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- Executive Summary -

China's Economy	China's Environmental Crackdown: its Outcomes, Challenges and Future Prospects
<p>This article provides an overview of the evolution of measures relating to the protection of the ecological environment in China in recent years, the challenges of green investing and the outcomes of energy conservation efforts. It looks at trends in environmental auditing and the factors behind the intensification in this trend, points to the limitations and challenges of strengthening environmental administration, reconfirms the central government's policy focus on the development of a circular economy, something that Beijing has long identified as a priority, and examines the policy conditions and feasibility of formulating the measures needed to achieve this and to expand cooperation and environmental business with the rest of the world. It closes with an exploration of the need for and feasibility of further growth in environmental cooperation between China and Japan in the new phase of environmental enforcement.</p>	
News from the China Advisory Department	Introduction to the Hainan Boao Lecheng International Medical Tourism Pilot Zone
<p>While Hainan Island and Boao comprise an area that's known as the "Hawaii of China," these areas have become famous both domestically and internationally as a venue for the Boao Forum for Asia—the Asian version of the Davos Forum. This article will explore the recent trends in the region and will provide an outline of the medical tourism pilot zone built there, along with its purposes, various preferential measures, and future prospects, based on a field study, along with a consideration of business opportunities.</p>	

China's Environmental Crackdown: its Outcomes, Challenges and Future Prospects

"The burden is heavy, the road is long" – China's efforts to transition to a circular economy

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1. Introduction

China was extremely active in the development of ecological and environmental protection policy during the five-year period of its Twelfth Five-year Plan (12th FYP; 2011-2015), though these moves gathered pace in 2013 with the inauguration of Xi Jinping as president, and the effects were significant. The government has continued to promulgate and implement a series of environmental protection plans that have an ever-stronger focus on energy conservation and emissions reductions since the launch of its Thirteenth Five-year Plan (13th FYP) in 2016 (**Table 1**), and the formulation of measures (plans) signaling a move towards a circular economy point to an unmistakable trend in environmental policy. This year, which marks the halfway-point for the 13th FYP, the government has unveiled a number of three-year action plans aimed at winning the environmental protection game and the war against air pollution, and the impact of these environmental measures and progress towards a circular economy is attracting widespread attention.

Table 1: Ecological and Environmental Protection Measures Introduced by China since 2011

No.	Title of Measures, Plans, Circulars, etc.	Issuing organ	Date promulgated
1	12 th FYP Plan for Environmental Protection (2011-2015)	State Council	Dec. 2011
2	Notice of the State Council on Issuing the Work Plan for Greenhouse Gas Emission Control during the 12 th FYP Period	State Council	Jan. 2012
3	12 th FYP Special Development Plan for Blue Sky Project	MOST and MEP	Jul. 2012
4	(Summary Report on) Policy Mechanisms for Meeting the 12th Five-Year Plan Environment and Development Objectives	CCICED	Dec. 2012
5	National 12 th FYP on Ecological Protection	MEP	Jan. 2013
6	Strategy for Developing the Circular Economy and Recent Action Plans	State Council	Jan. 2013
7	Notice regarding the Application of Special Emission Regulations to Air Pollutants	MEP	Feb. 2013
8	Notice regarding the Disclosure of Processes to Reduce Emissions of Major Air Pollutants at Coal-fired Boiler Unit Desulfurization and Denitration Facilities, etc. Nationwide	MEP	Apr. 2013
9	Detailed Regulations for the Greater Beijing-Tianjin-Hebei and Adjacent Regions Air Pollution Control Action Plan	MEP, etc.	Sep. 2013
10	2014-2015 Action Plan on Energy Conservation, Emissions Reduction and Low-Carbon Development	State Council	May 2014
11	Plan to Strengthen Air Pollution Controls in the Energy Industry	NDRC, etc.	Jun. 2014
12	Detailed Regulations on (Trial) Methods for Appraising Progress in the Implementation of the Air Pollution Prevention and Control Action Plan	MEP, etc.	Jul. 2014
13	Governance Plan on Limiting Air Pollution by Key Industries in the Greater Beijing-Tianjin-Hebei and Adjacent Regions	MEP	Jul. 2014
14	Water Pollution Control Action Plan	State Council	Apr. 2015
15	Soil Contamination Control Action Plan	State Council	May 2016
16	Guiding Plan for Circular Development (Draft for Public Opinion)	NDRC	Aug. 2016
17	Work Plan for Greenhouse Gas Emission Control during the 13 th FYP Period	State Council	Oct. 2016
18	National 13 th FYP on Ecological Protection	MEP	Nov. 2016
19	13 th FYP Outline for Scientific and Technological Developments in Environmental Protection (2016-2020)	MEP and MOST	Nov. 2016
20	13 th FYP on Ecological and Environmental Protection (2016-2020)	State Council	Nov. 2016
21	13 th FYP on Energy Conservation	State Council	Jan. 2017

No.	Title of Measures, Plans, Circulars, etc.	Issuing organ	Date promulgated
22	Extended Producer Responsibility Plan	State Council	Mar. 2017
23	Guiding Opinions on Promoting Green Construction of “One Belt, One Road”	MEP, NDRC, etc.	Apr. 2017
24	Plan for Incorporating Ecological and Environmental Protection into the One Belt, One Road Initiative	MEP	May 2017
25	Guiding Action on Circular Development	NDRC, etc.	May 2017
26	Decision of the State Council on Amending the Regulations on Environmental Protection Management for Construction Projects	State Council	Aug. 2017
27	Law on Water Pollution Prevention and Control (amended for the second time on June 27, 2017)	MEP	Jan. 2018
28	Guideline of the State Council to comprehensively enhance ecological and environmental protection and win the battle against pollution of air, water and soil	State Council	Jun. 2018
29	Three-Year Action Plan for Winning the Blue Sky Defense Battle (2018-2020)	State Council	Jul. 2018
30	Three-Year Action Plan for Resolutely Wining the War against Pollution Prevention and Control in Industry and Telecommunications (2018-2020)	MIIT	Jul. 2018

Source: Compiled from various Chinese government websites

Note: This table includes only major plans on environmental protection (with the exclusion of their regional versions) and is not an all-inclusive list of related policy.

The targets for environmental protection in China’s most recent five-year plans (the 12th and 13th) have been particularly stringent and its achievements in this area have also been high (Table 2). It has issued a completely revised version of the Environmental Law (which came into effect in January 2015), a new Environmental Impact Assessment Law (which came into effect in September 2016), and an Environmental Protection Tax Law (which came into effect in January 2018), and for the past two years the central government has been implementing a widely expanded program of environmental audits in its environmental protection campaign, in moves that suggest that China is creating an ever-stronger environmental watchdog. China’s environmental challenges remain deep-rooted and the effects of policy have yet to be fully realized and the government is thought to be seeking to enlighten the public and broadcast its intention of enforcing the new laws through stronger administrative controls.

