方政府财政投入的可持续性和投资积极性。

## （三）微观层面的表现

### 1、企业对以清洁生产为主推进循环经济发展不重视

课题组通过调查问卷的方式（发放企业调查问卷 520 份，收回有效问卷 473 份）在柴达木循环经济试验区、西宁市经济技术开发区和大通县循环经济示范县就清洁生产情况进行了调研，结果分析显示了解清洁生产相关制度和政策的企业高管 47.3%，相对来说国省控企业的高管占比较高达到 62.7%，民营企业的比例只有 26.5%。深入企业访谈中，大多数企业不重视推行清洁生产，也不重视清洁生产审核工作。2011 年，省经委、省环保厅《关于印发青海省 2011 年度清洁生产审核计划的通知》（青经资〔2011〕84 号）下达了 2011 年度清洁生产审核名单。截至审核期限结束，名单中 39 家企业通过清洁生产审核评估或验收的尚不足 40%，其中西宁市 39%（列入名单的企业 18 家，通过 7 家）、海西州 9%（列入名单的企业 11 家，通过 1 家）、海东市 60%（列入名单的企业 5 家，通过 3 家）、海北州 50%（列入名单的企业 2 家，通过 1 家）、海南州 0（列入名单的企业 2 家，通过 0 家）、果洛州 100%（列入名单的企业 1 家，通过 1 家）。与环保部门具体负责清洁生产工作人员交流，基本看法是效益好的大型

企业比较重视清洁生产及其审核工作，而一般企业对于清洁生产和循环经济模式根本不重视，很多企业仅仅会在争取政府循环经济项目资金吸引下实施相关项目。

**2、科技政策难以支撑企业的科技创新**

（1）相应的科学研究投入严重不足。我国由于财政实力的限制等各方面的原因，对科学技术基础研究的投入长期严重不足，对循环经济科学技术的基础研究投入也缺乏专门的保障，只是在近几年才把部分循环经济科学技术的研究纳入到国家科技发展规划之中。对科学技术研究的总投入不足，对基础研究的投入就更加不足了。就青海省而言，据柴达木循环经济试验区所在地海西州相关部门工作人员介绍，2014 年是海西州科技研发资金投入比例最大的一年，占全州 GDP 的 0.48%,同期国家层面科技研发的投入比例为 1.98%。许多重大科研项目转化为生产力，完成批量生产的工艺化，花费了十余年的时间，如盐湖资源金属镁的提纯技术。同时，市州级财政对于科研的投入更少，海西州科研投入并没有随着 GDP 的增长而增长，多年来科研经费维持在 1000 万元。对科学技术研究的总投入不足，对基础研究的投入就更加不足了。我国基础研究在中央本级科技投入中，只占 15%左右；而在类似统计口径下，发达国家一般占到中央本级的 30%－50%以上。[11]在基础科学研究政策实施中，主要的科研项目都是科研院所和高校的研究人员承担，这既不利于企业研发能力的提升，也不利于科研成果的生产力转化。长期以来，企业主要进行应用型的技术研发，几乎没有涉及基础科学研究范围，与高校、科研院所在基础科学领域科研项目结合不紧密，直接影响应用技术研发和科技成果的转化。调研发现，当企业研发进行到一定程度时，对于与本企业生产相关基础科学的研究是企业无法回避的研发领域。因为技术创新与技术改造是以基础科学的水平为边界的，没有引领产业变革的原理性突破，缺乏破解制约发展的关键科学问题的知识积累，技术创新与技术改造也必将遭遇瓶颈。（2）科技支持政策实施机制不良。政府科技研发的补贴政策在实施中倾向于大投资、大规模的项目，不利于中小企业技术改造改造的推进。在循环经济发展中，中小企业是实现产业链条延伸

[11] 2014 年 3 月 8 日上午，全国政协委员、中国致公党中央副主席、中国科学院院士程津培在全国政协十二届二次会议第三次全体会议大会作“优化科技投入结构，建立稳定支持基础研究的新机制”发言时指出

与耦合的重要力量。对于中小企业来说，内部清洁生产的技改项目，大多数是投入并不太大，却能实现很好的节能减排效果。但是，相关政府部门在实施国家科技政策时，这样的小项目往往是不被考虑的，会优先考虑投资额大的项目。（3）中小企业技术创新能力羸弱，增强其创新能力的机制不健全。调研发现，企业，尤其是中小企业在研发中对于人才的需求很难得到解决。不论国企还是民企的大型企业，基本都有自己的研发力量和研发平台，也能够通过“产学研”一体化寻求到科研院所与高校科研人员的合作。企业的持续竞争力来源于生产技术的先进性，中小企业的发展也必须建立在技术创新的基础上。但是，中小企业基本不具备技术创新的能力，严重影响循环经济发展的整体性。在政府支持下，中小企业能够获得科研院所、高校的合作研发，但是，中小企业很难与科研院所、高校形成平等对话的机会，中小企业的弱势地位，决定了企业在合作难以取得研发成功的相应知识产权，阻碍了中小企业研发投入的积极性。（4）缺乏专门针对循环经济科技的奖励机制。我国对科学技术的研发制定了相关奖励制度，但是，缺乏针对循环型科学技术的特有的奖励制度，就难以发挥科技奖励对相应科技创新的具大的激励作用。而且已有的科技奖励由于制度不完善、奖励范围小、奖励力度小等原因，对于科学发明的作用效果十分有限，这也是我国的科技创新动力不足的重要原因之一。

### 3、人才政策的问题

（1）吸引人才不足。青海省囿于自身的地缘、气候条件，以及经济欠发达、社会发展滞后的省情使得在吸引高端技术和管理人才方面先天不足。调研中，不论是柴达木循环经济试验区的入园企业，还是西宁市经济技术开发区的入园企业都一致认为，缺乏高端技术人才和管理人才是制约企业循环经济发展的重要因素。据“千人计划”网相关数据统计，虽然“千人计划”引进的人才已进行到了第 10 批，但广西、贵州、西藏、青海、宁夏、新疆等 6 个省区几乎无入选者，绝大多数引进海归选在了北京、上海、江苏、浙江、广东等东部沿海发达地区。[12]一方面企业对于高端人才的需求，在本地无法解决，只能在其他地区引进，但是，这样造成企业人力资源成本大幅增加，严重增加企业的运营成本；另一方面高端技术人才和管理人才留不住。调研

[12]李雨蘅，孙厚权.湖北省科技领军人才培养政策问题研究[J].特区经济.2016（4）

中，许多上市公司在青海省投资企业的高管谈到，从企业总部到青海工作，事实上是无奈的，大多数是离开家无法照顾孩子的，而青海省缺乏优良的教育资源，教学质量不高，使得他们无法将孩子带在身边。对于他们而言，一有机会就会设法离开。（2）本地人才教育不适合循环经济发展。青海省的高等教育与职业教育，也不能满足循环经济发展产业规划需要的中等技术人员和高等技能人员。调研发现，柴达木循环经济试验区入园企业在本省招聘一般技术人员和技能人员都很困难，很多企业仍需到内地招聘。（3）本地科研组织与科研力量与循环经济发展不匹配。很多企业的技术研发依托的是内地的科研院所和高校。这对于循环经济技术攻关与科研创新的“产学研”的合作增加了难度和成本。（4）科研人员的评价标准僵化。调研发现，许多技术创新和技术改造项目申报国家政策支持时，项目主持人条件要求必须是缴纳社会保险的，且是副高职称。对于一些从国外归来的投资者，可能是某个行业的技术精英，在国外从事过大量行业内的技术攻关项目，但是，没有国内评定的职称。同时，有些科研工作者年龄已经超过 55 岁的退休年龄，已经享受退休待遇，自然不需要缴纳社会保险。但是，这种情况下可能就会失去申请国家技术改造政策支持的资格。

