

THE CHINESE ENVIRONMENTAL POLICY RESEARCH WORKING PAPER

Issue 33 Volume 7 No.4 September 2020



Chinese Academy of Environmental Planning
<http://www.caep.org.cn>

A Pilot Study on Green economy policy Assessment of the United Nations: **Taking the Assessment of Ecological Compensation Policy in Hainan Province of China as an Example**

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Foreword »

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The Chinese Academy of Environmental Planning is a leading environmental think tank providing environmental decision-making services for the Chinese government, which was established in 2001. CAEP is actively adapting to the needs of the continuous development of environmental protection, expanding and refining its business advantages while developing its comprehensive business, the scientific research system of “environmental planning-environmental policy-environmental engineering-environmental risk” is preliminarily constructed, which lays a solid foundation for the establishment of the subject cluster of environmental planning. Since the establishment of the institute, it has undertaken more than 60 national major plans and more than 50 watershed and regional ecological and environmental protection planning studies, led the development of more than 120

major scientific and technological projects, scientific and technological research projects, and more than 70 national environmental policies Research and completed more than 60 international cooperation projects. A number of plans, assessment reports and environmental policies have been approved and adopted by the Chinese government, providing important technical support for the decision-making and management of relevant departments. According to the "2019 Global Go To Think Tank Index Report" compiled by the "Think Tank Research Project" (TTCSP) of the University of Pennsylvania, in the field of "Environmental Policy Research", our institute ranks 25th among the 100 think tanks in the world, and ranks first among all the selected Chinese environmental think tanks.

The Chinese Environmental Policy Research Working Paper (CEPRWP) is issued irregularly. It mainly publishes the research results of our institute in the fields

of environmental policy and environmental economics. It aims to build a bridge for international cooperation and promote Academic exchange with foreign experts and scholars in the field of ecological environment.

This report uses the "Advancing the Transition to an Inclusive Green Economy - A Policy Review Manual" provided by the United Nations Environment Programme to evaluate the ecological compensation policy of Hainan Province.

In the assessment process, the research team systematically analyzed the Hainan's ecological compensation policy documents, and investigated the implementation of ecological compensation policies in watersheds and forests in Changjiang County, Baoting County, and Sanya City, and consulted stakeholders on the formulation and implementation process of ecological compensation policies.

After evaluation, the research team believes that Hainan's ecological compensation policy objectives are consistent with the UN Sustainable Development Goals in promoting coordinated regional development and maintaining important ecosystems.

During the implementation of Hainan's eco-compensation policy, the poverty population in Hainan decreased from 1.33 million in 2010 to 70,000 in 2018; local governments' investment in energy conservation and environmental protection has been increasing; the forest coverage rate increased from 51.98% in 2014 to 62.1% in 2018.

The research team believes that Hainan's ecological compensation policy has strong operability, inclusiveness and compatibility; the evaluation method of the "Handbook" applies to the evaluation of China's green economic policy, which will help strengthen international green economic policy exchange and sharing.



Contents >>

1. Research Background	1
2. Methodology	2
2.1 Assessment methods in the Guidance	2
2.2 Methods in Hainan Pilot Study	4
3. The Pilot	9
3.1 Hainan's Typicalness	9
3.2 Assessment Results of Ecological Compensation Policy in Hainan Province	10
4. Conclusions and Recommendations	21
4.1 Main Conclusions	21
4.2 Recommendations	22
References	25
Institute of Environmental Policy and Management at CAEP	27



1. RESEARCH BACKGROUND

The United Nations Environment Programme (UNEP) has always been paying attention to and promoting a green economy and sustainable development of humankind. In 2018, the UNEP formulated the Guidance Manual for Green Economy Policy Assessment (hereinafter referred to as the “Guidance”), to provide a set of methods to assess green economy policies in different countries. The UNEP believes that inclusive assessment of formulation and implementation of green economy policies in various countries will be conducive to promoting decision-making mechanisms and policy coordination, enhancing policy implementation as well as boosting the development of global green economy. To test the applicability and feasibility of the Guidance, UNEP has selected pilots worldwide with Hainan Province in China being one of them. The research work in China is headed by the Ministry of Ecology and Environment (MEE) with members from Hainan Academy of Environmental Sciences and Hainan University for assessment work. The assessment team went to Hainan on multiple tours for coordination with Hainan Academy of Environmental Sciences and other government agencies and eventually decided on ecological compensation policy of Hainan Province as the object for assessment.

Ecological compensation is an important policy for green economy development in Hainan Province, which is a typical place in China for ecological compensation policy practice. Hainan is the only province in

China where all counties and cities are covered by financial transfer payment for key ecological functional areas. A financial transfer payment is a government-funded compensation for ecological protection actions, which is essentially compensation for local development rights and interests, or the opportunity cost, to encourage the development of green economy at local level, and to limit the environmental impact of economic development within a reasonable level. Hainan has established an ecological compensation policy system concerning river basins, forests, oceans and others based on its unique features. The system is extensive and inclusive and has played a part in poverty alleviation, national park construction and international tourism island construction in Hainan Province. In the course of the assessment, the team, by using methods in the Guidance, visited relevant departments of ecological compensation policy in Hainan, discussed with officials of the main management department, consulted a large number of policy materials and carried out field researches in Changjiang County, Baoting County and Sanya City. Through research-based analysis and systematic assessment, this report is thus formed. The report is provided to Hainan Province for further improvement of local ecological compensation policy and green economy development. The report is also submitted to the UNEP for global knowledge sharing. It will also provide a reference for UNEP to push for the promotion of the Guidance in other countries and its future improvement.