Table 2: Trends in Key Environmental Performance Indicators in China in the 10th to 13th FYP

KPI	FYP Targets & Achievement		Periods							
			10 th FYP Period (01-05)		11 th FYP Period (06-10)		12 th FYP Period (11-15)		13 th FYP Period (16-20)	
	Target (versus 2000)	Performance (2005)	Target (versus 2005)	Performance (2010)	Target (Versus 2010)	Performance (2015)	Target (Versus 2015)	Performance (2020)		
Sulfur dioxide (SO ₂)	-9.8%	27.8%	-10.0%	-14.3%	-8.0%	-18.0%	-15.0%			
Nitrogen oxide (NO _x)	-	-	-	-	-10.0%	-18.6%	-15.0%			
Chemical oxygen demand (COD)	-10.0%	-2.1%	-10.0%	-10.2%	-8.0%	-8.0%	-10.0%			
Carbon dioxide emissions per unit of GDP	-	-	-	-	-17.0%	-20.0%	-18.0%			
Energy consumption per unit of GDP	-	-	-20.0%	-19.1%	-16.0%	-18.2%	-15.0%			

Source: Compiled from data on the various FYPs posted on Chinese governmental websites.

Note: The blanks indicate parameters for which no results have been achieved to date or commitments that China is expected to either fulfil or possibly even surpass.

This article offers a simple grouping of recent policy on the protection of ecological environment in China and provides an overview of trends in green investing and achievements in the area of energy conservation, which is closely related to environmental policy. It will then look at trends in environmental auditing and the factors underpinning the development of these environmental inspections and point to the limitations and challenges of strengthening environmental administration. Based on this, it goes on to reconfirm moves by the central government to make the transition to a circular economy, something that Beijing has long identified as a priority, examines the policy conditions and feasibility of formulating the measures needed to achieve this and to expand cooperation and environmental business with the rest of the world. It also points to the necessity of learning from prior experience in places like Japan, which has been offered up as a model for the development of a circular economy, in China's push to build the institutions necessary to achieving a circular economy and making this social change a reality, and for steady, long-term efforts through expanded international cooperation and exchange on the environment and more integrated environmental policy, and looks at the need for and feasibility of further growth in environmental cooperation between China and Japan in an era in which environmental enforcement is the "new normal".

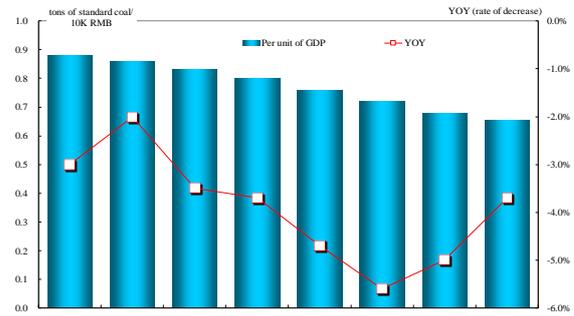
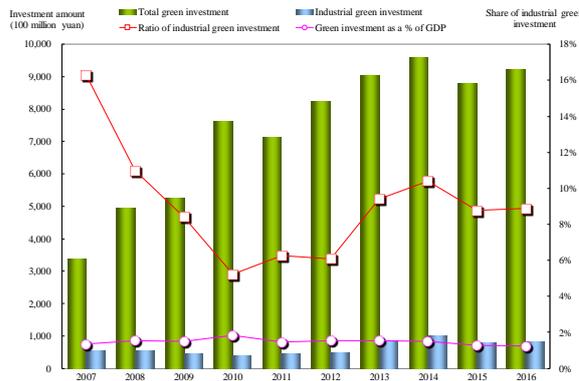
2. The Current Status of Green Investment in China, Moves to Step Up Environmental Auditing and Their Impact

As **Fig. 1** illustrates, green investment in China followed an upward trend for many years, even during the global financial crisis of 2008, though in 2015 it was lower than in the two preceding years and in 2016 it stopped at 2013 levels. Industry's share of green investment has dropped to below 10 percent and came in at around 8 percent in 2015-16. Moreover, green investment continues to account for less than 2 percent of GDP and has fallen even lower since 2015 meaning that the gap between China and the world's advanced economies is growing ever larger ¹. By contrast, China is performing extremely well in terms of energy consumption per unit of GDP, an important indicator of trends in energy conservation, which has decreased consistently in recent years (**Fig. 2**).

¹For comparison, Japan devoted 2.9 percent of GDP to investment in environmental protection (in 1975), Germany 2.8 percent (in 1991), the United States 2.6 percent (in 2003) and the United Kingdom 2.4 percent (in 1990), whilst China, which continues to reinforce its environmental policy, recorded a figure of just 1.53 percent in 2012, and that dropped still further to 1.28 percent in 2016.

Fig. 1: Total green investment in China and trends in industrial green investment

Fig. 2: Trends in energy consumption per unit of GDP in China (2010-2017)



Source: Compiled from China National Bureau of Statistics data.

Source: Compiled from official Chinese government data.

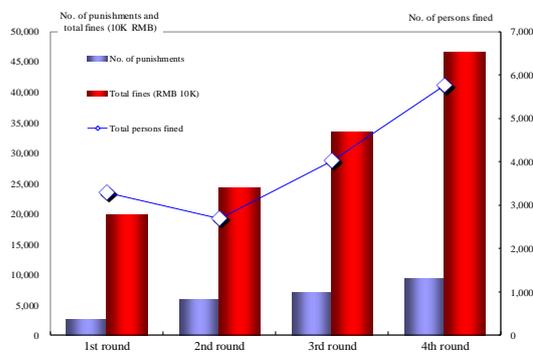
With environmental protection and energy conservation efforts producing both results and challenges, the Chinese government (specifically, the Ministry of Ecology and Environment (MEE), formerly the Ministry of Environmental Protection (MEP)) is strengthening its policing of the environment. It conducted four environmental protection audits² in 2016 and 2017 and launched a second round of environmental inspections in May this year (2018). During the first round, environmental audits were conducted in all of China’s administrative divisions: eight provinces and autonomous regions in July 2016 (Inner Mongolia, Heilongjiang, Jiangsu, Jiangxi, Henan, Guangxi, Yunnan and Ningxia), seven provinces and cities in November of that year (Beijing, Shanghai, Hubei, Guangdong, Chongqing, Shaanxi and Gansu), seven provinces and cities in April 2017 (Tianjin, Shanxi, Liaoning, Anhui, Fujian, Hunan and Guizhou), and eight provinces and autonomous regions in August that year (Jilin, Zhejiang, Shandong, Hainan, Sichuan, Tibet, Qinghai and Xinjiang); a number of environmental inspections were also undertaken by regional environmental protection agencies. **Fig. 3** gives the results of this series of four environmental audits. These data have been widely advertised as the product of these central government environmental audits, though they can also be seen as evidence of the fact that China’s environmental problems remain deeply entrenched. Moreover, the visible success of the audits can be traced to the number of punishments (punishment rate), total fines and the number of persons fined, which essentially form an ascending scale over the course of the four audits, a trend that was particularly marked in the fourth round of audits, which covered China’s western interior. This large-scale exposure of legal violations by companies and managers is being widely referred to and reported as the outcome of environmental inspections, but for companies, the