**4、企业尤其是中小企业融资难**

青海省企业性融资，严重存在资本金实力较弱，银行授信额度不高，融资能力不足和融资规模较小的问题。加之循环经济产业园区的财政管理体制不够完善，难以开拓多元化融资渠道。各级政府都积极成立了相应的融资担保有限责任公司，专门为解决中小企业健康运行和项目建设提供融资担保服务。但是，由于担保公司注册资本金规模小，担保能力受到极大的制约和限制，无法满足中小企业和项目建设融资服务的需求。因此，企业普遍存在融资难的问题，尤其是中小企业。政府提出的许多融资政策都落不到实处。

## 二、原因分析

青海省在推近循环经济发展过程中，本身面临客观困难，即经济社会发展水平不高、自身经济实力弱、自然条件恶劣、生态环境脆弱等等。[13]青海省推进循环经济发

[13]马江.西部欠发达地区发展循环经济研究[M].民族出版社，2009 年 6 月：175-195

展中主要依赖于国家循环经济政策，国家循环经济政策在实际供需上存在一定的缺位、错位。同时，地方性循环经济政策供给不足，导致青海省循环经济发展与预期目标仍然差距较大。

## （一）国家循环经济政策供需存在问题

我国循环经济政策的供需关系存在不平衡。依据循环经济“大、中、小”三个不同层次循环中所涉及的主体各不相同，不同主体在推进循环经济发展的政策需求也各不相同。在大循环层面，需要一个统领性的法律法规形成循环经济发展的总纲，相关配套的政策措施、指标体系、考核办法、奖惩手段等等，能够将循环经济的全社会纳入循环经济发展的轨道上。《循环经济促进法》和《循环经济发展总体规划》等属于这一层面的代表。另外，对于传统高污染、高能耗的钢铁、煤炭、石油化工等重点行业，制定切实的行业发展规划、技术政策和全面的节水、节能、节地、节约原材料及资源综合利用的政策措施。中循环层面，应当出台全面推进工业园区、产业集群和城市社区发展循环经济的政策法规及指标体系。小循环层面，则需要相应的主体责任延伸政策、激励性规制性政策配套来支持小循环的发展。

但是，对于我国三个层面循环经济发展的政策梳理发现，政策供需没有形成一个良性均衡关系，往往是集中出台的政策法规缺乏针对性、实用性，规制性政策与激励性政策也不能配套，某些领域循环经济发展政策长期供应不足的现象明显存在。调研发现，国家颁布的一些循环经济激励政策，尤其是中循环层面的激励政策，比如强化延长产业链和利于产业共生耦合网络形成的辅助性企业入驻园区的土地优惠政策，还没有真正实施，经济环境已经发生了变化，前后政策已经很难衔接。而对于全社会以“绿色消费”理念为支撑的、以垃圾分类处理为基础的“大循环”，在青海省基本还停留在“公益广告”的宣传教育阶段，国家在这个方面鲜有面向公民个体的规制性和激励性政策。

## （二）地方性循环经济政策形成机制不畅

我国循环经济发展，尤其是西部欠发达地区的青海省，长期以来基本上依赖于中央颁行的法律法规及激励性的经济政策，而自身需要的地方性配套政策出台困难。2005 年柴达木循环经济试验区成立以后，青海省内经济界、法学界以及实务界多次提

出应当出台一部《柴达木循环经济促进条例》，但是，没有能够得到政府部门和立法机关的积极响应。至2016年《青海省循环经济促进条例》才被列入青海省人民政府立法计划的“酝酿论证项目”。

另外，地方政策形成机制本身存在着机制悖论。一是不论是以法律法规为主要载体的规制性政策，还是以经济政策为载体是激励性政策，在政策形成过程中隐含着中央与地方的事权配置。在我国除了外交、国防等少数领域能够明确中央事权的边界以外，绝大多数的事权划分并不明确。这种情况下中央政策是地方政策的边界，同时，地方政策的效力不能及于中央层面的主体。这种机制态势，基本能够解释循环经济政策在实践中运行存在的很多问题。一方面中央出台的各类政策一般面向全国，要么政策具备一定的原则性，以保证政策适应各种经济社会发展不均衡情况；要么具备直接可操作性的政策往往很难适应经济社会条件与该政策不相匹配的地区。

### （三）政策协调性不足

在我国循环经济相关政策的协调性方面存在比较严重问题,很多政策规定存在重复、交叉甚至冲突的现象。例如,在《固体废物污染环境防治法》中,对固体废物回收、限制过度包装、农业产品回收利用等方面都有着相应的规定。该法第5条规定：“国家对固体废物污染环境防治实行污染者依法负责的原则。产品的生产者、销售者、进口者、使用者对其产生的固体废物依法承担污染防治责任。”而《循环经济促进法》中对这些内容也有相应的规定,该法第15条规定：“生产列入强制回收名录的产品或者包装物的企业，必须对废弃的产品或者包装物负责回收；对其中可以利用的，由各该生产企业负责利用；对因不具备技术经济条件而不适合利用的，由各该生产企业负责无害化处置。对前款规定的废弃产品或者包装物，生产者委托销售者或者其他组织进行回收的，或者委托废物利用或者处置企业进行利用或者处置的，受托方应当依照有关法律、行政法规的规定和合同的约定负责回收或者利用、处置。对列入强制回收名录的产品和包装物，消费者应当将废弃的产品或者包装物交给生产者或者其委托回收的销售者或者其他组织。强制回收的产品和包装物的名录及管理办法，由国务院循环经济发展综合管理部门规定。”《固体废物污染环境防治法》规定固体废物污染防治的责任主体包括生产者、销售者、进口者、使用者，但是，没有具体确定责任承担的

顺序和地位。《循环经济促进法》规定是典型的生产者责任延伸制度，但是，该法并没有针对15条制定相应的法律责任。同时，实践中需要配套的回收目录和具体回收办法也没有及时制定。在《清洁生产促进法》和《循环经济促进法》中,都提到了强制回收目录的问题,但在由谁来制定强制回收目录问题上,两者明显发生了冲突。《循环经济促进法》规定“强制回收的产品和包装物的名录及管理办法,由国务院循环经济发展综合管理部门规定”。而原《清洁生产促进法》规定:“生产、销售被列入强制回收目录的产品和包装物的企业,必须在产品报废和包装物使用后对该产品和包装物进行回收;强制回收的产品和包装物的目录和具体回收办法,由国务院经济贸易行政主管部门制定”。

# 第三章　优化促进青海省循环经济发展的政策体系

循环经济作为新型工业化的高级形态，其核心在于，统筹开发与保护、效率与公平、总量与结构、局部与整体、当代与后代等各种发展关系，构建具有创新性、开放性、融合性、集聚性和可持续性特征的新型产业体系，最终形成经济发展、社会进步与生态文明的良性循环。促进青海省循环经济发展的总体要求是，必须坚持减量化、资源化、再利用的循环经济理念，推动全社会树立资源、能源节约观，提高利用效率。必须选择在全国具有比较优势，且具备一定发展基础的重点领域和关键环节，先行先试、重点突破，走具有青海特色的循环经济发展之路。必须对工业、农业、服务业及社会各层面、各环节发展循环经济统筹规划，充分发挥园区的示范引领作用，建设一批循环经济示范工程、企业，推动循环经济全面发展。必须健全有效的激励和约束机制，加强法规、制度、技术和管理创新，提升循环经济内生动力和发展水平。