2. METHODOLOGY

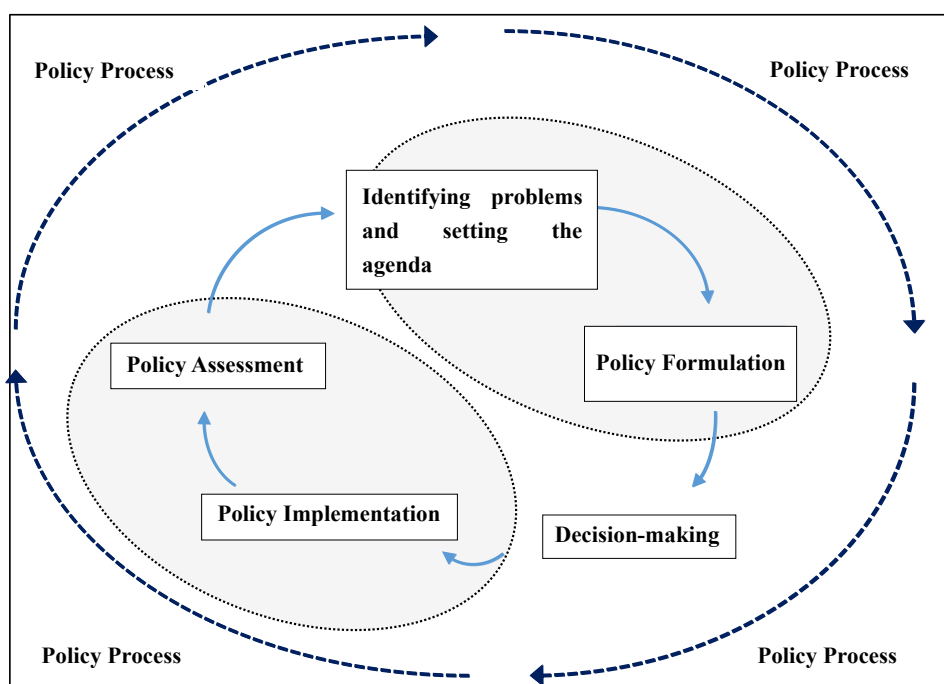
2.1 Assessment methods in the Guidance

The Guidance provides a framework that divides policy assessment into three parts, policy process assessment, policy design assessment, policy implementation and effect assessment, with key questions listed in each part for assessors. The Guidance clearly defined the steps of assessment without providing a set of standard procedures for specific assessment methods, thus created much leeway for assessors. Here is the assessment framework in the Guidance.

2.1.1 Policy Process Assessment

Policy process assessment is to identify the stage of the assessed green economy policy in the policy cycle (see Figure 1). Assessors need to make clear records of each stage of the assessed policy as well as the activities and results carried out in each stage for better analysis of possible problems. The main method for assessing the policy process is to consult official policy documents and interview stakeholders.

■ Figure 1. Three areas in policy assessment





2.1.2 Policy Design Assessment

Policy design assessment consists of three parts, policy objectives assessment, policy tools assessment and policy indicators assessment.

2.1.2.1 Policy Objectives Assessment

Policy objectives assessment is mainly to assess the criteria and process of setting policy objectives. Such criteria and process may be or may not be included in official documents. If not, assessors should learn about the criteria by inquiring government officials involved in policymaking and add the views of major stakeholders. Another important part of policy objective assessment is to assess how consistent the policies are with international policy objectives, including the Sustainable Development Goals (SDGs) of the UN, the Paris Agreement, and Aichi Biodiversity Targets (the Guidance mainly focuses on consistency with the first two). Assessors should classify the assessed green economy policy objectives according to the Guidance and assess the consistency of objectives with corresponding SDGs and provisions of the Paris Agreement.

2.1.2.2. Policy Tools Assessment

Policy tools (see Column 1) assessment is to assess the criteria and process of selecting policy tools and whether they are the right tools for achieving policy objectives. Assessors should advise on the selection of such tools, for example, change the specific details of selected tools, or use different tools.

Column 1 Types of Policy Tools

- Services or products directly provided by the government (including its relevant agencies); These are public-funded policy tools, for example, ministry budgets or sustainable public procurement. Governments can decide to start or expand such services more sustainably and inclusively.
- Regulations and legislation that regulate or prohibit certain activities or impacts (i.e. emission levels); These regulations and legislation are sometimes referred to as “standards” or “orders and controls”, for instance, mandatory waste discharge limits. Details include the technical content and implementation means of the standard.
- Economic tools are used to change incentives faced by companies or households by influencing the cost of activities or price of certain goods. These tools are sometimes referred to as “market-based tools” like for example, taxes and subsidies, or tradable licensing schemes. Economic tools are often used to encourage the private sector to invest in green industries.
- Provision of information that encourages (or discourages) companies or consumers to change behaviors; Such measures are to



promote change by improving awareness and arousing public opinion, for example, public awareness campaigns through traditional media channels. Prescribed or compulsory ecological labels can also be regarded as a form of information provision.

- While the direct provision of information generally involves government investment and recurrent expenditure, the latter three policy tools seek to encourage other stakeholders to invest or change production and consumption.

2.1.2.3 Policy Indicators Assessment

Policy indicators assessment is to assess whether the policy indicators apply to the policy being assessed. For policy indicators that are already clearly defined in policy documents, assessors should look at the relevance and measurability of the indicators both in theory and practice. Assessors should assess the availability of indicator data and whether it is managed by professional organizations. For policy indicators not defined in policy documents, assessors should make relevant suggestions. Assessors should also assess how consistent the assessed policy indicators are with those in internationally recognized policy frameworks.

2.1.3 Policy Implementation and Effect Assessment

Policy implementation and effect assessment

are to assess the effectiveness of policy and problems in the implementation process. When assessing, assessors should consult the main decision-makers, implementation agencies and other possible stakeholders on policy implementation, to make clear the challenges in this process. If possible, assessors should propose ways or solutions to handle these challenges.

2.2 Methods in Hainan Pilot Study

There is a strong correlation among the ecological compensation policies of Hainan Province. The assessment team selected the ecological compensation policies (see Table 1) issued by Hainan Province over the years as assessment object, as represented by the Implementation Rules on Improving Ecological Protection Compensation Mechanism of Hainan Province. According to the policy cycle in the Guidance, these policies are all in the stage of implementation. Therefore, while assessing the ecological compensation policies in Hainan, the team focused on the implementation and effect of the policy and conducted a retrospective assessment of policy design and decision-making. The assessors considered the Guidance and the actual situation in Hainan and adopted three methods for assessment: 1. literature research, 2. field research and 3. stakeholders consulting.

2.2.1 Literature Research

While assessing the ecological compensation policies in Hainan, the assessment team obtained from government agencies and



official websites the ecological compensation policies and regulations issued by Hainan Province as shown below in Table 1. The team combed the time of issuance and key

content of each policy document, analyzed the development of such policies in Hainan as well as the relationship between policies.