² The legal basis for these central government environmental audits is primarily drawn from Article 26 (lifelong accountability of top officials for ecological conservation) of the “Opinions of the CPC Central Committee and the State Council on Further Promoting the Development of Ecological Civilization” of April 2015, though they are also said to have their legal grounds in the “(Trial) Plan on Environmental Protection Audits” which was formulated by the Central Leading Group for Comprehensively Deepening Reforms. Moreover, the Environmental Protection Law calls for the establishment of departments of environmental protection administration, and it has been argued that these audits fall within under “Supervision and Administration of National Environmental Protection Activities” jurisdiction.

seizure of equipment, suspension of business, and damage claims represent direct losses and damage.

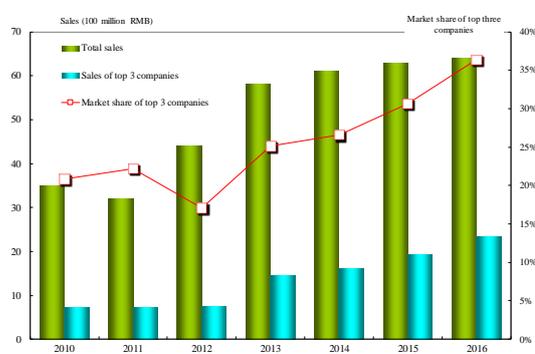
By contrast, there are industries on which the strengthening of the governmental environment audit system is having a positive impact, either directly or indirectly. Environmental monitoring equipment manufacture is a representative example of this. **Fig. 4** plots environmental monitoring equipment sales in recent years and the sales of the top three industry players, and shows that sales have been increasing since 2012, with the expansion in market share of the top three players being particularly conspicuous. Sales of atmospheric measurement devices are also increasing, with China recording growth rates of 18.6 percent in 2015 rising to 41.5 percent in 2016 (**Fig. 5**), which suggests that companies are investing in inhouse environmental countermeasures.

Fig. 3: Trends in the outcomes of China’s four environmental audits and disciplinary action taken



Source: Compiled from the MEE website.

Fig. 4: Environmental monitoring equipment sales and the market share of the three top players



Source: Compiled from data published on the China Environment Report website. Such instruments and equipment include flue gas testing equipment, environmental air purifying equipment, and water quality improving equipment, etc.

Fig. 6, which gives a regional breakdown of environmental measurement equipment sales (in 2016), shows the national capital region (Beijing, Tianjin and Hebei) accounting for the largest portion of sales at 39 percent, followed by the economically advanced provinces of Shandong (11%), Jiangsu (7%), Guangdong (6%), and Zhejiang (5%). The government’s environmental crackdown, primarily against air pollution, has been at its most intense in the national capital region, which explains why this area accounts for close to 40 percent of total sales in environmental measurement equipment. This is also evidenced by the data on ambient concentrations of particulate matter (PM 10, particles with a diameter of 10 microns or less, and PM 2.5, particles with a diameter of 2.5 microns or less) for 113 major Chinese cities presented in **Fig. 7**. The city of Baoding in Hebei has the highest concentration of these two air pollutants, whilst concentration of PM 2.5 particles is particularly high in Zhengzhou, the capital of Henan province. Various major cities in the provinces of Hebei, Henan and Shandong also have high ambient concentrations of these pollutants, and all these cities are located in the Yellow River Basin of North China. Concentrations of both pollutants are also

comparatively high in Beijing, which is also located in North China and there can be no doubt that the decision by a growing number of companies to introduce atmospheric measuring devices is part of efforts to fight air pollution, with the inference being that usage of equipment for monitoring and testing water and soil quality is also on the increase.

Fig. 5: Trends in unit sales of atmospheric measuring devices in recent years

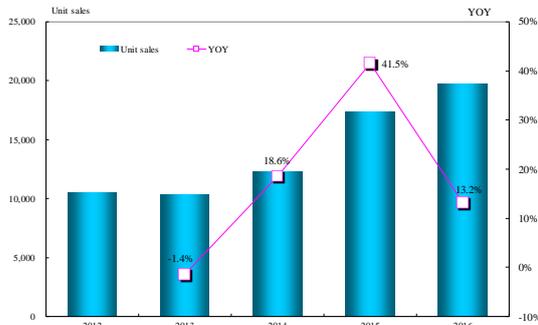
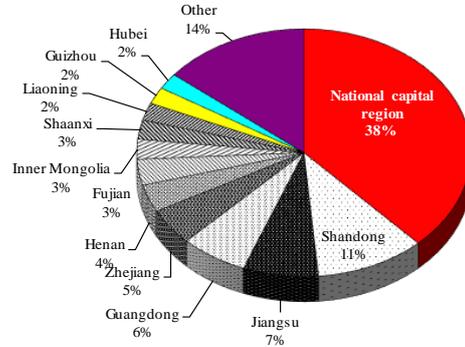


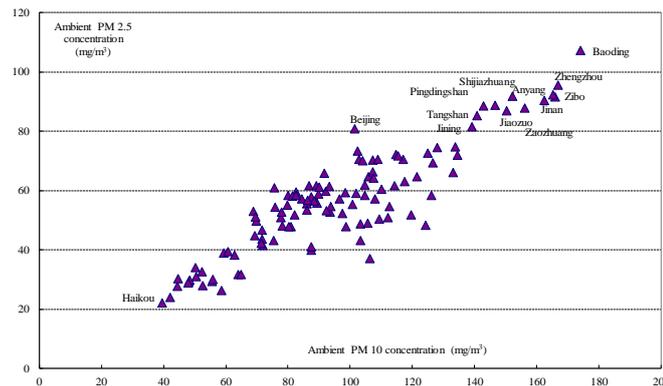
Fig. 6: Regional distribution of environmental measurement equipment sales in China (2016)



Source: As for Figure 4.

Source: As for Figure 4.

Fig. 7: A comparison of spatial distributions of PM 10 and PM 2.5 concentrations in 113 major Chinese cities (2015)



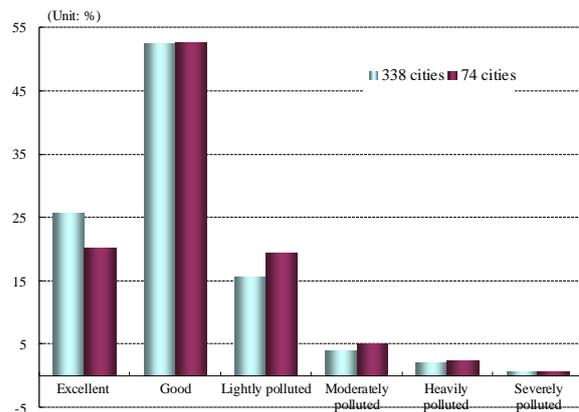
Source: Compiled from the “China Statistical Yearbook of the Tertiary Industry 2016”. The data are average concentrations.