## 一、产业政策

产业政策是一个国家对以市场机制为基础的产业结构、产业技术、产业组织和产业布局变化进行定向调控，以实现某种经济和社会目标的一系列政策的总和。概括地讲，产业政策是一个国家的中央或地区政府为了其全局和长远利益而主动干预产业活动的各种政策的综合，包括产业结构政策、产业布局政策、产业组织政策和产业技术政策等。发展循环经济，首要就在于地区产业政策的科学合理。以财政政策、税收政策、金融政策、价格政策为主要内容的经济政策，是目前我国促进循环经济发展的最有效、最普遍的政策。积极协调运用财政、税收、价格、金融等政策对于现实经济模式中有利于循环经济发展的生产与生活行为采取激励性的补助、补贴和优惠[14]，辅之于规制性政策中对于不符合生态环境保护经济行为惩罚性约束，从而有效引导、激励和规制促进循环经济发展的市场动力机制形成。青海省在推进循环经济发展的十余年间，非常重视循环经济产业政策，通过相关规划、《柴达木循环经济试验区实施方案》

[14]杜放、于海峰.生态税·循环经济·可持续发展[M].中国财政经济出版社，2007 年 11 月，38

和《青海省建设国家循环经济先行区行动方案》（以下简称《行动方案》）等重要政策文件进行了系统谋划，构建了依据青海省自身资源禀赋和发展状态的循环经济工业体系、农业体系、服务业体系及重点生态产业园区、重点县域的基本产业布局。但是，目前各工业园区普遍存在生产链延伸不够、共生耦合不强的问题。《行动方案》确定建设国家循环经济先行区，要着力构建大循环战略格局。遵循生态循环规律，全面推动企业、园区、产业内部实行清洁生产和资源循环利用，推动产业之间、生产与生活系统之间、省内外之间的循环式布局、循环式组合、循环式流通，实现资源利用可循环、环境容量可承载、经济发展可持续，需要通过产业转型升级进一步加强园区层面循环经济的发展。产业转型升级，是指产业从技术低级、附加价值低级、污染度严重和能耗量大向技术等级高、附加价值高、污染度降低和能耗量小的状态转化过程。产业转型升级需要在微观企业层面、中观产业层面和宏观区域层面共同发力，实现整体区域核心竞争力的提高。

## （一）优化产业组织政策

大力促进企业自身的技术改造和技术创新，在产业内部实现转型升级。调研发现，在青海只有为数不多的企业会积极主动开展微观层面的技术创新和改造。这种企业自主进行的符合循环经济的技术改造是企业充分取得了循环经济本身所蕴含的经济价值，从本质上可以有效提高企业实施循环经济发展模式的内在动力。课题组认为，青海省必须从产业组织政策的设计上充分考虑竞争效益与规模效益的平衡，挖掘企业自身科技创新的市场潜力，并大力在全省范围内推进中小企业与大企业、企业集团通过专业化和协作生产在循环经济发展形成中紧密联系，从而在技术改造和技术创新中，使中小企业能够充分借力于大企业、企业集团。只有这样，青海省工业园区循环经济产业链延伸与耦合才能真正形成，完成产业的转型升级。

## （二）以政策“捆绑”设计，加大对中小企业的支持力度

中小企业由于规模、技术和资金等因素制约，已经成为青海省循环经济发展中的薄弱环节。但是，在产业链延伸和企业共生耦合网络中，中小企业是不可或缺的构成因素。在工业园区中循环经济主导产业往往具有优势地位，在生产和竞争中能够获取较大利润。因此，课题组认为，政府在促进循环经济发展政策设计中，应当考虑“捆

绑”政策设定，即为了促进循环经济产业链延伸和企业间共生耦合网络的加强，在主导企业和延伸、耦合企业之间形成公平合理的利益分配机制，政府可以通过税收返还、大企业副产品和废弃物定价机制以及其他政策倾斜，也可以通过引导大企业、企业集团通过优惠的让利合作机制，加大对中小企业的扶持力度。

### （三）通过产业政策积极促进企业提升价值链位置

西宁市经济技术开发区东川工业园区高新技术企业——中利光纤企业在产业价值链中占据了光纤预制棒与光纤生产。在光纤预制棒、光纤、光缆生产的整个产业价值链中光纤预制棒占 70%的利润、光纤占 20%，而最终产品光缆占 10%的利润。中利公司 2015 年投产，当年就获得了几千万的盈利。东川工业园区管委会引进中利光纤时，在土地（将比邻亚洲硅业的土地出让给中利光纤）、项目审批和项目财政资金支持给予了极大的政策性扶持。而中利光纤之所以选择在东川产业园区投资 34 亿元，除了政府给予的优惠政策外，更在于位于东川产业园区的亚洲硅业通过技术创新掌握了四氯化硅提纯技术，能够保证中利光纤低成本获取绝大多数生产所需的原材料。课题组认为，政府在确定各园区产业政策时，应当将企业价值链位置作为引进企业应当予以考虑的主要因子，从而在同样资源消耗下，能够实现循环经济尽可能大的效益。

### （四）以“大循环”战略优化各园区产业布局

科学的产业布局可以使全省循环经济发展呈现良性状态，最大程度减少省内各产业园区因产业同质性发生的内耗，提升循环经济发展的效率，提高区域经济发展的整体竞争力。目前，主要依赖于政府的制度创新。《行动方案》以较大篇幅谋划了青海省循环经济发展的产业政策，原则性确定了循环经济工业体系、农牧业体系、服务业体系和社会化体系的发布和目标。“十三五”期间，应当进一步加快构建完整的循环型工业体系，延伸产业链条，推进循环化改造，使工业固体废物综合利用率达到 60%以上。加快构建农林牧渔多业共生的循环型农牧业体系，建立种养业废弃物资源化利用制度，推动农业资源利用节约化、生产过程清洁化、产业链接循环化、废物处理资源化。加快构建循环型服务业体系，推进服务主体绿色化、服务过程清洁化，健全再生资源利用体系，构建起集回收、拆解、分拣、加工、交易于一体的再生资源回收利用体系。推进循环经济全民参与行动，加强城乡再生资源利用，以倡导绿色消费、绿

色建筑实施和创建循环经济示范城镇为着力点，加快环境工程、废弃物资源利用、节能建筑等先进适用技术和新工艺、新设备的研发与应用，推进循环型社会建设。其一，需进一步细化《行动方案》中产业体系的分布和各产业园区的具体定位。仅仅有原则性的谋划，不足以形成全省范围内高效的循环经济协同发展机制。因此，应当通过循环经济发展专项规划进一步细化循环经济发展产业布局和实现机制。其二，还需通过强有力的制度创新，保证规划法律效力的实现，同时，厘清政府和市场在循环经济产业布局中的角色和定位。各个产业园区应当客观、适宜、合法地以“负面清单”确定市场的准入机制，“负面清单”之外完全以市场导向引导企业的发展。同时，完全通过预先规定去除各园区产业同质性是不可能的，因此，应当预先形成各级政府在循环经济发展中的协同机制，最大程度降低各园区管理部门在招商引资过程中因产业同质性相互竞争而形成的内耗。

