



Implementing the Strategic Action Programme for the South China Sea and Gulf of Thailand (SCS SAP Project)

First Meeting of the Regional Working Group on Land-Based Pollution

Teleconference, 13 December 2022

CHINA REPORT ON NATIONAL EFFORTS AND ACHIEVEMENTS IN IMPLEMENTING SAP AND NAPs FOR LAND-BASED POLLUTION DURING 2008-2021 AND FUTURE PLANS



Country report on efforts and achievements of China in implementing the National Action Plan and Strategic Action Programme on Land-based Pollution during 2008-2021

INTRODUCTION

Recognizing that actions were urgently needed to halt degradation of the environment of this marine basin, the countries of the region sought the assistance of UNEP and the Global Environment Facility (GEF) in preparing a Transboundary Diagnostic Analysis of the issues and problems and their societal root causes as the basis for development of a Strategic Action Programme (SAP). The up-dated Strategic Action Programme was one of the anticipated outputs from the UNEP/GEF Project entitled “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*” (SCS Project), and the document contains the final text as approved by all countries during the 8th meeting of the Project Steering Committee in Hanoi, Viet Nam, August 2008. It was anticipated that the countries would commence implementation of the envisaged actions in 2008/2009 in parallel with the process in seeking further support from GEF for the SAP implementation.

The SAP established a series of objectives and priority costed actions for coastal habitats, land-based pollution management, and the over-exploitation of fish stocks in the South China Sea. In order to implement the SAP, at the regional level, the GEF adopted on November 03, 2016, the project entitled “*Implementing the Strategic Action Programme for the South China Sea and Gulf of Thailand (SCS SAP Project)*”. It was noted that regional actions would contribute to achieving the target through: capacity building for activities at the national and local levels; provision of opportunities in exchange of experiences and good practices among countries in the region; common guidelines and other tools used by countries in management planning and practices; standardisation in regional synthesis and comparison; provision of sound scientific information for management; and encouraging governments at all levels to develop policy related to environment management. It was also emphasised that actions at the national and local levels are critical for success of the SAP targets. National Action Plans (NAPs) were developed in all participating countries and had been, or would be adopted by, governments to meet national priorities and to contribute to regional targets incorporated in the SAP.

As other participating countries, China developed the NAPs for habitat and land-based pollution management during the course of the SCS Project and have conducted a series of activities in implementing the SAP and NAPs since 2008, **combined with implementation of relevant national action plans**. This report provides evidence on proactive contribution of China in implementing the SAP and NAPs on land-based pollution and supports to estimate country co-finance for environment management in the SCS during last decade. The reviews of past activities and outputs would be helpful for seeking the gaps which shall be addressed in implementing the SCS-SAP project in 2022-2024.

NATIONAL ACTIVITIES AND ACHIEVEMENTS DURING 2008-2021 OF CHINA

1/ National policies and laws, and financial mechanism for the management of land- based sources of pollution

As indicated in the SCS SAP Project document, the purpose of the land-based pollution component of the Strategic Action Programme is not to finance interventions that directly reduce the load of contaminants reaching the marine environment from land-based sources but rather the implementation of activities to support the integration of regional science with national-level policy making and planning for the management of land-based pollution. In this connection, key outcomes of component 2 include: effective integration of regional science in the management of land-based pollution; and strengthened and harmonized national policies and laws, and supporting financial mechanism, for the management of land-based sources of pollution.

At the national level, activities will support: reviews of legislative and institutional frameworks for land-based pollution management in participating countries; harmonization of national Standard Operating Procedures for land-based pollution control and management, including agreed sediment, biota, and water quality criteria; revision of national/provincial policies; development, enactment and implementation of supporting regulations for land-based pollution; and the updating and adoption of National Investment Plans for land-based pollution management in the SCS.

Although regional activities had not been conducted due to the delay in implementing the SAP with GEF support, the participating countries implemented their NAPs during 2008-2021, combined with implementation of relevant national action plans. Table 1 below presents national efforts in improving national policies and laws, and financial mechanism for the management of land-based sources of pollution in China.