3. The Background to China’s Strengthened Enforcement of Environmental Regulations, its Results and Limitations

Environmental regulations and government audits, which are becoming more stringent by the day, not only evidence the government’s unshakable determination to crackdown on polluters, but also its hope that this campaign against environmental violations will actually raise the level of ecological environment conservation, and whilst its latest environmental crackdown has already achieved considerable results, it would be difficult to assert that this new regime of enforcement has taken root or that there has been any radical improvement in China’s ecological environment, and from a long-term perspective China still has major issues to address.

It will take some time to determine whether the design of China's environmental policy system (which in recent years has involved a top-down approach by the central government that is referred to in China as "top-design") is actually functioning effectively, though there is a need for stronger inter-governmental cooperation, closer ties between central and regional government, and the establishment of a healthy relationship between government and business. Above all, emphasis needs to be placed on the exertion of market functions in addition to the exercise of government functions and the enforcement of administrative authority in promoting a comprehensive environmental policy that gives weight to strengthening the relativity and cooperativity of ecological environment protection and energy conservation and industrial and regional policy, but China still faces serious issues in this area. Currently, Chinese law and policy on the environment is essentially in place – it has somewhere in the region of one thousand environmental laws and regulations including regional versions, but the fact that the environmental authorities have initiated a whole series of nationwide environmental audits argues that this environmental legislation is not being steadily enforced (see China's results on disciplinary action above) and that the ecological environment remains in an unsatisfactory condition. The "2017 State of Ecology and Environment Report", which was released by the Ministry of Ecology and Environment in May this year, shows that there has been no major improvement in air quality to date. For example, of China's 338 prefectural-level municipalities (for which clean air goals have been established), just 99 reached the environmental standards on air quality, which is a mere 29.3 percent of the total. Moreover, in 338 cities the percentage of days of excellent air quality a year is 78 percent on average, which amounts to a 0.8-percent decline on the figure for 2016 (national environmental standards for air quality were exceeded in 22 percent, which is high). **Fig. 8** gives a comparison of air quality in the 74 cities that were established on the basis of new standards in 2017 and the aforementioned 338 prefectural-level municipalities. Fewer cities are classified as having "excellent" air quality than "good"; more cities are classified as "lightly polluted" than "moderately polluted". The comparison of air pollutants by concentration for the 338 municipalities that is given in **Fig. 9**, again shows that there is room for considerable improvement in terms of PM2.5 particles, in particular, but also with sulfur dioxide and nitrogen dioxide pollution.

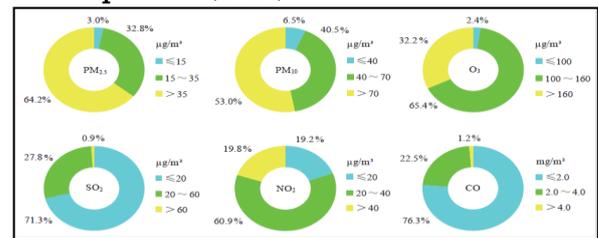
Fig. 8: A comparison of air pollution levels in 338 prefectural-level municipalities and 74 cities (2017)



Source: Excerpted from the MEE “2017 State of Ecology and Environment Report” (May 31, 2017).

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Fig. 9: A comparison of six air pollutants by concentration in 338 prefectural-level municipalities (2017)



Source: Excerpted from the MEE “2017 State of Ecology and Environment Report” (May 31, 2017).

China is now halfway through its 13th FYP, which incorporates the toughest targets on environmental protection to date (Table 3), and it is only natural that, in its bid to ensure that these far-reaching goals for ecological environment protection are fulfilled, the government is beefing up its environmental administration. The government began levying an environmental protection tax and introduced a national carbon emission trading scheme (which requires polluters to purchase emission allowances) at the beginning of this year, and this is being heralded as a major environmental measure (one that places equal emphasis on both government functions and market mechanisms). In May, it began conducting its second large-scale round of environmental audits (the fifth round in total), and in June and July the State Council unveiled a guideline to comprehensively enhance ecological and environmental protection and win the battle against pollution of air, water and soil, and a three-year action plan for cleaner air (2018-2020) to “win the battle for blue skies”, in response to which, the Ministry of Industry and Information Technology (MIIT) issued a “Three-Year Action Plan for Resolutely Wining the War against Pollution Prevention and Control in Industry and Telecommunications (2018-2020)” (see items 28-30 in Table 1): the battle to meet 13th FYP environmental protection goals within the next three years (actually two-and-a-half) is unfolding. The government has broadcast its intention to continue conducting environmental audits and is reported to be pouring its energy into policy mobilization and combining the forces of central and regional administration towards the attainment of ecological environment protection goals by 2020, and these measures are expected to have a significant impact.

Table 3: Major Ecological Environment Protection Goals for the 13th FYP Period

Indicator	2015	2020	[Cumulative total] ¹	Attribute	
Eco-environmental quality					
1. Air quality	% of days of excellent air quality in prefectural-level municipalities and above ²	76.7	>80	-	Binding
	% reduction of PM concentrations in prefectural-level municipalities and above that have not reached PM air quality standards	-	-	[18]	Binding

Indicator		2015	2020	[Cumulative total] ¹	Attribute
	% reduction in the number of days of heavily polluted or worse air quality in prefectural-level municipalities and above	-	-	[25]	Anticipated
2. Water quality	% of surface water at Grade III or above ³	66	>70	-	Binding
	% of surface water at Grade V	9.7	<5	-	Binding
	Water quality compliance rate of key water body function areas (%)	70.8	>80	-	Anticipated
	% of groundwater in “very bad” category	15.7 ⁴	Around 15	-	Anticipated
	% of nearshore water areas of good quality (Grade 1 or 2)	70.5	Around 70	-	Anticipated
3. Soil quality	% of polluted farmland that is “safe for use”	70.6	Around 90	-	Binding
	% of polluted land mass that is “safe for use”	-	90 or above	-	Binding
4. Ecological conditions	Forest coverage rate (%)	21.66	23.04	[1.38]	Binding
	Forest accumulation (100 million cubic meters)	151	165	[14]	Binding
	Wetland holdings (100 million mu)	-	≥8	-	Anticipated
	% of overall grassland coverage	54	56	-	Anticipated
	Ecological environment quality index in districts that are home to key ecological function zones	60.4	>60.4	-	Anticipated
Total pollutant emissions					
5. % reduction in emissions of major pollutants	COD emissions	-	-	[10]	Binding
	Ammonia nitrogen	-	-	[10]	
	Sulfur dioxide	-	-	[15]	
	Nitrogen oxide	-	-	[15]	
6. % reduction in emissions of regional pollutants	Volatile organic compound emissions in key industries in key regions ⁵	-	-	[10]	Anticipated
	Total nitrogen levels in key regions ⁶	-	-	[10]	Anticipated
	Total phosphorus emissions in key regions ⁷	-	-	[10]	
Ecological protection and repair					
7. Protection rate of major national protected wildlife species (%)		-	>95	-	Anticipated
8. Natural shoreline retention rate nationwide (%)		-	≥35	-	Anticipated
9. New desertification land management areas (10,000 square kilometers)		-	-	[10]	Anticipated
10. New soil erosion control areas (10,000 square kilometers)		-	-	[27]	Anticipated