## 二、管理政策

探索适应于青海省循环经济发展的管理政策是当前政策建设中应当尤为重视的方面，良好的管理政策可以整合循环经济发展各产业园区的发展力量，防止发展过程中的内耗。

### （一）鼓励各产业园区探索适合自身发展的管理方式和管理模式

西宁市经济技术开发区的管理方式、管理模式相对比较成熟，与地方政府的发展关系比较协调。柴达木循环经济试验区作为几乎全覆盖海西州的地区性循环经济发展产业园区，应当进一步探索构建适合全区域性的管理方式。课题组认为，省政府应当鼓励各产业园区依据发展现状探索适合自身发展的管理方式、模式，具体而言，西宁市经济技术开发区的四个园区面临着不同的发展时期，如东川工业园区急需探索“产城融合”的管理模式。目前，柴达木循环经济试验区应当进一步厘清政府与管委会的关系，尤其是管委会与政府之间的财政分权，积极推进柴达木循环经济试验区“行政单列”管理方式的实现，加快柴达木循环经济试验区管理创新。

### （二）加强合作开发产业园区的制度供给

国内许多产业园区通过跨区域合作开发,如新加坡与我国合作开发的苏州工业园

区、苏州市与宿迁市合作开发工业园区，都极大整合了发展的优势与潜力，使工业园区获得了良性的发展。2008 年国务院已经颁行国发[2008]30 号文件明确提出“积极探索互利共赢的财政政策，有序推动异地联合兴办开发区”。2011 年 12 月 1 日国务院发布《中国农村扶贫开发纲要（2011—2020 年）》进一步明确“西藏、四省（四川、云南、甘肃、青海）藏区”等地区为连片贫困地区作为扶贫攻坚的主战场，并且要求“推进东西部协作”，主要通过产业扶贫政策和产业园区内重点以共建产业园的发展来推动扶贫工作。因此，解决青海省循环经济发展中各地招商引资中的大量内耗，合作开发是一条事半功倍的途径。合作开发的成功经验无不建立在“顶层设计”的制度供给上。

## 三、经济政策

青海省培育和发展循环经济是一个长期、持续的工作。循环经济存在较强的正外部性特征，市场主体企业在循环经济发展的初期一般不会主动发展循环经济。如果循环利用资源的规模达不到成本最小化，与利用新资源相比没有经济优势，强行发展循环经济，就会严重出现“循环不经济”的问题。循环经济对技术水平要求较高，比传统经济的技术复杂得多，往往涉及多个科学领域，技术研发投人巨大。同时，循环经济对设备、原材料的要求也较高，设备运行成本大，需要大量资金支持。尽管青海省在发展循环经济中具有一定资源优势，但是，自然环境条件和区位不优也是显而易见的缺憾。因此，现阶段青海省促进循环经济发展应当以政策激励为主导。

### （一）财政政策

政府主导循环经济发展政策体系。政府掌控最有力的政策工具无疑是财政和税收。具体来说，政府通过财政支出政策和税收政策，对市场主体形成强有力的经济导向，实现国家经济宏观调控目标。目前，各级政府通过财政和税收政策推进了全国范围内循环经济的快速发展。但是，青海省作为欠发达地区，面临着政府财力有限，投资强度远远满足不了循环经济发展实际需要，财政与税收政策对于循环经济发展的促进作用捉襟见肘。

**1、持续加大支持循环经济发展的财政资金投入力度**

青海省应当尽最大努力争取中央加大对青海省循环经济发展的资金支持力度。加大青海省地方循环经济专项基金的资金额度，完善专项基金管理制度。一方面应当针对不同产业园区明确专项基金支持的力度，或者各产业园区支持的比例，增强各园区管委会对于专项基金支持循环经济发展的预期性，从而使各产业园区在制定园区发展规划、计划时对于发展资金有比较明确的预判，使各项工作的开展更加具有前瞻性；另一方面进一步完善基金使用的监督管理机制，尤其是针对基金支持项目的评估机制。

**2、进一步增强地方的发展积极性**

一方面进一步加强政府职能转变，同时，改革央地、地地之间权力与职责的科学划分，形成明确的各级事权机制，同时，合理匹配事权与财权的匹配。调研中海西州相关政府部门和园区管委会的工作人员都谈到的“探矿权收益分配的比例”问题，都认为与事权不够匹配，有建议认为，市州投资的探矿权收益分配比例应当调整为国家20%、省级10%、市州级60%、区县级10%，区县级投资的探矿权收益分配比例应当调整为国家20%、省级10%、市州级10%、区县级60%。课题组也认为类似比例的确应当调整，依据的原则应当是“谁投资、谁受益”以及属地管辖事权原则。

**3、改革财政支出支持循环经济发展的方式**

目前，财政支出主要以“直接补贴”支持的方式，产生了很多实际问题，应当进行相应改革。一方面缩小财政支出“直接补贴”的范围，以法律制度明确规定的方式确定财政支出“直接补贴”范围，主要以科研攻关、技术创新和人才支撑为“直接补贴”的范围，原因是科研攻关与技术创新，具有结果、时间和风险的高度不确定性，其成功的结果对于社会生产力的提升意义巨大，另外，这些方面本身也很难形成良性的市场化。另一方面财政支出方式应当多元化。伴随着国家税收体系进一步改革，资源环境价格机制逐步形成，可以将循环经济的正外部性逐步内部化，产生循环经济发展的内生动力机制，市场逐步成为循环经济资源配置的基础。因此，财政支出支持应当以优先股投资、债权投资、融资贴息支持和政府绿色采购为主。

### 4、探索建立循环经济生产方式产品标志及其认证制度

政府应当培育循环经济相关产业链企业的自律组织,由自律组织整合现有青海省绿色产品品牌，在此基础上通过附着或者创新出循环经济生产方式产品的标志和品牌，并通过多种途径和方法推介这些品牌，提升青海省循环经济产品的市场认知度。以此为起点，率先建立青海省政府采购循环经济产品目录，进一步提升青海省循环经济产品的品牌意识和市场品牌效应。

## （二）税收政策

### 1、完善资源税促进青海省循环经济发展

2016 年 7 月 1 日开始实施全面推进资源税改革（财税[2016]53 号），其基本原则就是清费立税，即着力解决当前存在的税费重叠、功能交叉问题，将矿产资源补偿费等收费基金适当并入资源税，取缔违规、越权设立的各项收费基金，进一步理顺税费关系。具体要求是全面清理涉及矿产资源的收费基金，在实施资源税从价计征改革的同时，将全部资源品目矿产资源补偿费费率降为零，停止征收价格调节基金，取缔地方针对矿产资源违规设立的各种收费基金项目。地方各级财政部门要会同有关部门对涉及矿产资源的收费基金进行全面清理。凡不符合国家规定、地方越权出台的收费基金项目要一律取消。对确需保留的依法合规收费基金项目，要严格按规定的征收范围和标准执行，切实规范征收行为。无疑，改革对于解决资源税税制的核心问题是有效的，但是，短期内会影响青海省为促进循环经济发展的地方性财政政策。目前，在经济新常态下，青海省政府为了减轻企业发展循环经济的资金压力，提供对于省内征收的矿产资源补偿费免征、减征或者缓征，及欠交的矿产资源补偿费进行挂账处理等优惠政策。但是，资源税改革清费立税，使青海省面临着取消相关优惠政策的囧境。因此，建议税务部门与循环经济发展主管部门，广泛地进行研究，提出可行性的替代性政策。一方面考虑资源税范围内，国家相关优惠政策实施的条件，给企业及投资者、潜在投资者提供充分的资源税改革及影响的信息服务，必要情况下提供纳税培训，使企业及其投资者在生产经营和投资活动中争取最大的国家优惠政策；另一方面通过进一步理顺其他税收优惠政策，如增值税地方分享返还政策适用范围的扩大和时间的延