Table 1. National efforts in improving national policies and laws, and financial mechanism for the management of land-based sources of pollution in [China]

Baselines in 2008	Regional Outputs	Achievements during 2008-2021
<p>Lesson learned in community-based wastewater mgmt. in Batam, Indonesia documented and shared regionally although other examples from East Asian seas region largely focus on broad scale ICM planning</p>	<p>2.3.1 National best practices in waste water management, law enforcement, and community and industry participation in managing land-based sources of pollution documented and shared</p>	<p><i>Integrated management practices on land-based pollution</i></p> <ol style="list-style-type: none"> 1. Maozhou River Watershed Management Practice in Shenzhen, Guangdong; 2. Integrated water environment treatment of Lianjiang River in Guangdong; 3. Integrated Qing'ao Bay watershed management practice, Shantou, Guangdong; 4. Integrated watershed management practice in Qinjiang River, Guangxi; 5. Wuyuan River Watershed management practice in Haikou, Hainan. <p><i>Best aquacultural /agiculture management practices</i></p> <ol style="list-style-type: none"> 6. The mariculture tail water treatment in high level ponds of Zhanjiang city, Guangdong; 7. Technical Guidance for Rural domestic sewage treatment. <p><i>Ecological restoration practice</i></p> <ol style="list-style-type: none"> 8. Technical Guidance for ecological restoration of river and lake buffer zone. <p><i>Best available techniques for industrial pollution control</i></p> <ol style="list-style-type: none"> 9. Guideline on available techniques of pollution prevention and control for textile industry, 2021; 10. Guideline on available techniques of pollution prevention and control for automotive industry;2021; 11. Guideline on available techniques of pollution prevention and control for paint and ink industry,2021; 12. Guideline on available techniques of pollution prevention and control for paint and ink industry, 2020.
<p>Effectiveness of existing legal and institutional frameworks limited by predominantly</p>	<p>2.3.2 Review of legislative and institutional frameworks for land-based pollution management in participating countries</p>	<p><i>National legislations:</i></p> <ol style="list-style-type: none"> 1. Environmental Protection Law, revised in 2014 2. Water Pollution Control Law, amended in 2017 3. Marine Environmental Protection Law, amended in 2017 4. Solid Waste Pollution Prevention and Control Law, amended in 2020

single sector approaches		<p>5. Environmental Impact Assessment Law , amended in 2018</p> <p>6. Wetland Protection Law , December 2021</p> <p>Provincial regulations</p> <p>7. Regulations on the Prevention and Control of Water Pollution in Guangdong Province, amended in 2021</p> <p>8. Regulations on the Prevention and Control of Water Pollution in Guangxi Zhuang Autonomous Region, 2020</p> <p>9. Regulations on the Prevention and Control of Water Pollution in Hainan Province, 2017</p>
Lack of Standard Operating Procedures for land-based pollution management	2.3.3 Harmonized national Standard Operating Procedures for land-based pollution control and management [including agreed sediment, biota, & water quality criteria]	<p>Technical SOPs for sea water quality management</p> <p>1. Sea Water Quality Standards (GB 3097-1997), 1997.</p> <p>2. Technical specification for offshore environmental monitoring (HJ442-2020), 2020. Including: Part 1 general rule, Part 2 data processing and information management, Part 3 offshore seawater quality monitoring, Part 4 offshore sediment monitoring, Part 5 biological quality monitoring, Part 6 offshore biological monitoring, Part 7 sea-going rivers monitoring, Part 8 monitoring for pollution sources directly discharged into sea and its impact on offshore water environment, Part 9 emergency monitoring and special subject monitoring, Part 10 evaluation and report.</p> <p>Technical SOPs for land-based pollution control and management</p> <p>3. Technical guideline for the development of water pollutant discharge standards in watersheds, 2020;</p> <p>4. Manual for produced pollutant and discharged pollutant coefficient of National Survey of Pollution sources of China, 2020.</p> <p>5. 38 Industrial Discharge standards of water pollutant such as electronic industry, 2008-2021</p> <p>Administrative SOPs</p> <p>7. Technical guideline for three-level inspection of sewage outfalls into environmental water bodies, 2021</p> <p>8. Standard for conservation effectiveness assessment of ecology and environment in nature reserve (on trial), 2021.</p>
Absence of clear and effective policies, laws, and regulations relating to control of land-based pollution	2.3.4 Revised national/provincial policies and supporting regulations for land-based pollution developed, enacted and implemented by Yr 5	<p>National policy framework:</p> <p>1. The implementation plan of the pollutant discharge permit system, 2016</p> <p>2. The Action Plan for Controlling Water Pollution, 2015</p> <p>3. The 13th Five-Year Plan for Constructing Wastewater Treatment Systems and Recycled Water Re-use Facilities in Urban and Rural Cities, 2016</p> <p>4. Three-Year Action Plan for Improving Efficiency of Urban Sewage Treatment (2019-2021), 2019</p>