Source: Compiled from the State Council’s 13th Five-Year Plan for the Protection of the Ecological Environment (2016-2020)

Notes:

- 1) Figures in parenthesis are the 5-year cumulative totals.
- 2) The evaluation of air quality covers 338 cities nationwide (including locations in China’s regions, autonomous regions, leagues and some county-level cities under provincial jurisdiction).
- 3) The coverage of the water quality evaluations has been extended from the 972 water areas included in the 12th FYP to 1,940 water areas.
- 4) The figure for 2013.
- 5) The government is promoting total volume control of volatile organic compounds in key regions and key industries, with the goal of reducing emissions by 10 (percent) or more nationwide.
- 6) The aim is to control total nitrogen levels in 56 coastal cities and 29 lakes and dams that are suffering from eutrophication.
- 7) Regulated units of phosphorus content that exceed the standard value and total volume control of phosphorus in upstream areas.

Again, whilst China’s more stringent environmental regulations may well have wide ranging and unprecedented effects, the aim of the government’s environmental policy is more than welcome in that it is striving for sustainable conservation and protection of the ecological environment, and expectations for fair and transparent environmental administration and

the minimization of any impact on economic and industrial growth are only natural. The government is also hoping that its latest campaign will result in more investment in environmental protection (it is estimated that if China can secure at least 2% of GDP per annum in green investment it would result in the growth of an environmental protection industry worth somewhere in the region of 1.5 trillion yuan) and that it will promote the development of an environmental protection industry that includes environmental measurement systems.

4. Prospects for China’s Transition to a Circular Economy and for Further Sino-Japanese Environmental Cooperation (Conclusion)

As the preceding paragraphs demonstrate, in recent years, China has brought what are widely seen as artificial means to bear its bid to protect its ecological environment, enforcing various laws and strengthening its environmental regulations and administration, but these are neither firmly established nor fully autonomous and there is still a possibility that the end results could be transitory and that the burden and impact of this latest campaign on stable industrial development and normal business operations could be excessive. The central government is fully cognizant of these concerns and, from an early date, has been raising the principles of circular economic development and the construction of a circular society such as that seen in Japan, something that is evidenced by the “Guiding Action on Circular Development” (Table 4), a policy measure that was put into action in May last year with goals for 2020.

Table 4: Major policy measures given in the “Guiding Action on Circular Development”

[A] Resource recycling industry expansion	
Promote the recycling of industrial waste	Promote the comprehensive utilization of accessory minerals and tailings. Develop a model for testing the integrated development and use of iron ore, alumina, copper ore, zinc ore, gold mines, tungsten, tin and other minerals with large reserves.
Increase levels of renewable resource recovery and utilization	Finalize the system for the recovery of renewable resources and promote the establishment of a logistics recovery system that utilizes the sales networks of traditional distributors, online sellers, and logistics providers, etc.
Support the industrialization, standardization and upscaling of remanufacturing	Promote the remanufacturing of major commodities. Manage quality and labeling strictly and promote the remanufacturing of auto parts, industrial machinery, large industrial equipment and office equipment, etc.
Establish the systems needed for the recycling of area resources	Draw up a comprehensive plan for the reuse/recycling and construction of detoxification treatment facilities for industrial waste, recycled materials and household waste focusing on city clusters and economic zones in the Greater Beijing-Tianjin-Hebei Region, Yangtze River Delta, Pearl River Delta, Chengdu and Chongqing, and Harbin and Changchun, and build bases for the resource recycling industry that straddle multiple administrative districts.
[B] Strengthen system supply	
Extended producer responsibility system	Implement the “Plan to Promote Extended Producer Responsibility” and start by promoting its enforcement in the fields of electrical and electronic engineering, automobiles, storage batteries and paper beverage packaging.
A system to promote the use of remanufactured commodities and recycled materials	Implement a raw material substitution strategy and encourage producers to increase their rates of recycled materials usage. Issue categorized standards and lists of recycled products and recycled materials, and establish a system for prioritizing public procurement of recycled (remanufactured) products.
Improve the systems limiting the use of disposable consumer goods	Formulate and issue lists of and administrative methods for restricted disposable consumer goods, and administer the listed products by category.
Enhance systems for evaluating the circular economy	Develop a circular economic system that revolves around production rates for major resources and recycling rates for major waste products, and delegate the task of assessing performance on circular economic indicators to regional governments.
Strengthen systems for standardization and	Develop a standard system for the circular economy, finalize ecological product standards, promote circular economic production methods and technical controls in key industries, and

certification of the circular economy	formulate standards for assessing the circular economic performance of industry.
Promote the development of a green trust system	Use “Credit China” and the system for disclosing corporate trustworthiness to publish information on the official approval and licensing of companies, any administrative penalties incurred, and “blacklisting”, etc.
[C] New functions in circular development	
Increase the driving force behind scientific and technological innovation	Support the research and development of shared and core technologies linked to the circular economy to which the conditions of special state measures on science and technology (special plans, funds, etc.) apply.
Develop the shared economy	Reform consumer philosophy, develop a shared economy substantially, optimize share economy supply structures and develop new areas of green consumer guidance, extend product cycles, and increase resource utilization rates.
Increase green consumption	Encourage the consumption of green products, widely promote energy conservation, water conservation, environmental protection, comprehensive resource use, remanufacturing and the use of recycled products.
Reform service systems and methods	Promote the establishment of a third-party service system for resource recycling, foster leading companies, and leverage market mechanism roles.
Support the development of an international resource recycling industry	Realize an open philosophy of development, implement the “One Belt, One Road” strategy, strengthen international exchange relating to circular economic principles, and increase volumes of international trade in core technologies and equipment.

Source: Excerpted from the NDRC’s “Guiding Action on Circular Development” (August 2016).