续，或者在西部大开发税收优惠政策的基础上对企业所得税减免政策延期等等，进一步提高税收优惠政策对循环经济发展的导向作用。

**2、调整增值税和所得税，体现绿色税收理念**

为了促进企业大力开发和推广使用可节约资源、能源、减少废物排放的生产技术与工艺，开发和应用有利于资源合理利用、综合利用或促进资源增值的技术，引进、推广无害环境技术，对于企业在新产品、新技术、新工艺方面的研究和开发投入，在计算企业所得税时在税前全额扣除的情况下，其各项费用增长幅度超过10%以上的部分，可以适当扩大实际发生额在应纳税所得额中扣除的比例，从而鼓励企业不断增加对新技术、新产品、新工艺开发的投入。为鼓励企业更新改造旧设备，购进提高资源的综合利用效率采购的先进设备，可允许其加快此类设备的折旧速度。三是增加和拓展消费税的环保功能。对资源消耗量大的消费品和消费行为，如一次性木筷、饮料容器、一次性纸尿布、高档建筑装饰材料等，应列入消费税的征收范围；将导致环境污染严重的消费品和消费行为，如大排量的小汽车、越野车、摩托车、摩托艇应征收较高的消费税；对煤炭、电池、一次性塑料包装物及会对臭氧层造成破坏的氟利昂产品也应列入消费税的征收范围。对污染环境的消费行为，可以通过对企业生产有害环境的产品征收环境保护税和消费税的方式，提高其生产成本，通过价格信号限制破坏生态环境的消费，鼓励健康性的消费和保护资源环境的绿色消费。四是制定有效激励机制，体现对再生资源利用环节的税收优惠。对利用“三废”的生产行业和产品进行减免税，对废旧轮胎加工利用企业实行税收优惠政策。对清洁生产中的资源综合利用项目、利用“三废”生产的产品、环保设备（产品）以及节水设备（产品），按照国家有关鼓励政策，对符合国家税收优惠规定条件的，予以所得税、增值税减免；实施清洁生产技术开发和技术转让所得收入可按国家有关规定享受减免税优惠；对技改项目中国内不能生产而直接用于清洁生产的进口设备、仪器和技术资料，免征关税和进口环节增值税；企业用于清洁生产审核和培训的费用，可以列入企业经营成本。企业研究开发清洁生产新产品、新技术、新工艺所发生的各项费用可以计入管理费用。对废旧物资回收企业实行免税政策。对于企业用于环境保护的投资实行税收抵扣。对从事资源综合利用的企业以全免税的特优待遇。对废旧物资回收经营单位销售其收购的废

旧物资免征增值税。生产企业增值税一般纳税人购入废旧物资回收经营单位销售的废旧物资，可按照废旧物资回收经营单位开具的由税务机关监制的普通发票上注明的金额，按10%计算抵扣进项税额。

**3、开征环保税并加大征收力度**

在2016年8月29日十二届全国人大常委会第二十二次会议上，《环境保护税》草案第一次提请审议，环保税法终于迎来曙光。将排污费等收费项目改为开征环保税，建立起独立的环境保护税种，按照“谁污染谁缴税”的原则，环境保护税的纳税人应为：在中国境内从事有害环境应税产品的生产和存在应税排污行为的企事业单位、社会团体和个人。时任财政部部长楼继伟作草案说明时表示，草案的立法原则是“税负平移”，从排污费“平移”到环保税，征收对象等都与现行排污费保持一致。开征环境保护税是重大改革，仅仅“税负平移”显然不符合现实环境保护和促进循环经济发展的需求。

环境保护税的税目应当包括大气污染税、噪音税、生态补偿税、碳税、水污染税、垃圾污染税（建筑装饰、电器产品中的有害原料使用）等。在环境保护税的税率设计上，应根据污染物的特点实行差别税率，对环境危害程度大的污染物及其有害成分的税率，高于对环境危害程度小的污染物及其成分的税率。

## （三）价格政策

经济学研究的目标是如何通过价格机制配置资源使之达到帕累托最优状态。循环经济则是以减量化、再利用与可循环为原则，通过企业、社会节约和循环使用资源，缓解资源环境约束，减少污染排放的发展模式。由于价格是资源配置的基础性工具，发展循环经济必须以价格理论作为基础。在市场经济中，生产者在成本预算约束下根据价格信号决定产量，消费者在收入预算约束下根据价格信号决定消费量，分别实现利润最大化和效用最大化。但是，资源和环境问题存在特殊性，主要是资源环境产权主体难于界定，资源消耗及其环境代价难以核算，导致资源环境市场价格机制很难形成，成为约束循环经济发展的主要障碍。对于青海省而言，其特定的生态地位和基于区域自然资源禀赋发展循环经济的特点，不健全的资源环境定价机制必然更加严重制约青海省循环经济发展。2015年10月12日，中共中央、国务院发布《关于推进价格

机制改革的若干意见》，明确了价格机制改革的指导思想、基本原则、总体目标和主要任务，为今后开展价格工作提供了根本指针，也为发挥价格杠杆作用促进经济结构调整和转型升级明确了主攻方向。

**1、加快价格制度改革进程**

环境资源价格之所以偏低，关键在于没有从科学的角度认识环境资源的成本和价值。科学的环境成本核算反映环境资源的生成、更新消耗、破坏乃至治理、恢复、改善全过程的支出。过低的初始资源价格导致节约资源的投入产出效益不高，循环利用资源和废弃物的比较优势不明显，“循环不经济”的现象就会发生。以煤炭资源为例，2011 年出台的资源税条例显示，焦煤的税率为 8 元/吨。其市场价虽然处于波动之中，但税收只占其市场价格的极小部分是不争的事实。这正是许多煤矿回采率较低，大量资源被浪费的原因所在。为此，在生产的源头，应提高初始资源的价格，迫使企业提高资源利用率，减少原材料的浪费，减少排入环境中的废弃物。可喜的是，2016 年 7 月 1 日起资源税全面改革为从价计征。2016 年在河北省开始实施水资源税征收的试点工作。但是，在经济新常态下，价格制度改革短期内可能会对于企业发展造成新的困难，首先，企业面临着原料使用中税收增加，企业经营成本增加，会进一步增大企业运营的风险；其次，经济状况低迷，企业资金回笼困难，此时增加资源税的征收，必然使青海省资源依赖度很高的产业经营受到较大影响。因此，需要各级人民政府以开放、长远的心态对待改革，千方百计帮助企业在改革中求发展，促进青海省循环经济的良性发展。

**2、提升排放成本**

由于初始资源定价过低，企业使用初始资源成本很小。同时，由于环境负外部性的存在，企业排放的废弃物成本没有内部化，使得企业消耗原始资源的成本远远小于循环利用废弃物的成本，再生资源就没有比较优势，循环经济难以开展。因此，在提高初始资源价格的同时，也要提高排放废弃物的成本，将其内部化为企业的生产成本，使环境资源使用者的边际成本等于社会边际成本，迫使企业去利用更具价格优势的再生资源。同时，也迫使企业努力提升技术水平，来提高资源的利用率，从而减少排放量，实现减量化目标。废弃物的循环再利用往往需要较为复杂的技术处理过程，投入