		<ol style="list-style-type: none"> 5. National Programme for the Prevention and Control of Pollution in coastal sea area, 2017 6. Implementation plan of agricultural diffuse pollution prevention and control, 2015 7. Action plan for agricultural and rural pollution treatment and control, 2018 8. the Multiple Opinions Concerning Advancing Green Growth in Aquaculture, 2019. <p>Provincial policy framework:</p> <ol style="list-style-type: none"> 9. Implementation Plan of Water Pollution Prevention and Control in Guangdong Province, 2015 10. Implementation Plan for coastal water pollution Prevention and Control in Guangdong Province, 2018 11. Three-Year Action Plan for Improving Efficiency of Urban Sewage Treatment in Guangdong Province (2019-2021), 2019 12. Implementation Plan of Water Pollution Prevention and Control in Guangxi Zhuang Autonomous Region, 2015 13. Three-Year Action Plan for Improving Efficiency of Urban Sewage Treatment in Guangxi Zhuang Autonomous Region, (2019-2021), 2019 14. Implementation Plan of Water Pollution Prevention and Control in Hainan Province, 2015 15. Three-Year Action Plan for Improving Efficiency of Urban Sewage Treatment in Hainan Province (2019-2021), 2019.
<p>Guidelines for assessing the economic impacts of land-based pollution developed but not yet applied as part of benefit-cost analysis of pollution mgmt. in the SCS</p>	<p>2.3.5 Updated and adopted National Investment Plans for land-based pollution management in the SCS [Yr 5]</p>	<p>National and local governments continuously strengthened investment on coastal and marine ecological protection and prevention of pollution from land-based sources in the South China Sea.</p> <p>According to incomplete statistics, the central government invested a total of about 5.5 billion yuan (RMB) in the past five years in Guangdong, Guangxi and Hainan by the means of the special fund for water pollution prevention and control, and fund for Marine ecological protection and restoration, and fund for urban sewage and garbage treatment facilities and sewage network projects (the detail see annex 1).</p>
<p>Lack of sustainable mechanism to finance regional support actions including M&E</p>	<p>2.3.6 Regional financial mechanism for land-based pollution management [Yr 5]</p>	<p>In the long run, national public finance sector transfers together with market -based instruments are the only sustainable source of financing for the environment protection.</p> <p>The central government established special funding mechanisms to support the marine ecological protection, such as the Fund for Water Pollution Prevention and Control, Fund for Key Ecological Protection and Restoration, Funds for Marine</p>

		<p>Ecological Protection and Restoration and Fund for Rural Environmental Improvement, and formulated the regulations for these special funds successively.</p> <p>In China, in addition to public specific funds, market-based instrument mechanisms were set up. For instance, China Public Private partnerships center was established.</p>
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2/ Status in improving water quality in identified hot spots and monitoring stations

The RWG-LbP characterized 17 hot spots and listed 400 monitoring stations in the coastal waters of countries bordering the SCS for the period of 2002 – 2004. The targets for the land-based pollution component are to set and maintain region-wide water quality standards and water quality objectives which will assist in maintaining health of the coastal ecosystems. The specific targets for improving water quality are to meet ASEAN seawater quality (14 parameters) criteria (except pollutants from scientifically identified natural sources, if any) for:

- 90% of monitoring stations in the 17 hot spots characterized by the RWG-LbP between 2002 – 2004;
- 80% of other monitoring stations (more than 400 at that time) in coastal waters of the South China Sea.

The concrete numbers of hot spots and monitoring stations as targeted for implementing the SAP in participating countries are presented in table 2.