 **Table 1. Summary of Hainan Ecological Compensation Policies and Laws**

Hainan Ecological Compensation Policy Documents		
Effective Date	Policy Name	Key Content
2005	Plan for Construction of Eco-province in Hainan	Establishment and improvement of the paid use system of natural resources and the ecological compensation mechanism.
2006	Interim Measures for Payment of Ecological Compensation of Hainan Province	Financial losses from ecological protection in cities and counties will be compensated for coordinated development of economy and environmental protection. Starting from 2006, 20 million yuan will be set aside for this purpose and be allocated in factor method with priority given to central mountainous areas.
2008	Measures of the People's Government of Hainan Province on Establishing and Improving the Ecological Compensation Mechanism in Central Mountainous Areas (Trial)	Gradual establishment of ecological compensation standard systems for key areas such as important ecological functional areas, important water sources and natural reserves; the compensation should be jointly provided by the province and the city; financial compensation and conservation of non-commercial forests (NCFs) should be increased; quality of ecological environment in important ecological functional areas, water sources and nature reserves should be improved.
2015	Measures of Hainan Province for Transfer Payment in Cities and Counties Not Included in National Key Ecological Functional Areas Transfer Payment	The compensation mechanism for ecological protection is improved to strengthen ecological protection in cities and counties yet to be included in the national key ecological functional areas transfer payment, improve their capacity in ensuring basic public services, and ensure ecological security.
2017	The Decision of Hainan Provincial Committee of the Communist Party of China on Further Strengthening the Construction of Ecological Civilization and Writing the Hainan Chapter of Beautiful China	Ecological compensation for key ecological functional areas, river basins, forests (wetlands), oceans and red line areas of ecological protection will be improved. Benefited areas and ecological protection areas, upstream and downstream areas of river basins will be guided and encouraged to implement horizontal ecological compensation through financial subsidies, counterpart cooperation, industrial transfer, talent training, co-construction of parks and other ways.



Hainan Ecological Compensation Policy Documents		
Effective Date	Policy Name	Key Content
2017	Implementation Opinions of Hainan Province on Improving the Compensation Mechanism for Ecological Protection	Compensation for NCFs protection will be improved and classified compensation mechanism for forests established; compensation for wetland ecological conservation will be promoted to give play to the benefits of wetland ecological services; compensation for marine ecological protection will be promoted for sustainable regional development; compensation for cultivated land ecological protection will be improved for the development of green agriculture; horizontal ecological compensation for river basin will be explored to establish a diversified compensation model.
2018	Implementation Plan of Hainan Province on Compensation for Horizontal Ecological Protection in the Upper and Lower Reaches of the River Basins in the Province (Trial)	By 2020, a horizontal ecological compensation mechanism will be in place for the upper and lower reaches of cross-city/county rivers with a drainage area of at least 500 square kilometers and important sources for centralized drinking water.
2018	Rules on Transfer Payment for Key Ecological Functional Areas in Hainan Province	Basic subsidies and incentive subsidies are included in the ecological transfer payment system. Basic subsidies are to cover all cities and counties as ecological compensation funds to improve the level of ecological conservation.
2019	Implementation Opinions on Establishing a More Effective Mechanism for Coordinated Regional Development	Establishment and improvement of a diversified horizontal ecological compensation mechanism. A cross-city/county horizontal ecological compensation mechanism is to be established and benefit compensation mechanism for resource utilization will be improved in the principles of regional equity, equal rights and responsibilities, pilot first and step-by-step promotion. A natural reserve system with national parks as the mainstay will be established, and the central and local governments will bear the expenditure according to the division of financial powers. Regional coordination in construction of major industrial, infrastructure, livelihood security and ecological compensation projects will be supported.
Ecological Compensation Related Laws in Hainan		
Effective Date	Policy Name	Key Content
2012	Regulations of Hainan Province on Environmental Protection	People's governments at or above the county level shall establish and improve the ecological compensation mechanism, increase public financial support to ecological compensation, fulfill compensation responsibility, improve compensation approach, and improve the ecological quality in key areas such as important ecological functional areas, water sources and natural reserves.



Ecological Compensation Related Laws in Hainan		
Effective Date	Policy Name	Key Content
2013	Regulations of Hainan Province on the Protection of Drinking Water Sources	Municipal, county and autonomous county governments along upstream and downstream of river basins may negotiate and sign ecological compensation agreements for drinking water source protection, which shall be reported to the competent environmental protection department at provincial level for the record.

2.2.2 Field Research

While assessing the ecological compensation policy of Hainan, assessors found it hard to understand the implementation effects in different places and problems during implementation through literature, so they decided to conduct field research instead. Out of the key areas of ecological compensation in Hainan Province, the team selected Changjiang County, Baoting county and Sanya City as the assessment objects with special attention paid to utilization of ecological transfer payment funds, implementation of ecological compensation for river basins and forests, implementation of the compensation policy by local governments, as well as changes brought about by the policy to enterprises and individuals in these places. Concerning site selection, the team picked several areas that are typical for ecological compensation.

1. Wangxia township, located in the remotest mountainous area in Changjiang County where the Li nationality resides, is encircled by the Bawangling Nature Reserve and is known as an extremely impoverished area in Hainan Province, with 97% of the residents

being poverty-stricken in 2007. As a result, serious ecological problems have arisen from local development. With the introduction of ecological compensation policy, an ecological compensation mechanism has been established in Wangxia township with subsidies provided to the residents.

2. Baoting county sits in the core area of forest biodiversity protection in central Hainan with a forest coverage rate of 85.2%, higher than the Hainan average. Baoting county has established multiple ecological compensation mechanisms, with ecological benefit fund compensation system for NCFs created in 2004 to provide direct compensation for the ecological benefits of forests.
3. Sanya City, reputed as Hawaii of the East, is the southernmost tourist city on Hainan Island. Drinking water in the city is heavily dependent on Chitian reservoir, which spans across the Haitang district of Sanya and Sandao town of Baoting Li and Miao Autonomous County and supplies 60% of annual drinking water in Sanya City. Baoting county has made huge sacrifices to protect this drinking water source of Chitian, and for this reason, Hainan Province has launched



a pilot of basin ecological compensation in Chitian reservoir.

In Wangxia township of Changjiang County, the assessment team discussed with local township cadres to understand the role of ecological compensation policies in poverty alleviation, education and migration, and ecological industry, and to see how the ecological compensation funds are used. In Baoting County, the assessment team focused on the implementation of forest ecological compensation, utilization of ecological compensation funds and improvement of residents' lives. In Sanya City, the team made an on-spot investigation of the construction of sewage treatment plants around Chitian reservoir and had a discussion with relevant local departments to see how ecological compensation for protection of Chitian reservoir is implemented in Baoting county and Sanya city.

2.2.3 Stakeholder Consulting

As the assessed ecological compensation policy of Hainan Province has been formulated and issued, the assessment team, when assessing policy design and effect, consulted stakeholders and interviewed policy-making officials to understand the particulars of policy formulation and the rationale for the policy objectives and tools. In addition, the team mainly consulted officials from departments of ecological compensation policymaking, including from Hainan Provincial Department of Ecology and Environment, Department of Finance and Hainan Development and Reform Commission. The team also discussed with representatives from water affairs department, agriculture and rural affairs department, talked with related enterprises and individuals to understand the impact of the ecological compensation policy on their work and life.