成本较高。一方面，废弃物资源再生产业经常面临着“资源”短缺和成本困境。调研发现，西宁市垃圾分类一直难以推行的根本原因是能够“资源化”的废弃物总量不足，基本不具备吸引投资者投资产业化的可能。“吃不饱”问题的突出——有设备没“资源”，回收设备不能最大限度地发挥效率，由此带来的成本压力困扰着企业的发展。另一方面，从事废弃物资源再利用的企业或个人的行为又有较强的正外部性效应，但是，他们在实际中往往没有得到相应的合理收益补偿。

因此，政府应该通过外部效益内部化的方式对企业发展循环经济给予一定的补偿和支持。国家循环经济产业发展的支持政策的范围和强度应当进一步调整，以实现真正促进产业良性发展的目标。青海省的循环经济发展的基本特点是对于自然资源开发中“吃干榨尽”式的循环经济产业，这可能不同于一般意义上循环经济产业，对此，国家层面没有明确的支持政策，调研中许多企业家都谈到在青海省投资发展循环经济，企业没有感受到政府政策的支持。建议在青海省循环经济先行区建设中，针对这种情况予以重点改进。

**3、进一步完善排污权拍卖与交易制度**

党的十八大报告提出，“要加快生态文明制度建设，深化资源性产品价格和税费改革，实行资源有偿使用制度，积极推行节能量、碳排放权、排污权、水权交易制度”，作为一种运用市场机制控制环境污染的环境经济政策，排污权交易制度是中国环境政策创新的必然选择，也是实现有质量、有效益、可持续发展的重要途径。价格机制市场化改革已经历经了十余年，在 2001 年至 2006 年试点摸索阶段，开始时通过工程项目，如中美环境合作项目、亚洲开发银行太原市项目进行试点工作。2004 年，江苏省尝试水污染物排污权交易工作，2006 年浙江省嘉兴市全面启动水污染物总量控制和排污权交易，并于 2007 年成立国内首个排污权交易平台。在 2007 年至今试点深化阶段，国家“自上而下”推进排污权交易试点与地方“自下而上”自发开展试点探索交互进行。江苏、浙江、天津、湖北等 10 个省市开展排污权有偿使用和交易试点实践，在此基础上，2014 年 8 月，国务院办公厅印发《关于进一步推进排污权有偿使用和交易试点工作的指导意见》，标志着排污权交易制度成为中国一项重要的环境经济政策。青海省于 2014 年 2 月 8 日公布实施了《青海省主要污染物排污权有偿使用和交易试

点实施方案（实行）》，同年 7 月 30 日青海省首次主要污染物拍卖在省公共资源交易中心实施。但是，排污权在国家法律层面没有明确界定，缺乏立法保障，导致全国范围内的排污权交易市场很难建立，又由于排污权覆盖的污染物面较窄，使得该项制度对于环境价格的影响并不充分。排污权有偿使用和交易制度与排污许可证、建设项目环评审批、“三同时”验收、排污申报、排污收费等环境管理制度尚未实现有机衔接，影响了试点工作的深入推进[15]。调研时，很多企业的高管对此也颇有异议，认为这个制度应当能够取代排污申报、排污收费等制度。同时，排污权拍卖和交易的具体规则、信息公开、交易的监管等没有形成明确、稳定的制度，也有些了排污权交易对于环境价值的市场价格机制的有效形成。价格机制是市场的主要机制，价格机制的建立应当依赖于市场规则和市场体系的建立。因此，青海省应当大力推进排污权拍卖和交易规则体系的建立，进一步拓展排污权拍卖与交易的覆盖范围，理顺排污权拍卖和交易与现行排污管理的相关制度关系，加强相关资源交易市场的建设和完善。

## （四）金融政策

### 1、优化多元化投融资环境

一是扩大简政放权改革中下放到产业园区的行政审批事项。行政审批权是企业准入制度的核心，也是政府与市场关系的法律表达。因此，为了厘清管委会与地方政府的基本关系，完善循环经济产业园区体制机制的核心就在于深化行政审批制度改革。这对于优化多元化投资环境至关重要。二是经济统计部门应当明确界分环保投资与循环经济投资的统计方法，才能准确地将投资中投向循环经济发展的数据统计出来，其中政府投资于循环经济的具体资金量的清楚体现，对于社会投资投向循环经济发展会起到“率先垂范”的作用。我国环境保护投资有一套相应的统计数据，主要包括工业污染源治理投资、建设项目“三同时”投资以及城市环境基础设施建设投资三部分，分别有自己的统计口径与统计方法，最终三方面的投资汇总成环境保护的总投资。显然，这三大部分统计不能全面反映出循环经济发展的投资情况，必须以循环经济发展“3R”原则构造统计口径与方法。三是建立政府绿色采购机制，突出政府采购中对于

[15]任艳红，周树勋． 地方污染物排放总量许可与监管探讨［J］． 环境经济，2013（6）：52 — 54.

实施循环经济企业产品的倾斜，也会促进社会资金投向循环经济发展，吸引多元化的投资主体。

**2、促进循环经济多元化投融资机制的建立**

多元化投融资机制，包括多元化的主体、多元化的途径、多元化的方法和多元化的投资方向。如政府投资中，其方向既包括基础设施投资，也包括向循环经济产业投资；其方式方法既包括股权投资，也包括债权投资；其债权投资可以包括低息借款、无息借款，还可以包括发行政府债券等等。因此，循环经济多元化投融资体制建立，要求政府相关部门，一是具备创新思维模式，在确定促进多元化投融资机制建立政策时，在法定范围内穷尽所有方式、方法和途径，并善于打“组合术”，切忌从一个极端转向另一个极端。调研发现，政府协调循环经济发展的部门工作人员工作思路比较僵化，认为原来的财政资金“直补”循环经济产业发展，造成了国有资产流失，下一步应当改为“优先股”方式，却没有考虑到任何一种方式都有其优势与劣势、都有其适用的条件和情况，应当扬其长、避其短。二是将《投融资意见》中原则性规定落到实处。《投融资意见》中明确提到“支持国家、省级循环经济示范试点园区、企业发行企业公司债券、可转换债券和短期融资券、中期票据等直接融资工具。”“探索循环经济示范试点园区内的中小企业发行集合债券。”获得该项政策支持的是“国家、省级循环经济示范试点园区、企业”，但是，这项政策基本没有得到落实。一方面这项政策缺乏细化的操作规定，需要国家层面进一步细化；另一方面这项政策给予了政府创新改革的途径，政府主管部门、金融管理部门及金融部门应当联合进行研究，寻找现有制度框架下可以实现该项政策落实的方法。三是支持社会资本投向循环经济公共设施建设。对于循环经济发展中公共设施建设投资不能只依靠政府投资。要大力推进社会资本进入，积极争取国家 PPP 合作投资项目的支持。四是进一步支持中小企业融资担保平台的发展。如，经省政府批准成立柴达木融资担保有限责任公司，专门为解决园区中小企业健康运行和项目建设提供融资担保服务。成立三年来，与全省 13 家银行合作，为 75 家中小企业担保贷款 216 笔，累计担保额 30 亿元。在缓解园区中小企业融资难、保障中小企业稳定运行发挥了积极作用。五是完善循环经济试验区财政管理体制，尤其是德令哈工业园区。由省财政厅牵头，州政府、试验区管委会配合，