China has increased its efforts in an acute awareness of the overall impact of environmental policy and is emphasizing both interregional and international cooperation in its bid to achieve circular and sustainable economic development. It will be some time before this policy bears fruit, and policy integration and environmental cooperation are by no means easy to accomplish. Based on Japan’s experience, an awareness of the importance of promoting the development of an environmental protection industry will be critical to China’s success. Japan faced resistance from industry during the period when it was attempting to strengthen its environmental laws and administration, a period when its economy was also in decline, and the government elected to prioritize the development of an environmental assessment system over an environmental crackdown³. Positive responses from industry led the government not only to streamline its systems but also to ensure their effective management, which led to the development of an environmental economy that underpinned environmental protection and environmental business in later years and allowed the government to deal effectively with environmental issues and industrial pollution. Given Japan’s experience, there is undoubtedly a need to promote further environmental cooperation between Japan and China, and the recent improvements in Sino-Japanese relations holds the promise of cooperation between the two nations in areas relating to the environment and for exchanges of ideas on environmental protection and energy conservation toward the realization of circular development in China.

China has also unveiled ten major action plans (Table 5) as the most important and specific actions to come out of the “Guiding Action” (Table 4). Reference is made to numerous pilots and model businesses, and there are many concrete numerical targets, suggesting that the government is seeking to realize powerful policy outcomes. Of particular note are (2) the Action

³ Sachihiko Harashina, “Environmental Assessments Explained: From Response to Strategy”, Iwanami Shinsho 1301 (in Japanese), March 2011.

Plan on Construction of a Circular Economy Model Zone combining Agriculture and Industry, (3) the Action Plan on Construction of a Model Base for the Resource Recycling Industry, (5) the Action Plan on the Internet plus Resource Recycling, (8) the Action Plan on Resource Recycling Innovation, and (10) the Action Plan on Construction of a Pilot Zone for Circular Economic Innovation.

Table 5: The Gist of the Ten Major Action Plans for Promoting Circular Development

1. Action Plan on the Circular Remodeling of Parks	➤ Formulate an “Action Plan for the Circular Remodeling of Parks”, promote the circular remodeling of parks in key areas, provide priority support for the remodeling of 100 parks, 75% of state parks and 50% of provincial-level parks by 2020.
2. Action Plan on Construction of a Circular Economy Model Zone combining Agriculture and Industry	➤ Select regions to serve as bases for major food production, etc., build twenty circular economy model zones combining agriculture and industry, promote the integration of agriculture and other industries with top companies as the base and a priority on agricultural production.
3. Action Plan on Construction of a Model Base for the Resource Recycling Industry	➤ Assign at least 100 provincial-level or higher ranking cities as locations for resource recycling industry model bases, build bases for the treatment of municipal waste, collect and standardize processes for the concentrated recycling of kitchen waste, construction waste, urban sludge, gardening waste, waste textiles, etc.
4. Action Plan on Construction of Bases for the Comprehensive Utilization of Industrial Resources	➤ Build 50 bases for the comprehensive utilization of industrial resources with companies and industries as the base, develop a major pilot project for the comprehensive utilization of industrial resources.
5. Action Plan on the Internet plus Resource Recycling	➤ Issue an “Action Plan on the Internet plus Resource Recycling”, provide support for the construction of an integrated recovery network for the waste collection industry, popularize the “Internet plus waste collection” as a new modality.
6. Action Plan on the Coordinated Development of a Circular Economy in the Greater Beijing-Tianjin-Hebei Area	➤ Integrate planning for the recycling and detoxification and treatment of recycled materials, industrial waste, and household waste in the region, conduct a major region-wide pilot project for the comprehensive utilization and co-development of resources, develop a system for the circular use of resources starting with Beijing and Tianjin, etc.
7. Action Plan on Popularizing Recycled and Remanufactured Products	➤ Build around 30 platforms and test application base of recycled and remanufactured products, select electrical goods and auto manufacturers and spinning companies to utilize recycled materials in the production process.
8. Action Plan on Resource Recycling Innovation	➤ Promote macroeconomic strategies and institutional reforms for the circular economy and research and development on policy mechanisms and major/shared technologies and equipment where there are shortfalls, and promote research into the basic theories of and evaluation systems for resource utilization efficiency and the circular economy.
9. Action Plan on Popularizing Typical Circular Economic Experiences	➤ Synthesize typical experiences of model circular economy experiments and schematics and typical examples of circular economic development in key industries, and introduce and endorse these experiences, etc. throughout society.
10. Action Plan on Construction of a Pilot Zone for Circular Economic Innovation	➤ Select certain regions and industries and promote the construction of pilot zones for circular economic innovation, explore core systems and schematics for the creation of circular economies and popularize these on a nationwide basis.

Source: As for Table 4.

The final pages of the “Guiding Action” call for soundness in the legislative system, harmonization of pricing and tax policy, and the optimization of fiscal and monetary policy as “measures to ensure completion” of the action plans, provide direction on promoting systematic strengthening with respect to the implementation of the action plans, clarify specific areas of responsibility for local government projects and main areas of corporate responsibility, make reference to both society-wide participation in these actions and the strengthening of projects involving international cooperation (with specific reference to the “construction of a model base for a circular economy involving China, Japan and South Korea”).

As discussed above, China’s environmental policy is understood and expected to be focused less on administrative enforcement than on the outcomes of the types of autonomous circular development that are outlined in the “Guiding Action on Circular Development”, and the

government is likely to focus more energy on improving environmental technology and promoting projects that involve international cooperation. Given that China is still putting together the conditions and systems necessary for the construction of a circular society, the transition is likely to be some time in coming, and the cooperation and support of the global community will be critical to its success in this venture. It is also hoped that there will be major developments in Sino-Japanese environmental cooperation ⁴, an area in which major achievements have already been made.

⁴ Yongyu Shao, “Research on Urbanization and Industrialization in China: Spatial and Historical Developments in the face of Resource and Environmental Constraints” (in Japanese), Taka Shuppan, 2012.

Introduction to the Hainan Boao Lecheng International Medical Tourism Pilot Zone

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1. Introduction

The number of Japanese nationals residing in China¹ has slightly declined to 124,162 in 2017 after peaking in 2012 at 150,399, according to the most-recent survey. However, by country, China has remained second in terms of number of residents with Japanese nationality, following the United States, and the figure accounts for nearly 10% of total Japanese nationals overseas. With Shanghai, which has 40,000 Japanese residents, at the top spot, over 6,000 Japanese people live in Beijing, Guangzhou, and Suzhou, respectively. On the other hand, Hainan Province has only 118 residents with Japanese nationality, as of October 2016, and merely nine Japanese companies are operating there.

As for Hainan Island, which makes up the major part of the province, the city of Sanya in the southern part of the island is sometimes referred to as the “Hawaii of China,” and thus the island is widely known as a resort area. However, the Boao Forum for Asia has been held there every year since 2002, as an Asian version of the World Economic Forum’s annual meeting (known as the “Davos Forum”) held in Switzerland every year. For this international event, the island has become a globally known area. On April 13, 2018, Chinese President Xi Jinping gave a speech at a ceremony held in Haikou, Hainan Province, to commemorate the 30th anniversary of the founding of the province and the Hainan Special Economic Zone. In his speech, President Xi Jinping unveiled a plan to set up a free-trade pilot zone and a free-trade port in Hainan Province. In addition, given that a special medical zone was established in Boao, where the Boao Forum for Asia is held, the entire area is growing into a place that attracts attention both domestically and internationally.