Table 2. Targets for improvement of water quality in hot spots and monitoring station of each country

Targets & achievement	Cam	China	Ind	Phi	Thai	Vie
90% of hot spots meet water quality criteria	3	3	3	3	2	3
80% of water monitoring stns meet water quality criteria	6	80	80	7	136	17

Preliminary statistics allow to describe the achievement of China in improving water quality as follows:

- **Number of hot spots meet water quality criteria and % compared with the target:**

The Neilingding of pearl river estuary, Daya bay and Behai coastal water were proposed as hot spots in coastal waters of the South China Sea. The Neilingding of pearl river estuary includes coastal water areas of Guangzhou, Dongguan and Zhongshan, and part of coastal water areas of Shenzhen and Zhuhai. In the Neilingding of pearl river estuary, there are 8 monitoring stations. Among them, in the summer of 2021, 6 stations reached the water quality objectives made by Guangdong authority. In the Daya bay, in the summer of 2021, all the 19 monitoring stations met the excellent water quality (i.e., meet the Class I and Class II seawater quality criteria). In the Behai coastal water, in the summer of 2021, 16 of the 17 monitoring stations met the excellent water quality (i.e., meet the Class I and Class II seawater quality criteria). In summary, in the three hot spots, in the summer of 2021, 41 monitoring stations reached the water quality objective and water quality criteria, accounting for 93.2% of the total number of 44 monitoring stations. 100% reached the target, compared with the target of 90%. The status and trends of these hot spots are as follows:

Neilingding of the Pearl River Estuary

Background and challenge: The Pearl River Delta is an important economic hub of China. With highly concentrated population and economic elements and rapid urbanization, environmental pressure increased continuously. Land-based pollution and artificial cultivation caused eutrophication of seawater¹.

Environmental status and improvement trend: The Neilingding of the Pearl River Estuary was unhealthy from 2004 to 2009, and eutrophication was serious in the ecological monitoring area of the Pearl River estuary in 2009. In 2010, the ecosystem health status of the Pearl River Estuary was improved compared with last year. The Neilingding of the Pearl River Estuary has been in a steady state of sub-health since 2010².

Strategy: The Pearl River Estuary are important strategic areas for high-quality development and important ecological areas for Marine biodiversity conservation in coastal region of China. In November 2021, Chinese government issued a circular on further promoting the nationwide battle to prevent and control pollution with protection of key coastal areas from land based activities including the Pearl River Estuary. In June 2022, Guangdong Province issued the Implementation Plan for the Battle to prevent and control pollution in the Pearl River Estuary. The plan stipulated key target of 73% of the area of the Pearl River Estuary with excellent water quality (Class I and II water quality) by 2025 "and relevant measures and actions. It is expected these measures and actions will contribute to the recovery of a living pearl Estuary.

The Daya Bay

Background and challenge: The Daya Bay is the largest semi-enclosed bay in Guangdong Province, with stable salinity and excellent ecological environment. With rich Marine biodiversity and various aquatic resources, the Daya Bay is a concentrated distribution area of rare and endangered aquatic species and an important aquaculture base in Guangdong Province. In recent years, the frequent occurrence of red tides has brought great challenges to the protection of marine organisms.

Environmental status and improvement trend: In 2021, the seawater quality in the Daya bay was in good condition. In the summer of 2021, all the 19 monitoring stations in the Daya bay met the excellent water quality (i.e., meet the Class I and Class II seawater quality criteria), accounting for 100% of the total number of monitoring stations. In 2009, the seawater quality in the ecological monitoring area of the Daya Bay was in fair condition, and some areas were polluted by petroleum and nutrients. In 2015, the seawater quality was in good condition. The Daya Bay ecosystem has been in sub-health state and basically maintained stable since 2008³.

Strategy: The Marine Function Zoning of Guangdong Province (2011-2020) proposed measures to strictly control the discharge of sewage and land-based pollutants, and strengthen the construction of the Huidong Port Turtle National Nature Reserve and Daya Bay Provincial Aquatic Resources Nature Reserve. In 2021, Huizhou carried out the comprehensive treatment of sewage outfalls such as the Tan'ao River and the Daya Bay, as well as the clean-up and renovation project of offshore mariculture. It is expected these measures will contribute to the improvement of water quality in Daya Bay.