3. THE PILOT

3.1 Hainan's Typicalness

Hainan, located in the southernmost part of China, is the only tropical province, the largest special economic zone, and the only international tourism island at provincial level in China. The central mountainous area on the island is a national ecological functional reserve, and also one of the key conservation areas with species of global significance and unique and rich land biodiversity in China. In the Global 200: Priority Ecoregions for Global Conservation report, World Wildlife Fund (WWF) listed Hainan Island as the 23rd region for continued conservation. As the largest marine province in China, Hainan is rich in marine resources.

The development of green economy is an important part of Hainan's strategy to build an eco-province. In 1999, Hainan became the first ecological demonstration province in China; In 2007, Hainan decided to implement the strategy of “building an ecological province”; In 2009, “the establishment of a national ecological civilization demonstration area” was put forward in the Hainan International Tourism Island strategy; In 2015, Hainan took the national lead in launching the “integration of different kinds of planning” reform pilot, in which the control targets for ecological conservation and resource consumption were set and red line for ecological protection was drawn and to be followed strictly. In 2017, Hainan started the construction of

beautiful Hainan. In 2018, the state pushed for the development of Hainan as a National Ecological Civilization Pilot Zone to create a new experience for national ecological civilization advancement. In May 2019, the Implementation Rules of the National Ecological Civilization Pilot Zone (Hainan) was issued, which proposed to develop Hainan into a model for the reform of the ecological civilization system, a zone for coordinated land and marine development, an experiment area for the realization mechanism of ecological value, and a demonstration area for prioritized development of clean energy. Guided by these strategies, Hainan Province has continuously promoted the construction of pilot free trade zone and free trade port, implemented the new development concepts, promoted the adjustment and upgrading of economic structure and enhanced coordinated development in the province. In recent years, Hainan has paid special attention to the development of 12 key green industries including tourism, efficient agriculture with tropical characteristics; a set of supporting policies has been issued; planning formulation and implementation, policy support and capital investment have been put in place. In 2017, Hainan achieved 329.156 billion yuan of added value from the 12 key industries, taking up 73.76% of its GDP. Eco-tourism, Internet plus industry and five other industries have registered double digit growth.



Hainan also faces many challenges in the development of green economy, for example, uncoordinated development in the province, mounting pressure on ecological conservation, and lack of awareness of green development. In 2018, financial revenue of the eastern region of Hainan Province (Haikou, Sanya, Wenchang, Qionghai, Wanning and Lingshui) is about 4 times of that of the central region (Wuzhishan, Ding'an, Tunchang, Qiongzong, Baoting and Baisha). Wuzhishan City, Qiongzong Li and Miao Autonomous County and Baisha County in central Hainan are all state-level poverty-stricken cities or counties with lower-than-provincial-average GDP, per capita GDP, urbanization level and per capita income of rural residents. However, there was a time when some officials in Hainan lacked environmental awareness, the concepts of science-based decision-making and development were not fully implemented, and there was a lack of environmental protection awareness among some enterprise managers. In the meantime, safe drinking water in rural areas is not properly ensured; tropical rainforests, mangroves and other key ecosystems are shrinking; wildlife habitats are degrading or lost. These are all urgent problems yet to be addressed in the development of green economy in Hainan Province.

Ecological compensation policy is crucial in the development of green economy in Hainan. It is included in every major strategy of Hainan Province and has played a significant role in regional

coordination, ecological conservation, and environmental awareness improvement. Ecological compensation system covers most administrative regions and multiple ecospheres in China and is a green economy policy designed to adjust ecological conservation and balance the interests of relevant parties in economic and social development. Hainan as an island province is an independent eco-geographical unit, whose ecological service function, its range of benefits and target groups can be more easily defined, thus creating unique conditions for establishing ecosystem compensation mechanisms and providing ecological compensation in the province. Hainan is the only province in China where all counties and cities are covered by ecological transfer payment. It has created a well-established ecological compensation policy system on top of the ecological transfer payment policy for key ecological functional areas, with a special focus on ecological compensation policy for river basins and forests. This system has been a significant part of work in fields like poverty alleviation, coordinated regional development, national park construction, change of outdated way of production and life as well as education equity.

3.2 Assessment Results of Ecological Compensation Policy in Hainan Province

The assessment team assessed the ecological compensation policy of Hainan in line with the Guidance, adopted methods of literature research, field research and stakeholder



consultation, assessed objectives, tools, indicators, implementation and effect of the ecological compensation policy, and reached the following conclusions.

3.2.1 The policy objectives of ecological compensation in Hainan are highly consistent with the sustainable development goals of the UN.

The assessment team analyzed the ecological compensation policy documents and regulations of Hainan Province (see Table 1) by literature research, reviewed the objectives of ecological compensation policy, and identified the following objectives:

(1) To promote coordinated regional development in the province: The development of central mountainous areas lags behind coastal areas. The ecological compensation policy is designed to compensate the development right of cities and counties in the central region, narrow the gap between the central region and other regions, thus ensuring social equity.

(2) To maintain the important ecosystems in Hainan: Most of the main rivers in the province flow down from the mountain forests in the central region, which is one of the regions with the richest biodiversity

in China. The offshore of Hainan Province boasts the richest tropical marine resources in China. Ecological compensation policy is to protect different ecosystems in the province and improve their service value.

(3) To promote green transformation in the central mountainous areas of Hainan Province: The available land resources in the central mountainous areas of Hainan are limited, leaving local economy and residents' lives heavily dependent on the development of forest resources, resulting in the serious conflict between environmental protection and local economic development. Ecological compensation policy is to elevate public service level and education level in these backward regions, vigorously develop environmental protection industry, include residents into environmental protection, so as to fundamentally transform the way of production and life in central mountainous areas and boost ecological conservation.

(4) To promote green development of cities and counties: The coastal regions of Hainan enjoy advance economic development but face tough challenges in green transformation. Ecological compensation policy is to set differentiated goals for the coastal cities and promote green development.

Table 2. Analysis of Ecological Compensation Policy Objectives

Policy Document	Policy Content	Policy Objective
Rules of Hainan Provincial People's Government on Establishing and Improving the Ecological Compensation Mechanism in the Central Mountainous Areas (Trial)	To achieve unity of conservation and development; to be people-oriented in harmonious development of man and nature;	To coordinate economic development and environmental protection;



Policy Document	Policy Content	Policy Objective
Implementation Opinion of Hainan Provincial People’s Government on Improving the Ecological Compensation Mechanism	To gradually cover all key areas and important regions for ecological compensation for coordinated development of coastal and mountainous areas;	To promote coordinated regional development;
	Compensation for cities and counties in the central mountainous areas should prioritize natural forests protection, biodiversity conservation, ecological restoration and management of mined-out areas and soil erosion areas, and ecological migration and relocation;	Biodiversity conservation, poverty reduction and forest protection;
	Compensation funds for western coastal industrial cities and counties should be mainly used for energy conservation and emission reduction, industrial structure optimization and upgrading, environmental infrastructure construction, environmental governance, etc.	Energy saving and carbon emission reduction;
Implementation Plan of Hainan Province on Compensation for Horizontal Ecological Protection in the Upper and Lower Reaches of the River Basins in the Province	Resource sharing and rights & responsibilities balancing. Lower reaches of the river basin make compensation for the efforts of the upper reaches to improve the ecological environment and enjoy the right to demand compensation for deteriorated water quality and excessive use of the upper reaches.	To compensate for the lost opportunity cost of a region from ecological conservation;
Implementation Opinion on Establishing a More Effective Mechanism for Coordinated Regional Development	A cross-city/county horizontal ecological compensation mechanism is to be established and benefit compensation mechanism for resource utilization will be improved. Regional coordination in construction of major industrial, infrastructure, livelihood security and ecological compensation projects will be supported.	To promote coordinated regional development.