尽快研究建立试验区财政管理体系，并且以德令哈工业园为切入点，建立“事权与财权相统一”的财政管理体制，以完善园区职能，提升项目承载能力。

## 四、人才、科技政策

在构建促进青海省循环经济发展的政策体系中，人才、科技支撑政策和管理政策及其他配套政策是贯通三个层面循环——企业层面的“小循环”、区域层面的“中循环”和社会层面的“大循环”的保障措施。循环经济本质是观念创新、技术创新和管理创新，人才、科技支撑政策是促进循环经济发展良性的基本保证。调研发现，科技、人才是制约青海省循环经济发展的关键因素。因此，现阶段，在建构促进青海省循环经济发展的政策体系中，科技人才政策应当定位于关键性政策中的基础和核心政策。促进传统线性发展的经济生产方式向新的循环型的经济生产方式的转变，其中所涉及的科学技术水平和科学技术成果无疑是最重要的制约因素。没有相应的技术手段，转变经济方式要实现的一切目标都形同虚设。由于不具备短期的经济效益，以及作为一项庞大的系统工程需要社会方方面面的协调与配合，新的技术目标和科技发展方向很难自发地在市场经济的土壤上生长起来，只有通过相应的科技政策给予有效的引导及推动，并确保其在社会面的广泛应用和全面实施，才能使以减少资源使用及降低环境污染为运行前提和重要目标的新型经济方式在全社会得到推广。青海省科技投入逐年增加，2015 年实施以“123”、“1020”为重点的重大科技支撑工程项目，集中力量攻克制约经济社会发展的重大关键技术难题。“123”科技支撑工程重点围绕产业链打造创新链，重点在新能源、新材料、装备制造等十大特色优势产业方面共组织实施科技项目 34 项，总经费 97293 万元，省科技经费资助 16480 万元，项目实施后预计新增产值 21.4 亿元，利税 4.7 亿元。这些项目实施后，成功研制出长度为世界第一长度的 P91 无缝钢管；320MWp 水光互补关键技术研究与示范，填补了国内大规模水光互补关键技术的空白，已成为世界最大的水光互补电站；成功研制了新型高海拔飞艇“蓝天号”对地观测系统，实现了对青海湖流域环境的实时监测管理、分析及草地生产力的评估。建设青藏高原特色生物资源高效利用技术集成创新平台，已初步建成分离纯化技术平台和高原特色资源冻干中试平台，为优化中藏药剂型和工艺奠定了基础。“1020”生态农牧业科技支撑工程重点围绕全省十大农牧特色产业发展组织实施科技

计划项目43项，总经费4.64亿元，省科技经费资助7920万元，带动社会投资3.85亿元。但是，从全省循环经济发展需要来看，人才、科技政策仍是制约瓶颈。

## （一）人才政策

针对青海省人才政策实施的现状和特殊问题，必须采取有针对性的措施，创新政策机制，着力解决中小企业技术研发人才缺乏问题。通过实施青海省人才战略，以开放的姿态营造吸引人才、留住人才、用好人才的社会氛围。

### 1、建立政府支持中小企业研发力量建设的专项基金

政府在人才政策的设计上，要更大程度上向中小企业倾斜。对于中小企业急需的研发人员，可以在“不谋所有，但求所用”上做文章。如政府在对口支援的相应地区，寻找合适的研发人员，通过政府合作机制，特聘相关研发人员并委托其承担企业急需的研发工作，并由政府在支持中小企业研发专项基金中支付特聘人员超过本地区一般研发收入水平的工资待遇。同时，这种政府支持的委托研发项目成果，其产权原则上属于急需研发工作的中小企业，这有利于企业的可持续发展。为了激励研发人员的研发积极性，应当充分保证研发人员对于研发成果的署名权和收益权，可以在特聘协议中明确企业应用研究成果获得收入的一定比例归属于研发人员。

### 2、深化高等教育与职业教育改革

以青海省循环经济产业规划为导向改革青海省高等教育和职业教育,力争在五到十年时间，培养一批高质量的与循环经济发展产业需求相匹配的技术人员和高技能人员，满足企业在本地的人才需求，一来可以促进青海省自身就业的提升，二来可以降低企业的用工成本。

### 3、加强人才管理制度实效性

进一步完善政府政策实施机制，把僵化的刚性条件，如申报科技政策支持项目时对于主持人的职称、是否缴纳社会保险等进行必要改革，可以增加“同等水平”的条件内容，进一步加强政策实施的务实性和有效性。同时，建立相应的支持项目评估机制，防止条件柔性化可能存在的其他问题。

另外，人社部门应当进一步提高人才的政府服务水平。对于人才的服务，除提供

工作和生活的条件外，更应重视管理人员与技术人员的社会认同问题。目前，在青海省有许多行业都不具备评定高级职称的条件，导致这些行业企业入驻工业园区后高级技术人员的职称评定出现问题。针对这些问题的存在，人社部门应当采取适当措施，保障高级专业技术人员在职称评定中的正当权益。

## （二）科技政策

### 1、持续加大科学技术研发的财政投入力度

基础研究投入是科学技术发展的基础和保障。这是因为，基础研究是科技发展的根本推动力。虽然国际科技交流对于科学技术水平的提高能够起到重要的作用，但是核心技术是买不来的。长期依赖与发达国家的科技交流，只能使本国的科学技术处于被动的落后状态。而基础研究领域的一项科研创新成果，往往可以带来科技的跨越式发展。我国科技政策应加大对科研基础领域的投入，要在明确科研投入占国民经济生产总值的比例，以及基础研究投入占研究与开发经费比例的基础上，把循环经济科学技术的研究放在更加突出的重要地位上，加大对循环经济科学技术的基础科研投入比例。在同样增加经济效益的科技研究中，优先支持循环型科学技术的研究。更进一步来说，对于科研项目的审批，也应把生态效益、环境安全等循环经济的要求作为审批的一个重要条件和因素。在资金有限的情况下，全力支持循环经济科技的研究。加大对生态学、环境科学等相关基础研究领域的经费支持，以期为相应技术领域的突破提供理论支撑和研究基础。把循环经济科技的研发作为重要的科研立项，通过设立专项资金的方式，来保障相关绿色科技、生态科技等的研发，保障循环经济要求下的关键性、共性技术的突破性进展。总而言之，我国应把针对循环型科技的基础研究投入作为重要的科技支撑措施，使其成为推进相应科技发展的重要的政策组成部分。

### 2、建立有利于采用循环经济技术和设备企业获取利益的制度

要使企业付出的成本与收益相联系,提高企业进行技术创新及使用新技术来改造传统工艺的积极性。作为科技政策的重要组成部分，要把环保科技、生态科技的财政补贴计划计入政府预算，并在一年之后对其使用情况进行考核，以确保该项资金发挥其应有的效用。可以借鉴日本相应的财政制度，建立对创造型的科学技术研发给予经