Behai coastal waters

Background and challenge: The Beihai Sea is the most convenient outlet for China's Southwest to connect with ASEAN. The Beihai Sea is rich in marine biodiversity, with typical marine ecosystems such as seagrass beds,

¹ Programme for the Reform and Development of the Pearl River Delta (2008-2020)

² Serial Bulletin s on the Marine Environmental Quality in China and Bulletin s on the Marine Environmental Quality in the Chinses South Sea

³ Serial Reports on the Marine Environmental Quality in China and Reports on the Marine Environmental Quality in the Chinese South Sea

mangroves and coral reefs. Coastal sea water quality is still facing challenges from land-based pollution, such as pollutants from Nanliu River⁴.

Environmental status and improvement trend: In 2021, the seawater quality in the Beihai coastal water was in good condition. In the summer of 2021, 16 of the 17 monitoring stations in the Beihai coastal water meet the excellent water quality (i.e., meet the Class I and Class II seawater quality criteria), accounting for 94.1% of the total number of monitoring stations. From 2016 to 2021, the proportion of excellent offshore stations in Beihai is 90% - 100%. In addition, the density and coverage of seagrass in Beihai seagrass bed increased in 2020 and 2021.

Strategy: In 2019, Beihai authority put forward the comprehensive plan to prevent and control pollutants from entering the sea, strengthen the treatment and control of various pollution sources, and enhanced the construction and renovation of sewage network and the construction of sewage treatment facilities, etc.. The Annual Action Plan of Guangxi Coastal Sea Pollution Prevention and Control defined the target that the proportion of excellent water quality in coastal waters of Beihai City shall be no less than 95.1% in 2022. Eight tasks were put forward, including deepening the control of land-based pollution, promoting the treatment of marine litter, and strengthening marine ecological restoration. It is expected that these measures will help consolidate and improve the quality of the Marine ecological environment in the Beihai Sea.

- **Number of monitoring stations meet water quality criteria and % compared with the target:**

Sea water quality in 2021⁵: in the summer of 2021, 301 of the 377 monitoring stations in the South China Sea met the excellent water quality (i.e., meet the Class I and Class II seawater quality criteria), accounting for 79.8% of the total number of monitoring stations. 100% reached the target, compared with the target of 80%.

In addition, according to the Bulletin on the State of China's Marine Ecological Environment in 2021, in the summer of 2021, the sea area of the South China Sea that does not meet the Class I sea water quality standard was about 11660 square kilometres. Among them, the sea areas of Class II, Class III and Class IV water quality were 5070, 2920 and 890 square kilometres respectively. The sea area with inferior to Class IV water quality was 2780 square kilometres, mainly distributed in the Pearl River estuary.

Improvement trend in the period 2008-2021: with implementation of national marine ecological environment protection policies and measures during the 12th, 13th Five Year Plan, the area of the Chinese South Sea that does not meet the Class I sea water quality standard declined from 13210 square kilometres to 11660 square kilometres in the period 2008-2021. The area of the sea area inferior to the Class IV standard declined from 3730 square kilometres to 2780 square kilometres. The overall status of sea water quality in the Chinese South Sea is getting better and better.

3/ Challenges and lessons learnt in implementing the NAP in China during 2008-2021

Lessons learnt

Since implementation of SAP started in 2008, China had experienced great progress and made great achievement in land-based pollution management. China implemented many activities that contributed to successful achievement of the SAP targets and tasks in the land-based management.

Firstly, completed governance reform of the organizational structure of ecological environment and natural resources: China unveiled a state-level institutional reform of government structure in 2018. The Ministry of environmental protection was changed into the Ministry of Ecology and Environment (referred to hereinafter as "MEE"). MEE absorbed functions originally under multiple former ministries and administrations of the Central

⁴ <http://www.beihai.gov.cn/>

⁵ <http://ep.nmemc.org.cn:8888/Water/>

Government. the relevant functions of marine environment protection were incorporated into MEE to establish the integrated management system of environment protection of land and sea. This institution reform enhances the coastal and marine environment protection including marine environment monitoring and law enforcement.

Secondly, improved law and regulation systems and formulated more than 20 pollutant discharge standards related to land-based pollution control and prevention: 1) The law of water pollution prevention and control was amended in 2017, strengthening water pollution control. Coastal provinces released the regulations of water pollution control and formulated the relevant discharge standards for water pollution. 2) Marine Environmental Protection Law was amended in 2017. This enhanced marine environmental protection against land-based pollution. 3) MEE has been strengthening oversight and supervision of the water pollution control, which promote compliance with laws and regulations.