A comparison between the objectives of ecological compensation policy in Hainan and those of international green economy policies such as SDG_s reveals that Hainan’s

policy objectives are highly consistent with SDGs and those in the Paris Agreement (see Table 3).

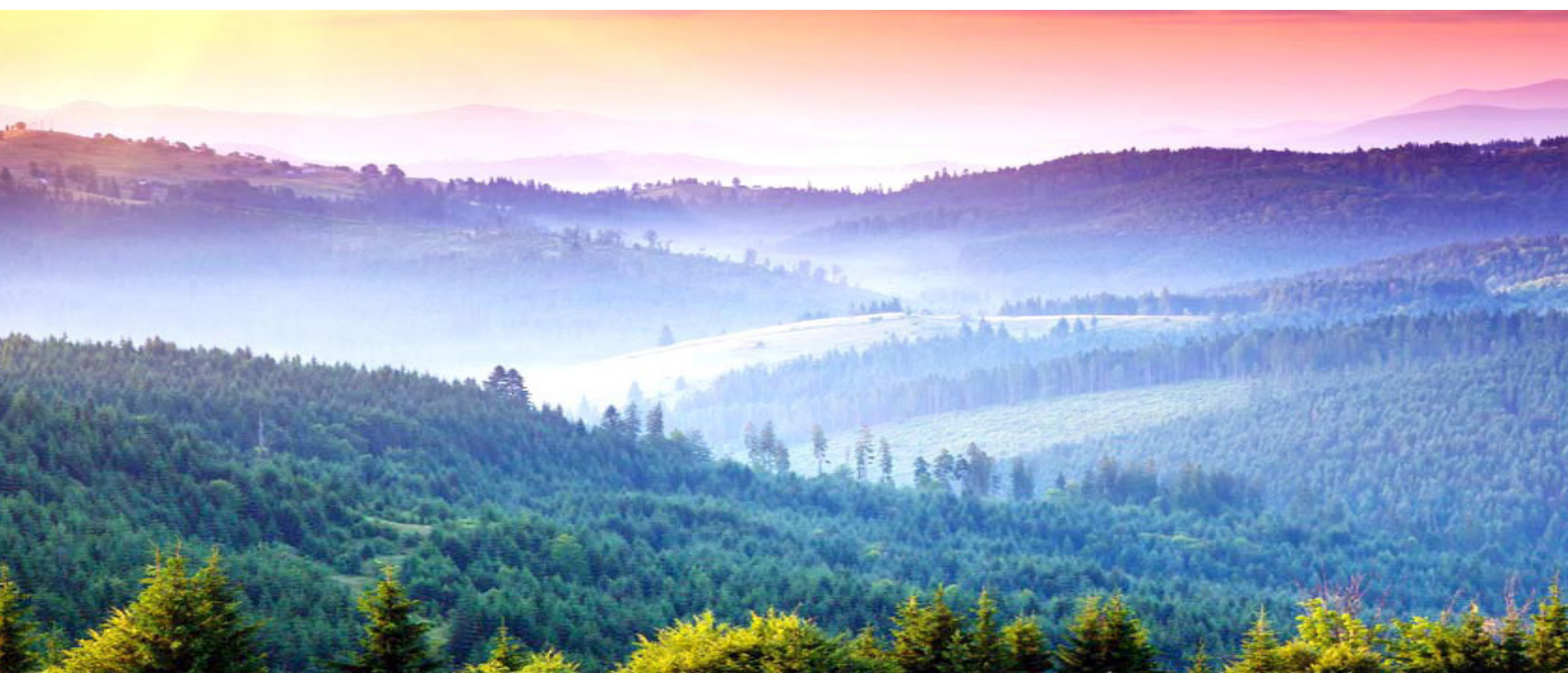




Table 3. Consistency between policy objectives of ecological compensation in Hainan and SDG_s & the Paris Agreement

Policy Objectives	SDG _s	The Paris Agreement	Consistency
1. To promote coordinated regional development in the province;	10.1 By 2030, progressively achieve and sustain income growth of the bottom 40 percent of the population at a rate higher than the national average		Partly consistent
	1.A Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programs and policies to end poverty in all its dimensions	/	
	4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship	/	
2. To maintain the important ecosystems in Hainan;	15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	Article 5 Parties are encouraged to take action to implement and support, including through results-based payments, the existing framework as set out in related guidance and decisions already agreed under the Convention for policy approaches and positive incentives for activities relating to reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries; and alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests, while reaffirming the importance of incentivizing, as appropriate, non-carbon benefits associated with such approaches.	Fully consistent
	15.b Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation		
	6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all		Partly consistent
	6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	/	



Policy Objectives	SDG _s	The Paris Agreement	Consistency
	15.a Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems	/	Fully consistent
3. To promote green transformation in the central mountainous areas of Hainan Province;	10.4 Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality	/	Partly consistent
4. To promote green development of cities and counties;	8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high value-added and labor-intensive sectors	/	Partly consistent
	9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities	/	Partly consistent

The development gap between mountainous areas and coastal areas are mainly manifested in the number of poor people and education level. The Implementation Opinion of Hainan Provincial People's Government on Improving the Ecological Compensation Mechanism (hereinafter referred to as the "Implementation Opinion") clearly states that targeted poverty alleviation includes increasing income of the poor and creating jobs and educational opportunities for poor people. These objectives are consistent with Goal 1.A, Goal 4.4 and Goal 10.1 of SDG_s. However, different from Goal 1.A, Goal 4.4

of SDG_s, the ecological compensation policy of Hainan is not specifically designed for poverty alleviation and education, thus the lack of specific targets. Therefore, the ecological compensation policy of Hainan Province is partially consistent with the above-mentioned SDG_s.