Japanese companies are also increasingly focusing on these trends. Amid such a situation, I, the author, had the opportunity to visit the Boao Lecheng International Medical Tourism Pilot Zone, which is being focused on heavily by Hainan Province. In this article, I would like to summarize what I have seen and heard during my visit to the zone.

2. Recent Trends in Hainan Province

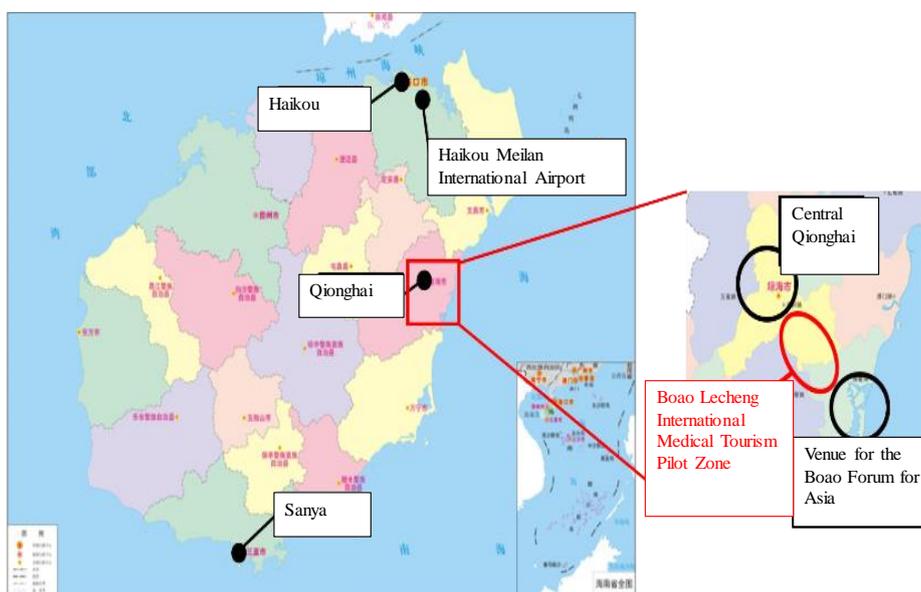
(1) Overview of Hainan Province

Hainan Province consists of Hainan Island, located on the southernmost tip of China, and other surrounding islands, and has a total area of 35,400 km², nearly twice as large as Shikoku Island in Japan, and the province accounts for 0.35% of China’s total land area. Hainan Province has a population of about 9.26 million people. Of them, about 2.27 million people live in Haikou, the capital of the province. Sanya, commonly known as the “Hawaii

¹ Ministry of Foreign Affairs: From the summary of the 2018 Annual Report of Statistics on Japanese Nationals Overseas (as of October 1, 2017)

of China,” is located on the southernmost point of the island, about 300 km from Haikou. These two cities are connected by high-speed railway, taking slightly over two hours. Boao, which became a globally known area, is located on a coastal area about 20 minutes by car from downtown Qionghai, which is an east-coast city located between Sanya and Haikou. Except for the period of the annual forum (usually in April), the city is widely open to tourists as a sightseeing destination.

On the day after President Xi Jinping gave the speech in Hainan on April 13, 2018, the State Council promulgated the “Guideline of the CPC Central Committee and State Council on Supporting Hainan's Comprehensive Deepening of Reform and Opening-Up.” In the guideline, the entire Hainan Island was designated as a China (Hainan) free-trade pilot zone. In addition, a free-trade port will be constructed as a commercial port that is geographically closest to Southeast Asia, while various measures are underway with the full support of the government.



Source: Created by the Global Strategic Advisory Department from the websites of the Hainan and Qionghai provincial governments

(2) Boao Forum for Asia

An international meeting, known as the “Davos Forum,” is held annually in Switzerland to bring together politicians, business leaders, and dignitaries from around the world. As an Asian version of the Davos Forum, a non-profit organization, “Boao Forum for Asia,” was established in February 2001. Since 2002, the Boao Forum for Asia has been held every year in Boao. Among 26 founding member countries are China, Japan, South Korea, Singapore, India, and other Asian countries, as well as Australia. Subsequently, New Zealand, Maldives, and Israel joined, and now a total of 29 countries participate in the forum.

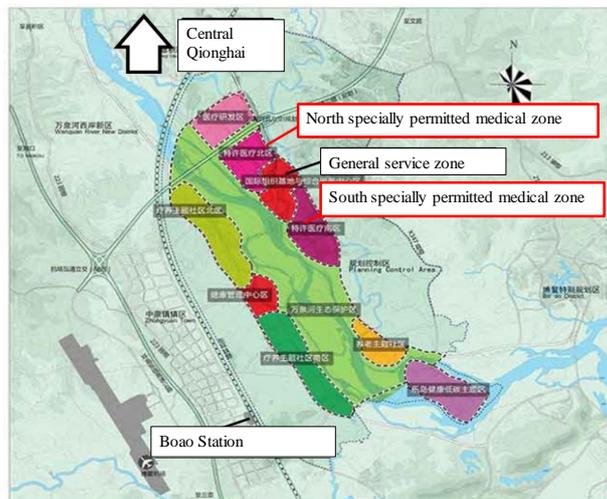
From Japan, former Prime Minister Junichiro Koizumi delivered a keynote speech at the first Boao Forum for Asia in 2002. From 2010 to 2017, former Prime Minister Yasuo Fukuda served as chairman of the board of directors of the forum from 2010 to 2017. Since 2018, former U.N. Secretary General Ban Ki-moon has been

serving as the chairman of the board of directors. Every year, leaders of member countries, managers of large companies, academics of various fields, and high-level dignitaries from the public and business sectors gather to discuss such issues as economic trends, financial policies, and social/environmental issues in Asia and the world. On the sidelines of the forum, top-level talks between countries and between companies are also held. Furthermore, the keynote speech by President Xi Jinping at the Boao Forum for Asia² is said to indicate the subsequent direction of the Chinese economy to the rest of the world. In said keynote speech in 2018, President Xi Jinping emphasized the following four issues: (1) drastic easing of market entry restrictions; (2) creation of attractive investment environments; (3) strengthening of the protection of intellectual property rights; and (4) active expansion of imports. Given this, further market opening-up is expected.

3. About the Boao Lecheng International Medical Tourism Pilot Zone

The Boao Lecheng International Medical Tourism Pilot Zone (hereinafter referred to as the “medical tourism pilot zone”) is a special deregulation zone that obtained an approval reply of the State Council on establishment (Letter No. 33 [2013] of the State Council (Guohan [2013] No.33) in February 2013, in order to promote medical tourism. The medical tourism pilot zone is located on the banks of the Wanquan River, which is close to the venue for the Boao Forum for Asia, in Qionghai, Hainan Province, and has a land area of 20.14 km².