Thirdly, the goals and tasks of the SAP were integrated into national /local policy framework and action plans for land based pollution control: 1) In 2015, the State Council released the action plan for Water Pollution Prevention and control. The plan included measures for pollution reduction in ten priority industries, sewage treatment in urban and rural areas and ports; industrial restructuring and upgrading; water conservation through water efficiency improvement and technical support; use of market mechanisms; law enforcement; water environment improvement through total pollution load control, environmental risk assessment; safeguard of water security; clarity in roles and responsibilities of all parties; and enhancement of public participation and scrutiny. All provinces, autonomous regions and municipalities also gave their prompt and positive responses with the releases of their provincial implementation plans. In addition, MEE, together with relevant ministries released National Programme for the Prevention and Control of Pollution in coastal sea areas, and Five-year Planning for water pollution prevention and control of key watersheds. 2) The 13th Five-Year Plan for Constructing Wastewater Treatment Systems and Recycled Water Re-use Facilities in Urban and Rural Cities was released in 2016. The plan raised the wastewater treatment rates. 3) Man-made wetlands are encouraged to be used when wastewater treatment plants are built or upgraded. Coastal Guangdong province was among the frontrunners in treating wastewater with manmade wetlands.

Fourthly, Taking an ICARM approach, to implement comprehensive measures. ICARM (integrated coastal area and river basin management) is a process and set of principles that address upstream and downstream users, and terrestrial and aquatic systems, surface and underground water sources, where river management and coastal management are obliged to account for impacts downstream and upstream respectively. On the one hand, from the perspective of river basin management, the watershed pollution prevention and control should be implemented to improve the water quality of rivers and estuaries, for instance, enhanced wastewater treatment facilities (infrastructure). On the other hand, from the perspective of coastal zone management, coastal habitats/ coastlines should be protected and restored. And, aquaculture pollution should be addressed in coastal zone.

Fifthly, established the financing mechanisms to support water pollution control and prevention. In the latest principles for the division of spending responsibilities between the central and sub-national governments, the central government institutionalized a funding arrangement. The central government established special funding mechanisms to support the marine ecological protection, such as the Fund for Water Pollution Prevention and Control, Fund for Key Ecological Protection and Restoration, Funds for Marine Ecological Protection and Restoration and formulated the regulations for these special funds successively. The funding allocation regime is a performance based financing. A clearer separation of spending responsibilities between governments at all levels facilitated the establishment of a fast, efficient, reliable funding mechanism for water pollution treatment. Both the central government and sub-national governments launched favourable policies encouraging private investment in wastewater treatment. Private investors are welcome to engage in wastewater treatment.

Challenges

Firstly, the China's coastal zone bordering the South China Sea has been developing rapidly. For instance, Zhujiang (Pearl) River Delta region are one of China's major centres of fast economic growth. With the region's growing population and economy, it is expected to usher in industrial and urban development. High environmental pressure causing increased contaminant load.

Secondly, there are shortcomings in environmental infrastructure construction such as sewage network and waste treatment facilities in coastal towns and rural areas. Rural villages fall far behind cities and towns in terms of wastewater treatment capacities. In addition, Agricultural non-point source pollution including mariculture pollution has not been effectively controlled.

Thirdly, there are a few of emerging problems and hot issues that the state concerns highly. These issues were not included in the activities of priority sites of the SAP. For example, across the East Asia, including the South China Sea region, concerns about marine plastic pollution are growing. According to scientific research, the benthic fauna, fish and corals in the northern South China Sea are likely to be harmed by plastic pollution. At present, the countries bordering SCS attach an importance to the battle against marine plastic pollution. Some states released the relevant policies or action plans. In view of transboundary nature of marine plastic litter, regional action plan is needed.

Fourthly, capacity building needs to be further strengthened. The application of information technology in the field of Marine ecological environment management is insufficient to support the smart management of coastal and marine environment.

Fifthly, laws, regulations, policies, standards for Marine environmental governance need to be further improved, for example, in some places, Lack of local pollutant discharge standards in mariculture operations.