The ecological compensation policy of Hainan maintains important ecosystems mainly in the following aspects:

Forest ecosystem conservation

The Implementation Opinion clearly states



that more rigorous protection of forests will be implemented. In addition, the Implementation Opinion also stipulates that “provincial financial compensation funds for ecological conservation will be increased year by year”, and part of the funds will be used for maintenance of forest ecosystem in Hainan. This is fully in line with Goal 15b of SDG_s and Article 5 of the Paris Agreement (Parties are encouraged to take action to implement and support, including through results-based payments, the existing framework as set out in related guidance and decisions already agreed under the Convention for: policy approaches and positive incentives for activities relating to reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries; and alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests while reaffirming the importance of incentivizing, as appropriate, non-carbon benefits associated with such approaches.)

Protection of water sources and water conservation capacity

The Implementation Opinion puts water environment quality and water source protection at the center, partially consistent with Goal 6.1 and Goal 6.3 of SDG_s as it made no mention of ways to improve water quality nor fair access to drinking water.

Biodiversity conservation

The Implementation Opinion clearly states that ecological compensation funds for the central mountainous areas will prioritize biodiversity conservation. This is fully consistent with Goal 15.a of SDG_s.

To compensate for the loss of opportunity cost from ecological conservation in cities and counties in the central mountainous areas, and to promote green transformation in these areas, the Implementation Opinion states that “a unified and standard compensation mechanism for water basin ecological conservation will be established to improve water environment quality, promote green development of underdeveloped areas in the upper reaches, and strengthen horizontal incentive compensation.” A large number of nature reserves, drinking water sources, national parks, forest parks and ecological conservation red line areas in the central mountainous areas dictate that a huge amount of ecological compensation will be allocated to these areas. This is consistent with Goal 10.4 of SDG_s.

The objective of promoting green development of cities and counties in the ecological compensation policy of Hainan is consistent with Goal 10 of SDG_s.

Green development of cities and counties, especially those in coastal areas, is one of the key objectives of ecological compensation in Hainan. The Implementation Opinion clarified objectives for coastal areas to continuously optimize industrial structure, build environmental infrastructure, save energy and cut emission. This is partially consistent with Goal 8.2 and Goal 9.4 of



SDG_s, as there is no mention of economic productivity improvement nor infrastructure upgrading in Hainan's policy objective.

3.2.2 Hainan uses various means to achieve the objectives of ecological compensation policy

The assessment shows that Hainan mainly adopted three policy tools in promoting ecological compensation:

Legal means. Hainan will issue the Regulations of Hainan Province on Ecological Compensation before the end of 2020, which will stipulate the basic principles, main fields and methods for ecological compensation, as well as rights and obligations of relevant stakeholders and the protection of those. Issuance of the Regulation will make the implementation of ecological compensation policy by Hainan provincial government fully legitimate, push local governments to establish ecological compensation mechanisms accordingly, and increase compensation for ecological conservation.

Economic means. Hainan provincial government makes transfer payments to municipal and county governments for protecting ecological environment and improving people's wellbeing in protected ecological areas. An assessment system for ecological environment quality in counties included in key national ecological functional areas has been established, the result of which will be tied to the amount of transfer payment funds. Hainan directly hands out subsidies to villagers as an incentive to improve their

awareness of protecting the forest ecosystem. Meanwhile, Sanya has employed a large number of poor villagers as forest rangers and provided subsidies to them in the form of wages.

Administrative regulation. Hainan Province has issued several policies such as the Implementation Opinion of Hainan Provincial People's Government on Improving the Ecological Compensation Mechanism and Implementation Plan of Hainan Province on Compensation for Horizontal Ecological Protection in the Upper and Lower Reaches of the River Basins in the Province (Trial), and carried out performance appraisal for utilization of ecological compensation funds, fund audit for ecological conservation projects, and assessment of differences in ecological conservation, to constantly improve the ecological compensation system and implement the ecological compensation mechanism.

Apart from these various means, governments at all levels in Hainan have taken different measures to increase public financial input at provincial level to ecological protection compensation, to make ecological compensation policies more law and regulation-based and to ensure the implementation of such policies through legal means. Market-based and socialized operation models for ecological conservation have been explored with enterprises and individuals playing an important part.

More transfer payment has been made to key ecological functional areas. From



2013 to 2017, Hainan Province has invested 7.745 billion yuan in transfer payments in key ecological functional areas, an increase of 261%, among which 6.675 billion is from the central government and 1.07 billion from the province. Meanwhile, Hainan has set aside special “subsidy funds” for the central areas where ecological and environmental protection is a tough task and poverty a severe problem, to protect the forest ecosystem in the central mountainous areas and enhance its water conservation capacity. In 2018, the subsidy funds for the four central cities and counties reached 500 million yuan, taking up 25% of the subsidy from central government in that year.

More compensation for the forest ecosystem has been made. In 2006, Hainan took the national lead in establishing provincial compensation fund for the ecological benefits of forests, compensating farmers whose work and life were affected by mountain closure and forest protection with ecological funds. Over the past decade, Hainan has continuously increased its investment in forest ecological compensation and elevated the standards for compensation. To regulate the management and protection of NCFs, Hainan has set up a professional management center for NCFs to be responsible for the guidance and supervision of the management and protection of NCFs in the province. The government purchases services to set up management and protection positions (forest rangers) in the nature reserves to ensure full coverage.

The compensation mechanism for horizontal

ecological conservation in the upper and lower reaches of river basins has taken shape. Currently, 13 pilot cities and counties in Hainan carry out quarterly and annual assessments on water quality of the pilot section. Compensation between municipal and county governments will be “settled quarterly and at year-end” according to assessment results and compensation agreement. If water quality at the section reaches the quarterly assessment target, upstream municipal and county governments shall compensate their upstream counterparts. If not up to the target, the compensation will be made the other way around. The provincial government will reward upstream cities and counties that meet the standards according to annual assessment results.

Many counties and cities have provided direct subsidy for ecological benefits. The municipal and county governments will directly give subsidies to farmers living in ecological core areas and ecologically sensitive areas according to the area of NCFs or headcounts.

Efforts have been made to explore marine ecological compensation policy. Starting from 2015, Hainan has included marine nature reserves and special marine reserves to be covered by transfer payment method of cities and counties in ecological functional areas, so as to verify the general transfer payment funds of each city and county.