费补助的补助金制度、对循环利用废弃物的生产企业给予补助的制度、对引进资源综合利用设备和能源循环利用设备的企业予以补贴的制度、对促进环保型技术实用化的企业予以补助的制度等。此外，还可以采用物价补贴、税前还贷、财政贴息、企业亏损补贴等方式来对使用环保技术的企业予以激励。通过一系列的财政补贴倾向和制度，还可以发挥政府投资对社会投资的引导和影响作用，促使金融资金等社会资金也向循环型产业流动。鼓励银行等金融机构建立绿色金融政策、绿色信贷政策，对于循环型科技的研发应用予以贷款、利息等各方面的优惠，进一步激发企业改良生产工艺的热情。通过构建财政补贴支持绿色科技的政策，为循环型科学技术的创新及推广提供必要的资金支持，充分发挥科技政策的导向作用，营造在生态环境保护框架下发展经济的良好社会氛围。

**3、进一步加强“产学研”一体化**

建立专门支持中小企业科技研发的政策，有利于权衡中小企业的情况，设立于中小企业研发相应水平的标准，以“微资金、微项目”为依托，全面促进中小企业清洁生产内部技改工作，提升青海省循环经济发展的整体水平。同时，应当进一步加强“产学研”一体化，打通基础科学和应用技术研发的通道，实现研发成果快速向生产力转化，其核心在于促进企业围绕自身发展需要参与基础科学的研究工作。三是建立循环经济科技奖励制度。我国应结合循环经济的要求，建立针对循环型科技的各种专项科技奖励制度，用更为优厚的奖励制度来鼓励相应科技领域的创新研发。可以在修订原有科技发明奖励制度的基础上加入新的规定，也可以设立一套专门的科技奖励制度和体系。可以考虑借鉴日本的科技奖励体系，设立中央政府及各省市为主体的奖励体系，并鼓励企业和科学技术协会分会等团体开设针对绿色科技、生态科技等循环型科技的奖励。要扩大奖励的范围，不仅针对相应科技的发明创造，而且对于在推广相应科技成果、振兴环保型产业发展的过程中做出突出贡献的个人、团体都要进行奖励。对于凡是在循环型科学技术领域取得创新性成果的单位和个人，做到与其他科技奖励区别对待，单独设奖。并且要加大奖励的力度，设置物质奖励、精神奖励、名誉称号奖励相结合的奖励方式。中央可以设立“环保科技勋章”等奖项，地方政府和企业、民间组织等以物质奖励为主。通过重奖来突出循环型科技具有的重要地位，通过政府的态

度来影响和作用于企业、团体和公众行为，以形成有利于循环经济科技研发及推广的良好的社会氛围，推动循环型产业的发展，并进一步推进循环经济发展模式在全社会的构建。

## 五、其他政策

发展循环经济是一项涉及各行各业、千家万户的事业，需要政府、企业和社会各界的共同努力。调研数据显示，只有 7.1%的被调查者认为循环经济发展是全社会共同的责任。进一步对于城市社区和农村社区的调查，城市社区对于循环经济的认知度只有 3.5%，农村社区对于循环经济的认知度仅为 4.1%。尽管《青海行动方案》中对于循环经济社会化政策制定了原则性的规定，但是，现实中，社会层面“大循环”在青海省的实施呈现出点状分布，并且没有系统的政策支持“大循环”向线面发展。青海省循环经济发展到今天，单纯依靠政府推动已经显得乏力，必须依托全社会认同循环经济的理念并积极参与，来推动循环经济向更高水平发展。

### （一）形成多项激励，改变经济激励的单一模式

循环经济相对于传统经济而言是一种全新的理念。现代社会出现了以信息技术为基础的信息化和非物质化的知识经济和以环境无害化技术、资源回收利用技术和清洁生产技术为主要载体的循环经济两大趋势。[16]历史经验表明，一个新理念的产生需要一个长期的过程。事实上，经过多年的循环经济试点，我国企业层面“小循环”和区域层面“中循环”的成功范例已有很多。在推进生态城市建设中，生态社区的建设在理论层面多有研究，实践层面也有不少范例。人们从事经济活动，往往重视经济激励，在发展中谋求经济利益最大化。而循环经济发展，是在政府主导下，通过一系列政策设定，使人们从事经济活动的动机，不仅谋求“经济性”的利益最大化，还要谋求“生态性”的利益最大化。因此，发展初期更多依赖经济激励为主的政策体系。但是，循环经济发展到一定阶段，人们行为激励就不能单纯依赖经济激励了，还必须依赖于其他激励因素，如荣誉激励、成就激励等。

### （二）加大宣传力度，提升全社会对循环经济的认知度

[16]中关村国家环保产业中心.循环经济——国家趋势与中国实践[M].人民出版社.2005，(7)：180

所有政策最终的执行效果都和公众参与密切相关。其他激励因素发生的前提，依赖于整体社会对于行为的认同机制。从青海省公众循环经济意识偏低的实际情况，必须加强循环经济的宣传教育工作。通过学校教育、培训、展览、社区教育和大众传媒等方式进行循环经济意识的培养，使循环经济成为公众的共识，形成良好的社会氛围。目前，青海省对于循环经济的消费理念宣传仅仅停留在“公益广告”的层面上，显然是不足的。在“循环经济国家先行区”的建设中，各级政府及其部门必须把循环经济消费理念的宣传教育纳入政府工作议程，并且大力支持在社区以形式多样的载体和方式进行宣传教育，逐步使循环经济消费理念入脑入心。公众自觉按照循环经济的要求安排生活、生产是实现循环经济的重要环节。因此，把加强循环经济宣传教育列为各级政府部门的一项工作，从规划、实施、效果评估和保障建立相应机制。

## （三）引导绿色消费，拓宽循环经济在全社会的实践道路

消费在经济中经济占有重要地位。循环经济实践既要大大调整经济和产业结构，又会对人们传统的消费观念和消费习惯形成冲击。倡导符合循环经济理念的消费是促进循环经济发展的重要环节。要加强消费领域促进消费理念循环化的政策研究，以期短期内形成促进公众循环消费生活方式形成的政策激励机制。一是抑制各类奢侈消费，逐步以个人消费调节税取代个人收入调节税；发扬勤俭节约的优良传统，提高全社会节能、节水、节材、节粮意识。二是出台政策限制一次性物品的使用，使消费者不用或者少用一次性物品；鼓励消费者购买和使用节能环保产品、节能省地住宅，鼓励自备购物袋，限制企业对商品进行过度包装。三是进一步鼓励发展节约型交通。统筹衔接各种运输方式，加快实现“零距离换乘”和“无缝化衔接”。合理布局铁路、公路和机场基础设施，科学确定建设规模，系统提升土地、能源、水等资源的利用效率。四是实施绿色建筑行动。推进居住建筑供热计量、管网热平衡、建筑外围护结构、自然通风等节能改造，推广高效照明灯具等节能产品。

## （四）建设循环社区，形成公众知行合一的示范地

社会层面的“大循环”是社会公众共同参与实践循环经济发展模式。因此，循环社区建设是搭建公众实践循环经济的平台。大通县 2016 年被确定为国家循环经济的示范县，青海省应当以此为契机，在全省范围内开展循环社区示范建设。在循环社区

中通过开展社会生活的生态化服务，如洁净蔬菜上市等专业化服务，减少能耗及家庭废弃物排放；全面推进垃圾分类处理，提高社会废弃物回收利用率。工业废水与生活废水分类收集、分别处理，提高“中水”的循环利用率。伴随着循环社区的建设示范，社会生态系统逐步建立和实施，将使全社会的能源和自然资源消耗降低，最终实现废弃物排放大幅度降低、废弃物处理生态化和健康化。同时，循环经济理念深入人心，人们更愿意购买以循环经济方式生产的绿色产品，进一步促进全社会生态系统良性循环。

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