4/ Brief on coordinating national activities and contributing regional activities in next 2 years, 2023-2024

• Introduction of Specialised Executing Agency on Land-based Pollution in China

The South China Institute of Environmental Sciences (SCIENS) is the executing agency for the South China Sea project and the executing agency for the land-based component. SCIENS was established in 1973, located in Guangzhou, Guangdong Province, and is affiliated by Ministry of Ecology and Environment, engaged in comprehensive environmental science research. Focusing on the three major strategies of scientific research, management support and scientific and technological services, SCIENS has formed four distinctive discipline groups: marine ecology and environment, ecological and environmental management and restoration, ecological and environmental risk and emergency response, and environmental health and chemical risk management. It has CMA and CNAS dual qualification. It has strong capacities in field monitoring, simulation, testing and analysis, technology research and development, and equipment development. Since the 13th Five-Year Plan, SCIENS has won 5 national science and technology awards and more than 20 provincial and ministerial level science and technology awards.

• Outline on National Working Group on Land-based Pollution

The working group is composed of experts and professional technicians in relevant fields from the South China Institute of Environmental Science, Ministry of Ecology and Environment, specializing in environmental pollution prevention and control, water environment simulation, marine chemistry, environmental policy, etc. The working group consists of 8 persons, including 1 researcher, 1 Professor level senior engineer, 3 senior engineers and 3 engineers. In addition, there are also relevant domestic stakeholders such as experts and relevant personnel from local environmental protection bureaus, etc.

- **Nomination of experts for database and modelling for participation in regional activities**

Considering the lack of maturity and consensus for regional database and modelling, the experts should be nominated when the relevant regional activities were determined. For the time being, the Mr. Zhao Xiao as National focal point takes the responsibility for participation in regional activities.

- **Recommendations**

On the one hand, recommendations on the regional activities: the design of regional activities aim to promote the regional cooperation in Protection of sea water quality and prevention of land based pollution. Taking account of the regional and national circumstances, the proposed activities are as follows:

Firstly, connection to international initiatives/ global commitments, e.g. SDG. The activity is an approach that the global commitments are implemented at the regional level. On the other hand, the activity assists nations to fulfill their commitments to international initiatives. In this regard, it is proposed that the activity of SCS Ecological Quality Objective targets aligned (where possible) with SDG indicators including development of regional water quality standards and targets. The activity aims to Establish a regional mechanism for periodic monitoring and assessment of the state of regional sea environment including coastal habitats of the South China Sea. (Connecting to global initiative, e.g. SDG)

Secondly, developing a mechanism for sharing best practices to enhance the capacity building of member states. At regional level, the formats/templates and relevant database are developed. At national level, provision of best practices related to land based pollution management.

On the other hand, recommendations on the national activities: the design of national activities aim to meet the national need to address existing pollution problems. On the other hand, the national activities produce the replicate exercise for the region to share with other nations or contribute to updating TDA/SAP.

Firstly, considering the national needs, it is proposed that Management of water quality to meet objectives/standards in an estuary area with multi information and technology integration. The activity aims to develop a dynamic decision support system for pollution source analysis, pollution control/reduction in the bay watershed to address the effect of land-derived nitrogen loads on estuarine eutrophication and improve the nutrient structure.

Secondly, combined with existing relevant action plans/policies, updating country reports and national action plans on land based pollution, including developing new national/provincial policies and regulations to address land based pollution. The activity aims to reflect the latest national/provincial policies, laws/regulation, measures, and identify the gaps in addressing marine issues in the SCS, put forward the recommendations to updating SAP.

Annex1

Central finance investment (unit: hundred million RMB)

province	fund for water pollution prevention and control						fund for Marine ecological protection and restoration			fund for urban sewage treatment facilities	total
	2017	2018	2019	2020	2021	Subtotal	2020	2021	subtotal	2017	
Guangdong	4.390	3.910	5.400	6.600	4.110	20.020	1.095	2.500	3.595	1.000	24.615
Gungaxi	1.540	0.940	5.090	3.460	3.310	12.800	3.720	-	3.720	1.500	18.020
Hainan	0.449	0.800	0.560	0.880	2.060	4.300	3.257	3.500	6.757	1.200	12.257
	37.12						14.072			3.700	54.892