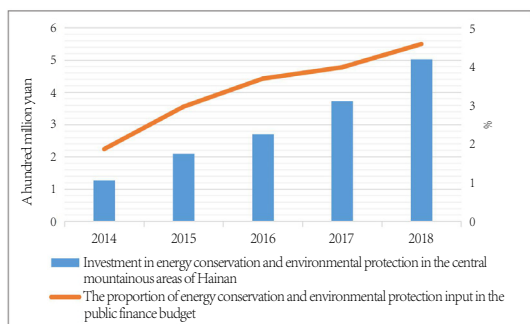
3.2.3 The ecological compensation policy of Hainan has achieved wide-ranging results



The main responsibility of local government for ecological conservation has been strengthened. Hainan provincial government has enhanced the responsibility of lower level governments as the main bodies for environmental protection through various means and has provided strong policy support and stable financial channels for them to carry out ecological conservation. Over the years of ecological compensation implementation, governments have continuously enhanced their understanding and awareness of ecological compensation, and increased input in this regard. For example, the central mountainous areas of Hainan (Wuzhishan City, Qiongzong County, Baoting County, Baisha County) have been expanding investment in energy conservation and environmental protection in recent years (Figure 2), with total amount going up by three times from 127 million yuan in 2014 to 500 million yuan in 2018, taking up 4.58% of public budget in 2018 compared with only 1.86% in 2014.

Mountain residents have been motivated to change production and life toward more sustainable ways. The ecological compensation policy has to some extent helped to transform the lifestyle of some mountain residents living on the mountains, and stop wrong practices such as deforestation, farmland reclamation from forests and burning mountains for hunting. Take Qiongzong Li and Miao Autonomous County as an example. The county was previously a key national county for poverty alleviation where people lived on hunting and cut down trees as firewood. Qiongzong County has in recent years vigorously promoted ecological compensation mechanisms to improve farmers' awareness of ecological conservation. Subsidies have been granted to poor households, the under-forest economy has been developed, ecological industries like bee keeping and pheasant farming have been fostered, and ecotourism has been promoted with the number of visits soaring from 220,500 in 2012 to 1.54 million in 2018.

■ **Figure 2. Changes in investment in energy conservation and environmental protection in the central region of Hainan Province**



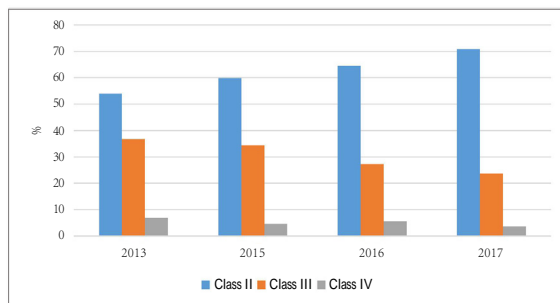
Data source: Statistical Yearbook of Hainan Province

Improvement in ecological environment quality ecosystem management capability. The implementation of ecological compensation policy has improved environmental quality, and management and monitoring capability of Hainan Province in recent years. In the past five years, the proportion of class II surface water in Hainan Province has been increasing, from 54% in 2013 to 70.9% in 2017; the proportion of water superior to class III surface water has increased from 90.8% in 2013 to 94.6% in



2017. The implementation of this policy has also improved the capability of cities and counties in environmental monitoring, laying a foundation for precision management of ecological environment in Hainan Province.

■ **Figure 3. Change of surface water quality in Hainan Province**

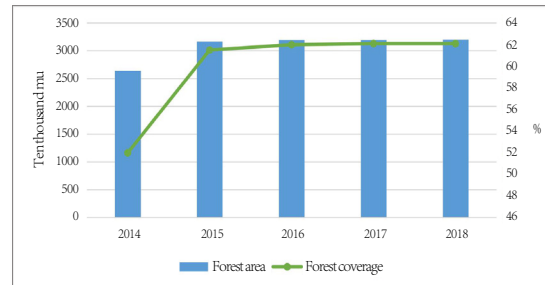


Data source: Official report on environment in Hainan

A Steady increase of forest coverage. During implementation of the ecological compensation policy, forest coverage in Hainan Province has been increasing. Starting from 2013, NCFs in Hainan has been under effective management and control, and the ecosystem service function of the NCFs has been improving year by year, thanks to the compensation fund for forest ecological benefits. From 2014 to 2018, forest area in Hainan has been expanding. On top of this, Hainan has continued to set up files for NCFs, conduct background survey and management file formulation pilots of the NCFs in Baoting. Results from the survey have been used as basic files, with database and graphic library subsequently added to form a system. Experience gained from this practice has been promoted across the whole

province, thus making management of NCFs files more regulated and science based.

■ **Figure 4. Changes in forest area and forest coverage in Hainan Province**

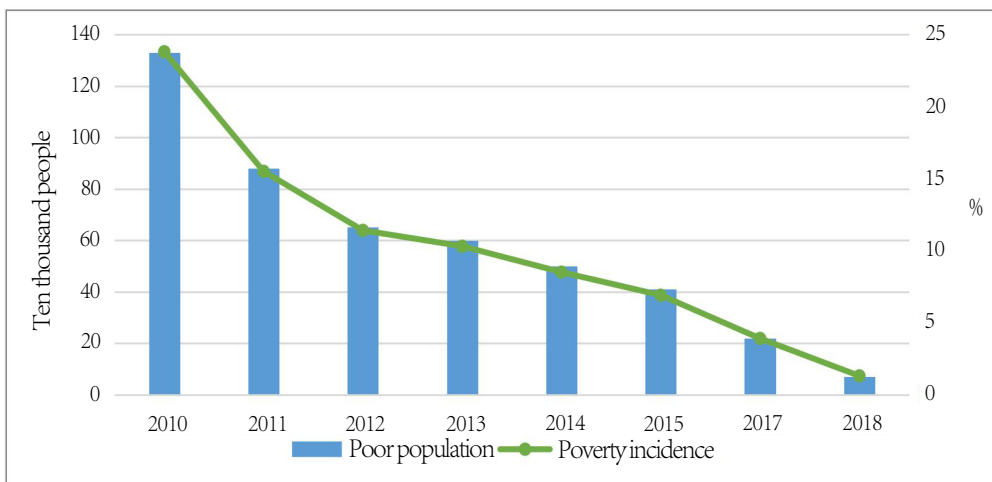


Data source: Statistical Yearbook of Hainan

Remarkable progress has been made in poverty reduction and poverty alleviation through ecological means. Implementation of the ecological compensation policy has to some extent helped to reduce the number of poor people in Hainan. Hainan has directly handed out subsidies for ecological benefits to the villagers in poor areas and employed a large number of poor people as forest rangers to lift more people out of poverty. Meanwhile, poverty indicator has been included in the assessment system for ecological transfer payment, and more resources have been invested in cities and counties in poverty-stricken areas. As a result, the past decade has seen significant shrinkage of poor population in Hainan. Regional gaps are narrowing, social equity and the right to development of residents in ecological protection zones are effectively guaranteed.