In addition, the abovementioned approval reply includes nine deregulation measures, such as giving preferential treatment to importers of advanced medical equipment devices and medicines and extending the time that foreign doctors can practice medicine in China (see the figure below).



Source: Created by the Global Strategic Advisory Department from the websites of the Boao Lecheng International Medical Tourism Pilot Zone

In February 2015, the Committee of Urban-Rural Rule Development of Hainan Province 海南省城鄉規則建設委員會 promulgated the overall plan for the medical tourism pilot zone for 2014–2030. Since then, a series of

² Outline of the keynote speech at the annual forum in 2018 <http://www.boaoforum.org/2018nhjcsj/38754.jhtml>

development projects have been carried out. The overall plan aims to complete 30 projects by 2020 and 100 by 2030 in the pilot zone while aiming to build the pilot zone into one with a working population of 41,000 people and annual total production of 33 to 50 billion yuan (about 560 to 850 billion yen).

Figure: Purpose of the medical tourism pilot zone and its major policies

Policy item	Outline of policy
Purpose of the medical tourism pilot zone	<ul style="list-style-type: none"> ■ Making use of ecological resources in the area to develop industries relevant to international medical tourism, such as healthcare, services for the elderly, and scientific research ■ Creating a low-carbon, low-emission ecological model and building a platform for domestic and international cooperation and exchange in medical tourism
Nine major incentive policies in the medical tourism pilot zone	<ol style="list-style-type: none"> 1. <u>Speeding up procedures for import registration and approval</u> for medical equipment devices and medicines; <u>applying special approval management rules to medicines unapproved in China; when a small amount of imported medicines is urgently needed in clinical settings, the import of such medicines shall be permitted on the condition that they are used at designated medical institutions.</u> 2. Developing and implementing advanced medical technology research projects, such as clinical studies on stem cells 3. Giving en bloc approval to large medical facilities that are needed when opening private medical institutions and adding new medical departments 4. <u>Extending up to three years the time that foreign doctors can practice medicine in China; creating rules on the employment of foreign doctors and nurses within the medical tourism pilot zone</u> 5. Allowing foreign businesses to establish medical institutions <u>(eliminating restrictions on joint ventures in a phased manner</u> and <u>allowing foreign businesses to establish medical institutions on their own)</u> 6. Lowering tariffs on medical equipment devices and medicines with high tariffs that are needed in the medical tourism pilot zone 7. Expanding construction sites in the medical tourism pilot zone (using agricultural and other land to be considered) 8. Attracting organizations related to ecology, healthcare, new energy, etc., and supporting the holding of international conferences; discussing the founding of an international healthcare tourism organization 9. Encouraging private investment (including funds for long-term management such as insurance funds) in organizations for services for the elderly, medical institutions, etc.
Development goals of the medical tourism pilot zone	<ul style="list-style-type: none"> ■ Making the zone one of the world’s most-excellent destinations for medical tourism and a center for high-level medical workers within about 10 years from now; making the zone an international exchange platform in the healthcare field ■ Increasing the industry size to over 50 billion yuan

Source: Created by the Global Strategic Advisory Department from the websites of the Boao Lecheng International Medical Tourism Pilot Zone and the Hainan provincial government

With the above in mind, I visited a local management committee for the medical tourism pilot zone and other organizations and conducted hearings. An official of the committee said that they have designated the medical tourism pilot zone, eased medical regulations, and launched active measures to attract foreign businesses, etc., so that they can meet domestic needs for medical tourism within China, which have so far been met mainly in Japan and other countries. The official also hoped that Japanese companies will focus on the pilot zone as a destination for the overseas expansion of medical institutions, as purchasers of advanced medical equipment, and as a

destination for medical tourism. There are many medical equipment devices and medicines that are approved overseas but not yet approved in China, while China lags behind foreign countries in terms of medical services. To address the situation, China is likely to appeal to foreign businesses regarding the advantages in using medical equipment devices and medicines that are approved overseas in the zone ahead of other parts of China.

Among the concrete advantages that the pilot zone will offer to foreign companies are: (1) they can import medical equipment devices and medicines even before obtaining an approval in China if they have been clinically tested and approved overseas (Japan); (2) employment regulations for foreign doctors and nurses will be eased; and (3) foreign businesses will be allowed to establish wholly owned medical institutions.

Since the project was announced, 101 letters of intent for investment have been submitted by July 2018, and 71 of these have been formally accepted. Currently, 27 projects are underway. There are nine hospitals in operation, and this article will introduce some of these hospitals.

● Boao Super Hospital

This hospital is operated by Shulan Health 杭州樹蘭醫療集團. In the first phase, it has a project land area of 30 Chinese *mu* (20,000 m²), a building area of 77,000 m², and 150 hospital beds. It is a highly advanced hospital having the two functions of a general hospital and multiple specialized medical institutions (“1+X Method”). Equipped with cutting-edge medical devices and the most-recent medicines, the hospital has 12 specialized medical departments, and its clinical department ranks third in China. The hospital opened on March 31, 2018.



Photo taken from chinanews.com

● Boao International Hospital

This hospital has a project land area of 81.8 Chinese *mu* (55,000 m²), a building area of 65,000 m², and 560 hospital beds. At the same time, a GMP laboratory of 3,000 m² was constructed.

Receiving investment from Boao Chimin International Medical Anti-aging Corporation Limited 博鰲濟民國際醫學抗衰老有限公司, the hospital built an international regenerative medicine research center focusing on genetic medicine and regenerative medicine and established a framework for new medical technologies.



(Taken from chinanews.com)

In cooperation with the Medical College of Fudan University 復旦大學醫學院, Japan's Oda Clinic,³ and the AIMIS (American Institute of Minimally Invasive Surgery 微創(內視鏡)醫學會) of the U.S., etc., eight specialized surgeons renowned overseas are in charge of surgeries.

4. Conclusion

There are no direct flights between Hainan Island and Japan, while the island is less known compared to coastal cities such as Shanghai and Tsingtao and major cities such as Beijing and Guangzhou. However, with the establishment of the free-trade pilot zone and the free-trade port, as well as with government and policy support, there could be sufficient room for Japanese companies to enter the region mainly for trade, particularly because it is China's closest area to Southeast Asia. In addition, in China, when selling and using medical equipment devices and medicines, it is necessary to obtain a certificate and approval based on medical device regulations 醫療器械監督管理條例. However, it is possible to use medical equipment devices and medicines in the medical tourism pilot zone ahead of other parts of China without obtaining a certificate or approval, which prompts expectations for business opportunities. All eyes will be on future deregulation measures and incentives to attract foreign businesses.

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³ Refers to the Ishinkai's (a medical incorporated association) Oda Clinic (<https://www.ishinkai-mc.net/>)