■ Figure 5. Changes of the number of poor people in Hainan Province



Data source: Hainan Survey Unit of National Bureau of Statistics





4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Main Conclusions

4.1.1 Conclusions to Assessment of Hainan Ecological Compensation Policy

The ecological compensation policy of Hainan Province is highly operable. Hainan plans to issue Regulations of Hainan Province on Ecological Compensation by the end of 2020 to make the ecological compensation policy law based. Departments at all levels make specific implementation plans based on their responsibilities to break down the task. Government public finance will ensure the implementation and annual ecological compensation funds will increase by 15% of the expected increase of local general public budget revenue at the beginning of each year. A set of indicators has been developed to assess the use of funds regularly, and a performance appraisal mechanism is also in place. This is strongly operable.

The ecological compensation policy of Hainan Province is highly inclusive. The ecological compensation policy of Hainan pursues environmental benefits and also social equity. It takes into consideration the needs of industries for green transformation, and brings together environmental, economic and social benefits, showing strong inclusiveness. For counties and cities in the central mountainous areas, ecological compensation funds are mainly used for natural forest protection, biodiversity conservation and ecological migration. For counties and cities on the east coast, the funds

will be mainly used for protection of marine nature reserve and coastal forests, coastal pollution control and ecological restoration, treatment of pollution from areca processing industry as well as other coastal protection and pollution control work. For counties and cities on the west coast, the funds will be mainly used for energy conservation and emission reduction, industrial structure optimization and upgrading, environmental infrastructure construction and other related work.

The ecological compensation policy of Hainan Province is highly compatible. The ecological compensation policy of Hainan Province can be implemented together with other policies for complementary and mutually reinforcing effects. This has been positive in promoting coordinated regional development, targeted poverty alleviation, energy conservation and emission reduction in Hainan. In policy documents aimed to facilitate coordinated regional development such as the Implementation Opinions on Establishing a More Effective Mechanism for Coordinated Regional Development, ecological compensation is listed as an important policy means. At the same time, the objectives of this policy are highly consistent with the SDGs and relevant goals in the Paris Agreement.

4.1.2 Conclusions on the Applicability of the Guidance in China

The Guidance applies to the assessment



of green economy policy in China. The Guidance has been very instructive in the assessment of the pilot. It reviewed the achievements of Hainan in implementing ecological compensation from the perspectives of policy process, policy design and policy effect, and made suggestions on problems in ecological compensation in Hainan. For green economy policies that have been issued in China, retrospective assessment can be conducted by third parties by using the methods in the Guidance. This helps sort out the effectiveness problems in policy design and implementation, and policy makers can be better informed of all relevant information on policy formulation to make the policies more effective. For green economy policies that are under development, forward-looking assessment guided by the Guidance can make the policies more consistent with SDGs and the Paris Agreement, and help policy makers to analyze possible challenges in policy implementation and build consensus.

The Guidance helps to strengthen international exchange and sharing on green economy policies. The Guidance has assessed the whole policy cycle from policy design to implementation, displayed in full the issuance of policy, policy considerations and effect of implementation. Assessment of policy consistency with international policy frameworks has been included, another example of the contribution of green economy policies on international policy objectives. To assess China's green economy policies with methods in the

Guidance can better compare China's green economy policies with international ones and demonstrate to the world China's efforts in sustainable development.

4.2 Recommendations

4.2.1 Recommendations for the ecological compensation policy of Hainan

The ecological compensation system should be further strengthened by law and policy. Hainan should issue regulations on ecological conservation compensation to make clear the principles, fields, objects, standards, procedures, sources of funds, assessment mechanisms, accountability, rights and obligations of the main body, to build a complete legal framework and provide sound institutional support for the standard implementation of ecological compensation. The timetable, roadmap and main tasks for implementation of ecological compensation for national parks should be clearly defined by the system. Permanent residents within the national parks should be prioritized in providing multi-channel and multi-form ecological compensation based on the types of ecological resources there.

Diverse and market-based compensation methods should be further improved. Diverse compensation methods can be developed by making full use of economic and legal means. Consultation platforms can be built to support policy and to encourage voluntary consultation among development areas, beneficiary areas and ecological protection areas, upstream and downstream areas of river basins to establish horizontal



compensation. Approaches like subsidy, counterpart cooperation, industrial transfer, talent training, co-construction of industrial parks can be applied to the implementation of horizontal ecological compensation. Compensations such as carbon sink trading, emission trading, water rights trading and eco-product service signs can be good choices. And other market-based models should be explored to broaden the channels of funds.

Monitoring and management of data from the ecological compensation policy assessment should be strengthened.

Monitoring capability should be further developed; automatic monitoring network for key ecological functional areas, forests and water basins should be improved; an indicator system for monitoring and assessment should be developed and improved; It is necessary to improve the ecological monitoring mechanism, regulate monitoring methods, improve the monitoring indicators, develop a unified monitoring network with intelligent and standard monitoring technologies to form a synergy for monitoring, to provide complete, consistent and dynamic monitoring information. A release system for ecological compensation statistics should be gradually put in place to lay a foundation for the assessment of ecological compensation benefits.

All parties in the society should be mobilized to be part of the ecological compensation work. It is recommended to increase publicity and education on ecological compensation, develop an open

and fair compensation process, give full play to the role of media as watchdogs, enhance public awareness and support of ecological compensation, guide all beneficiaries to fulfill their obligations for ecological compensation, and press managers to shoulder their responsibilities of ecological governance.

To be more consistent with international green economy policies. It is recommended to further develop the ecological compensation policy in line with international environmental policy objectives. While formulating ecological compensation policies, it is suggested to prioritize the coordination between policy objectives and objectives of international environmental policies, the SDGs and the Paris Agreement in particular.

4.2.2 Recommendations for the Guidance

The assessment methods and indicators of the Guidance should be improved under the existing framework. The assessments in the Guidance are mostly general and instructive, it is thus suggested to add the introduction and application of substantive and quantifiable assessment methods, to expand the indicator system of the assessment, to offer more targeted assessment guidance and less subjective factors that affect the assessment, and make the assessment more science-based and straightforward. Pilot study and application of the Guidance should be actively promoted. The Guidance includes both standards and flexible policy guidance on green economy and can provide a system analysis framework



and methods for the assessment of green economy policies of countries and regions, especially the emerging economies and countries and regions in transformation. It is very important to identify any weak link in the green economy policies through

assessment so as to improve the policies for better green development. It is recommended to make such improvements through pilots and publish the changes at an early date. Going forward, revisions can be made in light of the development of international practices.





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processes and equipment environmentally encouraged, and corporate environmental information disclosure; the organization of research on green economic development strategies and ecological product policies; the research on environmental policy assessment, environmental performance assessment and environmental audit; the research on ecological environment economic system reform; and undertaking the work of the Secretariat of the Environmental Economics Subociety, Chinese Society for Environmental Sciences.





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